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# Chemical Engineering Vocabulary

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## **Chemical Engineering Vocabulary**

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### About the book

The **Chemical Engineering Vocabulary** was written for students and young professionals in chemistry, mechanical engineering, chemical engineering and economics, who have to do with chemical engineering in an academic or industrial setting.

All entries come with a sentence, which shows the application and, in addition, provides a piece of relevant and interesting information. In contrast to common dictionaries, this book does not have trivial entries (e.g. filter/Filter, metal/Metall, vacuum/Vakuum, project/Projekt). Only terms that are relevant for work, 2600, were selected.

After studying these terms from the areas of chemistry, engineering and chemical engineering, supplemented by important entries from neighbouring disciplines such as pharmaceutics, economics, law and safety, the reader will have a solid vocabulary at his/her disposal, so that he/she can communicate in all areas of the process industries in a competent way and make use of the scientific and technical literature efficiently.

**Note:** The second part of this book entitled "**Verfahrenstechnik Wortschatz**" can also be downloaded for free at Bookboon.com.

## Chemical Engineering Vocabulary

a.u. (sci.)

Acronym/Abbreviation referral: see arbitrary units

A/P (econ.)

Acronym/Abbreviation referral: see accounts payable

A/R (econ.)

Acronym/Abbreviation referral: see accounts receivable

abrasive abrasiv; Schleifmittel, das (eng.)

Calcium carbonate can be used as abrasive, for example as "polishing agent"

in toothpaste.

absorbance Absorbanz, die (chem.)

In contrast to absorption, the absorbance A is directly proportional to the concentration of the absorbing species. A is calculated as  $\ln (l_0/l)$  with  $l_0$  being

the initial and I the transmitted light intensity, respectively.

**absorption** Absorption, die (chem.)

The absorption of light is often called attenuation and must not be mixed up with adsorption, an effect at the surface of a solid or liquid. Absorption of liquids

and gases means that they diffuse into a liquid or solid.

abstract Zusammenfassung, die (sci.)

An abstract is a summary of a scientific piece of work.

AC (eng.)

Acronym/Abbreviation referral: see alternating current

academic Akademiker, der; akademisch (sci.)

The Royal Society, which was founded in 1660, was the first academic society.

acceleration Beschleunigung, die (eng.)

In SI units, acceleration is measured in meters/second<sup>2</sup>.

accompanying element Begleitelement, das

(chem.)

After precipitation, the thallium had to be separated from the accompanying elements. TI (atomic number 81) is highly toxic and can be found in rat poisons and insecticides.

accounting Buchhaltung, die

(econ.)

Working in accounting requires paying attention to details.

accounts payable Sch

Schulden, die; Verbindlichkeiten, die

(econ.)

Acronym (engl.): A/P

The controller proposed to delay payment of accounts payable in order to have

enough liquidity for another transaction.

accounts receivable

Außenstände, die; Forderungen, die; Debitorenkonto, das

(econ.)

Acronym (engl.): A/R

The young accountant was working with accounts receivable.

accrual

Abgrenzung, die; Rechnungsabgrenzung, die

(econ.)

Accrual is an accounting concept to allocate expenses and revenue to the correct time. Here is an example: On December 20, 2009, a company delivered a product to a customer who was expected to pay 30 days later. Still, the income was disclosed in the income statement of 2009, although payment would only

be received in the upcoming fiscal year.

acetic acid

Essigsäure, die

(chem.)

The melting point of acetic acid is 16.5°C. The formula of this organic compound

is CH, COOH.

achromatic

farblos, achromatisch

(chem.)

An achromatic lens is used when color abberation needs to be avoided.

acicular

nadelförmig

(chem.)

The MSDS (material safety data sheet) describes wollastonite as an acicular

material.

acid

Säure, die

(chem.)

A superacid is an acid that has a greater acidity than 100% sulfuric acid, such

as fluorosulfuric acid (FSO<sub>3</sub>H).

acid scavenger Säurefänger, der (chem.)

In the rubber industry, acid scavengers are used to neutralize traces of halogen anions (halogenides) which are released during aging and which would otherwise prematurely destroy material performance. Lead oxides and lead salts are very effective acid scavengers in this application, however, they are being phased out

due to environmental concerns.

acid value Säurezahl, die (pharm., chem.)

The acid value is an important quality parameter of biodiesel.

acid-fast säurebeständig (pharm.)

Acid-fast organisms are difficult to characterize using Gram staining.

acidify, to ansäuern (chem.)

The chemist acidified the sample by adding a few drops of prussic acid.

acidulous säuerlich (chem.)

The apple had an acidulous taste.

acme thread Trapezgewinde, das (eng.)

Acme threads can be found in machines that have to bear high loads such as a

lathe or a vice.

acrid beißend, scharf (chem.)

The acrid smoke from the wildfire could be smelled 10 km away.

action level Aktionsschwellenwert, der (chem. eng.)

The action level of formaldehyde was determined as 0.5 ppm.

action limit, Wirkgrenze, die (pharm.)

action level

The action limit of estradiol, a steroid that is derived from cholesterol, was found

to be  $0.04 \mu g/l$  in pigs.

action of a drug Arzneimittelwirkung, die (pharm.)

The action of the drug was not yet fully understood.

activated charcoal, activated carbon

Aktivkohle, die

(chem.)

Activated charcoal (activated carbon) is used for gas purification and sewage

treatment.

activation energy

Aktivierungsenergie, die

(chem.)

The term "activation energy" was introduced in 1889 by Arrhenius. A catalyst changes the transition state to lower the activation energy. A biological catalyst

is called enzyme.

active compound

wirksamer Bestandteil, der

(pharm.)

Generic medicinal products contain the same active compounds as the original

products.

active ingredient

Wirksubstanz, die

(pharm.)

A drug is normally not administered as a pure substance: The typical dosage form of a drug is a mixture of the active ingredient (AI) and at least one excipient,

which is pharmaceutically inert.

Acronym (engl.): AI

active pharmaceutical

(pharm.)

ingredient

Acronym/Abbreviation referral: see active ingredient

Acronym (engl.): API

active substance

Wirkstoff, der

(pharm.)

Acronym (engl.): API, AI

Recent research results suggest that carnosic acid, the active substance in the

herb rosemary is neuroprotective.

actuator

Antrieb, der; Auslöser, der; Aktuator, der; Bedienungselement, das

The actuator did not work properly.

actuator,

Stellantrieb, der

(eng.)

(eng.)

actuating drive,

servo drive

A pneumatic actuator converts energy, typically in the form of compressed air,

into motion, which can be rotary or linear.

acute angle spitzer Winkel, der (eng.)

The word angle comes from the Latin word angulus, which means "corner". An

acute angle measures < 90° (right angle).

addictive drug Suchtmittel, das (pharm.)

A common addictive drug is nicotine. It constitutes approximately 0.6–3.0% of dry weight of tobacco. 1 cigarette yields approx. 1 mg of absorbed nicotine

((S)-3-(1- Methyl-2-pyrrolidinyl)pyridine,  $C_{10}H_{14}N_2$ ).

additive Zusatzstoff, der (chem.)

Plastics often contain slip agents as additives.

adhere, to anhaften (chem.)

The charged particles adhered to the surface.

adhesive Klebemittel, das; Klebstoff, der (chem.)

The company is specialized in the production of adhesives.

adhesive tape Klebestreifen, der (chem.)

Adhesive tape is a convenient tool to fix loose cables.

adiabatic adiabatisch, adiabat (chem.)

In an adiabatic process, no heat is transferred between the working fluid and the surroundings. The other extreme case is an isothermal process, where heat transfer to the surroundings causes the temperature to remain constant.

adipose tissue Fettgewebe, das (med.)

In a severely obese person, excess adipose tissue hanging downward from the

abdomen is referred to as a panniculus (or pannus).

adjacent benachbart (general)

The researcher borrowed a beaker from the adjacent laboratory.

adjust, to justieren, anpassen (general)

The color of the injection moulded part had to be adjusted.

adjusting Stellklappe, die (chem. eng.)

butterfly valve

The adjusting butterfly valve was pneumatically actuated.

adjuvant Hilfsstoff, der (pharm.)

In immunology, an adjuvant, e.g. aluminium salts, is an agent that increases the

response to a vaccine.

**administer, to** verabreichen, verwalten (pharm.)

The medicine was administered orally.

admixture Zusatz, der (chem. eng.)

Ethanol is used as an admixture to gasoline fuel.

adsorption Adsorption, die (chem.)

Soot shows a strong adsorption of unburnt hydrocarbons.

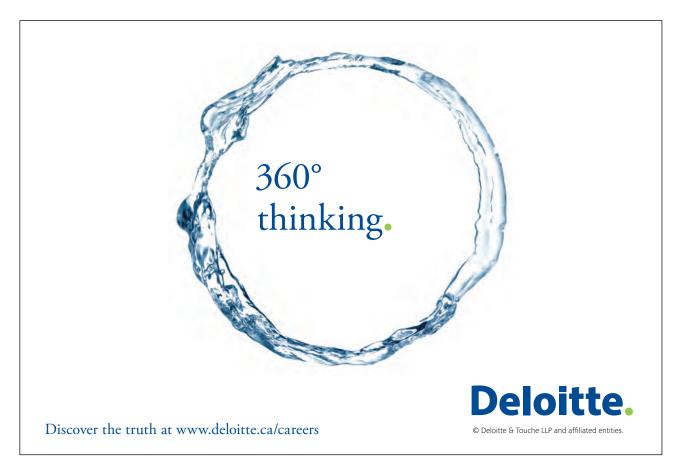
advanced fortgeschritten (general)

Corrosion of the vessel has advanced significantly after changing from tap water

to condensate.

advisory board Aufsichtsrat, der (econ.)

The advisory board insisted on a new strategy.





aerate, to belüften (chem.)

In a waste water purification plant, aeration is an important unit operation.

aeration Belüftung, die; Begasung, die (chem. eng.)

The clarifier was continuously subjected to aeration.

AFS (chem. eng.)

Acronym/Abbreviation referral: see alternative feed stock

ageing Alterung, die (eng.)

aging (AE)

Ageing is a deliberate process by which an artwork such as a painting is made

to look old.

agent Mittel, das (chem.)

The cleaning agent was not very effective.

**agglutination** Verklebung, die; Agglutination, die (pharm.)

Agglutination is the clumping of cells, e.g. bacteria or red blood cells, in the presence of an antibody. The technique is commonly used to identify bacterial

antigens.

**aggravate, to** reizen, ärgern, verschlimmern, verstärken (general)

Persons in ill health where such illness would be aggravated by exposure to 1,3-butadiene should not be allowed to work with or handle this product.

**aggregated** Summen-, aggregiert, Gesamt- (econ.)

The aggregated sales and operations planning for 2009 was finalized in the first

week of December 2008.

aggregated detriment Schadenssummierung, die (econ.)

The aggregated detriment amounted to 1.3 MEUR.

agitate, to umrühren (chem.)

The solution had to be agitated in order to suspend the catalyst particles.

agitator Rührer, der; Mischer, der; Agitator, der (chem. eng.)

An agitator is a mechanism to put something into motion by shaking or stirring.

AI (pharm.)

Acronym/Abbreviation referral: see active ingredient

aileron Querruder, das (eng.)

Ailerons are used to control the movement of aircraft.

ailment Leiden, das (med.)

The source of his ailment was unknown.

air Luft, die (chem.)

The main constituent of air is nitrogen.

air classifier Windsichter, der (chem. eng.)

An air classifier is used to separate materials by size, shape, and density.

It is often used in recycling processes.

air cushion Luftkissen, das (eng.)

A hovercraft (or air cushion vehicle) is an amphibious vehicle.

air draft Zugluft, die (chem.)

The air draft has carried dust into the lab.

air knife Luftrakel, die (eng.)

An air knife is commonly used in strand pelletizing to dry the strands prior to

cutting them into pellets.

air lock Luftschleuse, die; Lufteinschluss, der; Luftverschluss, der; (chem. eng.)

An air lock is gas trapped in a high point of a pipe that is filled with liquid. The gas, which has a lower density than the liquid, rises to the highest point and restricts the flow of that liquid. This air lock can stop the fluid flow completely. Flushing the system with high flow or pressure can help to move the gas away

from the highest point, or a tap can be installed to vent the gas.

airborne in der Luft (eng.)

The Antonov An 225 has a maximum take-off weight of 640 tonnes. It was first

airborne on 21 December 1988 (maiden flight).

airlock Luftschleuse, die; Luke, die (chem. eng.)

Airlocks are used on gloveboxes.

airworthy flugtauglich (eng.)

It is only permitted to fly airworthy aircraft.

aka, a.k.a. (general)

Acronym/Abbreviation referral: see also known as

alara (general)

Acronym/Abbreviation referral: see as low as reasonably achievable

alcaline earth metal Erdalkalimetall, das (chem.)

Calcium belongs to the alcaline earth metals.

alcaline metal Alkalimetall, das (chem.)

Sodium and potassium are two well-known alcaline metals.

alcaline solution Lauge, die (chem.)

An alcaline solution is generally more dangerous for the human eye than an

acid one.

aldehyde Aldehyd, der (chem.)

Fehling's solution is used to differentiate between aldehydes and ketones. Contact

with an aldehyde group causes the precipitation of red Cu<sub>2</sub>O.

align, to ausrichten (eng.)

The engine needs to be aligned with the gearbox in order to prevent damage.

**alignment chart,** Nomogramm, das (chem. eng.)

nomograph,

nomogram, abac

With a pressure-temperature nomograph, boiling points at various pressures

can be estimated quickly.

allergen-desensitising Desensibilisierungsbehandlung, die; (general)

**treatment** Allergendesensibilisierungstherapie, die

allergen-desensitizing treatment (AE)

The man objected an allergen-desensitising treatment.

allow to stand, to absetzen lassen (chem.)

The suspension was allowed to stand for 2 hours.

alloy Legierung, die (eng., chem.)

Chinese silver, an alloy for jewelry, is composed of 58% copper, 17.5% zinc, 11.5% nickel, 11% cobalt, and 2% silver. Brass is an alloy made from copper

and zinc.

alloyed steel legierter Stahl, der (eng.)

Steel is an alloy made from iron and 0.02% to 1.7% carbon.

alopecia, hair loss, Haarausfall, der (pharm.)

loss of hair

Iron deficiency, chronic poisoning by boron compounds and chemotherapy can

lead to hair loss.

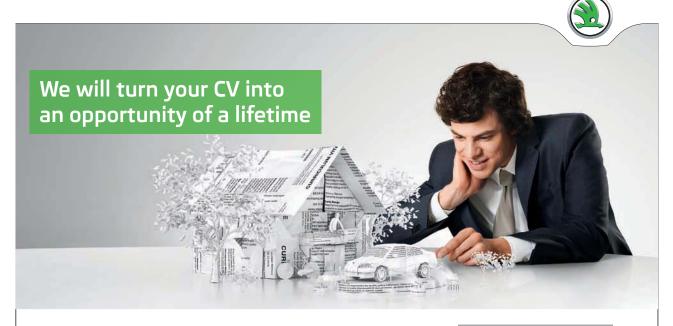
**also known as** auch bekannt unter, alias (general)

Acronym (engl.): aka, a.k.a.

Formaldehyde (a.k.a. methanal), also exists as cyclic trimer (trioxane) and as oligomer (paraformaldehyde). In the case of longer chains, the term polyoxymethylene (POM, polyacetal, polyformaldehyde) is used. POM has the

formula  $(OCH_2)_n$ .

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alternate stress Wechselbeanspruchung, die (eng.)

Reinforced concrete can withstand more alternate stress than unreinforced one.

alternating current Wechselstrom, der (eng.)

Acronym (engl.): AC

The voltage of AC can be changed with a transformer.

alternative feedstock alternativer Rohstoff, der (chem. eng.)

Acronym (engl.): AFS

Sugarcane-based ethanol is an important AFS.

alum Alaun, der (chem.)

Alum crystals are easy to grow. The specific compound alum has the formula  $KAl(SO_4)_3.12H_3O$ . Alums have the stoichiometry  $AB(SO_4)_3.12H_3O$ .

alumina Aluminiumoxid, das (chem.)

Alumina (Al<sub>2</sub>O<sub>3</sub>) is made from bauxite.

**aluminium** Aluminium, das (chem.)

aluminum (AE) Acronym (engl.): Al Acronym (dt.): Al

Aluminium (atomic number 13) is appreciated for its ability to resist corrosion (due to passivation) and its low density of 2.7 g/cm³, compared to iron's of 7.87

g/cm<sup>3</sup>. The melting point of Al is 660°C.

amber Bernstein, der (chem.)

Real amber can be discerned from imitates by making the "lighter test".

**ambient** Umgebungs – (general)

The vessel was only designed for ambient pressure.

ambient air Umgebungsluft, die (chem.)

The ambient air carried a characteristic smell.

ambient temperature Umgebungstemperatur, die (chem.)

The ambient air temperature is 20°C.

amendment Abänderung, die; Ergänzung, die (econ.)

An amendment to the contract was considered.

American Society for ASTM, Amerikanische Gesellschaft für Werkstoffprüfung, die (eng.)

**Testing and Materials** 

Acronym (engl.): ASTM

The pipes were manufactured according to ASTM standards.

amino acid Aminosäure, die (chem.)

In chemistry, an amino acid is a molecule which contains both amine and carboxyl functional groups. In biochemistry, this term is more specific and describes alpha-amino acids with the general formula NH<sub>2</sub>-CHR-COOH with

R being an organic substituent.

**ammeter** Amperemeter, das (eng.)

An ammeter is an instrument to measure the electric current in a circuit, the

SI unit of which is amperes (A).

amorphous amorph (chem.)

Polypropylene (PP) can be crystalline and amorphous.

**amplification** Verstärkung, die (eng.)

The electronic circuit provided an amplification factor of 10<sup>4</sup>.

amplifier Verstärker, der (eng.)

An amplifier can add noise to a signal.

**ampoule** Ampulle, die (pharm.)

Ampoules protect hypodermic solutions or high purity chemicals from air.

analgesic, analgetic schmerzstillend, Schmerzmittel, das (pharm.)

Analgesia are drugs that relieve pain. Paracetamol (acetaminophen, C<sub>8</sub>H<sub>o</sub>NO<sub>2</sub>)

is a widely-used analgesic. It can be derived from coal tar.

analog analog (eng.)

The primary disadvantage of analog signals, as opposed to digital ones, is that

they carry noise.

analysis Analyse, die (chem.)

Wet chemical analysis is increasingly replaced by laser-based online

measurements.

analytical balance Analysenwaage, die (chem.)

An analytical balance requires proper maintenance.

anchor Anker, der; Bolzen, der (eng.)

There are two operating principles of ship anchors: They can fix the position of

a ship by their sheer mass or by hooking into the seabed.

anchor bolt Dübel, der; Ankerbolzen, der; Ankerschraube, die (eng.)

Badly visible anchor bolts in the ground can be a tripping hazard in a production

plant.

ancillary unit,

auxiliary unit

Hilfsaggregat, das; Nebenaggregat, das

(eng.)

The ancillary units account for 15% of the total investment costs.



anesthetic Anästhetikum, das; Narkotikum, das; Betäubungsmittel, das (pharm.)

Butorphanol (C<sub>21</sub>H<sub>29</sub>NO<sub>2</sub>) is an anesthetic that is rarely used in people, but

commonly in animals.

angle of incidence,

Einfallswinkel, der

(eng.)

incident angle

The incident angle equals the emergent angle.

Schüttwinkel, der angle of repose

(chem. eng.)

The angle of repose of that material is 42°.

angle seat valve Schrägsitzventil, das (chem. eng.)

The angle seat valve was made from stainless steel.

angular minute,

Winkelminute, die

(eng.)

minute of arc

1 minute of arc is 1/60 of 1 degree.

anhydrous wasserfrei (chem.)

Anhydrous ethanol (C<sub>2</sub>H<sub>5</sub>OH) is called "absolute alcohol".

anion Anion, das (chem.)

SO<sub>4</sub><sup>2-</sup> (sulfate) is an anion. The S-O bond length is 149 pm.

anneal, to anlassen, tempern, vergüten (eng.)

Annealing is a heat treatment method in metallurgy by which internal stresses

in the material can be relieved.

annealing furnace Glühofen, der (chem.)

The annealing furnace had a setpoint of 950°C.

annular ringförmig (chem.)

Benzene (C<sub>6</sub>H<sub>6</sub>) is an annular molecule.

annular gap scrubber Ringspaltwäscher, der

(chem. eng.)

He developed an annular gap scrubber for the scrubbing of blast furnace gases

with water.

anodised eloxiert (chem.)

anodized (AE)

Anodised aluminium carries a protective layer of Al<sub>2</sub>O<sub>3</sub> which prevents further

oxidation.

anti fouling agent Anti-Belagbildungs - Zusätze, die (chem. eng.)

The operator poured a container of anti fouling agent into the cooling water

tank.

antibiotic Antibiotikum, das (pharm.)

Antibiotics act against microorganisms such as bacteria, fungi or protozoa.

anticonvulsant krampflösend; Antikrampfmittel, das (pharm.)

Some sulfonamides (R -S(=O)<sub>2</sub>-NH<sub>2</sub>) have anticonvulsant properties.

antidote Gegengift, das; Gegenmittel, das (pharm.)

In case of a cyanide poisoning, amyl nitrite (3-methyl-1-nitrosooxybutane,  $C_5H_{11}ONO$ ), sodium nitrite (NaNO<sub>2</sub>) or sodium thiosulfate (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>) are used

as antidote.

antiemetic Antiemetikum, das; Mittel gegen Erbrechen, das (pharm.)

An antiemetic is a drug that is effective against vomiting and nausea.

antihistamine Antihistaminikum, das (pharm.)

A common adverse effect (side effect) of antihistamines is sedation.

**anti-inflammatory** entzündungshemmend (pharm.)

The application of ice to tissue injuries shows anti-inflammatory effects.

antiknock fuel klopffester Treibstoff, der (eng.)

Due to its detrimental effects on the environment, lead is no longer used in

antiknock fuels.

antimony Antimon, das (chem.)

Acronym (engl.): Sb Acronym (dt.): Sb

The metalloid antimony (Sb) is no longer used in flame retardants and anti-

fouling coatings on ships.

antioxidant Anti-Oxidanz, das (chem.)

Antioxidants are often reducing agents such as thiols (mercaptans, R-SH) or polyphenols. Vitamin E is used as an antioxidant in polyethylene (PE). Vitamin E is the collective name for a group of 8 related tocopherols and tocotrienols.

antipyretic fiebersenkend; Fiebermittel, das (pharm.)

Paracetamol (acetaminophen, C<sub>8</sub>H<sub>9</sub>NO<sub>2</sub>), is an analgesic and antipyretic

medication with wide usage.

antiseptic Antiseptikum, das; antiseptisch (pharm.)

Antiseptics are antimicrobial substances which are applied to living tissue (skin) to reduce the possibility of infections. They should be distinguished from antibiotics, which destroy bacteria within the body, and from disinfectants, which destroy microorganisms on surfaces of non-living objects.

antistatic agent Antistatik-Zusatz, der (chem.)

Antistatic agents such as glycerine-monostearate (GMS) increase the electrostatic surface conductivity of polyolefins, thereby eliminating charge build-up and dust collection.





anvil Amboß, der (eng.)

The anvil was too heavy for one person to lift.

aperture Lochblende, die; Öffnung, die (eng.)

Lasers can be used to create small, symmetric apertures.

apex Scheitelpunkt, der; Gipfel, der; Spitze, die (eng.)

It is assumed that Tyrannosaurus is an extinct apex predator.

API (pharm.)

Acronym/Abbreviation referral: see active pharmaceutical ingredient

apolar unpolar (chem.)

Hydrocarbons, in contrast to water, are apolar liquids.

apparent density Rohdichte, die (eng.)

The apparent density of a sample can be defined as: mass divided by volume, including both permeable and impermeable voids normally present in the

material. Density > apparent density > bulk density.

**apparent power** Scheinleistung, die (eng.)

When the impedance is a pure resistance, the apparent power equals the real

power.

appliance Anwendung, die; Apparat, der; Haushaltsgerät, das (general)

A coffee grinder is a typical kitchen appliance.

**application** Anwendung, die (general)

After its invention, the laser was seen as a "solution looking for an application".

applied chemistry angewandte Chemie, die (chem.)

IUPAC is an acronym and stands for "International Union of Pure and Applied

Chemistry".

apply, to auftragen, anwenden (general)

He applied the ointment to the wound.

apprentice Lehrling, der (general)

An apprentice should learn a profession from the basics.

**apprenticeship** Lehre, die (general)

A typical apprenticeship lasts three years.

**appurtenances** Grundstückszubehör, das; Zubehör, das (eng.)

The piece of land was offered including all appurtenances.

aqua fortis Scheidewasser, das (chem.)

Aqua fortis, which is actually a solution of HNO3 (nitric acid) in water, was

used by alchemists to separate gold from silver.

aqua regia Königswasser, das (chem.)

Aqua regia can dissolve gold. It is prepared by mixing concentrated nitric

acid and concentrated hydrochloric acid in the ratio 1:3.

aqueous wässrig (chem.)

An aqueous solution of the drug was prepared.

**arbitrary units** beliebig gewählte Skala, die (sci.)

Acronym (engl.): a.u.

The laser power as a function of injection current was depicted in arbitrary

units.

arc Bogen, der (eng.)

Mathematically, an arc can be defined as a closed segment of a differentiable

curve in a two-dimensional plane.

arc minute Bogenminute, die (eng.)

In cartography, 1 arc minute at sea level equals approx. 1.86 km or 1.15 miles,

which is close to 1 nautical mile (1852 m).

area classification, Einteilung in Ex -Zonen, die (chem. eng.)

hazardous area classification

During (hazardous) area classification, it became evident that the warehouse is

a zone 22.

arm saw Handsäge, die (eng.)

An arm saw can be used to cut down a tree.

arsenic Arsen, das (chem.)

Acronym (engl.): As Acronym (dt.): As

In the past, arsenic was illicitly fed to horses to make them appear

healthy before being sold.

articulated lorry Auflieger, der; Sattelanhänger, der (econ.)

semi-trailer (AE)

An articulated lorry is a trailer without a front axle.

artificial künstlich (general)

Artificial lubricants generally have a tighter specificat ion than petroleum -

derived ones.

as low as reasonably so niedrig wie sinnvollerweise erzielbar (chem.)

achievable

Acronym (engl.): alara

The MSDS suggests exposure to the chemical as alara.





asbestos Asbest, der (chem.)

The use of asbestos has been reduced because of its carcinogenic effects.

**as-built** wie errichtet (chem. eng.)

The as-built documentation was handed over to the client 1 month after startup.

as-built Dokumentation der tatsächlichen Ausführung, die (eng.)

documentation

The as-built documentation was incomplete because the project budget was

used up.

as-built drawing Ausführungszeichnung, die; Bauzeichnung, die (eng.)

The as-built drawing was handed over to the client.

ascorbic acid Ascorbinsäurem, die (chem.)

The L-enantiomer of ascorbic acid ( $C_6H_8O_6$ ) is commonly known as vitamin C.

aseptic steril, keimfrei (pharm.)

Aseptic packaging is a key requirement in the food industries.

**asphyxiant** erstickend (chem.)

By replacing breathable oxygen, nitrogen is asphyxiant. The earth's atmosphere

contains 79% of asphyxiant gases (mainly N<sub>2</sub> and Ar).

aspirate, to absaugen (eng.)

The aspiration system was designed for zone 20.

assembly Montage, die; Zusammenbau, der (eng.)

Assembly of the ladder was more complicated than indicated by the instruction

manual.

assets Anlagegüter, die; Anlagevermögen, das (econ.)

Assets are depreciated over their lifetime.

assignment Einsatz, der; Arbeitseinsatz, der (econ.)

She was on a 2-year assignment in Canada.

**assort, to** sortieren, zusammenstellen (eng.)

The samples were assorted in the correct order.

ASTM (eng.)

Acronym/Abbreviation referral: see American Society for Testing and Materials

atomic bond Atombindung, die (chem.)

Atomic bonds are also called valence bonds.

atomic core Atomkern, der (chem.)

The atomic core is composed of protons and neutrons.

atomic nucleus Atomkern, der (chem.)

Isotopes have different atomic nucleii.

atomic transmutation Atomumwandlung, die (chem.)

Atomic transmutation has not only captured the attention of alchemists.

atomise, to zerstäuben (eng.)

atomize, to (AE)

Ultrasound can be used to improve the atomizing effect of a nozzle.

attenuate, to abschwächen (general)

The light beam was attenuated by the sample.

attenuation Abschwächung, die (general)

Radioactive level measurements are based on the attenuation of radiation when

passing through a sample.

attraction Anziehung, die (chem.)

Hygroscopic materials exhibit a strong attraction of water.

attrition Abrieb, der (eng.)

Attrition from machinery can lead to product contamination.

audible hörbar (eng.)

Hearing protection should be constructed in a way that a human voice is still

audible.

audit Betriebsprüfung, die (econ.)

Plant audits by customers can be scheduled at short notice.

automation Automation, die; Automatisierung, die (eng.)

The plant has a high degree of automation.

**auxiliaries** Hilfseinrichtungen, die; Nebenaggregate, die (eng.)

The energy efficiency study revealed that the auxiliaries were consuming 40%

of the electricity.

availability Verfügbarkeit, die (eng.)

The availability of spare parts in remote operations needs to be considered.

avoirdupois ounce (eng.)

Acronym/Abbreviation referral: see ounce Acronym (engl.): oz

axis Achse, die (eng.)

The engineer turned the wheel around its axis.

axle Radachse, die (eng.)

The maximum load on each axle is 3 tons.



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babbit, babbit metal Lagermetall, das (chem.)

Bush bearings are often made from babbit or graphite.

back flushing filter, Rückspülfilter, der (chem. eng.)

back flush filter

The back flush filter was activated every 15 min.

back pressure Gegendruck, der (eng.)

A flare creates backpressure which must be overcome.

backdraft Rauch(gas)durchzündung, die; (chem.)

Rauchgasexplosion, die; Backdraft, der

A backdraft is a situation which can occur when a fire is starved of oxygen; consequently combustion stops, but the fuel gases and smoke remain at high temperature. If oxygen then reaches the fire, e.g. by opening a door, combustion can restart. This can occur in an explosive way as the gases are heated up rapidly

and expand.

backlog Auftragsüberhang, der; Aufholbedarf, der; Arbeitsrückstand, der (general)

After his holidays, there was a huge backlog.

**bactericidal** bakterizid (pharm.)

The hypochlorite ion (ClO<sup>-</sup>), a strong oxidizer, has bactericidal properties.

baffle Leitblech, das; Prallblech, das; Ablenkblech, das (eng.)

The acoustic baffle could reduce the noise by 3 dB(A).

**baffle,** Prallplatte, die (eng.)

baffle plate

Baffles, which act as counterpart to stirrers, are ofen used in reactors to divert

a process flow.

balance Waage, die (chem.)

The resolution of the balance is 0.1 mg.

balance Bilanz, die (econ.)

The mass balance was wrong.

balance sheet, Bilanz, die (econ.)

statement of

financial position

A balance sheet or statement of financial position lists all assets and liabilities of a corporation at a specific date. Also, the ownership (debt vs. equity) is disclosed.

ball and socket joint Kugelgelenk, das (eng.)

Laboratory glassware can have conically tapered joints or, like bones, ball and socket joints, where the ball-shaped end of one piece fits into the cuplike

depression of the counterpart.

**ball bearing** Kugellager, das (eng.)

The reason for the damage to the ball bearing could not be determined.

**ball condenser** Kugelkühler, der (chem.)

For the synthesis of his new herbicide, he was looking for an additional ball

condenser.

**ball indentation** Kugeleindruckhärte, die (eng.)

hardness

Vickers and Brinell hardness tests are more common than the ball indentation

hardness.

ball mill Kugelmühle, die (eng.)

To grind black powder in a ball mill, non-sparking lead, antimony, brass, or

bronze grinding media are used.

ball screw Kugelgewindespindel, die (eng.)

With a ball screw, rotational motion can be translated into linear motion.

ball valve Kugelhahn, der; Kugelventil, das (chem. eng.)

A ball valve is a valve that opens by turning a handle attached to a ball inside the valve, which has a hole (port) in the middle. Ball valves are reliable. They

achieve perfect shutoff even after years of disuse.

band saw Bandsäge, die (eng.)

The band saw was suitable to cut down the wood.

bar Stab, der; Stange, die (eng.)

The crane driver lifted the bar from the ground.

**bar absolute** Absolutdruck in bar, der (eng.)

Acronym (engl.): bara

The instrument reading was 2 bara (1 bar = 100 kPa).

bar chart, bar graph Balkendiagramm, das (sci.)

The scientist used a bar chart to display the particle size distribution.

bar gauge bar Überdruck (eng.)

Acronym (engl.): barg

There is no fixed conversion factor from barg to bara as atmospheric pressure changes daily in a range of approx. 50 mbar. By adding 1000 mbar to a barg

reading, the bara value will be accurate within typically +/- 50 mbar.

bara (eng.)

Acronym/Abbreviation referral: see bar absolute



barbed hook Widerhaken, der (eng.)

The fisherman caught the bass with a barbed hook.

barbed wire Stacheldraht, der (eng.)

Barbed wire was installed around the entire site.

barg (eng.)

Acronym/Abbreviation referral: see bar gauge

barrier fluid Sperrflüssigkeit, die (eng.)

The service technican had forgotten to refill the barrier fluid.

**barrier layer** Grenzschicht, die; Barriereschicht, die (chem.)

Carbonated soft drinks cannot be stored in PP bottles, because a barrier layer

for CO<sub>2</sub> is missing.

**basal** grundlegend, fundamental, basal (pharm.)

Basal tears contain water, mucin, lipids, lysozyme, immunoglobulins, glucose, urea, sodium, and potassium. Lysozyme fights bacterial infections by dissolving

the outer coating of certain bacteria.

base face Auflagefläche, die (eng.)

The base face of the machine is 45 m<sup>2</sup>.

base metal unedles Metall, das (chem.)

Base metals like iron, nickel or lead react with diluted hydrochloric acid under

hydrogen formation.

basement Sockel, der (eng.)

The basement cannot be made from concrete.

**basement** Keller, der; Kellergeschoss, das (general)

Hotel rooms in the basement are not so popular.

**basic chemicals** Grundchemikalien, die (chem.)

Many basic chemicals are produced from petroleum.

basic engineering Basic Engineering, das; Vorplanung, die; Entwurfsplanung, die (chem. eng.)

The result of Basic Engineering was a cost estimation of +/- 10% accuracy.

basic flux basisches Flussmittel, das (eng.)

The basic flux-cored wire is suitable for welding non-alloyed steel.

basic research Grundlagenforschung, die (sci.)

Basic research is done at universities.

batch diskontinuierlich, Stapel, der; Ansatz, der; Charge, die (chem. eng.)

The color batch had to be discarded.

batch furnace Ofen mit satzweiser Beschickung, der (eng.)

The batch furnace has a residence time of 45 min.

**batch operation** Chargenbetrieb, der (chem. eng.)

Batch operations are characterized by frequent reactor cleaning periods.

batch release Chargenfreigabe, die (chem. eng.)

The results of mechanical testing had to be awaited for the batch release.

**batch tracking** Chargenrückverfolgbarkeit, die (econ.)

Many customers require batch tracking of their suppliers' raw materials.

battery back-up Pufferbatterie, die (eng.)

Backup batteries (Battery back-ups) are almost always used in burglar alarms.

battery limits Anlagengrenze, die (chem. eng.)

The reactor inlet and the dryer outlet were defined as battery limits.

beaker Becherglas, das (chem.)

The student rinsed the beaker.

bearing Lager, das (eng.)

Breakage of the bearing was the suspected reason for the fire.

bearing clearance Lagerspiel, das (eng.)

The clearance of the bearing has reached an inacceptable level.

bearing rod Tragstange, die (eng.)

The bearing rod exhibits strong deformations.

**bedrock** Felsboden, der; Grundgestein, das (general)

The bedrock consists of granite (an igneous rock) in that area.

bee venom Bienengift, das (chem.)

Apitoxin, or honey bee venom, is a bitter colorless liquid. The active substance of the venom is a complex mixture of proteins. The main component is melittin,

a peptide consisting of 26 amino acids.

**beech** Buche, die (general)

Beech grows on a wide range of soils as long as they are not waterlogged.

**behind-the-counter** apothekenpflichtig (pharm.)

Acronym (engl.): BTC

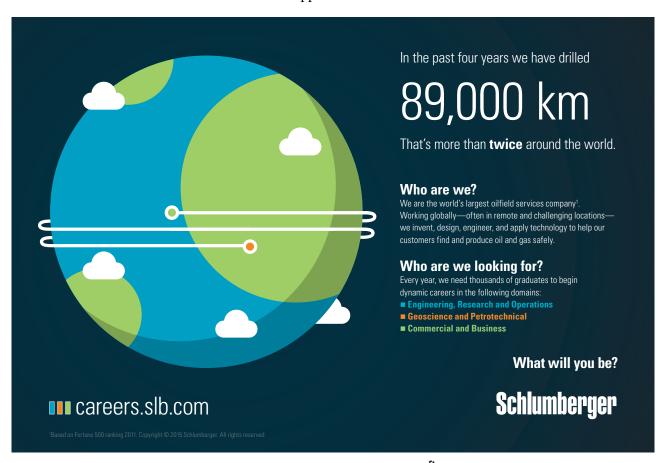
This product is a behind-the-counter drug.

**belt drive** Bandantrieb, der; Keilriemenantrieb, der (eng.)

The belt drive did not have to be renewed for 5 years.

bench Werkbank, die (eng.)

The master showed his apprentice how to use a bench.





benchmark Bezugspunkt, der; Maßstaß, der; Vergleich, der (general)

The investment was benchmarked against previous projects.

bend, to biegen (bog, gebogen) (eng.)

When plastics are bent, white fraction can be observed.

**benign** gutartig, gutmütig (pharm.)

The tumor was found to be benign, i.e. it did not grow aggressively, it did not

invade the surrounding tissue and it did not metastasize.

benzene Benzen, das; Benzol, das (chem.)

Petrol station-grade gasoline can contain 3% of benzene (C<sub>6</sub>H<sub>6</sub>), which is a

carcinogen.

benzocaine Benzokain, das; Benzocain, das (chem.)

Benzocaine (C<sub>9</sub>H<sub>11</sub>NO<sub>2</sub>) is a local anesthetic commonly used as a topical pain

reliever. It is the active ingredient in some over-the-counter ointments.

bezel Einfassung, die; Lünette, die (eng.)

Jewels can be fastened by bezels.

Big Bag, der; Großgebinde, das

bid Gebot, das; Angebot, das (econ.)

The procurement specialist compared the 3 bids.

bidistilled doppelt destilliert (chem.)

Bidistilled water was commonly used in HPLC, but is now replaced by e.g.

(chem. eng.)

milliq<sup>™</sup> water due to more reproducible results.

big bag, flexible intermediate bulk container

super sack (AE)

Acronym (engl.): FIBC Acronym (dt.): FIBC

Big bags are soft containers of textile material. With a capacity of up to 3m<sup>3</sup> and load capability between 0.5 and 2 tonnes, FIBCs can be used for the transportation and storage of many free-flowing materials such as granules,

powders, pellets or flakes.

bile Galle, die; Gallenflüssigkeit, die (chem.)

Bile from slaughtered animals can be mixed with soap to obtain bile soap, an

effective agent to remove stains in textiles.

biliously green giftgrün (chem.)

The liquid looked biliously green.

bill of materials Stückliste, die; Materialliste, die (econ.)

Acronym (engl.): BOM

The assistant typed the bill of materials into a list on the PC.

billing Abrechnung, die; Fakturierung, die (econ.)

Sophie was responsible for the billing.

bimodal bimodal (chem.)

Bimodal plastics show both adequate processing characteristics (low molecular weight fraction) and good mechanical performance (high molecular weight

fraction).

binding agent Bindemittel, das (chem.)

An oil binding agent helps contain a spill.

biologischer Test, der (chem.)

Bioassays show a high sensitivity and selectivity.

biodegradable biologisch abbaubar (chem.)

Polyhydroxyalkanoates (PHA) are biopolymers which are completely biodegradable. These compounds are linear polyesters produced by bacterial

fermentation of sugar or lipids.

biodegradable plastics biologisch abbaubare Kunststoffe, die (chem. eng.)

The restaurant chain has used cutlery made from biodegradable plastics based

on starch for several years.

**bioreactor** Bioreaktor, der (chem. eng.)

A bioreactor is an apparatus used to carry out any kind of bioprocess. A fermenter

is an example.

**birefringence** Doppelbrechung, die (eng.)

Birefringence can be observed in anisotropic materials such as crystals of calcite

or boron nitride.

**bivalent** zweiwertig (chem.)

Calcium forms bivalent ions.

**black liquor** Schwarzlauge, die (chem.)

A paper factory has successfully built a plant to burn black liquor and to use

the generated heat.

blade Klinge, die (eng.)

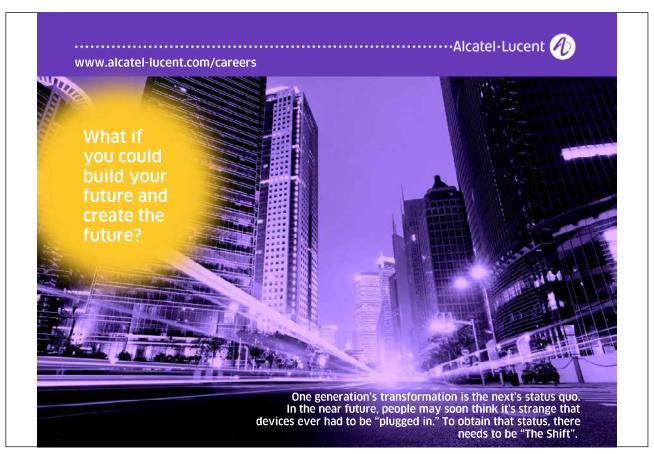
The blade of a knife can be sharpened by grinding.

blank experiment Blindprobe, die (eng.)

A blank experiment can detect instrument drift.

blank value Blindwert, der; Blindprobe, die (eng.)

The blank value was recorded in the lab journal.





blanket, to überlagern, beschleiern (chem.)

Nitrogen blanketing of a vessel can prevent the formation of explosive

atmospheres.

blast furnace Hochofen, der (chem.)

In a blast furnace, Fe<sub>2</sub>O<sub>3</sub> is reduced to Fe.

blast furnace gas Gichtgas, das (chem.)

Blast furnace gas is rich in CO<sub>2</sub>.

**blasting** Sprengung, die (eng.)

Blasting activities in a quarry need to be well planned.

**blasting agent** Sprengstoff, der (chem.)

Blasting agents are capable of developing a high amount of heat and gas within

a short period of time.

blasting fuse Zündschnur, die (chem.)

Blasting fuses are sensitive to moisture.

**bleaching agent** Bleichmittel, das (chem.)

Bleaching agents are used in the pulp and paper industry.

bleed valve Entlüftungsventil, das; Ablassventil, das (chem. eng.)

Needle valves are frequently used as bleed valves in hot water heating applications.

blemish Fehler, der (eng.)

Customers generally do not accept visible surface blemishes.

**blind flange,** Blindflansch, der (eng.)

black flange, dummy flange, blank flange

The pipeline was terminated by a blank flange.

block and bleed valve Block-and-Bleed Ventil, das (chem. eng.)

The block and bleed valve was checked by a maintenance engineer.

block and tackle Flaschenzug, der (eng.)

The pulley of a block and tackle was probably invented by Archimedes.

**blockbuster drug** Kassenschlager-Medikament, das; Blockbuster, der (pharm.)

A blockbuster drug is a drug generating more than \$1 billion of annual turnover.

blocking Blockieren, das (eng.)

The ABS (anti-lock braking system) prevents blocking of the wheels when a car

breaks, thereby maintaining steerability.

blood clotting,

Blutgerinnung, die

(pharm.)

blood coagulation, clotting

Blood clotting is typical for mammals.

**blood corpuscle** Blutkörperchen, das (pharm.)

Blood corpuscles can be divided into red blood cells ( $O_2$  transportation), white blood cells (antibody production to fight infections) and platelets (blood

clotting). They account for 45% of the blood, the rest being plasma.

blower Gebläse, das (chem. eng.)

A fan is commonly used to move air in an unconfined volume, e.g. for ventilation purposes in a production hall. By contrast, a blower is generally deployed to move air through a conduit such as a pipe at relatively low overpressures, e.g. for pneumatic conveying of solids. A compressor is typically utilized to provide air at relatively high pressures through a conduit, e.g. as instrument air to control

plant instruments.

blowhole, cavity Lunker, der (eng.)

Cavities can lead to premature mechanical failure.

**blowing agent** Treibmittel, das (*chem. eng.*)

Butane and carbon dioxide are two commonly used physical blowing agents

(foaming agents).

blue collar worker Arbeiter, der (general)

The company employs 80% blue collar workers.

**blunt** stumpf (eng.)

A blunt tool should be used to prevent damage to the surface.

**blunting** Abstumpfung, die (eng.)

Blunting is a process step in the development of a crack in a tough material

such as polypropylene. It hinders further crack propagation.

**blurring of vision** unscharfes Sehen, das (med.)

Eye contact with cyclododecanol can lead to blurring of vision.

boil down, to eindampfen (chem.)

In order to obtain the salt, he boiled down the solution.

boiler Dampfkessel, der (chem. eng.)

In China, boilers are typically fired with coal.

boiler scale Kesselstein, der (eng.)

By reducing heat transfer, boiler scale lowers the thermal efficiency of the unit.



**boiling chip** Siedestein, der (*chem.*)

Boiling chips are used to prevent boiling retardation and hence dangerous

material spill and loss.

**boiling point** Siedepunkt, der (*chem.*)

The boiling point of ethanol is 78°C.

boiling point

**elevation** Siedepunktserhöhung, die (chem.)

Boiling point elevation can be observed when a non-volatile solute, such as a

salt, is added to a pure solvent, such as water.

**boiling retardation** Siedeverzug, der (chem.)

Boiling retardation can occur in very pure liquids.

**bolt** Bolzen, der (eng.)

A bolt (cap screw) is used together with a nut to give a bolted joint.

**bolt together, to** verschrauben (eng.)

A riveted connection shows a slower, more creeping fatigue than a bolted one.

**bolted joint** Flanschverbindung, die Schraubverbindung, die (eng.)

Bolted joints are commonly used in the construction of machines.

BOM (econ.)

Acronym/Abbreviation referral: see bill of materials

**bonded area** Inspektionsbereich, der; Zoll-Lager, das; Zollfreilager, das (jur.)

The shipment was stored in the bonded area.

**booster** Zusatzmotor, der (eng.)

The space shuttle uses a booster to reach orbit.

bore Bohrung, die; Zylinderbohrung, die (eng.)

The bore is the diameter of a cylinder in a piston engine.

bore bit Bohrmeißel, der (eng.)

The bore bit was lost in the workshop.

bore hole Bohrloch, das (eng.)

After depletion of a drilling site, the bore hole has to be properly sealed.

bore rod Bohrgestänge, das (eng.)

Bore rods have to be designed for high mechanical loads.

boric acid Borsäure, die (chem.)

Boric acid (B(OH)3, orthoboric acid) is used in nuclear power plants to control

the fission rate of uranium.

**boron** Bor, das (*chem.*)

Acronym (engl.): B Acronym (dt.): B

Borax (Na<sub>2</sub>B<sub>4</sub>O<sub>2</sub> 10H<sub>2</sub>O) is an important boron compound.

**boundary** Grenze, die (eng.)

The boundary could be spotted clearly.

**branch line,** Stichleitung, die (eng.)

transmission line

The branch line was made from copper.

brass Messing, das (eng.)

Brass is any alloy of copper and zinc, whereas bronze is an alloy of copper and tin. Because of its malleability, brass is often used to produce instruments.

brazing Hartlöten, das (eng.)

Brazing is a joining process where a filler metal or alloy is heated to its melting temperature of above 450°C. The temperature in brazing is lower than in welding

and hence less likely to distort the workpiece.

breach of contract Vertragsbruch, der (econ.)

When a business partner conducts a breach of contract, legal action should be

seriously considered.

break even point Break Even, der; Rentabilitätsschwelle, die (econ.)

At the break even point, costs equal revenue, i.e. there is neither loss nor gain.

breakage Bruch, der (eng.)

Breakage of a rope may imply wrong handling.

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breakage of glassware Glasbruch, der (chem.)

Breakage of glassware can be insured.

brick layer Maurer, der (eng.)

The brick layer finished his job on the same day.

brightness Glanz, der; Helligkeit, die (eng.)

The brightness of a specimen depends on its surface structure.

brine Salzlösung, die; Sole, die (chem.)

A brine is water saturated with salt.

British thermal unit BTU, das; englische Kalorie, die (eng.)

Acronym (engl.): BTU, btu Acronym (dt.): BTU, btu

1 BTU corresponds to approx. 1060J.

**brittle** spröde, brüchig (eng.)

At low temperatures, many materials become brittle.



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brittleness Sprödigkeit, die (eng.)

Brittleness at low temperatures is a disadvantage of polycarbonate.

bromic acid Bromsäure, die (chem.)

Bromic acid (HBrO<sub>2</sub>) is a reagent in the Belousov-Zhabotinsky (BZ) oscillating

reaction.

**bromine** Brom, das (chem.)

Acronym (engl.): Br Acronym (dt.): Br

At standard conditions, bromine is the only liquid, nonmetallic element.

bronze Bronze, die (chem.)

Bronze is a copper alloy, usually with tin as the main alloy partner.

**broom** Kehrbesen, der (eng.)

To prevent dusty atmospheres, a vacuum cleaner should be used instead of a

broom.

**brown coal** Braunkohle, die (eng.)

The calorific value of brown coal is lower than that of oil.

brown fields Altlasten, die (chem. eng.)

It is suspected that many brownfields are still unknown.

BTC (pharm.)

Acronym/Abbreviation referral: see behind-the-counter

BTU, btu (eng.)

Acronym/Abbreviation referral: see British thermal unit

BU (econ.)

Acronym/Abbreviation referral: see business unit

**bubble column** Blasensäule, die (chem. eng.)

A bubble column can be a bioreactor where the reaction medium is kept mixed

and aerated by the introduction of air into the bottom.

bucket wheel Schöpfrad, das (eng.)

Bucket wheels do not fluidize the materials to be handled.

buffer Puffer, der (chem.)

A buffer of carbonic acid (H<sub>2</sub>CO<sub>3</sub>) and bicarbonate (HCO<sub>3</sub>-) is present in blood

plasma, to maintain a pH between 7.35 and 7.45.

**building rubble** Bauschutt, der (eng.)

Building rubble that contains metal and wood cannot be landfilled in several

countries.

**bulk density** Schüttdichte, die (eng.)

The bulk density of a powder depends on its particle size distribution. The bulk density of PP pellets is approx. 500 kg/m³, whereas the density of the material

is 900 kg/m<sup>3</sup>.

**bulk goods** Schüttgut, das (eng.)

Bulk goods are often commodities.

bulk material Schüttgut, das (eng.)

Container ships can be used to transport bulk materials over long distances.

**bumper** Stoßfänger, der (eng.)

A bumper on a car has to absorb the shock of an impact.

**buoyancy** Auftrieb, der (eng.)

According to Archimedes' law, a body that is fully or partially submerged in a fluid experiences a force of buoyancy that is equal to the weight of the displaced

liquid or gas.

**burn** Brandwunde, die; Verbrennung, die (pharm.)

A burn is an injury that can be the result of tissue exposure to heat, cold, electricity, chemicals, radiation (light) or friction. It can range from slight first-

degree burns to severe fourth-degree burns.

**burn, to** brennen (brannte, gebrannt), verbrennen (verbrannte, verbrannt) (*chem.*)

Waste incineration plants can burn domestic waste.

burn, to verätzen (chem.)

The acid has heavily burnt his skin, because he was not able to wash it off fast

enough.

bush, bushing Muffe, die (chem.)

The bushing was rusty.

bushing, bush bearing, Gleitlager, das (eng.)

friction bearing, sleeve bearing, journal bearing

A bushing is a cylindrical liner designed to reduce friction and wear around a

rotating component.

**business intelligence** Informationsdienst eines Unternehmens, der (econ.)

The business intelligence department predicted a decrease of raw material prices

of 15% over the next 2 quarters.

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**business unit** Geschäftsbereich, der; Sparte, die (econ.)

Acronym (engl.): BU

The company is organized in 3 business units.

butterfly valve Drosselklappe, die; Drosselventil, das; Absperrklappe, die (chem. eng.)

A butterfly valve is a type of flow control device. It contains a flat circular plate which is positioned in the center of the pipe where the flow is to be regulated.

butyric acid Buttersäure, die (chem.)

The smell of butyric acid reminds one of sweat.

buzz saw, circular saw Kreissäge, die (eng.)

Industrial buzz saws often have replaceable teeth.

bypass Nebenstrom, der (eng.)

To cope with floods, there is a bypass installed in power stations on rivers.

byproduct Nebenprodukt, das (chem.)

Whey is a byproduct from the production of cheese.

C. Ph. T. (pharm.)

Acronym/Abbreviation referral: see Certified Pharmacy Technician

cable Kabel, das (eng.)

Cables are constructed from pure raw materials to prevent electrical breakthrough.

cable layout plan Kabelplan, der (eng.)

The cable layout plan was drafted by the engineering company.

calculus Integral- und Differentialrechnung, die (sci.)

Engineers use calculus in their daily jobs.

calibrate, to einstellen, kalibrieren (chem.)

The field engineer calibrated the sensor to ensure accurate instrument readings.

calibration Eichung, die (chem.)

Field calibration is an advantage of several industrial sensors.

call-off delivery Lieferung auf Abruf, die (econ.)

The call-off delivery was quite a challenge for the supplier.

calorific value Heizwert, der; Brennwert, der (chem. eng.)

Fuels can be characterized by their net calorific value (=lower heating value) were  $H_2O$  is released as vapor and by their gross calorific value (=upper heating value), where  $H_2O$  that is formed is condensed. The gross heating value accounts for moisture in the fuel and is, for instance, relevant for wood and coal.

cam shaft Nockenwelle, die (eng.)

The cam shaft is an important construction element in engines. It is used to

operate poppet valves.

cane sugar Rohrzucker, der (chem.)

Cane sugar is fermented to alcohol on a large scale in Brazil.

cannula Kanüle, die (chem.)

Cannulae are used in laboratories to transfer liquids between 2 vessels without exposing them to the atmosphere. A cannula is a kind of double-ended needle made of stainless steel or plastic. The sharp ends can easily penetrate septa.

**capacitor** Kondensator, der (eng.)

A capacitor can store electrical energy. It is composed of thin conducting, metal plates that are separated by a dielectric. This can be, as in the case of so-called electrolytic capacitors, a metal oxide film or an insulator such as vacuum, air,

glass or polymer.

capex (econ.)

Acronym/Abbreviation referral: see capital expenditure

capital expenditure Investitionsaufwand, der (econ.)

Acronym (engl.): capex

Capex had reached 2.3 MEUR after 8 months.

capsule Kapsel, die (pharm.)

Capsules, the enclosures for orally administered medication, can be made from gelatine. This is a protein which is produced by partial hydrolysis of collagen

from bones and connective tissue of animals.

carbohydrate Kohlenhydrat, das (chem.)

Starch and sugar are carbohydrates.

carbolic acid, phenol Carbolsäure, die; Phenol, das (chem.)

Phenol (old name: carbolic acid,  $C_6H_5OH$ ) can be industrially produced by partial oxidation of benzene, the reduction of benzoic acid ( $C_6H_5COOH$ ), by the cumene process, or by the Raschig-Hooker process. The cumene process yields phenol and acetone from benzene and propylene. Its name is derived from cumene (isopropyl benzene), the intermediate substance in that process. In the Raschig-Hooker process, phenol is won by the hydrolysis of chlorobenzene.

carbon Kohlenstoff, der (chem.)

Acronym (engl.): C Acronym (dt.): C

Carbon capture and storage is an emerging technology in order to fight climate

change.

carbon black Industrieruss, der (Pigment) (chem.)

Carbon black can be produced by pyrolysis of methane.



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carbon dioxide Kohlendioxid, das (chem.)

Acronym (engl.): CO<sub>2</sub>
Acronym (dt.): CO<sub>2</sub>

Dry ice is frozen carbon dioxide, which sublimates at -78°C.

carbon monoxide Kohlenmonoxid, das (chem.)

Acronym (engl.): CO Acronym (dt.): CO

Carbon monoxide is a colorless and odourless gas.

**carbon steel,** Schwarzstahl, der; Kohlenstoffstahl, der (eng.)

plain carbon steel

The ductility, hardness, yield strength and impact resistance of carbon steel can be improved by heat treatment.

carbonic acid Kohlensäure, die (chem.)

Carbonic acid (H<sub>2</sub>CO<sub>3</sub>) is diprotic. Hydrogencarbonates and carbonates are the salts of the weak acid carbonic acid.

carboxylic acid Karbonsäure, die; Carbonsäure, die (chem.)

Carboxylic acids can easily be identified by infrared spectroscopy through the C=O and O-H stretch vibrations in the regions of 1680 to 1725 cm $^{-1}$  (5.95 to 5.80  $\mu$ m) and 2500 to 3000 cm $^{-1}$  (4.0 to 3.33  $\mu$ m), respectively. Acetic acid

(CH<sub>3</sub>COOH) is a carboxylic acid.

carcinogenic krebserregend, karzinogen, kanzerogen (chem.)

Butadiene (C<sub>4</sub>H<sub>6</sub>) is a carcinogenic gas.

carcinogenicity Karzinogenität, die; Kanzerogenität, die (chem.)

There are many natural carcinogens. Aflatoxin B1, which is produced by the fungus Aspergillus flavus growing on stored grains, nuts and peanut butter, is an example of a potent, naturally-occurring microbial carcinogen. Certain viruses such as Hepatitis B and human papilloma viruses have been found to cause cancer in humans. Substances with carcinogenicity are e.g. benzene and asbestos.

cardan shaft Kardanwelle, die (eng.)

A cardan shaft is used for power transmission.

cardboard Pappe, die (eng.)

Cardboard can absorb water splashes.

cargo Ladung, die; Fracht, die (econ.)

The Antonov An 225 is a cargo plane for exceptionally bulky and heavy goods.

carpenter Zimmermann, der; Tischler, der (eng.)

The carpenter convinced him to reconsider the design of his roof.

carriage paid to frachtfrei (Incoterm) (econ.)

Acronym (engl.): CPT

The spare part arrived CPT one day later.

**carrying costs** Frachtkosten, die; Transportkosten, die (*econ.*)

Just in time delivery is an inventory strategy to minimize capital costs. Carrying

costs are negligible.

carry-over Übertrag, der; Saldovortrag, der (econ.)

In accounting, a carry-over is a sum that is transferred to a new page.

cartridge Patrone, die (eng.)

If not consumed within 6 months, the cartridge of an inkjet printer can dry out.

CAS (chem.)

Acronym/Abbreviation referral: see Chemical Abstracts Service

CAS number, CAS Nummer, die (chem.)

CAS registry number

More than 81 million organic and inorganic substances are listed with their unique CAS number in the CAS Registry, the world's largest collection of

substance information.

casing Gehäuse, das (eng.)

The casing for the pump was made of aluminium.

cast film Flachfolie, die (chem. eng.)

Cast film is a polymer film that is produced in an extrusion process; the film is extruded through a slit die onto a cold roll, the so-called chillroll. A typical

film thickness is between 20 and 200 µm.

cast iron Gusseisen, das (eng.)

The bell is made of cast iron.

castor oil Rizinusöl, das; Castor-Öl, das (chem.)

Castor oil is a vegetable oil obtained from the castor bean. It can be used as laxative. Sulfonated (sulfated) castor oil, or Turkey Red Oil, is the only oil that completely disperses in water. It is made by adding sulfuric acid to pure castor

oil. It was the first synthetic detergent.

catalyst Katalysator, der (chem.)

Unlike reagents, a catalyst is not consumed in a chemical reaction. It is estimated that 90% of all chemicals or their precursors are produced by catalysis.

catalytic combustion

unit thermisch katalytische Nachverbrennungsanlage, die (chem. eng.)

Acronym (engl.): CCU Acronym (dt.): KNV

A CCU is generally more suitable than an RTO in case of varying gas loads.





cataplasm (pharm.)

Acronym/Abbreviation referral: see poultice

cation Kation, das (chem.)

 $K^+$ ,  $Ca^{2+}$  and  $H_3O^+$  are cations.

caulking abdichten, abdichtend (eng.)

Caulking was achieved with silicone.

caustic ätzend (chem.)

Potassium hydroxide (KOH), a caustic substance, is the precursor to most liquid

soaps.

caustic soda Ätznatron, das; Natronlauge, die (chem.)

Sodium hydroxide, also known as caustic soda, is produced in the chloralkali process, which involves the electrolysis of an aqueous solution of sodium chloride.

**cavitation** Hohlraumbildung, die; Kavitation, die (eng.)

High rotor speeds can cause cavitation and severe damage in pumps.

cavity Hohlraum, der (eng.)

Cavities in teeth can be treated by lasers.

**C-coupling** C-Kupplung, die (eng.)

The water hose was equipped with a C-coupling.

CCR (econ.)

Acronym/Abbreviation referral: see covenants, conditions, and restrictions

CCU (chem. eng.)

Acronym/Abbreviation referral: see catalytic combustion unit

CE marking, CE mark CE Kennzeichnung, die; CE Zeichen, das (eng.)

The Japanese vendor could not provide CE marking for his machinery.

CEFIC (chem.)

Acronym/Abbreviation referral: Conseil Européen de l'Industrie Chemique; see

European Chemical Industry Council

ceiling, Maximalkonzentration, die (chem.)

ceiling concentration

The ceiling concentration of CO, i.e. the maximum allowable human exposure limit for airborne substances that must not be exceeded even momentarily, is

200 ppm. For methyl alcohol, it is 500 ppm for 10 minutes.

**cement flooring** Zementestrich, der (eng.)

He decided that a cement flooring of 10 cm thickness would be enough.

centimetre gram(me) CGS-System, das; Zentimeter-Gramm- (eng.)

second system Sekunde-System, das

The CGS system was replaced by the MKS (metre-kilogram-second) system, which in turn was replaced by the International System of Units (SI). SI units are the three base units of MKS plus ampere, mole, candela and kelvin.

**centrifugal** Fliehkraftabscheider, der (*chem. eng.*)

precipitator

The yeast cells could be isolated using a centrifugal precipitator.

**centrifugal pump** Kreiselpumpe, die (*chem. eng.*)

The centrifugal pump was damaged by cavitation.

CERCLA (chem. eng.)

Acronym/Abbreviation referral: see Comprehensive Environmental Response,

Compensation & Liability Act

cerium (Ce) Cer, das (chem.)

Acronym (engl.): Ce Acronym (dt.) Ce

The rare earth metal cerium (Ce) is liquid from 795°C to 3443°C.

**certificate of analysis** Analysenzertifikat, das (pharm.)

Acronym (engl.): CoA

The company requires a CoA for each raw material delivery.

Certified Pharmacy Pharmazeutisch-technische(r) Assistent(In), der (die) (pharm.)

Technician

Acronym (engl.): C. Ph. T.

Acronym (dt.): PTA

The C.Ph.T assisted the physician.

CFD (chem. eng.)

Acronym/Abbreviation referral: see computational fluid dynamics

CFR (econ.)

Acronym/Abbreviation referral: see cost and freight

cGMP (med.)

AcronymAbbreviation referral: see current good manufacturing practice

cgs (eng.)

Acronym/Abbreviation referral: see centimetre gram second system





chain drive Kettenantrieb, der (eng.)

A chain drive has to be covered so that nobody can accidentally stick his hand

inside.

**chairman** Vorsitzender, der (econ.)

The chairman channeled the discussion of the meeting to the core items.

**challenge** Herausforderung, die (eng.)

Constructing the seemingly impossible is a great challenge for engineers.

change order Änderungsauftrag, der (chem. eng.)

The change order resulted in additional costs and a time delay.

change order request Antrag auf Änderung des Auftrags, der (chem. eng.)

A change order request is a formal request from the contractor to the client which identifies the additional scope of work, for instance in engineering, and

its consequences.

change order, Änderungsauftrag, der (chem. eng.)

engineering change order

Acronym (engl.): ECO

A change order is a formal order, given to the engineering partner by the client,

to initiate a change in engineering, usually with a cost implication.

channel tray Tunnelboden, der (chem. eng.)

The channel tray of the distillation column was made of stainless steel.

characteristic curve Kennlinie, die (eng.)

A pump should be selected according to its characteristic curve.

characteristic, Kennzahl, die (chem. eng.)

characteristic

number

The Reynolds number is an important characteristic number of any fluid flow.

charge Ladung, die (chem.)

K<sup>+</sup> and Ca<sup>2+</sup> carry one and two charges, respectively.

charge, to befüllen, beschicken (eng.)

The feeders were charged with the raw materials.

**charged particle** geladenes Teilchen, das (eng.)

Charged particles can lead to an ignition.

charred cable verschmortes Kabel, das (eng.)

A charred cable could be identified as the reason for the short circuit.

chart Diagramm, das (sci.)

A chart has to be labelled on all axes.

check valve, Rückschlagklappe, die; Rückschlagventil, das; (chem. eng.)

clack valve,

non-return valve, one -way valve

Check valves are often used when multiple gases are mixed together to prevent

(back)mixing, e.g. of hydrocarbons into nitrogen.

chelating agent Komplexiermittel, das (chem.)

EDTA, which stands for ethylenediaminetetraacetic acid ( $C_{10}H_{16}N_2O_8$ ), is a chelating agent that forms very strong complexes with Mn(II), Cu(II), Fe(III),

Pb (II) and Co(III).

chemical chemisch (chem.)

The chemical industry has to register all of its 70,000 different products under REACH (Registration, Evaluation, Authorisation and restriction of CHemicals),

which is a new European Union Regulation.

Chemical Abstracts CAS (chem.)

Service

Acronym (engl.): CAS

Chemical Abstracts Service is a division of the American Chemical Society

which produces bibliographic and chemistry databases.

chemical base, base Base, die (chem.)

Compounds with a pK<sub>a</sub> of more than about 13 are called strong bases. Common examples of strong bases are the hydroxides of alkali metals and alkaline earth

metals like NaOH and Ca(OH)<sub>2</sub>.

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**chemical engineer** Verfahrenstechniker(in), der (die) (chem. eng.)

A chemical engineer has to have an understanding of both chemistry and

mechanical engineering.

**chemical engineering** Verfahrenstechnik, die (chem. eng.)

In her home town, approx. 5 times more students study architecture than

chemical engineering.

**chemical grouting** chemische Injektion, die (eng.)

The cost estimation of chemical grouting was missing.

**chemical oxygen** chemischer Sauerstoffbedarf, der (chem.)

demand

Acronym (engl.): COD Acronym (dt.): CSB

COD indirectly measures the amount of organic matter in water, e.g. pollutants. Potassium dichromate  $(K_2Cr_2O_2)$ , a strong oxidizing agent under acidic

conditions, is commonly used for the test.





chemical reaction

Reaktionsführung, die

(chem. eng.)

engineering,

reaction engineering

The institute developed a lot of competence in the field of reaction engineering.

Chemical Safety Board, CSB (Aufsichtsbehörde für Chemikaliensicherheit, die)

(chem. eng.)

**Chemical Safety and** 

**Hazard Investigation** 

Board (AE)

Acronym (engl.): CSB

CSB, an independent US federal agency, is charged with investigating industrial

chemical accidents.

chemical structure Strukturformel, die

(chem.)

NMR (nuclear magnetic resonance) can be used to determine the chemical

structure of an unkown compound.

chemical vapour

deposition

chemisches Aufdampfen, das

(chem.)

chemical vapor deposition (AE)

Acronym (engl.): CVD Acronym (dt.): CVD

CVD (chemical vapour deposition) is frequently used in the semiconductor industry to produce thin films. A typical reaction is  $SiH_4 + O_2 --> SiO_2 + 2H_2$ .

chemical worker

Chemiewerker, der

(chem. eng.)

The chemical worker proposed to replace a malfunctioning valve.

chemist

Chemiker(in), der (die)

(chem.)

The first chemist was probably Antoine Lavoisier with his law of conservation

of mass in 1783.

chemistry

Chemie, die

(chem.)

Chemistry has its roots in alchemy.

chequer plate

Riffelblech, das

(eng.)

checker plate, checker (AE)

Checker plate from steel and aluminum was kept in stock in 4'x8' sheets.

chew, to kauen (kaute, gekaut) (general)

Chewing gum is made from synthetic rubber.

**child proof,** kindersicher (*general*)

child resistant

Child resistant packaging (C-R packaging) is typically used for pesticides.

china clay Kaolinit, der (chem.)

China clay or Kaolinite is a clay mineral with the formula Al<sub>2</sub>Si<sub>2</sub>O<sub>5</sub> (OH)<sub>4</sub>. It is

a layered silicate.

chip Span, der (eng.)

Because he did not wear protective equipment, a chip injured his skin.

**chipboard** Spanplatte, die (eng.)

The carpenter nailed the chipboard down.

chisel Meißel, der (eng.)

Using a chisel, he could bring the stone into its intended shape.

chloride Chlorid, das (chem.)

Acronym (engl.): Cl<sup>-</sup> Acronym (dt.): Cl<sup>-</sup>

The melting point of sodium chloride is 801°C.

chlorinated chloriert (chem.)

Chlorinated water is potable.

chlorine Chlor, das (chem.)

Acronym (engl.): Cl Acronym (dt.): Cl

Chlorine is a powerful oxidant and can be used for bleaching purposes.

CHP (eng.)

Acronym/Abbreviation referral: see combined heat and power

**chromatography** Chromatographie, die (chem.)

She used HPLC (high performance liquid chromatography) to separate her

sample.

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**chrome-plate, to** verchromen (*chem.*)

Chrome-plated car parts are quite popular in the US.

**chromium** Chrom, das (*chem.*)

Acronym (engl.): Cr Acronym (dt.): Cr

Chromium, a transition metal used in stainless steel, is the only known element

to enter quintuple bonds.

CIF (econ.)

Acronym/Abbreviation referral: see cost, insurance, freight

cinnabar Zinnober, der (chem.)

Cinnabar is the name used for the red mineral HgS.

CIP (general)

Acronym/Abbreviation referral: see continuous improvement process

CIP (chem. eng.)

Acronym/Abbreviation referral: see cleaning in process, cleaning in place





circuit Stromkreis, der; Schaltkreis, der (eng.)

Electronic circuits are closed paths composed of electronic components through

which an electric current can flow.

circular saw Kreissäge, die (eng.)

Last week circular saws were on sale in the local do-it-yourself store.

circulating pump Umwälzpumpe, die (chem. eng.)

The circulating pump was overdesigned.

circumference Umfang, der (eng.)

The circumference of the storage area is 2,500 m.

citation Zitat, das; Zitierung, die (sci.)

The article contains 37 citations.

citric acid Zitronensäure, die (chem.)

Citric acid, which decomposes above 175°C through the loss of  $CO_2$  and  $H_2O_3$ , is part of the citric acid cycle and therefore occurs in the metabolism of almost

all organisms.

city water, citywater, Leitungswasser, das (eng.)

tap water

There was plenty of citywater available.

claim Forderung, die; Klage, die; Beanspruchung, die (econ.)

A claim is a demand for financial compensation as a result of a complaint brought

forward e.g. by a customer.

clamp Zwinge, die (chem.)

The reaction vessel was held in place by clamps.

**clamp** Schraubzwinge, die (eng.)

He could not retrieve the clamps.

classifier Klassieranlage, die (chem. eng.)

A classifier can remove over- and undersized particles.

clay Ton, der (chem.)

Clay minerals are typically formed over long periods of time by gradual chemical

weathering of rocks.

cleaning agent Reinigungsmittel, das (chem.)

Cleaning agents should not leave any streaks on glass surfaces.

cleaning in process, Reinigung vor Ort, die (chem. eng.)

cleaning in place

Acronym (engl.): CIP

CIP stands for the cleaning of production facilities without the need to dismantle

them.

cleanup Säuberung, die; Aufräumarbeiten, die (chem.)

2 workers in hazmat suits were at the cleanup site after the fire.

cleave, to spalten (eng.)

Cleaving wood with an axe is a tough job.

clevis pin Gabelstift, der; Lastösenbolzen, der (eng.)

Clevis pins are used with shackles. They are fasteners that allow rotation of the

connected parts.

clinical studies, klinische Studien, die (med.)

clinical trials

In health care, clinical trials are conducted to collect data about new drugs. The

phases range from 0 to IV.

clipper Karabinerhaken, der (eng.)

Clippers are extensively used by climbers.

**cloth** Stoff, der (Textil) (*chem.*)

The filter bag is made from cloth.

CNG (chem. eng.)

Acronym/Abbreviation referral: see compressed natural gas

CO<sub>2</sub> allowance Bewilligung, die; Freibetrag für CO<sub>2</sub>, der (chem. eng.)

Tight CO, allowances are expected to foster innovation for energy-efficient

production processes.

CoA (chem.)

Acronym/Abbreviation referral: see certificate of analysis

coagulant, flocculant Fällungsmittel, das; Flockungsmittel, das (chem.)

Alum (KAl(SO<sub>4</sub>)<sub>2</sub>.12H<sub>2</sub>O) is used as a coagulant in water treatment.

coagulate, to gerinnen (chem.)

When he added the acid, the solution immediately coagulated.

coal Kohle, die; Steinkohle, die (eng.)

Peat can be seen as a precursor of coal. Via lignite (brown coal), sub – bituminous

coal, bituminous coal and finally anthracite can be formed.

**coal liquefaction** Kohleverflüssigung, die (chem. eng.)

The speaker presented a CTL process that is competitive at current crude oil

prices.



coal-to-liquid (chem. eng.)

Acronym (engl.): CTL

Acronym/Abbreviation referral: see coal liquefaction

coarse grob (eng.)

The comminuition of coarse particles is an energy -consuming process.

coating Belag, der; Beschichtung, die (chem.)

The solvent has attacked the coating.

coating Beschichtung, die (eng.)

The lifetime of soft materials can be prolonged by the application of a suitable

coating.

**cobblestone** Kopfsteinpflaster, das (eng.)

On a cobblestone road, the suspension system of a car can be tested.

cock Hahn, der (chem.)

The cock in the byrette was stuck.

COD (chem.)

Acronym/Abbreviation referral: see chemical oxygen demand

code Norm, die; Standard, der (eng.)

The ASTM code proposed stainless steel.

cog wheel Zahnrad, das (eng.)

Cog wheels can be found in gears.

cogen (eng.)

Acronym/Abbreviation referral: see cogeneration

cogeneration, Kraft-Wärme-Kopplung, die (eng.)

combined heat and power

Acronym (engl.): CHP, cogen

Cogeneration (combined heat and power, CHP) is a combustion process that

strives to capture all available energy from the combustion offgas.

coil Spule, die (eng.)

The copper coil has a weight of 2.5 kg.

**coiled spring** Spiralfeder, die (eng.)

A coiled spring can store mechanical energy.

coke Koks, der (eng.)

Two critical properties of coke, a solid carbonaceous residue derived from

destructive distillation of coal, are ash and sulphur content.

cold drawing Kaltziehen, das (eng.)

By cold drawing of 1 cm thick copper rods, wires as thin as 1 micrometer in

diameter can be obtained.

cold rolling Kaltwalzen, das (eng.)

Cold rolling increases the yield strength and hardness of a metal, because it introduces defects into the crystal structure of the material below its

recrystallisation temperature.

collective lens, Sammellinse, die (eng.)

collimating lens

Because of its simple geometry, the collective lens suffers from spherical

aberration.

colour change Farbumschlag, der (chem.)

color change (AE)

When the pH value is increased to 11.6-14, the pH indicator leucomalachite

green (second transition) changes from green to colorless.

colour scale Farbskala, die (chem.)

color scale (AE)

The colour scale was used for reference purposes.

column Säule, die (chem.)

The longer the column in chromatography is, the better the separation of the

mixture under investigation will be.

combined heat and power (eng.)

Acronym (engl.): CHP

Acronym/Abbreviation referral: see cogeneration

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combustible brennbar (chem.)

Fine dust of combustible material is generally dust explosive.

**combustion** Verbrennung, die (chem.)

80–90% of the worldwide primary energy production stems from combustion

processes.

**combustion chamber** Brennkammer, die (chem. eng.)

The turbulence in combustion chambers plays a key role in pollutant formation.

combustion point, fire point

Brennpunkt, der

(chem.)

The flash point of a flammable liquid is the lowest temperature at which it can form an ignitable mixture in air. At this temperature the vapor will stop burning when the ignition source is removed. A slightly higher temperature, the fire point, is defined as the temperature at which the vapor continues to burn autonomously after removal of the ignition source. For oils, the fire point is generally about 10°C higher than the flash point.





**comminute, to** fein zerteilen, zerkleinern (*chem. eng.*)

To comminute solids is an energy-consuming process.

**commissioning** Inbetriebnahme, die (chem. eng.)

Commissioning of the new production line was achieved in 2 weeks.

**commitment** Verpflichtung, die; Bekenntnis, das; Engagement, das (econ.)

His commitment to the team suffered from an inconsiderate email that he had

received.

**commodity** Ware, die; Commodity, das; (econ.)

Rohstoff, der; Verbrauchsgut, das; Massenware, die

Steel started to be traded as a commmodity on the London Metal Exchange in

2007.

commodity product Massengut, das; Commodity, das (econ.)

A commodity product is a material that is freely available in the market from several competitors. Commodity products are often sold in high volumes and

at low margins.

**common name** Trivialname, der (chem.)

The common name of 2,2,4 trimethylpentane is isooctane ( $C_8H_{18}$ ). Octane itself

has 18 isomers.

community heating, Fernwärme, die (eng.)

district heating

Community heating is an environmentally friendly technology.

**competitor** Konkurrent, der; Mitbewerber, der; Marktbegleiter, der (econ.)

Talking to competitors about prices is considered highly unethical behaviour.

It is also illegal.

**complaint** Beschwerde, die; Reklamation, die; Beanstandung, die (econ.)

The customer filed a complaint because of poor quality of the product.

compliance Einhaltung, die; Erfüllung, die (general)

For full compliance with legal regulations, a gas scrubber had to be installed.

**complying with** entsprechend, das Einhalten von (general)

Complying with environmental protection standards is mandatory for a

chemical company.

**composite** Verbundwerkstoff, der (eng.)

Composites are known for their good mechanical properties at low weight.

**composite foil** Verbundfolie, die (eng.)

The composite foil is made of 7 layers.

**composition** Zusammensetzung, die (chem.)

The team composition was not balanced.

**compound** Verbindung, die; Compound, das (*chem.*)

Currently, there are more than 81 million organic and inorganic compounds

with a CAS number.

Comprehensive CERCLA (chem. eng.)

**Environmental** 

Response,

Compensation &

Liability Act (AE)

Acronym (engl.): CERCLA

compressed air Druckluft, die (eng.)

Compressed air can be used to drive equipment in classified areas.

compressed gas Druckgasflasche, die (chem. eng.)

cylinder

The compressed gas cylinder was filled with nitrogen at 200 bar.

**compressed natural gas** komprimiertes Erdgas, das (*chem. eng.*)

Acronym (engl.): CNG Acronym (dt.): CNG

The energy density of CNG is approx. only 40% of that of LNG (because it is

not liquefied) and approx. 25% of that of diesel.

**compression stoke** Verdichtungstakt, der (eng.)

In an Otto engine, the compression stroke occurs after the intake stroke.

**compulsory** gesetzlich, zwingend erforderlich (general)

In Germany, it is compulsory to follow the DIN standard for pressure vessels.

computational fluid

dynamics

numerische Strömungssimulation, die (chem. eng.)

Acronym (engl.): CFD

In computational fluid dynamics (CFD), numerical methods and algorithms to

solve and analyze problems involving fluid flows are used.

concealed verborgen (eng.)

Debottlenecking can activate concealed plant capacities.

**concentration** Konzentration, die (chem.)

The concentration of salt in sea water is approx. 30 g/l.

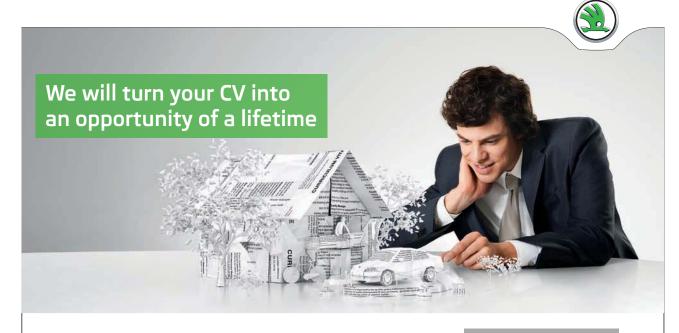
concomitants Begleitsubstanzen, die (chem.)

The ore contains 60% of concomitants.

concrete Beton, der (chem.)

Concrete is a construction material that contains cement.

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**concurrent** produktbegleitend, gleichzeitig (eng.)

In concurrent engineering, several tasks are carried out in parallel. This has time

advantages, but bears some risks.

**conditioning** Konditionierung, die (chem.)

Conditioning can be understood as a series of operations to bring a sample or specimen into a reference state with regard to temperature and humidity.

cone Kegel, der (general)

The missing part looked like a cone.

cone crusher Kegelbrecher, der (eng.)

Cone crushers are used to comminute stones.

conference proceedings Tagungsbericht, der (sci.)

Conference proceedings belong to the so-called grey literature.

**confined** eingeschränkt, beschränkt (*general*)

Gunpowder, when unconfined, burns gently.

**congeal, to** gerinnen, fest werden, erstarren (chem.)

When a substance congeals, its viscosity increases. This can be achieved by a

reduction in temperature or by chemical reactions.

**congestion** Verstopfung, die (pharm.)

Nasal congestion may be caused by an allergic reaction due to hay fever.

conical flask, Spitzkolben, der (pharm.)

Erlenmeyer flask,

E-flask

The conical flask broke upon exposure to the open flame of a Bunsen burner.

conjunctivitis, Bindehautentzündung, die (pharm.)

pink eye

Bacterial conjunctivitis is usually treated with antibiotic eye drops or ointments

which can contain fusidic acid  $(C_{31}H_{48}O_6)$ .

**connecting rod** Pleuelstange, die (eng.)

The connecting rod of his car was chrome-plated.

**consignment stock** Konsignationslager, das (econ.)

Since the ownership of consignment stock is not transferred from the manufacturer to the customer until use, invoicing is not done immediately.

constant flow stirred (chem. eng.)

tank reactor

Acronym/Abbreviation referral: see Continuous Stirred Tank Reactor

**constant weight** Gewichtskonstanz, die (pharm.)

A constant weight of the final product is ensured by monthly instrument

calibration.

**constituent** Bestandteil, der (*chem.*)

Carbon black is a constituent of most dark pigments.

constitution diagram, Phasendiagramm, das; (chem. eng.)

constitutional diagram Zustandsdiagramm, das; Zustandsschaubild, das; (chem. eng.)

In metallurgy, a constitutional diagram (phase diagram) is a graphical representation of phase-stability relationships in an alloy system as a function

of temperature.

**consultant** Berater, der (econ.)

He worked for a consultant before founding his own business.

**contaminated** verseucht, kontaminiert (*chem.*)

Soil contaminated with hydrocarbons needs to be disposed of in a suitable way.

**contingency** Eventualität, die; Schadensmöglichkeit, die (econ.)

The cost estimation contained 10% contingency.

continuous casting Stranggießen, das (eng.)

Continuous casting is a process to produce steel bars.

**continuous concrete** Gussbeton, der (eng.)

The mixer for continuous concrete broke down.

continuous kontinuierlicher Verbesserungsprozess, der (general)

improvement process

Acronym (engl.): CIP Acronym (dt.): KVP

A continuous improvement process based on Kaizen was introduced.

Continuous Stirred kontinuierlich betriebener idealer Rührkessel, der (chem. eng.)

**Tank Reactor** 

Acronym (engl.): CSTR Acronym (dt.): KIK

The CSTR, also known as vat - or backmix reactor, is an ideal reactor type

where perfect mixing is assumed. Another ideal type is the PFR.

Continuously Stirred (chem. eng.)

**Tank Reactor** 

Acronym/Abbreviation referral: see continuous stirred tank reactor



continuous tubular kontinuierlicher Rohrreaktor, der (chem. eng.)

reactor

Acronym (engl.): CTR

PFRs are also sometimes called CTRs. The key assumption of PFRs is that the

fluid is perfectly mixed in the radial direction but not in the axial one.

contract Vertrag, der (econ.)

A contract stipulates rights and obligations of all parties involved.

contract for work and Werkvertrag, der (econ.)

labour, service contract

contract for work and labor (AE)

The service contract was issued for last week.

**contractor** Auftragnehmer, der (econ.)

The contractor was urged to hand in the weekly report.

**contraindication** Gegenanzeige, die (pharm.)

So far, no contraindictions were known about the drug.

**contribution** Beitrag, der (general)

His contribution was not appreciated.

control a process, to einen Prozess steuern (chem. eng.)

The process in controlled by an experienced operator.

**control panel** Steuerpult, das (*chem. eng.*)

An operator working at the control panel of a plant has to be able to cope with

stressful situations.

control room, Leitstand, der; Leitwarte, die; Schaltwarte, die (chem. eng.)

control station

3 operators were sitting in the control room when the incident happened.

control signal Stellsignal, das (chem. eng.)

In closed-loop control of a process, a sensor response results in a control signal

that affects the process.

control valve Regelklappe, die; Regelventil, das (eng.)

A control valve can be used to control operating conditions such as temperature,

pressure, flow, and liquid level in a chemical plant.

control, to; ansteuern (eng.)

drive, to;

activate, to;

The operator activated the valve.

controlled atmosphere Schutzgas, das (chem.)

A controlled atmosphere in food packaging can extend the shelf life significantly.

**conveying belt,** Förderband, das (chem. eng.)

conveyor belt

Conveyor belts are often made from reinforced rubber.

coolant Kühlflüssigkeit, die; Kühlmittel, das (eng.)

An ideal coolant or heat transfer fluid shows high thermal capacity, low viscosity

and chemical inertness.

copper Kupfer, das (eng.)

Acronym (engl.): Cu Acronym (dt.): Cu

Copper, which like gold does not have a silvery luster typical of metals, has the second highest electrical and thermal conductivity of a pure metal after silver.

The Statue of Liberty contains 81 tonnes of copper.

cord set konfektionierte Leitung, die; Kabelset, das (eng.)

The cord set was made from flame-retardant plastics.

corollary logische Konsequenz, die; Folgerung, die; Korollar, das (general)

The mathematician could prove the corollary.

corotating gleichläufig (eng.)

For polypropylene compounding, corotating twin screw extruders are

commonly used.

corporate social responsibility

unternehmerische Sozialverantwortung, die

(econ.)

Acronym (engl.): CSR

CSR, also called corporate citizenship and responsible business, is a concept whereby organizations consider the interests of society by taking responsibility for the impact of their activities on customers, suppliers, employees, shareholders, communities and other stakeholders, as well as the environment.

corrosion Korrosion, die (chem.)

In passivation, a thin film of corrosion products is formed on a metal's surface, acting as a barrier to further corrosion.

corrugated cardboard Wellpappe, die; Wellkarton, der

(eng.)

The glass was wrapped in corrugated cardboard.

corundum Korund, der (chem.)

Corundum has a Mohs hardness of 9 (diamond is 10).



cosine Kosinus, der (sci.)

The cosine of an angle is the ratio of the length of the adjacent side to the length of the hypotenuse, whereas the sine of an angle is the ratio of the length of the opposite side to the length of the hypotenuse. The tangent of an angle is the ratio of the length of the opposite side to the length of the adjacent side.

cost allocation Kostenzuteilung, die; Kostenzuordnung, die (econ.)

For cost allocation, the steam consumption of the various process units had to

be estimated.

cost and freight Kosten und Fracht (Incoterm) (econ.)

Acronym (engl.): CFR

The reactor was delivered "CFR Shanghai", meaning that the customer had to

pick it up in the harbour.

cost center Kostenstelle, die (eng.)

There was an overrun in his costcenter.

cost of capital Kapitalkosten, die (econ.)

The costs of capital in a company depend on its debt/equity ratio.

**cost overrun** Kostenüberschreitung, die (econ.)

Due to a lack of engineering resources, the project experienced a cost overrun

of 15%.

cost, insurance, freight Kosten, Versicherung, Fracht (Incoterm) (econ.)

Acronym (engl.): CIF

Buyer and seller agreed on CIF.

**cotton** Baumwolle, die (eng.)

Gossypol (C<sub>30</sub>H<sub>30</sub>O<sub>8</sub>), a polyphenol derived from the cotton plant, has

contraceptive properties. Cotton is used to make textiles.

cotton wool Watte, die (chem.)

cotton batting (AE)

Cotton wool is obtained from cotton by purification, bleaching and sterilization.

**cotton plug** Wattebausch, der (pharm.)

The lab assistant dipped a cotton plug inside the fleaker.

cough syrup Hustensaft, der (pharm.)

Cough syrup contains cough suppressants and expectorants. Codeine (methylmorphine, C<sub>18</sub>H<sub>21</sub>NO<sub>3</sub>) is one of the strongest cough suppressants.

**counterbalance,** Gegengewicht, das (eng.) **counterweight** 

A counterweight is often used in elevators and cranes.

**countercurrent** Gegenstrom, der (eng.)

In a concurrent (co-current, parallel) heat exchanger, thermal equilibrium is achieved, where the hot and the cold fluid reach the same temperature. In a countercurrent heat exchanger, the cold fluid becomes hot and the hot fluid

becomes cold.

covalent kovalent (chem.)

The covalent triple bond in N<sub>2</sub> has an energy of 418 kJ/mol.

covenants, conditions Vereinbarungen, Bedingungen und Einschränkungen, die (econ.)

and restrictions

Acronym (engl.): CCR

The CCR can be found on the company website.

CPT (econ.)

Acronym/Abbreviation referral: see carriage paid to

crab, trolley Laufkatze, die (eng.)

(travelling ~)

*crab, trolley (traveling*  $\sim$ )(AE)

The (travelling) trolley has to be overhauled every 2 years.

cracking Rissbildung, die (eng.)

Cracking is a form of fatigue.

cracking pressure, Berstdruck, der; Öffnungsdruck, der (eng.)
crack pressure

The cracking pressure is the minimum pressure at which a check valve will

operate.

craft Handwerk, das (eng.)

Crafts can be grouped by the use of a certain material such as wood, clay, glass

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craftsman Handwerker, der (eng.)

The craftsman could repair the machine within 1 hour.

crane Kran, der (eng.)

A construction site can be seen from a distance because of the cranes.

crank shaft Kurbelwelle, die (eng.)

His main expertise is crank shaft design.

creep Kriechen, das (eng.)

Unlike brittle fracture, creep is a deformation mechanism rather than a material failure. It does not occur suddenly, but steadily upon the application of stress.

**crevis corrosion** Spaltkorrosion, die (eng.)

Crevice corrosion can be caused by a high concentration of impurities such as chlorides in the crevice ("hideout") or differential electrolyte chemistry inside

and outside the crevice.





crimp of a tube Tubenfalz, der (pharm.)

A crimp is obtained by joining two pieces of metal or any other malleable

material by deforming them, e.g. as on a tube.

crimp, to verbördeln (pharm.)

The liquid was leaking out because the tube had not been properly crimped.

critical kritisch (eng.)

Critical steps deserve sufficient planning.

cross section Querschnitt, der (eng.)

The cross section of a pipe has a strong influence on the flow resistance.

crucible Tiegel, der (chem.)

The crucible broke when it hit the ground.

crude

Acronym/Abbreviation referral: crude oil (chem. eng.)

crude oil, Rohöl, das; Erdöl, das (chem. eng.)

petroleum

Crude oil (petroleum) contains 0.5 to 6% sulfur. The hydrocarbons can be

grouped into paraffins, naphthenes, aromatics and asphaltics.

crude ore Roherz, das (chem. eng.)

The total world reserves of crude iron ore are 800 billion tons. They contain approx. 230 billion tons of iron. The global crude steel production was 1.24

billion tons in 2006.

**cryogenic** tieftemperatur- (eng.)

Lead salt diode lasers require cryogenic cooling.

cryogenic vial Dewargefäß, das (pharm.)

The cryogenic vial could keep liquid nitrogen for 5 hours.

CSB (chem. eng.)

Acronym/Abbreviation referral: see Chemical Safety Board

CSR (econ.)

Acronym/Abbreviation referral: see corporate social responsibility

CSTR (chem. eng.)

Acronym/Abbreviation referral: see Continuous Stirred Tank Reactor

CTL (chem. eng.)

Acronym/Abbreviation referral: see coal-to-liquid

CTR (chem. eng.)

Acronym/Abbreviation referral: see continuous tubular reactor

culture broth, Nährboden, der (pharm.)

nutrient broth

The most common growth media for microorganisms are nutrient broths and

agar plates.

culture medium, Nährmedium, das (pharm.)

growth medium

Antibiotics were added to the growth media as selective growth compounds for

bacteria.

**cumene** Cumol, das; Isopropylbenzen, das (*chem.*)

Cumene (isopropylbenzene) is an aromatic hydrocarbon that can be found in crude oil. Nearly all the cumene is used to produce phenol and acetone via

cumene hydroperoxide (C<sub>2</sub>H<sub>5</sub>C(CH<sub>3</sub>)<sub>3</sub>-O-O-H).

cure, to härten, vulkanisieren (chem.)

Vulcanization is a specific curing process of rubber that involves high

temperatures and the addition of sulfur.

curing Vulkanisieren, das (chem. eng.)

Curing is the hardening of a polymer material by cross-linking, which can be

achieved by chemical agents, radiation or heat.

**current Good** aktuelle gute Herstellungspraxis, die; aktuelle GMP, die (med.)

**Manufacturing Practice** 

Acronym (engl.): cGMP

The US laboratory was working according to cGMP.

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**curriculum vitae** Lebenslauf, der (general)

Acronym (engl.): CV Her CV was updated.

**customer** Kunde, der (econ.)

Ultimately, it is the customer who pays the wages.

**customer requirements** Kundenanforderungen, die (econ.)

Translating customer requirements into new products is a key success factor of

any corporation.

**customs clearance** Zollabfertigung, die; Verzollung, die (econ.)

Customs clearance was delayed because of missing documents.

**cut-off wheel** Trennscheibe, die (eng.)

Cut-off wheels often contain Al<sub>2</sub>O<sub>3</sub> particles.

**cutting torch** Schneidbrenner, der (*eng.*)

The cutting torch was operated on acetylene and oxygen.





CV (general)

Acronym/Abbreviation referral: see curiculum vitae

CVD (chem.)

Acronym/Abbreviation referral: see chemical vapour deposition

daily allowance Taggeld, das (econ.)

The employee did not know that he was entitled to a daily allowance of 35 Euro

in the US.

dampen, to dämpfen (eng.)

Vibrations in machinery need to be dampened.

dangerous good Gefahrenstoff, der (chem.)

Dangerous goods include materials that are radioactive, flammable, explosive or corrosive, biohazardous, toxic, oxidizers, asphyxiants, pathogen or allergen substances and organisms, but also physical condititions as compressed gases

or hot materials.

dark room Dunkelkammer, die (eng.)

With the proliferation of digital cameras, dark rooms have become pretty rare.

darting flame Stichflamme, die (chem.)

The ignition resulted in a darting flame.

data logger Messwerterfasser, der; Datenlogger, der (eng.)

The resolution of the data logger is 0.05 psi.

davit Ladebaum, der; Davit, der (eng.)

The rescue boat was attached to the davit.

day supervisor Tagmeister, der (chem. eng.)

The day supervisor had 10 years of work experience.

days of inventory Reichweite des Lagers, die (econ.)

Acronym (engl.): DOI

The days of inventory is the number of days that finished goods inventory will

support forecast sales.

DC (eng.)

Acronym/Abbreviation referral: see direct current

DDP (econ.)

Acronym/Abbreviation referral: see delivery duty paid

DDU (econ.)

Acronym/Abbreviation referral: see delivery duty unpaid

deacidify, to entsäuern (pharm.)

The researcher developed a spray to deacidify historic paper documents without

harming inks or discoloring paper.

dead lime gebrannter Kalk, der (chem.)

Dead lime consists of CaO.

dead weight,

**deadweight** Leergewicht, das (pharm.)

The dead weight of the glass container was 13.5 g.

deaerate, to entlüften (eng.)

Fluidized powders can be deaerated by storing them in a silo for some time.

deaeration valve Abströmventil, das (chem. eng.)

The deaeration valve was designed for a maximum flow of 10 m<sup>3</sup>/s.

debottleneck, to einen Engpass beseitigen (chem. eng.)

The plant was debottlenecked from 32 kt/a to 42 kt/a.

debt Schulden, die (econ.)

The debt to equity ratio is known as "gearing".

decant, to dekantieren (chem.)

The solution was decanted to remove solids.

**decommissioning** Außerbetriebnahme, die (chem. eng.)

Decommissioning of the plant had to be postponed because the new plant was

not yet operational.

**decomposition** Zersetzung, die (chem.)

Thermal decomposition (thermolysis) is usually an endothermic process as heat is required to break chemical bonds in the compound, e.g. CuCO<sub>3</sub> (green) -->

CuO (black) + CO<sub>2</sub>.

**deduster** Windsichter, der (chem. eng.)

Dedusters can handle large volumes of air.

**dedusting plant** Entstaubungsanlage, die (chem. eng.)

The dedusting plant was designed for class ST3 materials.

**dedusting,** Entstauben, das (eng.)

dust collection

Dust collection can prevent the accumulation of dangerous concentrations of

combustible material in a plant.

**default value** Standardwert, der; Vorgabewert, der; Einstellwert, der (eng.)

The default value was a flow of 35 m<sup>3</sup>/h.



degas, to entgasen (chem.)

The polymer pellets had to be degassed in order to get rid of unreacted monomer.

**degenerate** entartet (chem.)

Degenerate states have the same energy level.

degradation product Abbauprodukt, das (chem.)

Peroxides can be formed as dangerous degradation products from ethers.

**degrease, to** entfetten (chem.)

Prior to applying the paint, the surface had to be degreased.

**dehydration** Wasserentzug, der (chem.)

Food can be preserved by dehydration.

deliquescent zerfließend (chem.)

Calcium chloride (CaCl<sub>2</sub>), magnesium chloride (MgCl<sub>2</sub>) and zinc chloride

(ZnCl<sub>2</sub>) are not only hygroscopic, but even deliquescent salts.

delivered duty paid, geliefert verzollt (econ.)

delivery duty paid

Acronym (engl.): DDP

The company made an attractive offering based on DDP.

delivered duty unpaid, geliefert unverzollt (Incoterm) (econ.)
delivery duty unpaid

Acronym (engl.): DDU DDU is an Incoterm.

**deluge** Überschwemmung, die; Regenguss, der (general)

The plant was in an area with increased risk for deluges.

demi water (chem. eng.)

Acronym/Abbreviation referral: see demineralised water (short form of ~)

demineralised water Deionat, das; vollentsalztes Wasser, das; VE Wasser, das (chem. eng.)

de mineralized water (AE)

The demi water unit was designed for 10 m<sup>3</sup>/h.

demix, to; unmix, to; entmischen (chem.)

segregate, to

Powders that have a broad particle size distribution often tend to demix in a

silo.

**demotion** Degradierung, die; Herabstufung, die (econ.)

2 months after his demotion, the employee quit.

**demulcent** lindernd; Linderungsmittel, das (pharm.)

Lozenges may contain benzocaine, an anesthetic, or eucalyptus oil. Nonmenthol throat lozenges generally use either zinc gluconate glycine or pectin

as an oral demulcent.

demurrage Liegezeit, die; Liegegeld, das; Lagergeld, das; Demurrage, die (econ.)

The project team underestimated the demurrage costs of the containers.

denatured vergällt (chem.)

Denatonium, the most bitter compound known to date, is sometimes added to

denaturated alcohol.





**DeNOx plant,** Entstickungsanlage, die (chem. eng.)

denitrification unit

The boiler was retrofitted with a small DeNOx plant.

density Dichte, die (chem.)

Acronym (engl.):  $\rho$ Acronym (dt.):  $\rho$ 

At room temperature, the density of mercury (Hg) is 13.53 g/cm<sup>3</sup>.

**department** Abteilung, die (econ.)

The budget of the R&D department was cut by 10%.

**department head** Abteilungsleiter, der (econ.)

The head of the IT department left the company.

**deplete, to** abreichern, erschöpfen (chem.)

The mine was depleted 10 years ago.

**depreciate**, to abschreiben (econ.)

The forklift was depreciated over 7 years.

**depreciation** Abschreibung, die (econ.)

A typical duration for plant depriciation is 5-20 years, depending on the process.

derivative Derivat, das (chem.)

The ester methyl benzoate is a derivative of methanol.

derrick Bohrturm, der; Ladebaum, der; Ladekran, der (eng.)

There were dozens of derricks in the docks.

**descale, to** entkrusten, entzundern, entkalken (*chem.*)

Descaling agents (descalants) work via dissolving the deposits (e.g. acetic acid, lactic acid, citric acid, sorbic acid, phosphoric acid or hydrochloric acid), or via

chelation (e.g. phosphonates).

**desiccant** Trocknungsmittel, das; Sikkativ, das (chem.)

Potassium carbonate (K,CO<sub>3</sub>) can be used as a desiccant. Its melting point is

891°C.

**desiccator** Exsiccator, der (chem.)

The sample was stored in a desiccator.

**design capacity** Auslegungskapazität, die (chem. eng.)

The design capacity of the plant is 350 kt/a.

design of experiment Versuchsplanung, die (sci.)

Acronym (engl.): DoE

A software package for statistical design of experiment will allow you to minimize your time spent in the lab and increase the quality of your results at

the same time.

**design pressure** Auslegungsdruck, der (chem. eng.)

The design pressure of the fuel pipeline was 10 bar.

**desulfurization** Entschwefelung, die (chem. eng.)

The Claus process is a large-scale desulfurization process which is used in

refineries.

**detail engineering** Detail Engineering, das; Detailkonstruktion, die (chem. eng.)

Detail Engineering is the phase that typically follows Basic Engineering.

**development** Entwicklung, die (sci.)

Product development has to take both market requirements and plant capabilities

into consideration.

**deviation** Abweichung, die (sci.)

A recipe deviation will result in different properties of the product.

device Vorrichtung, die (eng.)

Last year, a patent was granted for his testing device.

**dew point** Taupunkt, der (chem.)

The dew point is associated with relative humidity.

**dewatering** Entwässerung, die (chem.)

Before sewage sludge can be burnt, it needs to be dewatered.

**dextrorotary** rechtsdrehend (pharm.)

Some compounds are optically active, i.e. they can rotate plane polarized light clockwise (dextrorotation) or counterclockwise (levorotation). Such a compound with dextrorotation is called dextrorotary, while one with levorotation is termed levorotary. It consists of chiral molecules.

diagonal cut Schrägriss, der (eng.)

In the diagonal cut, the openings of the boiler can be seen.

diameter Durchmesser, der (eng.)

The diameter of a human hair is approx. 40 µm.

diaphoresis Schweißabsonderung, die (pharm.)

A low oral dose of 1,4-butanediol (< 2 ml) may result in diaphoresis and ataxia, while higher doses (2–5 ml) may result in loss of consciousness. 1,4-butanediol (HO(CH $_2$ )  $_4$ OH) can be converted into the important solvent tetrahydrofuran

(THF, oxacyclopentane, C<sub>4</sub>H<sub>8</sub>O).





diaphragm valve,

Membranventil, das

(chem. eng.)

membrane valve

Diaphragm valves are commonly used for corrosive substances and in the

pharmaceutical industry.

diatom Kieselalge, die; Diatomee

(pharm.)

Diatomaceous earth consists of fossilized remains of diatoms, a type of hard-

shelled algae.

diatomite,

Kieselgur, die

(pharm.)

diatomaceous earth

The typical chemical composition of diatomaceous earth is 86% silica, 5%

sodium, 3% magnesium and 2% iron.

die Pressstempel, der; Matrize, die

(eng.)

Dies are make from highly wear-resistant materials.

die plate Düsenplatte, die; Lochplatte, die

(eng.)

A die plate is a metal plate with numerous holes that can be used for pelletising

of a melt.

**die swell** Strangaufweitung, die

(chem. eng.)

Die swell, the expansion of a melt strand after leaving a die, is proportional to

the melt elasticity.

differential scanning

calorimetry

Differential-Scanning-Kalorimetrie, die

(chem.)

Acronym (engl.): DSC

By the thermoanalytical technique DSC, phase transitions of a sample can be

studied.

**differentiate, to** ableiten, differenzieren

(sci.)

The function  $y = x^{(1/3)}$  cannot be differentiated at x = 0.

diffraction

Beugung, die

(eng.)

Diffraction, wich occurs with all waves when they hit an obstacle, has the strongest effect with waves where the wavelength is on the order of the magnitude

of the diffracting objects.

digestion Aufschluss, der (chem.)

Microwave digestion is a time-efficient process.

digit Stelle, die (Zahlen) (eng.)

A billion has 10 digits.

diluent Verdünnungsmittel, das (chem.)

Organic peroxides are often phlegmatized by using a diluent.

dilute, to verdünnen (chem.)

In order to feed the color at a constant rate, it had to be diluted.

dilution Verdünnung, die (chem.)

Increasing the production volume will lead to a fixed cost dilution.

dimensionless quantity dimensionslose Größe, die (chem. eng.)

The Reynolds number, a dimensionless number, is the ratio of inertial forces to viscous forces in a fluid (the units cancel out). Laminar flow occurs at low Reynolds numbers, where viscous forces are dominant, whereas turbulent flow occurs at high Reynolds numbers, were inertial forces dominate. The relative

density is another dimensionless quantity.

**dimensionless** dimensionslose Darstellung, die (chem. eng.)

representation

Dimensionless representations can be used as an aid for scale-up.

diopter Dioptrie, die (eng.)

He is shortsighted on both eyes (-2.5 and -3.0 diopters).

dip, to eintauchen (chem.)

The semi-finished article was dipped into a cleaning bath.

dipole Dipol, der (chem.)

Molecules with a permanent dipole moment are known as polar molecules.

diptube Tauchrohr, das (eng.)

The diptube is made from stainless steel.

**direct current** Gleichstrom, der (eng.)

Acronym (engl.): DC

Batteries, thermocouples and solar cells produce direct current.

directional control

Wegeschieber, der; Wegeventil, das

(eng.)

valve

A directional control valve is used to direct hydraulic fluids.

**discard, to** verwerfen (general)

The scientist discarded this theory.

discharge Ablauf, der; Entleeren, das; Entladung, die (general)

The vessel was discharged.

**discolouration** Verfärbung, die (eng.)

discoloration (AE)

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Discoloration of metal surfaces is a sure sign of thermal stresses.



92

**disinfect, to** desinfizieren (pharm.)

The technician disinfected the surface of the table with isopropanol (2-propanol,

 $C_3H_8O$ ).

**disinfectant** Desinfizierungsmittel, das (pharm.)

Often, household disinfectants contain denatonium to discourage ingestion. Denatonium, a quaternary ammonium cation, is the most bitter chemical compound known to date. Denatonium benzoate ( $C_{28}H_{34}N_2$   $O_3$ ,  $C_{21}H_{29}N_2O\cdot C_7H_5O_2$ ) and denatonium saccharide are commonly used, also to

denature alcohol.

dismantle, to zerlegen (eng.)

The student dismantled the TV set to learn more about its setup.

disorders Beschwerden, die (körperlich) (pharm.)

Patients suffering from allergic disorders often avoid exposure to pollen.

**dispatch, to** abfertigen, absenden, befördern (econ.)

The sample was dispatched as a rush order.

**displace, to** verdrängen (general)

The weight of an object floating on water equals exactly that of the water which

it displaces.

disposable wegwerfbar, Einweg-, verfügbar (general)

Disposable packaging made from plastics can be thermally recycled.

disposal Entsorgung, die (general)

The disposal of chemical waste is strictly regulated.

**dispose of, to** entsorgen (chem.)

Dangerous waste needs to be disposed of according to local regulations.

distill, to destillieren (chem.)

Distillation is a unit operation. It is the separation of a mixture based on differences in the volatilities of the constituents in a boiling liquid mixture.

**distillation** Destillation, die (chem.)

Water can be purified by distillation or filtration.

**distribution tray** Verteilerboden, der; Verteilerrinne, die (chem. eng.)

The pipes deliver water into a distribution tray.

district heating,

Fernwärme, die (eng.)

community heating

Vienna has an ample district heating system.

disuse Nichtgebrauch, der; Nichtbenutzen, das (chem. eng.)

Ball valves are durable and usually achieve perfect shutoff even after years of

disuse.

**diverging lens** Zerstreuungslinse, die (eng.)

If a lens is concave, a collimated (parallel) beam of light passing through it will be diverged (spread); the lens is termed a negative or diverging lens. If a lens is convex, a collimated beam passing through the lens will be converged (focused).

In that case, the lens is termed a positive or converging lens.

**diverter valve** Weiche, die (eng.)

Diverter valves are used in pneumatic conveying systems.

**division** Bereich, der (econ.)

The company has 3 divisions.

**dizziness** Schwindelgefühl, das (med.)

Symptoms of carbon monoxide poisoning include dizziness and fatigue.

DoE (sci.)

Acronym/Abbreviation referral: see design of experiment

dose Dosis, die (pharm.)

Quantities of nutrients, drugs, and toxins are referred to as doses.

**dosing aid** Dosierhilfe, die (chem.)

The worker used a scoop as dosing aid.

double bond Doppelbindung, die (chem.)

In contrast to  $Cl_2$ , there is a double bond in  $O_2$ .

**double jacket** Doppelmantel, der (eng.)

The mixer is heated via a double jacket.

**doubling time** Generationszeit, die (pharm.)

When the relative growth rate (not the absolute growth rate) is constant, one

speaks about exponential growth, which has a constant doubling time.

**doughy** teigartig (pharm.)

The ointment had a doughy consistency.

**downgauging** Dickenreduktion, die (chem. eng.)

The packaging industry has invested heavily in R&D for downgauging. By reducing the wall or film thickness of packaging materials, disposal costs can

be reduced.

**downstream** nachgelagert, nachgeschaltet, flussabwärts (chem. eng.)

After pelletizing, the product is treated in several downstream processes such

as drying, metal separation, classifying and packaging.



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**downtime** Stehzeit, die; Stillstandszeit, die (econ.)

A malfunctioning valve could be identified as the root cause for a 3-hour

downtime of the plant.

draft Entwurf, der (eng.)

The draft layout of the plant was subjected to a review.

drain Abfluss, der (chem.)

Concentrated acid must not be poured down the drain.

drain nipple Ablassstutzen, der (eng.)

Drain nipples should be placed at the lowest possible position.

drain valve Ablassventil, das (chem. eng.)

The drain valve was plugged.

**drain, to** entwässern, ablassen (eng.)

After production, the water bath had to be drained completely.

draught tube, Leitrohr, das (chem. eng.)

draught box

*draft tube (AE)* 

A draught tube, which is also called draught box, is used with water wheels.

**dredge** Flussbagger, der (eng.)

A dregde is an excavator (digger) that operates under water.

**drilling rig** Bohrinsel, die (eng.)

Drilling rigs can be reached by helicopter.

drip, to träufeln (pharm.)

He dripped the acid onto the sample to check for the presence of carbonates.

**drive train, power train** Antrieb, der; Antriebstrang, der (eng.)

The powertrain of a car consists of engine, transmission, driveshaft, differential,

and the final drive (wheels).

**drop closure** Tropfverschluss, der (pharm.)

The drop closure was malfunctioning.

**drop, to** tropfen, Tropfen, der (pharm.)

A drop of water has a volume of typically 0.05 ml.

droplet Tröpfchen, das (pharm.)

Droplets are small drops (liquid particles) of  $<500~\mu m$  diameter.

**dropping bottle** Tropfflasche, die (chem.)

The pH indicator was stored in a dropping bottle with a ground glass joint and

a pipette.

drowsiness Schläfrigkeit, die; Benommenheit, die (chem.)

The inhalation of CO<sub>2</sub> led to drowsiness in the worker.

drug Droge, die; Heilmittel, das; Medikament, das; Arznei, die;

Wirkstoff, der (pharm.)

Drugs must not be confused with addictive drugs. Several drugs can be obtained

without prescription.

**drug-resistant** resistent gegenüber Arzneimitteln (pharm.)

The patient was found to be drug-resistant.

dry end Austragsteil, der (chem. eng.)

The dry end (downstream part) of a polymerisation plant includes a dryer and

a pelletising unit.

**drying agent, desiccant** Trockenmittel, das (pharm.)

Silica gel, calcium chloride, and molecular sieves can be used as desiccants.

**drying oven** Trockenschrank, der (pharm.)

The drying oven was heated to 115°C.

dry wall, drywall, Trockenmauer, die (eng.)

gypsum board, wallboard, plasterboard

Drywall panels contain gypsum (CaSO<sub>4</sub>.2 H<sub>2</sub>O), which can be mined or obtained

from flue gas desulfurization.

DSC (chem.)

Acronym/Abbreviation referral: see differential scanning calorimety

due fällig (econ.)

The due date was yesterday.

dump Notentleerung, die; Notentspannung, die (chem. eng.)

The reactor was dumped because of a disturbance of the process.

dust Staub, der (eng.)

Dust from this process is typically between 1 and 10  $\mu m$  large.

**dust extraction system** Entstaubungssystem, das (chem. eng.)

The dust extraction system was a significant improvement for operator

satisfaction.

dust tight staubdicht (pharm.)

The packaging was not dust tight.

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**dwell time** Aufenthaltszeit, die (pharm.)

see residence time

dye Farbstoff, der (chem.)

Triphenylmethane (Ph<sub>3</sub>CH, (C<sub>6</sub>H<sub>5</sub>)<sub>3</sub>CH) is the basis for several synthetic dyes,

the so-called triarylmethane dyes. They are used as food dyes.

dye, to färben (eng.)

Dying of natural fibres needs to take into account fluctuations in raw material

brightness.

**dynamic friction** Gleitreibung, die (eng.)

To maintain constant speed, dynamic friction has to be overcome.

**dyne** Dyn, das (eng.)

Dyne is an outdated unit of force, which was used in the cgs system. 1 dyne =

 $10\;\mu N.$ 

dyspnoea Atemnot, die (chem.)

dyspnea (AE)

If swallowed, acetic acid (methane carboxylic acid) can lead to dyspnoea.

ear plugs Ohrenstöpsel, die; Gehörschutzstöpsel, die (eng.)

Since the noise in the plant was > 83 dB(A), ear plugs were compulsory to wear.

ear, eye Öse, die (eng.)

The banner was attached to the building by placing a rope through its eyes.

earthed socket Schutzkontaktsteckdose, die (eng.)

The earthed socket was splashwater-proof.

earthing Erdung, die; Erden, das (eng.)

grounding (AE)

Earthing is an important safety practice to conduct electrical charges to ground,

preventing dangerous sparks.

EC50 Effektdosis50, die (chem.)

The effective concentration (EC50) is the concentration of a substance in water, which, administered as a single dose, is expected to cause a biological effect on

50% of the tested population.

ECO (chem. eng.)

Acronym/Abbreviation referral: see change order

ECO (chem. eng.)

Acronym/Abbreviation referral: (engineering) change order

economiser, preheater Vorwärmer, der (chem. eng.)

economizer (AE)

The economizer was heavily corroded.

eddy Wirbel, der (general)

Eddy currents (Foucault currents) are caused when a conductor is exposed to

a changing magnetic field.

edema Ödem, das (pharm.)

Upon ammonia exposure, lung irritation and pulmonary edema may occur.

edge Kante, die (eng.)

The operator hurt his knee on the edge of the transportation box.

edible essbar (pharm.)

The food did not look edible.

effective concentration (chem.)

Acronym/Abbreviation referral: see EC50

effervesce, to sprudeln, aufbrausen (chem. eng.)

The carbonate started to effervesce in the acidic solution.

effervescent schäumend (pharm.)

The following reaction took place in the effervescent drink:  $C_6H_8O_7 + 3NaHCO_3$  -->  $3 H_2O + 3 CO_2 + Na_3C_6H_5O_7$  (citric acid + sodium bicarbonate ? water +

carbon dioxide + sodium citrate).

**effervescent tablet** Brausetablette, die (pharm.)

The ingredients of effervescent tablets can penetrate the blood stream within

15 minutes.

effluent flüssige Abfälle, die; Abwasser, das (chem.)

The effluent from the plant is monitored regularly.

**effluvium** Ausdünstung, die (pharm.)

Effluvium stands for the shedding of hair.

egg white Eiweiß, das; Eiklar, das (chem.)

Egg white (albumen) consists of approx. 15% proteins in water.

electric scale elektrische Waage, die (eng.)

The electric scale has an accuracy of +/- 0.1 mg.

electric engineering Elektrotechnik, die (eng.)

Electrical engineering is one of the most popular disciplines at her university.



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electrical engineering (eng.)

Acronym/Abbreviation referral: electric engineering

**electropolishing** Elektropolieren, das (eng.)

Even surfaces can be obtained by electropolishing.

elementary analysis Elementaranalyse, die (chem.)

The empirical formula was determined by elementary analysis.

**elevation, front elevation** Aufriss, der (eng.)

The client looked at the front elevation and made some comments.

elecit hypersensitivity,

to eine Allergie auslösen, Überempfindlichkeit auslösen (chem.)

The plant was suspected to elicit hypersensibility.

elucidate, to aufklären (eng.)

The structure of benzene was elucidated by Kekulé.

eluent Eluat, das (chem.)

An eluent is the mobile phase in chromatography.

elute, to auspülen (chem.)

The sample was eluted to the FID (flame ionisation detector).

**elutriator** Sichter, der (chem. eng.)

An elutriator can separate pellets from undesirable dust.

**embed, to** einbetten (*eng.*)

The embedded file cound not be opened.

**embossed** geprägt, erhaben (pharm.)

The brand of the manufacturer was embossed on the tablets.

**embrittlement** Versprödung, die (eng.)

Hydrogen embrittlement is dangerous for pressure vessels.

**embrocation, liniment** Einreibemittel, das (pharm.)

Traditional Chinese medicine (TCM) features a wide variety of liniments.

emerald Smaragd, der (chem.)

The green color in emerald stems from traces of chromium. The mineral is

beryl: Be<sub>3</sub>Al<sub>2</sub>(SiO<sub>3</sub>)<sub>6</sub>.

emergency Notfall-Reaktionsplan, der (chem. eng.)

response plan

Acronym (engl.): ERP

The emergency response plan for the 3 plants was updated and discussed with

the local mayor.

emergency shutdown Notabschaltung, die (chem. eng.)

Acronym (engl.): ESD

The ESD, which was caused by a power outage, led to an unplanned shutdown

of the plant of 3 days.

emerging neu entstehend (sci.)

Hydrogen combustion in fuel cells is an emerging technology.

emery Schmirgel, der (chem.)

Emery paper can be used to remove deposits from glassware.

**emetic** Brechmittel, das; brecherregend (pharm.)

Syrup of ipecac (ipecac) is a commonly used, herbal emetic.

**emollient** Weichmacher, der (pharm.)

Emollients are substances that soften and soothe the skin.

empirical empirisch (sci.)

Any theory needs to be proven by empirical results.

empirical formula Summenformel, die (chem.)

The empirical formula of hexane  $(C_{\epsilon}H_{14})$  is  $C_{3}H_{7}$ .

**empowerment** Ermächtigung, die; Übertragung von (econ.)

Verantwortung an Mitarbeiter, die

Empowerment of his employees has greatly reduced the workload of the

department head.

**emulsifying agent,** Emulgator, der (pharm.)

emulsifier, emulgent

Lecithin, a common emulsifier in food, can be extracted from soybeans using

hexane.

enamel Email, das (chem.)

Enamel is sensitive to mechanical stress.

enamelled emailliert (pharm.)

enameled (AE)

Enamelled vessels can be used for hot acids.

**endocrine disrupter** Störungen des Hormonsystems verursachender Stoff (pharm.)

Bisphenol A (BPA) is an endocrine disrupter. This organic compound with two phenol functional groups is an important monomer in the production of

polycarbonate.

**endothermic** endotherm (*chem.*)

The melting of ice and the splitting of water into H, and O, air are endothermic

processes.





enema Darmspülung, die (pharm.)

An enema is a bowel stimulant.

energised, to be unter Spannung stehen (eng.)

energized, to be (AE)
The wire was energized.

energy balance Energiebilanz, die (chem.)

According to the first law of thermodynamics, energy cannot be created or destroyed, but only be modified. The energy balance of a closed system is hence

zero.

**energy consumption** Energieverbrauch, der (chem. eng.)

The energy consumption of a pump often accounts for more than 90% of the

total lifecycle costs.

engine Motor, der (eng.)

Combustion engines have a higher energy density than batteries.

engineer Ingenieur(in), der (die) (chem. eng.)

Engineers need to pay attention to minute details.

**engineering** Engineering, das; Ingenieurwesen, das; (eng.)

Ingenieursarbeit, die; Maschinenbau, der; Konstruktieren, das

Engineering can be categorized into several branches with aerospace engineering, chemical engineering, civil engineering, electrical engineering and mechanical engineering being the traditional ones. Software engineering and genetic

engineering are two more recent branches.

**Engineering,** EPC-Vertrag, der (eine Art Generalunternehmer-Vertrag) (chem. eng.)

Procurement and Construction

Acronym (engl.): EPC Acronym (dt.): EPC

\_\_\_\_

The EPC contractor was chosen from a list of 3 bidders.

Engineering, EPCS-Vertrag, der (eine Art (chem. eng.)

Procurement and

Construction
Supervision

Generalunternehmer-Vertrag)

Acronym (engl.): EPCS Acronym (dt.): EPCS

The EPCS contract was signed.

**Engineering,** EPCC-Vertrag, der (eine Art Generalunternehmer-Vertrag) (chem. eng)

Procurement and Construction Commissioning

> Acronym (engl.): EPCC Acronym (dt.): EPCC

The plant was built under an EPCC contract.

**Engineering,** EPCM-Vertrag, der (eine Art Generalunternehmer-Vertrag) (*chem. eng.*)

Procurement,
Constrauction

Management

Acronym (engl.): EPCM Acronym (dt.): EPCM

The project was carried out as EPCM.

enrich, to anreichern (chem.)

In enriched uranium, the fraction of uranium -235 has been increased beyond its natural abundance of 0.711% in uranium, because only 235U is fissionable

by neutrons and U238 is not.

enter (a vessel), to befahren (eines Behälters) (chem. eng.)

Entering a nitrogen-containing vessel requires special precautions.

enteric coated magensaftresistent überzogen (pharm.)

Pills that are enteric coated do not dissolve until they reach the small intestine. Enteric coatings, which can be made from cellulose acetate (the acetate ester of cellulose) or other polymers, are applied to avoid stomach irritation or a

reduction in drug effectiveness by stomach acids or enzymes.

awareness

entero soluble dünndarmlöslich (pharm.)

The company was technology leader in the production of entero-soluble gelatin capsules. Gelatin is a protein produced by partial hydrolysis of collagen extracted

from bones and connective tissue.

entire system Gesamtsystem, das (chem.)

In order to set up a mass balance, the entire system needs to be considered.

**entrainment** Einschluss, der (chem.)

Air entrainment is the deliberate creation of small air bubbles in concrete. Unlike entrapped air (larger bubbles), the small bubbles increase performance.

environment Umwelt, die (chem.)

Before a new plant can be approved in China, an EIA (environmental impact

assessment) has to be made to protect the environment.

environmental Umweltbewusstsein, das (chem.)

Due to media coverage, the environmenal awareness of the public has increased.





environmental Umwelttechnik, die (chem. eng.)

engineering, environmental technology

Companies working in environmental technology often have a high export rate.

Environmental EPA, US-Umweltschutzbehörde, die (chem. eng.)

**Protection Agency** 

Acronym (engl.): EPA

EPA took up work in 1970 and has close to 20,000 employees.

environmental Umwelttechnik, die (chem. eng.)

technology

Pollutant reduction is an important area of environmental technology.

EPA (general)

Acronym/Abbreviation referral: see Environmental Protection Agency

EPC (chem. eng.)

Acronym/Abbreviation referral: see Engineering, Procurement and Construction

**EPC contractor** Generalunternehmer, der (*chem. eng.*)

The EPC contractor charged an hourly rate of 65€ for its engineers.

EPCC (chem. eng.)

Acronym/Abbreviation referral: see Engineering, Procurement, Construction and

Commissioning

EPCM (chem. eng.)

Acronym/Abbreviation referral: see Engineering, Procurement, Construction

Management

EPCS (chem. eng.)

Acronym/Abbreviation referral: see Engineering, Procurement and Construction

Supervision

equation Gleichung, die (chem.)

It can take days to derive a complicated equation.

**equation of state** Zustandsgleichung, die (chem. eng.)

In thermodynamics, an equation of state is a relation between state variables.

equilateral gleichseitig (chem.)

An equilateral triangle has three angles of 60°.

equilibrium Gleichgewicht, das (chem.)

The concept of chemical equilibrium was developed after Berthollet discovered that some chemical reactions are reversible. The equilibrium between CO and

CO<sub>2</sub> is decribed by the Boudouard equation.

**equipment** Geräte, die (eng.)

The consultant handed over the equipment list to his client.

ergot Mutterkorn, das (chem.)

Ergot is a fungus that afflicts grains and grasses.

**escalation** Steigerung, die (econ.)

The contract mentioned a price escalation clause.

ESD (chem. eng.)

Acronym/Abbreviation referral: see emergency shutdown

essential oil ätherisches Öl, das (pharm.)

The yearly production of essential oils from spearmint and peppermint exceeds

1000 tons each.

estimate (80/20) Kostenschätzung 80/20, die (chem. eng.)

An estimate (80/20) has got 80% probability for underrun and 20% probability

for overrun of project costs.

**estimate, to** schätzen (general)

The engineer estimated the unplanned shutdown to last at least 3 weeks.

etching Ätzen, das (chem.)

Etching is an im portant unit operation in litography.

European Chemical Europäischer Chemiefachverband (chem.)

**Industry Council** CEFIC, der

Acronym (engl.): CEFIC

Cefic represents the European chemical industry and thereby stands for approx. 30,000 chemical companies which employ approx. 1.3 million people and

account for nearly a third of the world's chemical production.

eutectic point Eutektikum, das (chem.)

The melting point of a mixture of two or more solids depends on their fractions in that mixture. At the eutectic point, the melting temperature is lowest.

evaluation Auswertung, die (sci.)

The evaluation of results deserves at least as much time as the experiments

themselves.

evaporate, to verdunsten, verdampfen (chem.)

Liquids and solids have a tendency to evaporate into a gaseous form and to condense back. The vapor pressure expresses the equilibrium condition.





even eben, glatt, gerade (eng.)

2, 4 and 6 are even numbers.

evolution of gas Gasentwicklung, die (chem.)

The evolution of H<sub>2</sub> gas from recharging of accumulators has to be evaluated

for potential risks.

evolution of heat Wärmeentwicklung, die (chem.)

The evolution of heat in exothermic reactions has to be controlled.

ex works ab Werk (Incoterm) (econ.)

Acronym (engl.): EXW

The machine will be available ex works in 2 weeks.

**excavation work** Aushubarbeit, die (eng.)

The excavation works were delayed by 2 weeks.

excavator Bagger, der (eng.)

Front loaders and excavators were used to remove the contaminated soil.

exceed, to übertreffen (eng.)

The market response has exceeded the expectations.

excess Überschuss, der (chem.)

The cheaper reaction partner was added in excess.

excess pressure Überdruck, der (chem. eng.)

It needs to be ensured that the excess pressure in the process can never surpass

the design pressure of the equipment.

**excipient** Hilfsstoff, der; Wirkstoffträger, der (pharm.)

Excipients account for a large portion of tablets. For instance, binders hold the ingredients in a tablet together. Binders are usually starches, sugars, cellulose or modified cellulose such as hydroxypropyl cellulose, lactose, or sugar alcohols

like xylitol, sorbitol or maltitol.

excite, to anregen (general)

The OH radicals were excited at 278.5 nm.

**executive** Direktor, der; Führungskraft, die; leitender Angestellter, der; Leiter, der (econ.)

In company A, all executives are entitled to a company car.

executive board Vorstand, der (econ.)

The exective board holds biweekly meetings.

exhaust, exhaust gas Abgas, das (chem.)

In modern DeNOx plants, ammonia slip in the exhaust gases is measured.

**exothermic** exotherm (*chem.*)

The mixing of strong acids with water, combustion and most polymerisation

reactions are exothermic.

**expansion sleeve** Dehnungsmanschette, die (chem. eng.)

The expansion sleeve could compensate thermal expansion between -10 and

+300°C.

expat (econ.)

Acronym/Abbreviation referral: short form for expatriate

**expatriate** Mitarbeiter im Auslandseinsatz, der; Auswanderer, der (econ.)

Acronym (engl.): expat

For his company, he went to China as an expat for 2 years.

**expectation** Erwartung, die (general)

In order to fulfil customer requirements, one needs to know their expections.

expertise Wissen, das; Erfahrung, die (general)

His expertise was not disputed.

**expiration date,** Ablaufdatum, das (pharm.)

expiry date

Shelf life is different from expiration date; the former relates to food quality, the

latter to food safety.

**expire, to** auslaufen, ablaufen (general)

The software licence has to be renewed before it expires.

**explosion** Explosion, die (chem.)

Explosions in a confined space are particularly dangerous.

**explosion proof** explosionssicher, explosionsfest (chem. eng.)

The vessel was designed to be explosion proof in order to avoid the installation

of a pressure relief valve.

**exposure** Einwirkung, die; Aussetzen, das; Exposition, die; Ausgesetztsein, das (chem.)

Chronic exposure to lead amongst workers in ammunition factories can lead

to serious diseases.

**exposure limit** Belastungsgrenze, die (chem.)

The exposure limit of CO is 50 ppm.

extensible ausziehbar (eng.)

His remote control has an extensible antenna.

extinguishing medium Löschmittel, das

(chem. eng.)

Carbon dioxide and water can be used as extinguishing media.





extractables lösliche Anteile, die (chem.)

Extractables are chemicals which are released by the packaging and can

contaminate a pharmaceutical drug in it.

**extraction** Extraktion, die (chem.)

Some essential oils can be obtained by extraction.

**extrusion** Extrusion, die (eng.)

Extrusion and injection moulding are two important plastics processing

technologies.

EXW (econ.)

Acronym/Abbreviation referral: see ex works

eye wash equipment Augendusche, die (chem.)

The lab was equipped with state-of -the-art eye wash equipment.

fabric Stoff, der; Gewebe, das (eng.)

Fabrics are woven on dedicated machines.

**facilitator** Moderator, der; Unterstützer, der (econ.)

To structure the workshop, a facilitator was invited.

factory Fabrik, die (chem.)

The glass factory is the largest employer of the region.

factory acceptance test Abnahmeprüfung in der Fabrik, die

(econ.)

Acronym (engl.): FAT

The FAT was witnessed by three technical experts of the customer to verify that

the equipment was functioning according to specifications.

fail closed bei Störung zu (eng.)

The propane feed line was equipped with a fail closed valve.

fail open bei Störung offen (eng.)

A fail open shutter should generally not be used on these storage tanks.

fail open valve bei Ausfall des Versorgungsluftdrucks geöffnetes Ventil (eng.)

The vessel had a fail open valve.

fail safe position Position im Störfall, die (chem. eng.)

The fail safe position of the valve is "open".

failed batch Fehlcharge, die (chem. eng.)

The failed batch was reworked in the subsequent productions.

fail-safe, fail-secure ausfallsicher, betriebssicher (chem. eng.)

The vessel was made fail-safe by redundant systems.

failure Versagen, das (eng.)

Denial of the project was considered a failure of the project manager.

**failure mode and** Fehler-Möglichkeits- und Einfluss-Analyse, die (general)

Acronym (engl.): FMEA Acronym (dt.): FMEA

effect analysis

The customer asked for a process FMEA.

fals ification Verfälschung, die (general)

No falsification could be seen on the packaging.

fan Lüfter, der; Ventilator, der (eng.)

The fan provided some air circulation in the room.

FAT (econ.)

Acronym/Abbreviation referral: see factory accept ance test

fat Fett, das (chem.)

Fats are generally triesters of glycerol (propane-1,2,3-triol, C<sub>3</sub>H<sub>5</sub>(OH)<sub>3</sub>) and fatty

acids.

fatigue Ermüdung, die (eng.)

Material fatigue can be depicted on an S-N curve, which is also known as the Wöhler curve. It is a graph of the magnitude of a cyclical stress (S) against the

logarithmic scale of cycles to failure (N).

fatty acid Fettsäure, die (chem.)

A fatty acid is a carboxylic acid (carbonic acid). It can have a long unbranched aliphatic saturated or uns aturated tail (chain). Most naturally occurring fatty acids have an even number of carbon atoms, because their biosynthesis involves

the coenzyme acetyl-CoA.

**faulty** fehlerhaft (eng.)

The manual is faulty.

FDA (eng.)

Acronym/Abbreviation referral: see Food and Drug Administration

**feasibility** Machbarkeit, die (general)

The economic feasibility of the project was doubtful.

**feasibility study** Machbarkeitsstudie, die (chem. eng.)

In the feasibility study, the production process was chosen.



feasible machbar (chem.)

According to the laws of physics, the construction of a perpetuum mobile is not

feasible.

**federal** bundesstaatlich (general)

The use of that chemical in regulated by federal law.

Federal Umweltbundesamt, das (general)

**Environment(al)** 

Agency

Acronym (dt.): UBA

The German Federal Environmental Agency had a study on PAH conducted.

Federal Register (AE) Federal Register (ähnl. Bundesanzeiger) (general)

Acronym (engl.): Fed. Reg.

The Federal Register is an official, daily publication issued by Federal agencies

and organizations in the United States.

**feed port** Einspeisestelle, die (*chem. eng.*)

The PFD does not show the feed ports of the catalyst.

**feed water** Speisewasser, das (chem. eng.)

The feed water consumption of a plant has to be estimated in the basic

engineering phase.

FEL (chem. eng.)

Acronym/Abbreviation referral: see front end loading

felt Filz, der (chem.)

Felt, a nonwoven cloth, is the oldest fabric.

**fermentation** Gärung, die; Vergärung, die (chem.)

Acetic acid is produced from ethanol by fermentation.

ferric Fe III (chem.)

Iron(III) oxide, Fe<sub>2</sub>O<sub>3</sub>, also known as ferric iron, is rust. It is red.

**ferrous** Fe II (*chem.*)

Iron(II) oxide, FeO, also known as ferrous oxide, is black.

ferrous metal Eisenmetall, das (chem.)

Ferrous metals (Fe, Ni, Co) are attracted by a magnet.

fertiliser, fertilizer Dünger, der (chem. eng.)

fertilizer (AE)

Most fertilizers contain the three major plant nutrients (nitrogen, phosphorus,

potassium: N-P-K).

FIBC (chem. eng.)

Acronym/Abbreviation referral: see flexible intermediate bulk container

fibre Faser, die (chem.)

fiber (AE)

The fiber was made from PP (polypropylene).

fibre glass, glass fibre Glasfaser, die (chem.)

fiber glass, glass fiber (AE)

Fibre glass can be used in plastics compounds.

fibre reinforced faserverstärkt (chem.)

fiber reinforced (AE)

Fibre reinforced materials have a good performance/weight ratio.

fibrous faserig (chem.)

Wollastonite has a fibrous structure.

**field erection** Fertigung auf der Baustelle, die (eng.)

The silo was field-erected to save transportation costs.

field force Außendienst, der (econ.)

The field force has to understand the strengths and weaknesses of a company's

products.

field size Feldgröße, die (eng.)

The asset field size is 20,000 m<sup>2</sup>.

**field test** Feldtest, der (eng.)

The prototype was subjected to a 3-week field test.

FIFO (econ.)

Acronym/Abbreviation referral: see first in, first out

file Feile, die; Datei, die; Karteikarte, die (eng.)

A good filing stucture greatly facilitates searching for old data.

**film coated tablet** Filmtablette, die (pharm.)

The film coated tablet could be swallowed easily by the patient.

**film forming agent** Filmbildner, der (pharm.)

Polyvinylpyrrolidone (PVP, povidone, polyvidone) is a film-forming agent.

filter residue Filterrückstand, der (pharm.)

The toxic filter residue was disposed of.

fin Kühlrippe, die (eng.)

Fins on a heat exchanger can improve heat transfer.

final study abschließende Studie, die; Abschlussstudie, die (chem. eng.)

Verification of the business case is a vital part of a final study.





final yield Endausbeute, die (chem.)

The final yield can be increased to 85% when the reaction is conducted in the

most preferable solvent.

**financial accounting,** Finanzbuchhaltung, die; Finanzierung, die (econ.)

financial accountancy

Financial accounting needs to follow local and international accounting

standards.

**fine adjustment** Feineinstellung, die (pharm.)

By fine adjustment of the reactor, the yield could be increased by 3%.

fir Tanne, die (general)

Fir, which is not suitable as timber, is often used as plywood.

fire Brand, der; Feuer, das (chem.)

The smoke detector set off the fire alarm.

**fire diamond** Feuerdiamant, der (chem. eng.)

The fire diamond is a symbol designed by the NFPA to provide a quick overview about the hazards of a substance by a number code in colored boxes: Blue stands for health, red for flammability, yellow for the reactivity and white for specific

hazard of the substance in question.

**fire extinguisher** Feuerlöscher, der (general)

Potassium bicarbonate (potassium hydrogen carbonate, KHCO<sub>3</sub>) is used in class

B and class C fire extinguishers.

firebox Brennkammer, die (chem. eng.)

The firebox is the area where fuel is burnt.

**fireproof** feuerfest, hitzebeständig (chem. eng.)

A concrete lining made the traffic tunnel fireproof.

**fireproofing** Feuerfestmachen, das (chem. eng.)

Historically, asbestos was used for fireproofing in buildings.

**firewater** Branntwein, der; Löschwasser, das (eng.)

Firewater was stored in a pond.

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first in, first out die Ältesten (Waren, Rohstoffe, Lagerbestände, Anträge,...) zuerst (econ.)

Acronym (engl.): FIFO

FIFO is a stock valuation technique where the value of materials that are taken out of a warehouse is set equal to the value of the oldest material in stock.

first order reaction Reaktion erster Ordnung, die (chem.)

A first-order reaction depends on the concentration of only one reactant. An

example is the unimolecular reaction  $H_2O_2 --> H_2O + 1/2 H_2$ .

**fixed** befestigt, fixiert (eng.)

The meeting could be fixed for October 23.

**fixed costs** Fixkosten, die (econ.)

Costs that do not change in line with production output, e.g. factory rent, depreciation of plant and machinery, are termed fixed costs. Also salaries are included in fixed costs since they can be reduced only in a very long time

perspective.

flake Flocke, die (chem.)

Snow flakes exhibit a 6-fold symmetry, which arises from the hexagonal crystal

structure of ice.

flame sieve, Flammensperre, die; Flammsieb, das (chem. eng)

flame arrestor, flame arrester

Flame arrestors which are designed to stop deflagrations might be overriden by

a detonation.

**flammable** brennbar, leicht entflammbar (chem.)

Acetone and ethanol are flammable liquids. Their autoignition temperatures are

465°C and 425°C, respectively.

flange Flansch, der (chem. eng.)

Pipe flanges can be divided into pressure classes.

flap Klappe, die (eng.)

The flap was actuated to stop the material flow.

flare, to abfackeln (chem. eng.)

Flaring is generally only performed at startup and shutdown of the plant.

flashback Flammenrückschlag, der; Flashback, der (chem.)

A flashback can occur with an acetylene torch if the gas pressure is too low (i.e. the gas flow of the combustible mixture is slower than the laminar flame speed

so that the flame can travel backwards).

flashover Feuersprung, der; Funkenüberschlag, der (chem.)

In household fires, a flashover typically occurs at 500°C, when the combustible gases, which have accumulated in the room, ignite simultaneously. If this phenomenon occurs in an unconfined space, it is termed firestorm.

flashpoint, flash point Flammpunkt, der (chem.)

The flashpoint of gasoline is below -20°C, wheras its autoignition temperature is 246°C. For diesel, the values are approx. 62°C and 210°C, respectively.

flask Kolben, der; Glaskolben, der; Fläschchen, das (pharm.)

The lab technician was looking for a clean flask.

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flavouring agent

Geschmackstoff, der; Aromastoff, der

(pharm.)

flavoring agent (AE)

Synthetic vanillin, instead of natural vanilla extract, which contains several hundred different compounds in addition to vanillin, is sometimes used as a flavoring agent in foods, beverages, and pharmaceuticals. It can be made from guaiacol (2-methoxyphenol, C<sub>7</sub>H<sub>8</sub>O<sub>3</sub>) or lignin. The lignin-derived product contains acetovanillone (apocynin, 1-(4-Hydroxy -3-methoxypheny l)ethanone,  $C_0H_{10}O_3$ ) as an impurity.

fleece Vlies, das

(general)

Sheep were among the earliest animals to be domesticated for agricultural purposes. They give fleece, meat (lamb or mutton) and milk.

flexibiliser, plasticiser Weichmacher, der (für Kunststoffe)

(chem.)

flexibilizer, plasticizer (AE)

Plasticizers for plastics are additives, most commonly phthalates, that give hard plastics like PVC the desired flexibility and durability. They are often based on esters of polycarboxylic acids with linear or branched aliphatic alcohols of moderate chain length.

flexible

biegsam

(general)

The construction was held together by flexible wire.

flexible intermediate

bulk container

(chem. eng.)

Acronym (engl.): FIBC

Acronym/Abbreviation referral: see big bag

flint stone

Feuerstein, der

(chem.)

Flint is a hard, cryptocrystalline form of quartz, which can be found as nodules in sedimentary rocks such as chalk and limestone.

floating roof

Schwimmdach, das

(eng.)

The fuel storage tank, which has a capacity of approx. 5,000,000 litres, is equipped with a fixed roof with internal floating roof.

flocculate, to

ausflocken

(chem.)

The emulsion was flocculated using multivalent cations such as aluminium, calcium and magnesium ions.

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flocculation Ausflockung, die (chem.)

In flocculation, unlike precipitation, the solute coming out of the solution does

so at a concentration below its solubility limit.

flow limiter,

flow restrictor Durchflussbegrenzer, der (chem. eng.)

An orifice plate is a simple flow limiter (flow restrictor).

flow rate, volume flow, Volumenstrom, der (chem. eng.)

volume flow rate

The blower supplies a flow rate of 5,400 m<sup>3</sup>/h.

flow sheet Fließschema, das; Fließbild, das (chem. eng.)

The engineer attempted to simplify the flow sheet.

**fluent** fliießend (general)

Fluent English is vital in many roles.

fluid Fluid, das (Flüssigkeit/Gas) (chem.)

The instrument was designed for fluid flows from 0.1 to 50 t/h.

fluid dynamics, Stömungslehre, die; Hydromechanik, die (eng.)

fluid mechanics

An important set of equations in fluid dynamics are the Navier-Stokes equations.

These differential equations describe the motion of viscous fluids.

fluidised bed Wirbelschicht, die (chem. eng.)

fluidized bed (AE)

Fluidized beds show good heat and mass transfer and can hence be used for

numerous processes such as combustion.

fluorine Fluor, das (chem.)

Acronym (engl.): F Acronym (dt.): F

Fluorine is the most reactive and most electronegative element.

flush, to spülen (chem.)

Before the Grignard reaction could be started, flushing of the entire system with

nitrogen had to be done.

flywheel Schwungrad, das (eng.)

A flywheel can store mechanical energy and release it within a short period of

time.

FMEA (general)

Acronym/Abbreviation referral: see failure mode and effect analysis

foam Schaum, der (chem.)

Foam can have open and closed cells.

**foam extinguisher** Schaumfeuerlöscher, der (eng.)

Foam extinguishers can be found in many households.

**focal point** Brennpunkt, der (eng.)

The focal point of a lens, a spherical or parabolic mirror, is a point onto which

light parallel to the axis is focused.

fog Nebel, der (flüssig in Gas) (chem.)

People suspected that the chemical plant was responsible for the fog.



Food and Drug FDA, Arzneimittelzulassungsbehörde (eng.)

**Administration** der Vereinigten Staaten, die (Teil des Gesundheitsministeriums)

Acronym (engl.): FDA

The company expected an FDA inspection in the next weeks.

food approval Lebensmittelzulassung, die (jur.)

Since the new additive did not yet have food approval, it could not be used in

packaging materials designed for food contact.

**food supplement** Nahrungsergänzungsmittel, das (pharm.)

Food supplements are generally over-the-counter drugs.

foodborne illness, Lebensmittelvergiftung, die (pharm.)

foodborne disease, food poisoning

There are two reasons of foodborne diseases: food infection and food intoxication. The former refers to the presence of bacteria or other microbes which infect the body after food consumption. The latter refers to the ingestion

of toxins in the food.

fool's gold Katzengold, das (eng.)

The nickname of pyrite (FeS<sub>2</sub>) is fool's gold.

force Kraft, die (eng.)

The SI unit of force is Newton (N).  $1 \text{ N} = 1 \text{ kgm/s}^2$ .

force discharge, Zwangsentleerung, die (eng.)

forced discharge

The liquid was too viscous for gravity discharge, therefore, forced discharge was

used.

force per volume Wichte, die (eng.)

In contrast to density (unit kg/m<sup>3</sup>), the force per volume (unit N/m<sup>3</sup>) is

irrespective of the location.

forced ageing beschleunigte Alterung, die (eng.)

forced aging (AE)

Forced ageing tests can speed up product development time.

forced ventilation Fremdbelüftung, die; Zwangsbelüftung, die (chem. eng.)

The solvent storage room is equipped with forced ventilation.

forecast Prognose, die; Voraussage, die (general)

The sales forecast for the upcoming quarter looked gloomy.

foreman Vorarbeiter, der; Polier, der; Bauführer, der (eng.)

The foremen showed role model conduct in terms of safety.

**forensic chemistry** Gerichtsmedizin, die (jur.)

Forensic chemistry can reveal the root cause of poisonings.

forge, to schmieden (eng.)

The tool was forged.

forklift Gabelstapler, der (chem. eng.)

In a warehouse, electrically operated forklifts are preferred over diesel-fuelled

ones.

formation Bildung, die; Schaffung, die (chem.)

The formation of carbonaceous deposits on viewing windows of combustors

can be prevented by purging the windows.

**formation** Bildung, die; Zusammenstellung, die (eng.)

The formation of a task force could be completed in half a day.

formic acid Ameisensäure, die (chem.)

Formic acid (HCOOH, methanoic acid) is the simplest carboxylic acid.

formula Formel, die (chem.)

Some formulae need to be learnt by heart.

**fortification** Befestigung, die (eng.)

The fortification of the cooling tower was designed for high wind loads.

foul, to verschmutzen, verstopfen (chem.)

Boiler fouling reduces the lifetime of the unit.

fouling Verschmutzen, das (chem.)

Without the addition of special anti-fouling agent, the water bath showed algae

growth within days.

foundation Grundfeste, die; Fundament, das; Grundmauerwerk, das (eng.)

The foundation of the building was made of concrete.

foundry Gießerei, die (eng.)

Due to lack of orders, the foundry was closed down.

four stroke engine Viertaktmotor, der (eng.)

Diesel engine and Otto engine are four stroke engines.

fraction Bruch, der (sci.)

A fraction has a numerator and denominator.

frame building Fachwerkbau, der (eng.)

Framed buildings were common in Germany.





**freeze-drying,** Gefriertrocknung, die (chem.)

lyophilisation,

cryode siccation

*lyophilization* (AE)

The process of freeze-drying is used to preserve food and make it lightweight.

freezing range Erstarrungsbereich, der (chem.)

Chocolate exhibits a freezing range rather than a freezing point.

**frequency converter** Frequenzumrichter, der (eng.)

By investing in a frequency converter for the blower, the air flow could be

matched to the process requirements in an energy-efficient way.

freshwater Süßwasser, das (chem.)

3% of the water on earth are freshwater, most of which is frozen.

friability Bröckeligkeit, die; Zerreibbarkeit, die (pharm.)

Low friability is an important quality parameter of pharmaceutical tablets.

friction Reibung, die (eng.)

Friction creates heat.

front end loading Eingangsdaten, die (chem. eng.)

Acronym (engl.): FEL

Front end loading of the project was poor, leading to significant cost overruns

during project execution.

**frostbite** Frostbeule, die; Erfrierungen, die (pharm.)

Forstbite is damage on tissue from exposure to extreme cold or contact with

extremely cold liquids or solids.

FTE (econ.)

Acronym/Abbreviation referral: see full time equivalent

fuel Treibstoff, der (chem.)

CNG (compressed natural gas) can be used as fuel for cars.

fuel-lean mixture mageres Gemisch, das (chem. eng.)

Modern gas engines operate on fuel-lean mixtures.

**fuel-rich mixture** fettes Gemisch, das (chem. eng.)

Fuel-rich mixtures facilitate engine startup.

fugitive flüchtig (chem.)

Fugitive emissions are harder to control than stack emissions.

**fugitive emissions** diffuse Emissionen, die (chem. eng.)

Unlike stack emissions, fugitive emissions are difficult to quantify.

**fulcrum** Drehpunkt, der (eng.)

The fulcrum is the pivot on which a lever moves.

full time equivalent Mitarbeiterkapazität, die; Vollzeitäquivalent, das (econ.)

Acronym (engl.): FTE

Acronym (dt.): MAK, VZÄ

The project needed 3 additional FTE.

fume cupboard Abzug, der (chem.)

The fume cupboard should not be misused as storage area.

funnel Trichter, der (chem.)

The funnel was too small for the filter.

**funnel flow** Kernfluss, der (chem. eng.)

The funnel flow behavior of the raw material silo has a slight homogenisation

effect.

fuse Sicherung, die (eng.)

A fuse needs to have a short response time.

**fused glass** Sinterglas, das; geschmolzenes Glas, das (chem.)

The main constituent of fused glass is silica (SiO<sub>2</sub>).

**galvanised sheet** verzinktes Blech, das (*chem. eng.*)

galvanized sheet (AE)

Galvanized steel can be recognized by the crystallization pattern on the surface

("spangle").

gangrene Wundbrand, der; Gangrän, das (med.)

A gangrene can be caused by an ischaemia or an infection, the latter being a

detrimental colonization of a host organism by a foreign species.

gap Abstand, der; Lücke, die; Spalt, der (general)

The consultant proposed to make a gap analysis.

gargle, to gurgeln (pharm.)

Antiseptic mouthwash can be gargled, too, in order to remove bacteria from

the throat.

gas liquid interface Grenzschicht gas/flüssig, die (chem.)

The formula describes gas exchange at the gas liquid interface.

gas mileage Kraftstoffverbrauch, der (eng.)

The car has a gas mileage of 25 mpg.

gas scrubber Gaswäscher, der (chem. eng.)

The gas scrubber can reduce the concentration of SO<sub>2</sub> in the exhaust gas from

7 mg/m³ to less than 1 mg/m³.





gaseous gasförmig (chem.)

The gaseous fuel/air mixture was ignited.

**gasification** Vergasung, die (chem. eng.)

A pilot plant for biomass gasification was built in Guessing/Austria.

gasify, to vergasen (chem.)

Coal can be gasified with water to yield CO and H<sub>2</sub>.

gasket Dichtungsring, der; Dichtungsscheibe, die (eng.)

She selected gaskets for the aggressive process media.

**gasometer** Gasbehälter, der (chem.)

The gasometer can store up to 3,500 Nm<sup>3</sup> of butane.

gastric juice Magensaft, der (pharm.)

Gastric juice is a strong acidic liquid with a pH of 1 to 3 in humans. Its main components are the digestive enzymes pepsin and rennin, plus hydrochloric

acid and mucus.

gastro resistant magensaftresistent überzogen (pharm.)

The capsules were designed to be gastro-resistant and enterosoluble.

gate Tor, das (eng.)

The gate was made from wood.

gate valve Schieber, der; Absperrschieber, der; Absperrventil, das; (chem. eng.)

Absperrhahn, der

A gate valve is a valve that opens by lifting a round or rectangular gate/wedge out of the path of the fluid. Gate valves are sometimes used for regulating flow, but mostly they are designed to be fully opened or closed. When fully open, a

gate valve typically has no obstruction in the flow path.

gauge pressure Manometerdruck, der; Überdruck, der (eng.)

Acronym (engl.): barg

The gauge pressure was 1.2 bar.

gauze Mull, der (pharm.)

Gauze is a thin, translucent fabric, often made from cotton. It is used for bandages to dress wounds where other fabrics might stick to the burn or laceration.

gauze bandage Mullbinde, die (pharm.)

The gauze bandage is sterile unless the package is opened or damaged.

**gearbox** Getriebe, das (eng.)

Vibration monitoring on gearboxes is state of the art for large, stationary engines.

**gearing** Verschuldungsgrad, der; Verhältnis von Fremd- zu Eigenkapital, das (econ.)

The company targets for a gearing (net debt divided by equity) between 40–60%,

which is a good balance between costs of capital and risk.

**gellant** Geliermittel, das (pharm.)

The gellant was produced in China.

**gelling agent** Geliermittel, das (pharm.)

Gelling agents are used to thicken and stabilize emulsions and suspensions. Typical gelling agents include natural gums, starches, pectins, agar-agar and

gelatin. Often they are based on polysaccharides or proteins.

general terms and conditions

ns and Allgemeine Geschäftsbedingungen, die

Acronym (engl.): T&C, GT&C

Acronym (dt.): AGB

The general terms and conditions can be found on the company website.

**generate, to** erzeugen (chem.)

CO<sub>2</sub>, H<sub>2</sub> and H<sub>2</sub>S can be generated in Kipp's apparatus from an acid reacting

with CaCO<sub>3</sub>, Zn and FeS, respectively.

Generika, die (Generikum, das)

generic medicinal products, generic

drugs, generics

(pharm.)

(econ.)

Generic drugs must contain the same active ingredients as the brand name formulation. They need to be identical or bioequivalent to the original

medication.

**generic name** Freiname, der (pharm.)

The generic name was proposed by the WHO.

**genetic engineering** Gentechnik, die (chem. eng.)

The first genetically engineered medicine was synthetic human insulin (1982).

genetics Genetik, die (chem.)

A milestone in genetics was the determination of the structure of DNA by

James D. Watson and Francis Crick in 1953.

germ Keim, der (pharm.)

Germs are microorganisms, especially pathogenic ones.

germicidal keimtötend (chem.)

Iodine, hydrogen peroxide, boric acid, alcohols and quaternary ammonium

compounds have germicidal effects.

germicide keimtötendes Mittel, das (chem.)

Overusing germicides might lead to an increase in dangerous, resistant strains

of bacteria.





germinate, to keimen (chem.)

Germinated barley grains are used for the production of beer.

gingival Zahnfleisch- (pharm.)

The formulation was developed for gingival use.

gland Stopfbuchse, die; Dichtschraube, die (eng.)

Glands are used to seal a rotating or reciprocating shaft against a fluid.

glass rod Glasstab, der (chem.)

The laboratory assistant stirred the solution with a glass rod.

glassware Glasgeräte, die (Glasgerät, das) (chem.)

Glassware needs to be handled with care.

**globe valve** Ringkolbenventil, das (chem. eng.)

Globe valves are used to regulate the flow in a pipeline.

gloss Glanz, der (eng.)

The gloss on the surface disappeared after 2 weeks.

GLP (chem. eng.)

Acronym/Abbreviation referral: see good laboratory practise

GMP (chem. eng.)

Acronym/Abbreviation referral: see good manufacturing practise

good laboratory

practise

GLP, gute Laborpraxis, die

practice (AE)

Acronym (engl.): GLP

GLP, which applies to non-clinical studies, provides a framework within which laboratory studies are planned, performed, monitored, recorded, reported and

(chem. eng.)

archived.

good manufacturing

GMP, gute Herstellungspraxis, die

(chem. eng.)

practise

practice (AE)

Acronym (engl.): GMP

An important aspect of GMP is documentation of every process step.

gout Gicht, die

(pharm.)

Gout (metabolic arthritis) is a disease created by a buildup of uric acid (2,6,8 Trioxypurine,  $C_5H_4N_4O_3$ ). In this condition, crystals of monosodium urate or uric acid are deposited on the articular cartilage of joints, tendons and

surrounding tissues. These crystals cause inflammation and pain.

grain Korn, das

(eng.)

A single grain of contamination can destroy a wafer.

Gram staining

Gramfärbung, die

(pharm.)

Gram staining (or Gram's method) is an empirical method of differentiating bacterial species into two large groups (Gram-positive and Gram-negative) based on the chemical and physical properties of their cell walls.

grassroot plant

(chem.)

see greenfield plant

**grease** Fett, das

(chem.)

Grease, which is used as a lubricant, consists of an oil or another liquid lubricant

which is mixed with a soap to yield a solid.

green chemistry

nachhaltige Chemie, die

(chem.)

Green chemistry is a field that has attracted numerous researchers in the last

years.

greenfield plant

komplett neue Anlage, die; Anlage auf der grünen Wiese, die

The company built a greenfield plant close to Seoul in Korea.

greenhouse effect

Treibhauseffekt, der

(chem.)

(chem.)

Without the natural greenhouse effect, the average surface temperature of Earth

of 14°C would be approx. -18°C.

grid Gitter, das; Netz, das (eng.)

For his computer simulation, he placed a grid over the reactor.

**grind, to** schleifen, malen (eng.)

(ground, ground)

He ground the knife so much that a significant loss of metal could be seen.

**grindstone** Schleifstein, der (eng.)

Grindstones, tools to sharpen various bodies, were often made from sandstone

in the shape of a wheel.

groove Rille, die; Nut, die; Fuge, die (eng.)

The groove could not be seen.

**grooved** geriffelt (eng.)

The grooved surface enabled him to walk safely despite the rainfall.

**gross** brutto (general)

The gross weight of the container is 33,850 kg.



ground glass Glasschliff, der (chem.)

By using ground glass joints in laboratories, a leak-tight apparatus can be fitted

together in a fast and easy way.

**ground stopper** Schliffstopfen, der (chem.)

The ground stopper broke on the floor.

**groundbreaking** Spatenstich, der (chem. eng.)

100 employees attended the groundbreaking ceremony.

**grounding** Erden, das (eng.)

Grounding of electrical equipment is specified in national standards.

**grout, grouting** Einspritzmörtel, der; Auspressmörtel, der; Einpressmörtel, der (eng.)

Grout is a construction material used to embed rebars in masonry walls or to fill voids. It is generally composed of a mixture of water, cement, sand and

sometimes fine gravel.

guarantee Garantie, die (econ.)

In addition to the warranty, which is stated by law, a seller can give an additional, voluntary guarantee to a customer that the product will comply with the

specifications for a longer period of time, e.g. 10 years.

gums, gingiva Zahnfleisch, das (pharm.)

Inflammation of the gums, which can be recognized by a change in color, can

be caused by the accumulation of bacterial plaque.

**gunpowder** Schwarzpulver, das (chem.)

A typical mixture of gunpowder contains 75% potassium nitrate, 15% softwood

charcoal and 10% sulfur.

gypsum Gips, der (chem.)

Desert roses consist of gypsum (CaSO<sub>4</sub> .2H<sub>2</sub>O).

gyroscope Kreisel, der (eng.)

In his final exam, he had to explain a gyroscope.

half-life Halbwertszeit, die (chem.)

The half-life of uranium-238, which decays to thorium-234 by the emission of

alpha particles, is 4.5 billion years.

halide Halogenid, das (chem.)

Acronym (engl.): XAcronym (dt.): X

All metals from group 1 form halides with the halogens. These binary compounds

are white solids (salts).

**hallway** Korridor, der; Vorzimmer, das (general)

The hallway of the building was misused for storage purposes.

hardness Härte, die (eng.)

Hardness, which can be defined as the resistance to scratching or permanent deformation, can be measured on the scales of Mohs, Rockwell, Vickers, and

Brinell.

**harmful** schädlich (eng.)

Noise > 85 dB(A) is harmful.

harmless unschädlich (eng.)

Air humidity is harmless to the transformer.

hazard classification Gefahreneinstufung, die (chem. eng.)

The hazard classification of the warehouse was challenged by the insurance

company.

hazardous gefährlich (chem.)

Fluorine is a hazardous gas.

hazardous material (AE) (chem.)

Acronym (engl.): hazmat

Acronym/Abbreviation referral: see dangerous good

## hazardous materials identification system

HMIS (chem.)

Acronym (engl.): HMIS

HMIS is a database that provides information on health, flammability, and reactivity hazards of substances that are encountered in the workplace. A number is assigned to a material indicating the degree of hazard, from 0 for the least up to 4 for the most severe. Letters are used to designate suggested personal protective equipment.

hazardous substance

Gefahrenstoff, der

(chem.)

Before hazardous substances are manipulated, the safety data sheets ought to

be consulted.

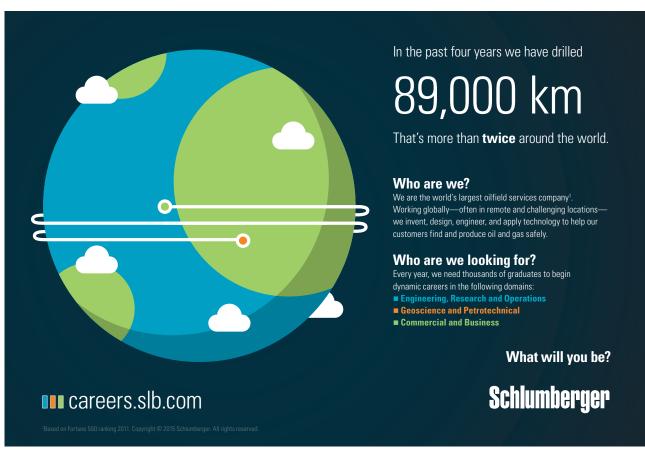
hazardous waste gefährlicher Abfall, der

(chem.)

Hazardous waste needs to be properly labelled.

hazmat (chem.)

Acronym/Abbreviation referral: see hazardous material



head office Firmensitz, der; Hauptbüro, das; Hauptniederlassung, die (econ.)

For tax reasons, the head office was moved to Bern.

health, safety, Gesundheit, Sicherheit, Umwelt(schutz) (chem. eng.)

environment

Acronym (engl.): HSE

The company is considered a leader in HSE.

**heartburn** Sodbrennen, das; Pyrosis, die (med.)

Heartburn is a painful and burning sensation in the esophagus, usually associated

with regurgitation of gastric acid.

heat recovery Wärmerückgewinnung, die (eng.)

A project for heat recovery from cooling water often has a short payback time.

**heat tracing** Begleitheizung, die (eng.)

Water pipelines in industrial plants sometimes require heat tracing.

heat transfer Wärmeübergang, der (eng.)

Heat transfer could be improved by increasing the turbulence.

heat value, Heizwert, der (eng.)

fuel value

air conditioning

The heat value is often given in BTU (British Thermal Unit). 1 BTU is approx.

 $1.05 \text{ kJ or } 2.9 \times 10^{-4} \text{ kWh.}$ 

**heating ventilation** Heizungs -, Klima- und Lüftungstechnik, die; (eng.)

Acronym (eng.) HVAC

Acronym (dt.): HKL, KHL

The HVAC engineer overdesigned the cooling tower by 20%.

heavy metal Schwermetall, das (eng.)

The term "heavy metal" is misleading. Many different definitions have been proposed, e.g. based on density, atomic number, atomic weight or toxicity. Beryllium, the fourth lightest element, is much more poisonous than bismuth,

the heaviest stable element.

hemp Hanf, der (chem.)

Hemp can be used to produce natural fibers.

HEPA (eng.)

Acronym/Abbreviation referral: see high efficiency particulate air filter

hepatic hepatisch, zur Leber gehörig (pharm.)

Tetrachloroethylene can lead to hepatic disorders.

**heterogeneous** heterogen (chem.)

In chemical kinetics, a heterogeneous reaction takes place at the interface of

two phases, e.g. a solid and a gas or a liquid and a gas.

high efficiency HEPA Filter, der (eng.)
particulate air filter

The HEPA filter needed be be replaced, because it had become wet.

highly alloyed hochlegiert (eng.)

Highly alloyed steel contains between 4 and 50% of elements such as molybdenum, manganese, nickel, chromium, vanadium, silicon or boron.

**highly toxic** sehr giftig (chem.)

A chemical in any of the following categories is considered highly toxic:

- A chemical with a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight when administered orally to albino rats between 200 and 300 grams each.
- A chemical with a median lethal dose (LD50) of 200 milligrams or less per kilogram of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 kilograms each.
- A chemical with a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 grams each.

Antimony compounds are highly toxic.

**high voltage current** Starkstrom, der (eng.)

High voltage can be defined as min. 1000~V for alternating current and at least 1500~V for direct current. High voltage current is used in electrical power

transmission.

hinge Scharnier, das; Türangel, die (eng.)

Hinges can either be made of flexible material or of moving parts.

hinged zusammenklappbar, klappbar (eng.)

The hinged lid was too heavy to lift.

hippuric acid Hippursäure, die (chem.)

High concentrations of hippuric acid (benzoylaminoacetic acid,  $C_9H_9NO_3$ ) can indicate a toluene intoxication. Hippuric acid is an organic acid which is found

in the urine of horses and other herbivores.

HMIS (chem.)

Acronym/Abbreviation referral: see hazardous materials identification system





**hoist** Winde, die (eng.)

A hoist was deployed to transport the raw materials to the bag slitting station.

hoisting device Hebevorrichtung, die (eng.)

The hoisting device could handle loads of up to 5 tons.

holding company Dachgesellschaft, die; Beteiligungsgesellschaft, die; Holding, die (econ.)

Berkshire Hathaway is one of the largest publicly-traded holding companies.

**hole punch** Locher, der (general)

A hole punch is an office tool used to make holes in a sheet of paper.

homeopathy Homöopathie, die (pharm.)

Homeopathic preparations are effective, they may make people feel better via the placebo effect. A central thesis of homeopathy is that a sick person can be treated by a substance (in serial dilution) which can produce similar symptoms

to those of the sickness.

homogeneous homogen (chem.)

Homogeneous catalysts work in the same phase as the reactants, an example

being organometallic catalysts.

**hood** Haube, die (eng.)

Noisy equipment can be placed under a hood.

hopper Trichter, der (eng.)

The main feed hopper of the extruder was blocked with agglomerates.

horse power Pferdestärke, die (eng.)

Acronym (engl.): HP Acronym (dt.): PS

An engine rated at 75 kW has got 100 HP.

hose Schlauch, der (eng.)

Hoses lying on the floor can lead to serious accidents.

**hose coupling,** Schlauchkupplung, die (eng.)

hose fixture

The hose coupling was worn out.

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HP (eng.)

Acronym/Abbreviation referral: see hydroprocessing

HSE (chem. eng.)

Acronym/Abbreviation referral: see health, safety, environment

hue Farbton, der (eng.)

A hue is an element of the color wheel.

**husbandry** Landwirtschaft, die (general)

Modern husbandry often relies heavily on fertilisers.

HVAC (eng.)

Acronym/Abbreviation referral: see heating ventilation air conditioning

hydrated lime gelöschter Kalk, der (chem.)

Hydrated lime  $(Ca(OH)_2)$  is used in the manufacture of ebonite, which was one of the earliest plastics. Ebonite is a very hard rubber with a high sulphur

content.

**hydraulic diameter** hydraulischer Durchmesser, der (*chem. eng.*)

The hydraulic diameter was determined to be 12 μm.

hydraulic fluid, Druckflüssigkeit, die; Hydraulikflüssigkeit, die; Hydrauliköl, das (chem. eng)

hydraulic liquid

Brake fluid is a hydraulic fluid with high boiling point and low freezing point.

It is hygroscopic in order to absorb moisture which would otherwise cause

corrosion in the brake system.

hydraulic lock, (eng.)

hydrostatic lock

Acronym/Abbreviation referral: see hydrolock

**hydrocarbon** Kohlenwasserstoff, der (chem.)

Butadiene (C, H<sub>e</sub>) is an unsaturated hydrocarbon.

hydrochloric acid Salzsäure, die (chem.)

Hydrochloric acid is the solution of hydrogen chloride (HCl) in water. HCl is

a monoprotic acid.

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hydroflouric acid Flusssäure, die (chem.)

Hydrofluoric acid, which can etch glass, is used as a precursor for Teflon<sup>tm</sup>, which is a registered trademark of DuPont for products made from fluorine-

containing polymers (fluoropolymers).

**hydrogen** Wasserstoff, der (chem.)

Acronym (engl.):  $H_2$ Acronym (dt.):  $H_2$ 

Hydrogen, the most abundant element in the universe, accounts for 75% of

matter by mass and for over 90% by the number of atoms.

**hydrogen chloride** Chlorwasserstoff, der (chem.)

Acronym (engl.): HCl Acronym (dt.): HCl

Hydrogen chloride is a colorless gas, which can form white fumes of hydrochloric

acid at contact with air humidity.



**hydrogen peroxide** Wasserstoff peroxid, das (chem.)

Acronym (engl.):  $H_2O_2$ Acronym (dt.):  $H_2O_3$ 

Hydrogen peroxide can be used in the production of epoxides such as propylene oxide, which can be processed to polyurethane. Epoxides are ethers with only

3 ring atoms.

**hydrolock, hydro lock** Hydrosperre, die; Hydrauliksperre, die (eng.)

Hydrolock (short for hydraulic lock or hydrostatic lock) is an unwanted condition of an internal combustion engine in which an incompressible liquid such as water has entered into the cylinders. The pistons' movement is prevented, and the engine will suffer significant damage.

**hydrolysis** Hydrolyse, die (*chem.*)

Polymers which are susceptible to hydrolysis such as PET, polycarbonate and

nylon need to be dried prior to processing.

hydronics Hydronik, die; Wärme – und Kälteübertragung durch Wasser, die (eng.)

In hydronics, water is used as medium for heat transfer for heating and cooling

applications.

hydrophilic hydrophil, wasserbindend (chem.)

Soap molecules have a hydrophilic head and a hydrophobic tail.

**hydrophobic** hydrophob, wasserabweisend (*chem.*)

Alkanes, oils and fats are hydrophobic molecules.

hydroprocessing Hydroprocessing, das (chem.)

Acronym (engl.): HP

During the hydroprocessing of heavy oils, asphaltenes act as coke precursors

which leads to catalyst deactivation.

hypergolic hypergol (chem.)

A hypergolic propellant is either of the two rocket propellants used in a hypergolic rocket engine, which spontaneously ignite when they come into contact. The terms "hypergol" or "hypergolic propellant" denote the most common such

propellant combination, hydrazine plus dinitrogen tetroxide.

hypoxia Hypoxie, die (med.)

Hypoxia is a medical condition in which the body as a whole or a part of it is

deprived of oxygen.

I/A (chem. eng.)

Acronym/Abbreviation referral: see instrument air

ICA (eng.)

Acronym/Abbreviation referral: see instrumentation control automation

ICE (eng.)

Acronym/Abbreviation referral: see internal combustion engine

ideal batch reactor absatzweise betriebener idealer Rührkessel, der (chem. eng)

Acronym (engl.): IBR

The ideal batch reactor can be modelled more easily than an actual one.

ideal plug flow reactor ideales Strömungsrohr, das (chem. eng.)

Acronym (engl.): IPFR

The ideal plug flow reactor is easy to model.

idle im Leerlauf (eng.)

An idle running engine has a low fuel consumption.

IDLH (chem.)

Acronym/Abbreviation referral: see immediately dangerous to life and health

ignition Zündung, die (chem.)

The auto ignition temperature of hydrogen is 571°C.

**immediately** unmittelbar schädlich für Leben und Gesundheit, (chem.)

dangerous to life akuttoxisch

and health

akuttoxisch, IDLH-Konzentration, die Acronym (engl.): IDLH

IDLH is the maximum concentration from which one could escape within 30

minutes without any escape-impairing symptoms or any irreversible health

effects.

immersion bath Tauchbad, das (chem.)

The workpieces were treated in an immersion bath prior to shipment.

immiscible unmischbar (chem.)

The workpieces were treated in an immersion bath prior to shipment.

**impair, to** beeinträchtigen (pharm.)

Chronic exposure to methanol can lead to impaired vision and damage to

kidneys, heart and other organs.

**impermeable,** dicht, undurchlässig (chem.)

nonpermeable, impervious

The landfill was sealed with an impermeable plastic foil.

impetus Impuls, der (eng.)

The impetus is a conserved quantity.

implant Implantat, das (pharm.)

A hip implant can consist of a titanium hip prosthesis with a ceramic head.

imprint Aufdruck, der (pharm.)

The imprint on the packaging was hard to read.



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improper fraction unechter Bruch, der (pharm.)

9/7 is an improper fraction.

impurity Verunreinigung, die (eng.)

Raw material income control can detect impurities in received goods.

in excess im Überschuss (chem.)

If the solvent is a reaction partner, it is normally supplied in excess.

inadvertent use versehentlicher Gebrauch, der (pharm.)

Inadvertent use of household chemicals can be prevented by properly labelling

them and avoiding to put them into bottles designed for food.

Inc. (econ.)

Acronym/Abbreviation referral: see incorporated

inch Zoll, der (eng.)

Acronym (engl.): in

inch rod Zollstock, der (eng.)

Carpenters use inch rods.

incident Vorfall, der (eng.)

Learning from previous indicents will eventually increase the safety of a plant.

incinerate, to einäschern (eng.)

Hazardous waste is generally incinerated.

inclination Gefälle, das; Neigung, die (eng.)

The inclination of the factory floor is not acceptable for installing the new

equipment.

inclusion Einschluss, der (chem.)

The pellets showed brown inclusions of degraded product.

incorporated Aktiengesellschaft, die (econ.)

Acronym (engl.): Inc. Acronym (dt.): AG He works for XYZ Ltd. incoterms

Incoterms, die; Lieferbedingungen ins Ausland, die

(econ.)

(international

commercial terms)

Incoterms can be: EXW, FCA, FAS, FOB, CFR, CIF, CPT, CIP, DAF, DES, DEQ, DDU and DDP. Terms outside of those should be avoided as these are then typically not clearly defined and may lead to disputes between buyer and seller. EXW = ex works, FCA = free carrier, FAS = free alongside ship, FOB = free on board, CFR = cost and freight, CIF = cost, insurance and freight, CPT = carriage paid to, CIP = carriage and insurance paid to, DAF = delivered at frontier, DES = delivered ex ship, DEQ = delivered ex quay, DDU = delivery, duty unpaid, DDP = delivery, duty paid.

incremental costs

Grenzkosten, die

(eng.)

 $To fully load\ a\ plant, it\ might\ be\ advisable\ to\ sell\ overcapacity\ close\ to\ incremental$ 

costs.

indelible unauslöschbar

(pharm.)

He used an indelible marker to cross out the name on the packaging.

industrial accident

Arbeitsunfall, der

(general)

Industrial accidents have to be reported.

industrial water

Brauchwasser, das

(chem. eng.)

The plant cannot obtain more than 450 m<sup>3</sup>/h of industrial water.

inert gas purging

Inertbegasung, die

(pharm.)

The Grignard reaction, which is an important technique to form carbon- carbon, carbon-phosphorus and carbon-silicon bonds with alkyl- or aryl- magnesium

halides, required inert gas purging.

inertia Trägheit, die

(eng.)

Inertia makes a moving body continue on his path.

infiltration

Einsickern, das

(eng.)

Fast action by the fire brigade could prevent oil infiltration into the ground.

**infinite** unendlich

(sci.)

There are seemingly infinite opportunities.

inflammable, brennbar, leicht entzündbar, entflammbar (chem.)

flammable

If inflammable substances such as acetone are transported on the road, a special

sign has to be placed on the vehicle.

inflammation Entzündung, die (med.)

An inflammation of the skin can be caused by burns, chemical irritants,

infections by pathogens or foreign bodies/physical inury.

inflatable aufblasbar (eng.)

Rotary valves with an inflatable gasket require more maintenance than standard

ones.

inflow Zustrom, der (chem. eng.)

The inflow was sent through a metal separator.

ingest, to (Nahrung) aufnehmen (pharm.)

If methanol is ingested, blindness can occur.

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inhale, to einatmen (pharm.)

If inhaled, the chemical poses a serious choking hazard.

inhibitor Hemmstoff, der (chem.)

Volatile amines added to steam are an example of corrosion inhibitors; For instance, they can be used in boilers used to drive turbines to protect the pipelines

by increasing the pH.

**inhomogeneous** inhomogen (chem.)

Inhomogeneous raw materials can lead to fluctuations in a downstream process.

initial value Anfangswert, der (eng.)

A recipe stores the initial value of the various feeds.

INN (chem.)

Acronym/Abbreviation referral: see International Nonproprietary Name

inoculate, to mit Keimen beimpfen (pharm.)

The cow was inoculated against the disease.

inoculation Beimpfung, die; Impfung, die (pharm.)

By inoculation, immunity against various infectious diseases can be obtained. The earliest record of inoculation dates back to India in the 8<sup>th</sup> century.

inorganic anorganisch (chem.)

Inorganic carbon compounds are, for example, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), carbonates (CO<sub>3</sub><sup>2-</sup>), cyanides (CN<sup>-</sup>), cyanates (OCN<sup>-</sup>), carbides, and thiocyanates (SCN<sup>-</sup>, rhodanide). Urea was the first organic molecule that

could be synthesized from inorganic precursors.

inquiry Anfrage, die (general)

The inquiry about 300 tons of antioxidant was a huge opportunity.

**insect infestation** Insektenbefall, der (pharm.)

By monitoring temperature and moisture of grain storage rooms, insect

infestation can be controlled.

inside battery limits ISBL; Bereich Kernanlage, der (chem. eng)

Acronym (engl.): ISBL

ISBL is typically the process unit itself, whereas OSBL consists of all connections

to make ISBL work, such as utilties, feed streams and product streams.

insoluble unlöslich (pharm.)

Barium sulfate (BaSO<sub>4</sub>) is virtually insoluble in water (0.00115 g/l at 18°C).

inspect, to befahren (chem. eng.)

Prior to inspecting the vessel, the engineer measured the atmosphere inside.

instrument air, Instrumentenluft, die; I-Luft, die (chem. eng.)

plant air

Acronym (engl.): I/A

The instrument air was supplied at 10 bar (150 psi).

**Instrumentation** Messen, Steuern, Regeln (eng.)

**Control Automation** 

Acronym (engl.): ICA Acronym (dt.): MSR

The ICA engineer received his training at Munich University of Technology.

insufflation Einblasen, das (med.)

Insufflation of inert, nontoxic gases such as carbon dioxide into a body cavity

is done to expand workroom during surgery.

insulate, to isolieren (gegen Wärmeübertragung) (chem.)

Thermal insulation can strongly decrease operating costs.

insulator Isolator, der (chem.)

Silicon dioxide is a very good electrical insulator.

intellectual property geistiges Eigentum, das (eng.)

Acronym (engl.): IP

Patents offer intellectual property protection.

intellectual property gewerblicher Rechtsschutz, der; Immaterialgüterrecht, das (econ.)

rights

The company employs three IPR officers.

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interact, to wechselwirken (chem.)

Light and matter can interact by absorption, emission and scattering.

interest Zinsen, die (Zins, der) (econ.)

Debts bear interest.

inteface Grenzschicht, die (chem.)

The interface between the solid and the surrounding liquid was studied.

interim storage Zwischenlagerung, die (pharm.)

There was no room for interim storage of the raw materials.

interlock Verriegelung, die (chem. eng.)

The accident happened because a safety interlock had been bypassed.

intermediate product, Zwischenprodukt, das intermediate

(chem.)

In the production of ethylene from sugar cane, ethanol is an intermediate product. Metabolites are intermediates and products of metabolism.



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intermediate stage Zwischenstufe, die (pharm.)

Sodium pyrosulfate (Na<sub>2</sub>S<sub>2</sub>O<sub>7</sub>) is produced in an intermediate stage in the

preparation of sulfur trioxide (SO<sub>3</sub>).

intermediate storage Zwischenlager, das (chem.)

Also intermediate storage areas have to fulfill all safety requirements.

intermixing Untermischung, die (pharm.)

The researcher investigated atom intermixing at metal/semiconductor interfaces

at the nano-scale.

internal combustion Verbrennungsmotor, der (eng.)

engine

Most internal combustion engines run on liquid or gaseous fuels.

internal rate of return interner Zinsfuß, der (econ.)

Acronym (engl.): IRR

The IRR is the "yield" of a project. It can be used to rank competing projects

by their profitability.

**International** internationaler Freiname, der (pharm.)

Nonproprietary Name

Acronym (engl.): INN

The International Nonproprietary Name (INN, rINN (recommended International Nonproprietary Name), pINN (proposed International Nonproprietary Name)) of a pharmaceutical substance is the official non-proprietary or generic name, assigned by the WHO, e.g. "paracetamol".

International Protection, (eng.)

**Ingress Protection** 

Acronym/Abbreviation referral: see IP code

interpolate, to interpolieren (sci.)

Data from interpolation are more reliable than those from extrapolation.

interprete, to deuten (sci.)

The engineer interpreted the damage to the engine as a result of knocking.

intersect, to sich kreuzen (sci.)

The engineer wondered why the 2 lines did not intersect.

intestine Darm, der; innerlich (med.)

Gastroenteritis is an inflammation of the intestines and is the most common disease of the intestines. Colitis is an inflammation of the large intestine.

intimate mixture innige Mischung, die (chem.)

A plastics compound is an intimate mixture of base resin, color and mineral

fillers.

intrinsically safe eigensicher, intrinsisch sicher, von innen heraus sicher (eng.)

An intrinsically safe piece of electronic equipment can be deployed in explosive

atmospheres.

invention Erfindung, die (sci.)

Generally, a patent grants protection of an invention for up to 20 years.

inventory Inventar, das (econ.)

A huge inventory can block significant amounts of working capital.

investigation Untersuchung, die (general)

The incident led to an official investigation.

iodine Iod, das (chem.)

Acronym (engl.): I Acronym (dt.): I

Iodine is the heaviest element known to be necessary for all living organisms.

IP (econ.)

Acronym/Abbreviation referral: see intellectual property

IP-Kodex, der (chem. eng.)

The IP Code consists of the letters IP followed by two digits and an optional letter. It classifies the degrees of protection offered by electrical enclosures. The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e. g. electrical conductors and moving parts) and the ingress of solid foreign objects. The second digit indicates the level of protection of the equipment inside the enclosure against ingress of water. The highest level of protection, IP 68, stands for complete dust – tightness and water-tightness.

IPR (econ.)

Acronym/Abbreviation referral: see intellectual property rights

iron Eisen, das (chem.)

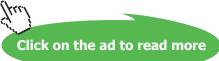
Acronym (engl.): Fe Acronym (dt.): Fe

Hematite (Fe<sub>2</sub>O<sub>2</sub>) and magnetite (Fe<sub>2</sub>O<sub>4</sub>) are iron oxide minerals.

IRR (econ.)

Acronym/Abbreviation referral: see internal rate of return





**irradiate, to** bestrahlen (pharm.)

By irradiating certain plastics, cross-linking can be achieved.

irrigate, to bewässern (eng.)

Farmers regularly need to irrigate dry fields.

**Irrigation** Bewässerung, die (eng.)

By irrigation, the yield of a crop can be increased.

Irritant to the skin hautreizend (chem.)

Formaldehyde (methanal, HCHO) is irritant to the skin, the eyes, and the

mucous membranes.

irritate, to reizen (chem.)

The product irritates the skin upon contact.

irritating reizend (pharm.)

Acetone ((CH<sub>2</sub>)<sub>2</sub>CO) shows an irritating effect on the skin due to defatting

action. The vapors are irritating to the eyes, too.

IS (eng.)

Acronym/Abbreviation referral: see intrinsically safe

ISBL (chem.eng.)

Acronym/Abbreviation referral: see inside battery limits

isolate, to isolieren (abtrennen) (chem.)

The contaminated room was isolated.

isolation Isolation, die (chem.)

To prevent contagious diseases from being spread from one patient to another,

the victims were kept in isolation.

issue Ausgabe, die; Angelegenheit, die (general)

People issues had led to the low plant performance.

**issue, to** ausstellen (general)

The final report was issued three weeks after the incident.

jack, screw jack Dehnschraube, die; Schraubspindel, die; Wagenheber, der (eng.)

A self-locking jack screw is intrinsically safer than other hydraulic actuators

that require continuous pressure to remain in a locked position.

jar Weithalsgefäß, das (chem.)

The contents of the jar had to be thrown away because the label was missing.

**jaundice** Gelbsucht, die (pharm.)

Jaundice is a yellowish discoloration of tissue, whites of the eyes, and bodily

fluids with bile pigment caused by liver problems.

jet pump, injector Injektor, der (chem. eng.)

The steam injector was insulated to prevent burns at the hot surface.

jigsaw Laubsäge, die (eng.)

She needs a new blade for her jigsaw.

**job application** Bewerbung, die (eng.)

A job application by email deserves the same attention to spelling mistakes as

one sent by letter.

jobsite Arbeitsplatz, der (general)

The wearing of PPE is mandatory at the jobsite.

join, to verbinden (eng.)

The man joined the two wires.

joiner Tischler, der (general)

The joiner was looking out for a successor.

jointless fugenlos, durchgängig (eng.)

Jointless railway tracks are made of steel with a low coefficient of thermal

expansion.

keg Fass, das (eng.)

A Munich-based company develops and markets a keg for beer which can be

cooled down without electricity.

key performance Kennzahlen, die (econ.)

indicators

Acronym (engl.): KPI

The KPI of the plant could be fulfilled easily.

kilopond (eng.)

Acronym/Abbreviation referral: see kp

knob Knopf, der (eng.)

Door knobs need to have good haptics.

**knowledge** Wissen, das (general)

Some knowledge expires, so it has to be constantly increased.

kp Kilopond, das (eng.)

1 kilogram-force (kilopond, kp) is equal to 9.81 N, which is the SI unit of force.

The unit kp is outdated.

KPI (econ.)

Acronym/Abbreviation referral: see key performance indicators





**K**<sub>v</sub> flow factors K<sub>v</sub>-Wert, der; Durchflussfaktor, der; Durchflusskoeffizient, der (eng.)

The K<sub>v</sub> flow factor, measured in m³/h or l/min, is used to describe the flow

through a valve at a pressure difference of 1 bar.

L/C (econ.)

Acronym/Abbreviation referral: see letter of credit

lab coat Laborkittel, der (chem.)

She exchanged her lab coat made of cotton with one made of a flame-retardant

material.

label Etikett, das (general)

The label on the flask did not reveal the quantity of the substance therein.

label, to (labelled) beschriften (general)

label, to (labeled) (AE)

The flask with the brown liquid was not labelled.

laboratory Labor, das (chem.)

The laboratory is equipped with two fume cupboards.

laboratory assistant Laborant(in), der (die) (chem.)

Laboratory assistants have to make sure that they record all experimental data.

laboratory notebook Laborjournal, das (chem.)

After he had spilled a bottle of acetic acid over his laboratory notebook, the

entries were barely readable.

laboratory technician Laborant(in), der (die) (chem.)

During the last years, the laboratory technician has gained vast experience.

labour Arbeit, die; schwere Arbeit, die; Personal, das; Personalaufwand, der (general)

labor (AE)

Technology has made redundant a lot of hard labour.

lacrimal fluid Tränenflüssigkeit, die (pharm.)

There are basal tears, reflex tears and emotional tears. The lacrimal fluid of emotional tears contains more protein-based hormones such as prolactin and

leucine enkephalin (a natural painkiller) than basal or reflex tears.

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lacrimator, tränenreizender Stoff, der (chem.)

lacrymator, lachrymator,

lachrymatory agent

Bromoacetone (CH<sub>3</sub>COCH<sub>3</sub>Br) is a lachrymatory agent.

lactic acid Milchsäure, die (chem.)

Lactic acid (2-hydroxypropanoic acid) is chiral and has two optical isomers.

The L-(+)-lactic acid is biologically important.

lacotse Milchzucker, der (chem.)

Lactose (milk sugar) makes up 2–8% of milk (by weight).

laminated core Blechpaket, das; Blechkern, der (eng.)

(laminierter Kern in Transformatoren)

In a rapidly changing field, e.g. a transformer, iron cannot be used in bulk form, because its good conductivity leads to intense eddy currents, resulting in huge losses (this is used advantageously in induction heating, though). Two techniques are commonly used together to increase the resistivity of iron for use in transformers: lamination (yielding a laminated core) and alloying of the

iron with silicon.

**laminated foil** Verbundfolie, die (eng.)

The laminated foil consists to 60% of cardboard.

laminated tablet Manteltablette, die (pharm.)

The laminated tablet has a coating made out of polystyrene.

landfill Mülldeponie, die (eng.)

Landfill gas can be used to produce electricity.

large scale production großtechnische Produktion, die (chem. eng.)

Downtime in large scale production plants is rigorously minimized.

large-scale synthesis, großtechnische Synthese, die (chem.eng)

industrial synthesis

Industrial synthesis of ammonia exceeds 100 million tonnes/year.

last in, first out LIFO, die zuletzt Eingetroffenen (econ.)

(Waren, Rohstoffe, Lagerbestände, Anträge,...) zuerst

The consultant proposed not to run the warehouse for perishable goods

according to the LIFO principle.

lasting dauerhaft (eng.)

Glue offers a lasting connection.

latency period, Latenzzeit, die; Inkubationszeit, die (med.)

incubation period

The incubation period, i.e. the time that elapses between exposure and the first

manifestations of a disease, is often longer in adults than in children.

lattice Gitter, das; Kristallgitter, das (chem.)

The monoclinic crystal system is one of the 7 lattice point groups.

laxative, purgative Abführmittel, das (pharm.)

The monoclinic crystal system is one of the 7 lattice point groups.







layer Schicht, die (Aufbau) (eng.)

The oil formed an even layer on the water.

Layer of Protection LOPA (chem. eng.)

**Analysis** 

Acronym (engl.): LOPA

LOPA is a tool for hazard evaluation and risk assessment.

layout Aufstellung, die; Aufriss, der (eng.)

The layout of the utility building was still unclear.

layout diagram Bestückungsplan, der (chem. eng.)

The layout diagram of the warehouse did not show the firefighting equipment.

layout plan Aufstellungsplan, der (eng.)

The plant layout plan was well organized.

LC50 LC50-Wert, der; letale Konzentration, die (chem.)

The LC50 (lethal concentration 50, median lethal concentration) is the concentration of a substance in air that, via the respiratory route, is expected to kill 50% of a population of test animals when administered as a single exposure

in a specific time period, usually 1 hour.

LCLO geringste letale Konzentration, die (chem.)

LCLO (lethal concentration low) is the lowest concentration of a substance in air reported to have caused death in humans or animals. The reported concentrations may be entered for periods of exposure that are less than 24 h

(acute) or greater than 24 h (subacute and chronic).

LD50 LD50-Wert, der; mittlere letale Dosis, die (chem.)

The LD50 or median lethal dose is a dose which will kill 50% of an exposed

population.

LDLO geringste letale Dosis, die (chem.)

LDLO (lethal dose low) is the lowest dose of a substance introduced by any route, other than inhalation, reported to have caused death in humans or animals.

**leaching** Auslaugen, das (*chem.*)

Leaching is commonly used in metallurgy to convert metals into soluble salts,

as illustrated for zinc oxide here:  $ZnO + H_2SO_4 --> ZnSO_4 + H_2O$ .

lead Blei, das (chem.)

Acronym (engl.): Pb Acronym (dt.): Pb

Lead glass is composed of 10-30% lead oxide.

lead time Vorlaufzeit, die (econ.)

The lead time for a new product is 8 months.

leak, to lecken (chem. eng.)

A leaking valve poses a safety risk.

lean mager (chem.)

Fuel-lean combustion produces low  $NO_x$  emissions, however, unburnt

hydrocarbons and CO can increase.

ledger Hauptbuch, das; Kassenbuch, das (econ.)

The whole department frantically looked for the missing ledger.

**legal enforcement** Durchsetzung vor Gericht, die (jur.)

He wanted legal enforcement of the contract. **legend drugs (AE)** (pharm.)

Acronym/Abbreviation referral: see POM

legible leserlich (pharm.)

The handwriting was barely legible.

LEL (chem.)

Acronym/Abbreviation referral: see lower explosive limit

lesion Läsion, die; Wunde, die; Verletzung, die (med.)

A lesion is an abnormal change, injury, or damage to tissue or to an organ.

lethal concentration low (chem.)

Acronym (engl.): LCLO

letter of credit Bankgarantie, die (econ.)

Acronym (engl.): L/C

A duly confirmed and irrevocable L/C guarantees full payment.

lever Hebel, der (eng.)

He lifted the machine using a steel bar as lever.

lever rule Hebelgesetz, das (eng.)

The lever rule can be understood intuitively.

levorotary linksdrehend (chem.)

If a chiral molecule is dextrorotary, its enantiomer will be levorotary, and

vice-versa.

liabilities Verbindlichkeiten, die (econ.)

All debts and liabilities of a company can be found in the balance sheet.





licence to operate Betriebsgenehmigung, die (chem. eng.)

license to operate (AE) Acronym (engl.): LTO

The licence to operate was coupled to a few requirements by authorities.

lid Deckel, der (eng.)

The space between vessel and lid showed significant contamination.

life science Biowissenschaft, die (chem.)

Life sciences offer interesting career opportunities.

LIFO (econ.)

Acronym/Abbreviation referral: see last in, first out

light alloy Leichtmetall, das (eng.)

He bought light alloy rims.

light bulb Glühbirne, die (eng.)

Conventional light bulbs only convert 1% of the electrical energy into light.

light metal Leichtmetall, das (eng.)

Lithium, beryllium, sodium, magnesium and aluminum are light metals.

**lighting** Beleuchtung, die (eng.)

The skylight provided sufficient lighting for the production hall.

**lightning rod** Blitzableiter, der (eng.)

The lightning rod of the house protrudes 1 m into the air.

lignite Braunkohle, die (eng.)

Lignite, which contains approx. 60% carbon, has got an ash content between

6% to 19% compared to bituminous coal, where it is only 6% to 12%.

lime gebrannter Kalk, der (chem.)

Acronym (engl.): CaO Acronym (dt.): CaO

When working with lime, protective goggles should be worn.

lime, calcium carbonate Kalk, der

(chem.)

Acronym (engl.): CaCO<sub>3</sub> Acronym (engl.): CaCO<sub>3</sub>

Marble is made of calcite, a crystalline modification of CaCO<sub>3</sub>. CaCO<sub>3</sub> is also

the main component of shells of marine organisms and eggshells.

limited GmbH, die (econ.)

He works for Company ABC Ltd.

line voltage Netzspannung, die (eng.)

The line voltage in China is 220V.

linear programming

lineare Optimierung, die

(eng.)

Linear programming for chemical engineering problems, e.g. yield increase of

a plant, can be facilitated by several software packages.

lining Auskleidung, die (chem.)

The lining was damaged by the corrosive medium.

lining disk Beilagscheibe, die (eng.)

The apprentice bought a set of lining disks.

lin-log graph

linear-logarithmische Darstellung, die

(sci.)

A lin-log graph uses a logarithmic scale on the x axis, and a linear scale on the

y axis.

linseed oil Leinöl, das (chem.)

Linseed oil is used by some painters.

liquefaction

Verflüssigung, die

(chem. eng.)

(chem. eng.)

The Bergius process is a method to produce liquid hydrocarbons by the hydrogenation of lignite (brown coal) at elevated temperature and pressure.

The coal liquefaction can be described as  $nC + (n+1)H_2 --> C_nH_{2n+2}$ .

liquefied propane gas Flüssiggas, das; Propangas, das; verflüssigtes Propangas, das

Acronym (engl.): LPG

Acronym (dt.): LPG

The energy density of LNG is approx. 60% of that of diesel fuel.

liquefy, to verflüssigen (chem. eng.)

LNG (liquefied natural gas) can be transported on special ships.

liquid flüssig, Flüssigkeit, die (chem.)

By supercooling, a liquid can be chilled below its freezing point without

becoming solid. For water, supercooling down to -42°C is feasible.

liquidated damages, vereinbarte Vertragsstrafe, die; Vertragsstrafe, die (econ.)

ascertained damages

Liquidated damages were 2 MEUR.

**liquor** Flüssigkeit, die; Körperflüssigkeit, die; geistiges Getränk, das (chem.)

Black liquor is a byproduct of the Kraft process, where pulp is produced from

wood.

**litigation** Rechtsstreit, der; Prozess, der (jur.)

The costs of litigation pose a great threat, since they typically have to be borne

by the losing party.



litmus Lackmus, der (das) (chem.)

Litmus paper is one of the oldest pH indicators changing from blue (acidic) to

red (alkaline) between a pH of 4.5-8.3.

live vaccine Lebendimpfstoff, der (pharm.)

A live vaccine is prepared from living attenuated organisms or viruses.

load Beanspruchung, die (eng.)

The shear load was too high for the material.

lock nut Kontermutter, die (eng.)

The engineer tightened the lock nut.

lock washer Sicherungsscheibe, die; Federring, der (eng.)

Due to its special design, the piece outperforms similar lock washers.

locknut Sicherungsmutter, die; Klemmmutter, die (eng.)

In applications were a standard nut would loosen over time due to vibration, a so-called locknut can be tightened against it to permanently fix its position.

lockout/tagout Verriegelungssysteme, die (chem. eng.)

A good lockout/tagout system is important to guarantee safe maintenance conditions in chemical plants (lock out = protection with a padlock, tag out =

protection with a notice).

log-lin graph logarithmisch-lineare Darstellung, die (sci.)

A log-lin graph uses a linear scale on the x axis, and a logarithmic scale on the

y axis.

log-log graph, doppelt logarithmische Darstellung, die (sci.)
log-log plot

 $y = a^*x^b$  will appear as a straight line on a log-log graph, in which b will be the slope of the line and log(a) will be the y value corresponding to x=1. These graphs are useful when the parameters a and b need to be estimated from

numerical data.

long-pass filter für langwelliges Licht durchlässiger Filter, der (eng.)

A long-pass filter transmits wavelengths longer than a specific wavelength.

loose, bulk, not fixed lose (general)

The string was hanging loosely from the ceiling.

LOPA (chem. eng.)

Acronym/Abbrevation referral: see Layer of Protection Analysis

lose, to (lost, lost) verlieren (general)

After exposure to propanol vapours, the operator lost his consciousness.

loss of containment Materialaustritt, der; Verlust der Einkapselung, der (chem. eng.)

Loss of containment was the root cause for the fire in the refinery.

lot, batch Charge, die; Los, das (chem.)

Steel cooking is typically carried out as a discontinuous batch process.

louvre Dachaufsatz, der; Lüftungsschlitz, der; Jalousie, die (eng.)

Louvres were installed on 2 sides of the building.

low current, Schwachstrom, der (eng.)

weak current

Low current LEDs work at 1-2 mA.

low voltage Kleinspannung, die; Schwachstrom, der (eng.)

The IEC (International Electrotechnical Commission) defines low voltage as

any voltage between 50-1000 V AC or 120-1500 V DC.

lower explosion (chem.)

**limit** Acronym/Abbrevation referral: see lower explosive limit

lower explosive limit untere Explosionsgrenze, die (chem.)

Acronym (engl.): LEL Acronym (dt.): UEG

The LEL of 1,3 butadiene is  $\sim$ 2%.

lozenge Lutschtablette, die; Rhombus (math.) (pharm.)

Cough tablets have taken the name lozenge, based on their original shape.

LPG (chem. eng.)

Acronym/Abbreviation referral: see liquefied propane gas

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Ltd. (econ.)

Acronym/Abbreviation referral: see limited

LTO (chem. eng.)

Acronym/Abbreviation referral: see licence to operate

lube Gleitmittel, das (pharm.)

Lubes are often silicone-based.

**lubricant** Schmiermittel, das; Schmierstoff, der (eng.)

Molybdenum disulfide (MoS<sub>2</sub>) is a solid lubricant suitable for elevated

temperatures.

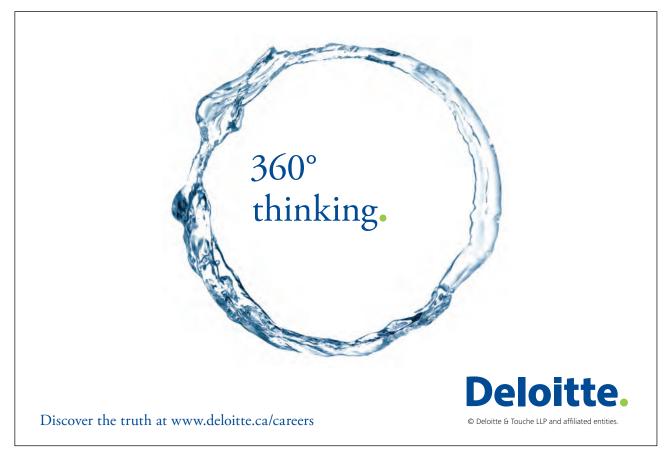
lubricate, to schmieren (eng.)

Machines need to be lubricated according to the manufacturers'

recommendations.

lug Henkel, der; Öse, die (eng.)

3 lugs were used to lift the reactor.





**lukewarm** handwarm, lauwarm (general)

The water was lukewarm.

**lumber** Bauholz, das (eng.)

She found a cheap source for lumber.

**lump** Brocken, der; Klumpen, der (eng.)

Moisture has led to the formation of lumps in the product.

lye scrubber Laugenwäscher, der (chem. eng.)

A lye scrubber is used to wash out acid gases.

lyophilised gefriergetrocknet (pharm.)

 $lyophilized\ (AE)$ 

The lyophilised blood sample was retrieved from the storage room.

magic potion Zaubertrank, der (pharm.)

Magic potions are prepared by a magician, sorcerer, dragon or witch to heal,

poison or bewitch people.

magnetic stirring bar Rührstäbchen, das (pharm.)

The magnetic stirring bar was coated with polybutadiene rubber.

magnifying glass Lupe, die (eng.)

In order to read the comments on the P&ID, he had to use a magnifying glass.

main group Hauptgruppe, die (chem.)

Main group elements are the most abundant elements both on earth and in the

universe.

main header Hauptsammler, der (eng.)

(cooling water)

The main header could handle a flow of 500 m<sup>3</sup>/h.

maintenance Instandhaltung, die (chem. eng.)

A rule of thumb is that yearly maintenance costs are approx. 2% of the investment

value of an equipment.

major constituent Hauptbestandteil, der (chem.)

Nitrogen is the major constituent of air.

malaise Unwohlsein, das (pharm.)

Malaise is a feeling of general discomfort, distress, or uneasiness.

malfunction Funktionsstörung, die (eng.)

Malfunction of a single valve has led to a complete plant shutdown.

malignant bösartig, malign (med.)

The term malignant tumor is synonymous with cancer.

malleable plastisch, verformbar, kalt verformbar, schmiedbar, hämmerbar (eng.)

In material science, ductility specifically refers to a material's ability to deform under tensile stress (e.g. stretching into a wire). Malleability, a similar concept, refers to a material's ability to deform under compressive stress (e.g. forming a thin sheet by hammering or rolling). Ductility and malleability do not always correlate with each other; for instance, gold is both ductile and malleable, but lead is only malleable. The most malleable metals are, in descending order: gold,

silver, lead, copper, aluminium, tin, platinum, zinc, iron, and nickel.

mammal Säugetier, das (pharm.)

There are approximately 5,400 species of mammals, all of which (except the egg-laying monotremes) give birth to live young. Mammals are vertebrates.

management ratio betriebliche Kennzahl, die (econ.)

ROE (return on equity) and ROA (return on assets) are two commonly used management ratios. The former is calculated as net profit/equity, the latter as

net income/total assets.

manganese Mangan, das (chem.)

Acronym (engl.): Mn Acronym (dt.): Mn

The salt potassium permanganate (KMnO<sub>4</sub>), where manganese is found in the +7 oxidation state, is a strong oxidizer that produces MnO<sub>2</sub>, which is also known

as pyrolusite.

manganese module Manganknolle, die (chem. eng.)

Manganese nodules are made of concentric layers of iron and manganese hydroxides. The growth process is one of the slowest of all geological phenomena

with a rate of 1 centimeter over several million years.

manhole Mannloch, das (chem. eng.)

The vessel was inspected via the manhole.

manifold Sammelrohr, das; Druckluftverteiler, der; (eng.)

Übergangsstück, das; Verteilerrohr, das; Verteilerbatterie, die

A manifold is a distribution piece of pipes or channels in systems that handle

fluids.

manual Handbuch, das (chem.)

It is advisable to read the manual before use of the instrument.

MAOP (eng.)

Acronym/Abbreviation referral: see maximum allowable operating pressure

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marble Marmor, der (chem.)

Finely ground marble is used in toothpaste.

marginal costs Grenzkosten, die (econ.)

The larger a plant is, the lower the marginal costs are.

markup Handelsspanne, die; Preisaufschlag, der (econ.)

Items that went via the consultant's books were subjected to a 5% markup.

masonry Mauerwerk, das (eng.)

The masonry was made from concrete.

mass Masse, die (chem.)

The mass of the earth and the sun is  $6*10^{24}$  kg and  $2*10^{30}$  kg, respectively.

mass balance Massenbilanz, die (chem. eng.)

The mass balance results from the conservation of mass.

mass flow Massenfluss, der (chem. eng.)

The angle in the cone of the silo did not permit mass flow.

mass flow, Massenstrom, der (chem. eng.)

mass flow rate

The mass flow through the PFR (plug flow reactor) was 50 kg/h.

master formula Herstellungsvorschrift, die (pharm.)

He did not disclose the master formula of the ointment.

masticator Walzwerk, das (eng.)

Masticators are extensively used in the rubber industry.

material Werkstoff, der (chem.)

Plywood is a common composite material.

material safety Sicherheitsdatenblatt, das (chem. eng.)

data sheet

Acronym (engl.): MSDS, SDS

Operators need to have access to MSDS in their native language.

material science, Werkstoffkunde, die (chem.)

materials science

Tribology, the study of wear due to friction, is part of material science.

matter Materie, die (chem.)

Granite, an igneous rock, is an example of inhomogeneous matter.

maximum allowable maximale Arbeitsplatzkonzentration, die (chem.)

concentration

Acronym (engl.): MAC Acronym (dt.): MAK-Wert

Acronym/Abbreviation referral. see threshold limit value

Granite, an igneous rock, is an example of inhomogeneous matter.

maximum allowable höchstzulässiger Betriebsdruck, der (eng.)
operating pressure

Acronym (engl.): MAOP

The vessel ruptured 0.5 MPa above its MAOP.

MBTU 1000 BTU (eng.)

Though an unofficial unit, the MBTU is still used in many countries, for instance  $\,$ 

for air conditioning units.

MC room (eng.)

Acronym/Abbreviation referral: see motor control room

MCC (eng.)

Acronym/Abbreviation referral: see motor control cabinet

mean free path mittlere freie Weglänge, die (chem.)

The mean free path of a gas molecule decreases with increasing pressure.

mean lethal dose (chem.)

Acronym/Abbreviation referral: see LD50

measure, to messen (eng.)

The flow was measured at three locations in the process.

measurement Messung, die (eng.)

In-situ measurements are more timely, accurate and reliable than offline analyser

results.

measurement and

Messen, Steuern, Regeln; MSR

(chem. eng.)

control,

instrumentation

and control

The instrumentation and control engineer attended a training.

measuring station Messwarte, die

(chem. eng.)

The measuring station was situated in the middle of the production hall.

mechanical advantage Hebelarm, der; Hebelübersetzung, die

(eng.)

A block and tackle is commonly used on boats, where motorized aids are often not available, and where the mechanical advantage can be used to lift heavy

loads.

mechanical engineering Maschinenbau, der

(eng.)

Germany is strong in exporting mechanical engineering know-how.



medicated medizinisch, heilend, Arzneistoffe enthaltend (pharm.)

An ointment may be medicated or not.

medication Arzneimittelanwendung, die; medizinische Behandlung, die (pharm.)

There was no medication to treat his rash.

medicinal product Arzneistoff, der (pharm.)

Medicinal products are used to treat or prevent diseases in human beings.

melamine Melamin, das (chem.)

Melamine, a trimer of cyanamide, together with formaldehyde yields melamine resin, a very durable thermosetting plastic. Cyanamide can be obtained by hydrolysis of calcium cyanamide in the presence of carbon dioxide by the Frank-Caro process according to:  $CaCN_2 + H_2O + CO_2 --> NH_2-CN + CaCO_3$ .

melting point Schmelzpunkt, der (chem.)

The melting point of polypropylene is approx. 160°C.

memorandum of Absichtserklärung, die; Memorandum, das (econ.) understanding

Acronym (engl.): MoU

The two parties signed a brief MoU.

mercury, Quecksilber, das (chem.)

**quicksilver** Acronym (engl.): Hg

Acronym (dt.): Hg

The melting point of mercury is -38.83°C.

mesh Masche, die; Netz, das (eng.)

The mesh was made from polypropylene.

metabolic path Abbauweg, der (pharm.)

Toluene  $(C_{7}H_{8})$  is less toxic than benzene  $(C_{6}H_{6})$ , because its methyl group is more readily oxidized than the aromatic ring. This metabolic path leads to less

toxic metabolites.

metabolite Metabolit, der; Abbauprodukt, das (pharm.)

Urea (aminomethylamide, carbamide, (NH<sub>2</sub>)<sub>2</sub>CO) is an end product (metabolite)

of protein degradation in mammals.

metallic metallisch (chem.)

Metallic bonding is based on delocalized electrons.

metallic compound Legierung, die (chem.)

Steel is a metallic compound that contains between 0.02% and 1.7% (by mass)

carbon.

metalloid Metalloid, das; metallartig; Halbmetall, das (chem.)

Metalloids (B, Si, Ge, As, Sb, Te, Po) often behave as semiconductors (B, Si, Ge) or semimetals (Sb). Also, they tend to form amphoteric oxides (these can react

as either acid or base).

meter, to dosieren (pharm.)

The active ingredient was metered with an accurate instrument.

methane Methan, das (chem.)

Acronym (engl.):  $CH_4$ Acronym (dt.):  $CH_4$ 

The bond angles in methane are 109.5 degrees.

metrology Messtechnik, die; Messkunde, die (eng.)

The market for industrial metrology in Asia is expanding heavily.

mica Glimmer, der (chem.)

Mica is a sheet silicate (phyllosilicate) mineral.

microbial count Keimzahl, die (pharm.)

The airborne microbial count in the cleanroom was determined twice per day.

microbiological strain Bakterienstamm, der; Stammlösung, die (pharm.)

The researcher isolated a new microbiological strain.

microprobe Mikrosonde, die (chem.)

The team has developed a microprobe for the speciation of Fe with a lateral

resolution of only 2 μm.

mildew Mehltau, der (pharm.)

Mildew refers to certain kinds of mold or fungus.

mildewed von Mehltau befallen (pharm.)

The mildewed roses had to be discarded.

mileage, milage Kilometerstand, der; Laufleistung, die (eng.)

The mileage of the car was estimated at > 500,000 km.

miles per gallon (AE) Meilen pro Gallone, die (eng.)

Acronym (engl.): mpg

A fuel consumption of 7.83 l/100 km corresponds to 30 mpg.

miner Bergmann, der (eng.)

Several hundred miners lost their jobs.

mineral coal Steinkohle, die (eng.)

Mineral coal accounts for approx. 10% of the primary energy production in

Brazil.

mineral wool Steinwolle, die (eng.)

Mineral wool, which is produced from molten rock, can be used for thermal

insulation and filtration purposes.





minor constituent Nebenbestandteil, der (chem.)

Depending on regulations, minor constituents need not be mentioned on the

packaging.

minute of arc Bogenminute, die (eng.)

1 minute of arc (MOA), which is 1/60 of 1 degree, corresponds to 2.91 cm in a

distance of 100 m.

minutes (of meeting) Besprechungsnotiz, die; Besprechungsprotokoll, das (eng.)

Acronym (eng.) MoM

The minutes were distributed one week after the meeting.

miscellaneous Verschiedenes, das (general)

At the end of the meeting, miscellaneous items were discussed.

miscibility Mischbarkeit, die (chem.)

Octanol (C<sub>8</sub>H<sub>18</sub>) shows no miscibility with water. It is commonly used as a

standard for partition equilibria.

miscible mischbar (chem.)

Water and ethanol are fully miscible, whereas copper and cobalt are not miscible.

misfire Fehlzündung, die (eng.)

Misfire leads to emissions of unburnt hydrocarbons.

misidentification Verwechslung, die (pharm.)

A misidentification of the samples led to a wrong treatment.

mist Nebel, der (flüssig in gas) (chem.)

The mist disappeared in the afternoon.

mixed fraction gemischter Bruch, der (sci.)

 $3 \frac{1}{3}$  is a mixed fraction.

mixer Mischer, der (chem. eng.)

A plow mixer is more complicated to clean than a container mixer because the

mixing tool cannot be removed.

mixture Gemenge, das (chem.)

A mixture of salt and iron particles can be separated easily.

MMBTU, mmBTU 1 Million BTU (eng.)

For natural gas, 1 mmBTU is defined as ~ 1.05 GJ (28.26m3 of natural gas at

the defined temperature and pressure).

moisten, to befeuchten (chem.)

She moistened her finger before turning over the book page.

moisture Feuchtigkeit, die (chem.)

The customer filed a complaint because of moisture in the product.

molar mass molare Masse, die (chem.)

The molar mass of NaCl is 58.443 g/mol. 1 mol is  $6.02214 \times 10^{23}$  entities of a

given substance (Avogadro's number).

mole Mol, das; Maulwurf, der (chem.)

The mole (symbol: mol) is the SI base unit for the amount of substance. 1 mole is the amount of substance which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon 12, the most abundant of the two stable isotopes of the element carbon, accounting for 98.89% of carbon. Avogadro's

constant in SI units is 6.022×10<sup>23</sup> mol<sup>-1</sup>.

monitor, to überwachen (pharm.)

The study was closely monitored.

monocrystal Einkristall, der (chem.)

Wafers are produced from silicon monocrystals.

**monograph** Monographie, die; Monografie, die;

wissenschaftliche Einzeldarstellung, die (sci.)

She wrote a monograph about combustion diagnostics.

monovalent einwertig (chem.)

Cl<sup>-</sup> is a monovalent ion.

mordant Beize, die (chem.)

Mordants are used for dyeing fabrics. They include several salts of aluminium,

chromium, copper, iron and tin.

mortar Mörtel, der (eng.)

The bricklayer ran out of mortar.

mortar Mörser, der (pharm.)

Mortars and pestles were traditionally used in pharmacies to crush various

ingredients prior to preparing an extemporaneous prescription.

mother liquor Mutterlauge, die (chem.)

The crystal was taken out of the mother liquor.

mother lye Mutterlauge, die (chem.)

The mother lye was discarded.

motor control cabinet (eng.)

Acronym (engl.): MCC

Acronym/Abbrevation referral: see motor control room





motor control room Raum für Motorsteuerung, der (eng.)

Acronym (engl.): MC room

The MC room was placed next to the transformer room.

mottled gesprenkelt (pharm.)

The pill is mottled.

MoU, MOU (econ.)

Acronym/Abbreviation referral: see memorandum of understanding

mould Schimmel, der (chem.)

mold (AE)

In contrast to yeast, which has single fungi cells, moulds are fungi that grow in

multicellular filaments (hyphae).

mould Formkörper, der; Gießform, die (eng.)

mold (AE)

The mould was designed for a lifetime of 2 years or 1,000,000 injection-moulded

parts.

moulded geformt, gepresst (eng.)

Injection moulded parts can be mass manufactured.

mouldy schimmelig (pharm.)

moldy (AE)

Mouldy buildings pose a serious health risk.

mount, to montieren (eng.)

Mounting of the building took 2 weeks.

mouthwash Mundwasser, das (pharm.)

Active ingredients in mouthwash can include thymol, menthol, methylparaben,

hydrogen peroxide and fluoride.

mpg(AE) (eng.)

Acronym/Abbreviation referral: see miles per gallon

MSDS (chem.)

Acronym/Abbreviation referral: see material safety data sheet

mucilage Schleimstoff, der; Schleim, der (chem.)

Some carnivorous plants use mucilage to catch insects.

mucous schleimig (pharm.)

The precipitated substance had a muscous appearance.

mucous membrane Schleimhaut, die (pharm.)

HCl can cause severe irritations to the mucous membranes.

mucus Schleim, der (pharm.)

Mucus is a slippery secretion produced by and covering mucous membranes in

vertebrates. Also some invertebrates like snails produce it.

mud guard Kotflügel, der (eng.)

Mud guards increase air resistance and fuel consumption of a car.

multi stage mehrstufig (chem. eng.)

Multi stage combustion can reduce pollutant emission.

n/a (general)

Acronym/Abbreviation referral: see not applicable

nail Nagel, der (eng.)

Joiners are skilled at using nails.

name plate Typenschild, das (chem.eng.)

The name plate capacity of the pump was 3,500 l/h.

naphtha Rohbenzin, das; Naphtha, das (chem. eng.)

In a refinery, oil and gas are separated into different products (fractions) by distillation. Naphtha is the light fraction from oil. It can be further processed

in a cracker.

narcotic drug Rauschgift, das (pharm.)

Effects of narcotic drugs, apart from addiction, include sleeplessness, inability

to concentrate, apathy and vomiting.

narcotic substance, narcotic, anaesthetic Betäubungsmittel, das

(pharm.)

anesthetic (AE)

Anaesthetic agents in widespread current use are isoflurane (C3H2ClF5O, a halogenated ether), desflurane (C3H2F6O, a highly fluorinated methyl ethyl ether) and sevoflurane (C<sub>4</sub>H<sub>3</sub>F<sub>7</sub>O, a highly fluorinated methyl isopropyl ether).

**National Fire** 

Protection NFPA, US- Institution zum Feuerschutz, die (eng.)

Association

Acronym (engl.): NFPA

There are over 300 NFPA codes and standards.

National Institute for NIOSH

(chem. eng.)

**Occupational Safety** and Health

Acronym (engl.): NIOSH

NIOSH is an institution in the US.



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native gediegen (chem.)

Metals from the gold group and the platinum group can be found native in nature. The gold group is made up of gold, copper, lead, mercury, and silver. The platinum group is made up of platinum, iridium, osmium, palladium, rhodium,

and ruthenium.

natural gas Erdgas, das (chem.)

Methane is the main constituent of natural gas.

natural rubber Kautschuk, der (chem.)

Natural rubber is produced from the sap of the rubber tree. It is a milky colloidal

suspension (latex) of natural, elastic polymers.

nausea Brechreiz, der; Übelkeit, die (pharm.)

Food poisoning can lead to nausea.

**nebulise, to** vernebeln (pharm.)

nebulize, to (AE)

The peroxide was nebulized by a nozzle with an orifice of 0.2 mm diameter.

**nebuliser** Zerstäuber, der (chem.)

nebulizer (AE)

Piezoelectric nebulizers are used in electronic cigarettes.

necking Einschnürung, die; Einschnüren, das (eng.)

Necking is a localised reduction in cross-section that can occur in a material

under tensile stress as the start of failure.

needle valve Nadelventil, das; Kegelventil, das (chem. eng.)

A needle valve is a type of valve with a small orifice and a threaded, needle – like plunger. It allows precise regulation of flow. It is only used for small flow rates.

negotiate, to verhandeln (econ.)

In business, you do not get what you deserve, but rather what you negotiate.

**net** netto (econ.)

Her net income has increased by 7% over the last three years.

net present value Barwert, der (econ.)

Acronym (engl.): NPV

The NPV is the economic value of a project calculated by summing up its costs and revenues over its full life. Future costs and revenues need to be discounted

by the relevant interest rate (e.g. the cost of capital).

neutral conductor Nullleiter, der (eng.)

The neutral conductor has the color green/yellow.

NFPA (eng.)

Acronym/Abbreviation referral: see National Fire Protection Association

niche Nische, die (pharm.)

The company is specialized on the synthesis of nice chemicals.

NIOSH (chem. eng.)

Acronym/Abbreviation referral: National Institute for Occupational Safety and

Health

nitric acid Salpetersäure, die (chem.)

White fuming nitric acid, also called 100% nitric acid, and red fuming nitric acid, which contains substantial quantities of dissolved nitrogen dioxide

(NO<sub>2</sub>) are strong acids.

nitrile rubber Nitrilkautschuk, der; Acrylkautschuk, der (chem.)

Nitrile rubber is a copolymer of acrylonitrile (CH<sub>2</sub>CHCN) and butadiene ( $C_4H_6$ ).

Nitrile rubber has considerable resistance to oils and abrasion.

nitrogen Stickstoff, der (chem.)

Acronym (engl.):  $N_2$ Acronym (dt.):  $N_2$ 

The triple bond in  $N_2$  is extremely strong. Therfore,  $NO_x$  from  $N_2$  and  $O_2$  is only

formed at elevated temperatures (thermal NO<sub>2</sub>).

**nitrogen blanketing,** Beschleiern mit Stickstoff, das; Spülen mit Stickstoff, das (*chem. eng.*) **nitrogen flushing** 

Nitrogen blanketing of the silo was used to prevent the formation of an explosive  $\,$ 

atmosphere.

No Observed Adverse NOAEL (chem.)

**Effect Level** 

Acronym (engl.): NOAEL

NOAEL is the highest dose known to show no adverse effects.

No Observed NOEL (chem.)

Effect Level

Acronym (engl.): NOEL

NOEL is the highest dose known to show no effect.

NOAEL (chem.)

Acronym/Abbreviation referral: see No Observed Adverse Effect Level

noble gas Edelgas, das (chem.)

XeF<sub>4</sub> was one of the first discovered noble gas compounds.

noble metal Edelmetall, das (chem.)

Because of their resistance to corrosion and oxidation, copper and silver are

counted to the group of noble metals.

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NOEL (chem.)

Acronym/Abbreviation referral: see No Observed Effect Level

noise Lärm, der; Rauschen, das (eng.)

The signal-to-noise ratio (SNR or S/N) in the spectrum was not good enough

to determine the concentration.

**non abrasive** abriebfest (eng.)

When processing glas fibres, non abrasive materials have to be used for all

machine parts that are in contact with the product.

non return valve, Rückschlagventil, das

(chem. eng.)

check valve

A check valve only permits fluid flow in one direction.

non-disclosure Geheimhaltungsvereinbarung, die (econ.)

agreement

When entering a cooperation with another company, it is wise to sign a non-

disclosure agreement upfront.

nonflammable unbrennbar (chem.)

Water and carbon tetrachloride are nonflammable liquids.

non-intrusive berührungslos (chem. eng.)

Laser spectroscopy works non-intrusively. Therefore, the probed system is hardly

influenced.

non-positive, force-fit, kraftschlüssig (eng.)

friction-locked

The metal piece was friction-locked.

non-steroidal Nicht-steroidaler Entzündungshemmer, der; (pharm.)

anti-inflammatory Nicht-steroidales Antirheumatikum, das

**drug** Acronym (engl.): NSAID

Acronym (dt.): NSAR

Acetylsalicylic acid (C<sub>9</sub>H<sub>8</sub>O<sub>4</sub>, Aspirin) belongs to the class of NSAIDs.

nonvoven fabric Vlies, das (eng.)

In a nonwoven fabric, the single fibres have no defined order and are not

connected through weaving, but by local attachment.

**nootropics** Nootropika, die; Antidementiva, die (pharm.)

Ginko is a herbal, nootropic substance.

noria Wasserhebewerk, das; Paternosterwerk, das (eng.)

One of the largest norias in the world, which has a diameter of 20 m, is located

in Hama in Syria.

**not applicable** keine Angabe, entfällt, nicht anwendbar (general)

Acronym (engl.): n/a

Vapour pressure of NaCl: n/a

**notch** Kerbe, die (eng.)

The worker made a notch in the wood using an axe.

**notch, to** einkerben (eng.)

The Charpy test uses a notched specimen in order to improve the reproducability

of the results.

notification In-Kenntnis -Setzen, das; Meldung, die; (general)

Mitteilung, die; Benachrichtigung, die

A notification about potential delays in the project was not issued to the steering

committee in time.

**novation** Forderungsübertragung, die; Novation, die; Schuldumwandlung, die (econ.)

The novation agreement was exercised.

noxious giftig, schädlich (chem.)

Phosphine is a noxious gas.

nozzle Düse, die (chem. eng.)

It is recommended to use a filter upstream of the nozzle to prevent clogging.

nozzle head Sprühkopf, der (chem.eng.)

The spray from the nozzle head did not reach all corners of the vessel.

NPV (econ.)

Acronym/Abbreviation referral: see net present value

NSAIDs, NAIDs (pharm.)

Acronym/Abbreviation referral: see non-steroidal anti-inflammatory drug

nuisance particles Immisionsstaub, der (chem.eng.)

Nuisance particles are dusts that do not produce significant toxic effects.

nuisance particulates (chem. eng.)

Acronym/Abbreviation referral: see nuisance particles

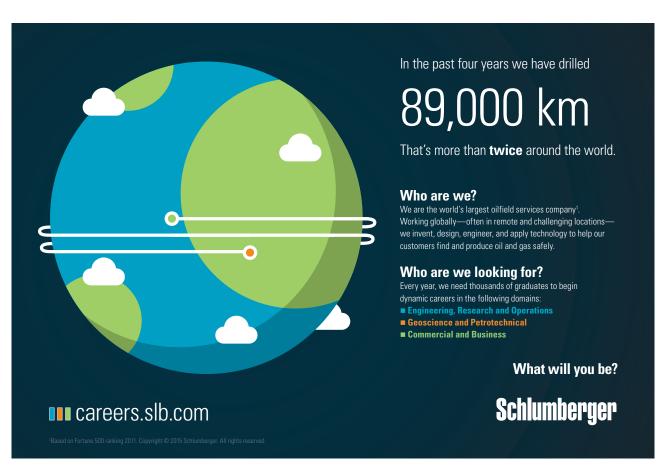
**nut** Gegenmutter, die; Schraubenmutter, die; Mutter, die (eng.)

A nut is a fastener with internal screw thread. Nuts can be left-threaded or

right-threaded.

**nutraceutical water** Funktionswasser, das (pharm.)

Nutraceutical water is a new lifestyle product.



nutrient Nährstoff, der (chem.)

Organic nutrients include carbohydrates, fats, proteins (or their building blocks,

amino acids), and vitamins.

**nuts and bolts** A und O, das; praxisbezogen (general)

The book claims to present the nuts and bolts of engineering.

oak Eiche, die (eng.)

Oak wood, which has a density of about 750 kg/m³, shows good resistance to insects and fungi due to its high concent in tannins. Tannins are polyphenols.

oar Ruder, das (eng.)

The oar created an eddy in the water.

**obtuse angle** stumpfer Winkel, der (eng.)

Angles between 90° and 180° are called obtuse angles. Angles of 180° are called

straight angles.

occlusion Einschluss, der (eng.)

Natural occlusions are responsible for the pattern in marble.

**occultation** Bedeckung, die; Verfinsterung, die; Verdeckung, die (general)

The smoke resulted in an occultation of the sunlight.

occupational exposure (chem.)

limit

Acronym (engl.): OEL

Acronym/Abbreviation referral: see Permissible Exposure Limit

Occupational Health gesundheitlicher und technischer Arbeitsschutz, der (chem. eng.)

and Safety Assessment

**Systems** 

Acronym (engl.): OHSAS

The company is certified according to OHSAS 18001.

Occupational Health, (general)

Safety and Environment

Acronym/Abbreviation referral: see HSE

**Occupational Safety** 

OSHA (Arbeitsschutzorganisation in den USA, die)

(chem. eng.)

and Health

Administration (AE)

Acronym (engl.): OSHA

OSHA is a branch of the Department of Labor (DOL). It regulates the use of personal protective equipment in the workplace. Since the creation of OSHA in 1971 with a mission to prevent work-related injuries, illnesses and deaths, occupational deaths have been cut by 62% and injuries have declined by 42%

in the US.

odd ungerade

(eng.)

1, 3 and 5 are odd numbers.

odour Geruch, der

(chem.)

odor (AE)

The foul odor of rotten eggs stems from H<sub>2</sub>S.

OEL

(chem.)

Acronym/Abbreviation referral: see occupational exposure limit

offensive smell

schlechter Geruch, der; Gestank, der

(chem.)

H<sub>2</sub>S is characterized by an offensive smell.

offer

Angebot, das

(econ.)

The offer was sold out quickly.

**OHSE** 

(general)

Acronym/Abbreviation referral: see Occupational Health, Safety and Environment

oil

Öl, das

(chem.)

Oil is not miscible with water.

ointment

Salbe, die; Heilsalbe, die; Wundsalbe, die

(pharm.)

The nurse put an ointment onto the wound.

ointment base

Salbengrundlage, die

(pharm.)

Petrolatum (which can be hardened with wax) is the most widely used greasy

ointment base.

oleaginous ölig, ölhaltig (chem.)

Petrolatum is suitable for the incorporation of oleaginous materials.

**olefin** Olefin, das (chem.)

Olefins are mono-unsaturated hydrocarbons like ethylene and propylene, which

are monomers for polyolefins.

oleochemicals oleochemische Produkte, die (chem. eng.)

Oleochemicals are chemicals derived from biological oils or fats. They are analogous to petrochemicals which are chemicals derived from petroleum. Hydrolysis and alcoholysis of oils or fats form the basis of the oleochemical

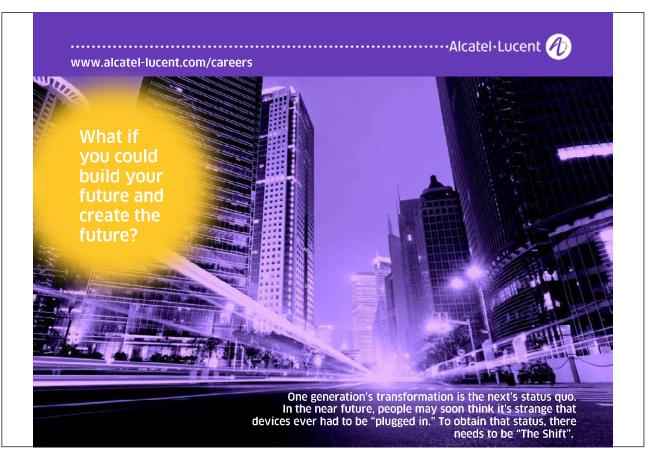
industry.

olfactory den Geruch betreffend, Geruchs – (chem.)

Some vertrebrates have a well developed olfactory sense.

OP (econ.)

Acronym/Abbreviation referral: see operating profit





**operating pressure** Betriebsdruck, der (eng.)

The operating pressure of the pump was 2.5 barg.

operating profit Betriebsergebnis, das; Gewinn, der (econ.)

Acronym (engl.): OP

The operating profit of the energy-intense products was adjusted by the

controller.

**operating temperature** Betriebstemperatur, die (eng.)

The lifetime of electronic components is often inversely proportional to their

operating temperature.

**operations** Betrieb, der; operatives Geschäft, das (chem. eng.)

He enjoyed working in operations.

**operations research** Unternehmensforschung, die (econ.)

The student acquainted himself with operations research.

**operator** Anlagenfahrer, der (chem. eng.)

The operator had 10 years of experience in the process industry.

opportunity Möglichkeit, die (general)

Multinational corporations offer plenty of opportunities for graduates.

optical rotation, optische Rotation, die; optische Aktivität, die (chem.)
optical activity

Optical rotation or optical activity is the rotation of linearly polarized light as it travels through certain materials. It occurs in solutions of chiral molecules such as sucrose (sugar), in solids such as quartz, and in gases of spin-polarized

atoms or molecules.

ore Erz, das (chem.)

He is in the ore trading business.

orifice Blende, die; Öffnung, die (eng.)

Lasers can be used to produce an orifice < 1 µm.

OSBL (chem. eng.)

Acronym/Abbreviation referral: see outside battery limits

OSHA (eng.)

Acronym/Abbreviation referral: see Occupational Safety and Health Administration

osmosis Osmose, die (chem.)

Reverse osmosis is a process to produce freshwater in dry areas.

OTC (pharm.)

Acronym/Abbreviation referral: see over the counter

ounce Unze, die (general)

Acronym (engl.): oz

1 ounce (oz) is 1/16 of 1 pound (lb) or ~28.35 g

**outflow** Ausfluss, der (chem. eng.)

The outflow from the reactor has a temperature of 80°C.

outlier Ausreißer, der (sci.)

The outliner was detected using the student t test.

outpatient, ambulant

out-patient (pharm.)

The nurse provided outpatient care.

outside battery limits OSBL, Bereich Peripherie der Anlage, der (chem. eng.)

Acronym (engl.): OSBL

As OSBL often does not get the same attention as ISBL, there can be a big

potential for cost savings.

**over the counter** im Freihandel erhältlich, nicht rezeptpflichtig (pharm.)

Acronym (engl.): OTC

Medications can be grouped into the following categories: over-the-counter (OTC) medications, which are available in pharmacies and supermarkets without special restrictions, behind-the-counter (BTC), which are dispensed by a pharmacist without needing a doctor's prescription, and prescription only

medicines (POM).

overall Gesamt- (eng.)

The overall project costs are often underestimated.

overexposure übermäßige Belastung, die; Überbelichtung, die; (chem.)

übermäßige Exposition, die

After overexposure, the MSDS recommends prompt medical attention.

overhaul Überholung, die (eng.)

Machines need to be overhauled regularly to ensure uninterrupted operation.

overpressure Überdruck, der (chem.eng.)

The safety valve opens at an overpressure of 2.5 bar.

over-the-counter drug rezeptfreies Medikament, das (pharm.)

Acronym (engl.): OTC

OTC drugs are generally used to treat conditions not necessarily requiring care from a health care professional. They are less prone for errors with self-medication by patients and often have a low strength.

**overvoltage** Überspannung, die (eng.)

The overvoltage damaged his PC.



**oxidizing agent** Oxidationsmittel, das (chem.)

Hydrogen peroxide is a powerful oxidizing agent.

oxygen Sauerstoff, der (chem.)

Acronym (engl.):  $O_2$ Acronym (dt.):  $O_2$ 

Oxygen is a paramagnetic molecule.

**oxygenate, to** mit Sauerstoff versetzen (chem.)

The liquid turned turbid upon oxygenation.

oxyhydrogen gas Knallgas, das (chem.)

A mixture of methane and oxygen shows a similar behaviour as oxyhydrogen

gas.

oz (eng.)

 $A cronym/Abbreviation\ referral:\ see\ ounce$ 

oz (tr) (general)

Acronym/Abbreviation referral: see troy ounce

ozone Ozon, das (chem.)

Acronym (engl.):  $O_3$ Acronym (dt.):  $O_3$ 

Ozone turns cyanides to the significantly less toxic cyanates according to

 $CN^{-} + O_{3}^{-} --> CNO^{-} + O_{2}^{-}$ 

**ozone layer** Ozonschicht, die (chem.)

The ozone layer absorbs highly energetic UV light.

ozt (eng.)

Acronym/Abbreviation referral: see troy ounce

P&ID (chem. eng.)

Acronym/Abbreviation referral: see piping and instrumentation diagram

P&L (econ.)

Acronym/Abbreviation referral: see profit and loss statement

p. a. (chem.)

Acronym/Abbreviation referral: see pro analysi

package Packung, die (pharm.)

The package contains 50 tablets.

package insert, Beipackzettel, der

prescribing

information, patient

**information leaflet** Acronym (engl.): PIL

The section about contraindications on package inserts should be studied in detail to learn about situations in which the medication should not be used, for instance in patients with special medical conditions such as kidney problems

(pharm.)

or allergies.

package, to verpacken (pharm.)

Medication should always be packaged in a child-proof way.

packaging Verpackung, die (pharm.)

The packaging was damaged during transportation.

pad Tupfer, der (pharm.)

Cotton pads are used for medical and cosmetic purposes.

padlock Vorhängeschloss, das (general)

For maintenance work, the machine was secured by a padlock.

PAH (chem.)

Acronym/Abbreviation referral: see polycyclic aromatic hydrocarbons

pain killer, painkiller Schmerzmittel, das (pharm.)

Aspirin (acetylsalicylic acid, 2-acetyloxybenzoic acid,  $C_9H_8O_4$ ) is often used as a painkiller (analgesic), as an antipyretic and as anti-inflammatory medication.

pallet Palette, die (eng.)

Pallets made from 25 kg bags are wrapped to be stable enough for transportation.

palletize, to palettieren (eng.)

Manual palletizing demands a lot of labour and is limited to low throughput.

**palpitation** Herzklopfen, das; heftiges Schlagen, das; (med.)

unregelmäßiger Herzschlag, der

Caffeine C<sub>8</sub>H<sub>10</sub>N<sub>4</sub>O<sub>2</sub>) intake can trigger heart palpitations (irregular, rapid

heartbeat).

panacea Wundermittel, das (pharm.)

The company was hoping to develop a panacea against cancer.

panel Bedienpult, das (chem. eng.)

The panel was only labelled in English.

**panel operator** Messwartenfahrer, der (chem. eng.)

The panel operator immediately called the fire bridage.

partial pressure Partialdruck, der (chem.)

According to Dalton's law (= Dalton's law of partial pressures), the total pressure of a gaseous mixture is equal to the sum of the partial pressures

of each individual component in a gas mixture.



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particle Teilchen, das (chem.)

Nanoparticles have unique properties, but their health effects have not yet been

fully studied.

**partition coefficient** Verteilungskoeffizient, der; Nernstscher Verteilungskoefizient, der (chem.)

The partition coefficient is a ratio of the concentrations of a neutral compound between two solutions. In case of ionizable solutes, the pH of the aqueous phase

is adjusted to transform the compound into its non-ionized state.

partner, shareholder, Gesellschafter, der

(econ.)

associate

The 3 partners decided to venture into oil trading.

pastille Pastille, die (pharm.)

A pastille is a medical pill. Originally, it was a pill made from compressed herbs,

which was burnt to release its medicinal properties.

PAT (chem. eng.)

Acronym/Abbreviation referral: see process analytical technology

**patent infringement** Patentverletzung, die (econ.)

Deliberate patent infringements are often difficult to prove.

patentable patentfähig (econ.)

Information that was already disclosed, e.g. in a scientific publication, is no

longer patentable.

pathogen, infectious Erreger, der; Keim, der (pharm.)

agent, germ

By water treatment, the threat from pathogens (pathogenic bacteria and viruses)

can be reduced.

**patient information** Beipackzettel, der (pharm.)

leaflet

Acronym (engl.): PIL

A prescription drug usually contains a PIL.

PC (chem.)

Acronym/Abbreviation referral: see polycarbonate

PCB (chem.)

Acronym/Abbreviation referral: see polychlorinated biphenyl(s)

PEG (chem.)

Acronym/Abbreviation referral: see polyethylene glycol

PEL (chem.)

Acronym/Abbreviation referral: see permissible exposure limit

pelletize, to granulieren (chem. eng)

Underwater pelletizing is a common process for thermoplastics.

pellets Granulat, das (chem. eng.)

Pellets of a product can be handled easily.

pending anhängig, bevorstehend, schwebend (jur.)

The pending lawsuit was a key topic at the shareholders' meeting.

peptide Peptid, das (chem.)

Peptides are short polymers of  $\alpha$ -amino acids.

perceive, to wahrnehmen (general)

The color change could hardly be perceived.

percolating filter Sickerkörper, der; Tropfkörper, der Perkolationsfilter, der (chem. eng.)

The percolating filter was made from activated carbon.

pe rester Perester, der (chem.)

Peresters have the general structure RC(O)OOR.

perforated gelocht (eng.)

Stamps are perforated.

performance Leistung, die; Leistungsfähigkeit, die (general)

The performance of a team is dependent on the qualities of the leader.

periodic table Periodensystem, das; Periodensystem der Elemente, das (chem.)

of elements

Acronym (engl.): PTE Acronym (dt.): PSE

The PTE finishes with element 111, Rg (roentgenium).

peristaltic pump Schlauchpumpe, die, Quetschpumpe, die (chem. eng.)

Peristaltic pumps can be used to handle clean or aggressive fluids without the

risk of contamination.

Permissible Exposure PEL, Höchstbelastungsgrenze, die; (chem.)

Limit maximale Arbeitsplatzkonzentration, die

PEL is the highest concentration permitted under US OSHA regulations.

Personal Exposure Limit (chem.)

Acronym (engl.): PEL

Acronym/Abbreviation referral: see Permissible Exposure Limit

PEL is the highest concentration permitted under US OSHA regulations.

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personal protective

Persönliche Schutzausrüstung, die

(general)

equipment

Acronym (engl.): PPE Acronym (dt.): PSA

Flame-resistant PPE is often made from aramid fibres, which are an asbestos

substitute. The name is short for "aromatic polyamide".

**Perturbation** Störung, die

(general)

After the perturbation, the pendulum returned to its initial condition.

petrochemicals

Petrochemikalien, die

(chem. eng.)

Ethylene, propylene, toluene, and benzene are four major petrochemicals.

petrolatum, petroleum jelly Petrolatum, das; Vaseline, die

(chem.)

Petrolatum is a semi-solid mixture of hydrocarbons (with carbon numbers

mainly higher than 25).

petroleum

(chem.)

Acronym/Abbreviation referral: see crude oil

PFD

(chem. eng.)

Acronym/Abbreviation referral: see process flow diagram

PFD

(chem. eng.)

Acronym/Abbreviation referral: see probability of failure on demand

PFR

(chem. eng.)

Acronym/Abbreviation referral: see plug flow reactor

pharmacist

Apotheker(in), der (die); Pharmazeut(in), der (die)

(pharm.)

Pharmacists are sometimes referred to as dispensing chemists, which may cause

confusion with scientists in the field of chemistry (chemists).

pharmacopoeia

Arzneibuch, das

(pharm.)

The European Pharmacopoeia, in its 2005 edition, includes 1,800 monographs. These contain quality standards with which all medicines must comply to

guarantee a certain quality level for consumers.

pharmacy, Apotheke, die; Drogerie, die (pharm.)

chemist's shop

drugstore (AE)

In the US, several drugstores are open 24/7.

PhD Dr. (doctor of philosophy), der (chem.)

Acronym (dt.): Dr.

She obtained her PhD from the University of Toronto/Canada.

**phlegm** Schleim, der; Gleichgültigkeit, die (pharm.)

Phlegm is expelled by coughing.

**phosphor** Leuchtstoff, der; phosphoreszierender Stoff, der (*chem.*)

Zinc sulfide (ZnS) with about 5 ppm of copper as activator is a common

phosphor.

**phosphorus** Phosphor, der (chem.)

Acronym (engl.): P Acronym (dt.): P

Phosphorus, a multivalent nonmetal of the nitrogen group, cannot be found as

a free element in nature because of its high reactivity.

physician, medical Mediziner, der; Arzt, der (pharm.)

practitioner, medical

doctor

The physician worked in an interdisciplinary team with 2 chemists.

PI (chem. eng.)

Acronym/Abbreviation referral: see process intensification

pickle, to beizen, pökeln, abbeizen (chem.)

He did not like the taste of pickled meat.

piecework Akkordarbeit, die (econ.)

Piecework pay is the oldest form of performance pay.

PIL (pharm.)

Acronym/Abbreviation referral: see Patient Information Leaflet

piling Pfahltreiben, das; Stapeln, das; Pfählung, die (eng.)

For piling of the construction site, the contractor took 2 weeks.

pillar Pfeiler, der (eng.)

Pillars offer vertical support.

pilot plant Technikumsanlage, die; Pilotanlage, die (eng.)

The pilot plant can produce samples of up to 200 kg.

pinch valve, squeeze Quetschventil, das (chem. eng.)

valve, squeezing valve

The pinch valve was damaged by abrasive material.

pine Kiefer, die (general)

The resin of pine trees, which are a significant source of softwood, can be used

to produce turpentine.

pipe Rohr, das (chem. eng.)

Plastics sewage pipes are designed for a lifetime exceeding 100 years.



209

pipe cap Rohrkappe, die (chem. eng.)

Pipe caps prevent contamination of pipes on a construction site.

pipeline Pipeline, die; Rohrleitung, die (chem. eng.)

The Trans-Alaska Pipeline System (Alaska Pipeline) measures 48 inch (1.22 m)

in diameter and almost 800 miles (1,286 km) in length.

piping and Rohrleitungs – und Instrumentierungs-Schema, das (chem. eng.)

instrumentation

diagram

Acronym (engl.): P&ID, PID

Acronym (dt.): R&I, R&I Schema

A HAZOP study will be carried out as soon as updated P&IDs are available.

**piston** Kolben, der (eng.)

Pistons are used in reciprocating engines and some pumps.

pit Grube, die (eng.)

Oil and water had accumulated in the pit.

pitch Neigungswinkel, der; Pech, das (chem.)

Petroleum -derived pitch is also called bitumen.

pitting Grübchenbildung, die (chem.)

Pitting is a special type of corrosion.

pivot Drehpunkt, der; Achse, die (eng.)

The technican pointed to the pivot of the lever.

plaintiff Kläger, der; Ankläger, der (jur.)

The plaintiff's damages may include compensatory and punitive damages. Punitive damages are only awarded in the event of wanton and reckless conduct.

plant Anlage, die; Pflanze, die (chem. eng.)

A modern pharmaceutical plant is highly automated.

**plant engineering** Anlagenbau, der

(chem. eng.)

(eng.)

and construction

Before becoming an independent consultant, he worked as project manager in

a plant engineering and construction company.

plasma Plasma, das (chem.)

Blood serum is blood plasma without clotting factors such as fibrinogen.

plaster Gips, der (chem.)

Plaster is a building material.

plastered wall verputzte Wand, die (chem.)

The paint did not stick to the plastered wall.

plastics Kunststoffe, die (chem. eng.)

The worldwide plastics production has increased from 1.5 million tonnes in

1950 to 245 million tonnes in 2006.

plate Trennstufe, die (chem. eng.)

The concept of theoretical plates (equilibrium stages, theoretical trays) is used

for the design of distillation processes.

plate, blanking plate, Steckscheibe, die

isolating plate

The isolating plate was not clearly visible from the ground.

platinum Platin, das (chem.)

Acronym (engl.): Pt Acronym (dt.): Pt

The six platinum family metals (ruthenium, rhodium, palladium, osmium,

iridium, platinum) show outstanding catalytic behaviour.

PLC (chem.)

Acronym/Abbreviation referral: see programmable logic control(ler)

pliable biegeweich, biegsam (chem.)

The shell was pliable.

pliers Zange, die (eng.)

Pliers were probably first used to handle hot objects.

**plough** Pflug, der (eng.)

plow(AE)

Oxen were used to drag ploughs. (1 ox, 2 oxen).

plug Stöpsel, der (chem.)

She did not hear her cell phone because of the ear plugs.

plug flow reactor, Rohrreaktor, der; Strömungsrohr, das (chem. eng.)

tubular reactor

Acronym (engl.): PFR

The model of a plug flow reactor (PFR) is used to describe chemical reactions

in continuous, flowing systems under ideal situations.

plug valve Stopfenventil, das; Kegelhahn, der; Kegelventil, das (chem. eng.)

Plug valves are often used as shut-off valves in domestic natural gas lines.





plugged verstopft (eng.)

When a pipeline is plugged, it needs to be brought back into operation as fast

as possible.

**plumbing** Rohrleitungen, die; Klempnerarbeit, die; Armaturenfertigung, die (eng.)

The plumbing contractor did not meet the time schedule.

**plywood** Schalungsplatte, die; Sperrholz, das (eng.)

The plies (layers) of plywood can be bonded together by phenol formaldehyde

resin. Therefore, plywood can be considered a composite material.

PMC (chem. eng.)

Acronym/Abbreviation referral: see Project Management Consultancy

pneumatic conveying pneumatische Förderung, die (chem. eng.)

Dense phase conveying (plug flow conveying) causes less product attrition than

dilute phase conveying.

PO (econ.)

Acronym/Abbreviation referral: see purchase order

pollutant Schadstoff, der (chem.)

PAH (polycyclic aromatic hydrocarbons) are combustion-derived pollutants.

polycarbonate Polycarbonat, das; Polykarbonat, das (chem.)

Acronym (engl.): PC

Polycarbonates are thermoplastic polymers. They derive their name from

carbonate groups (-O-(C=O)-O-) in the molecular backbone chain.

**polychloriertes** Biphenyl, das; polychlorierte Biphenyle, die (chem.)

biphenyl(s)

Acronym (engl.): PCB

Acronym (dt.): PCB

PCBs  $(C_{12}H_{10-x}Cl_x)$  were used as coolants and insulating fluids in transformers

and as additives in flexible PVC before their ban.

polycyclic aromatic hydrocarbons

polyzyklische aromatische Kohlenwasserstoffe, die

(chem.)

Acronym (engl.): PAH Acronym (dt.): PAK

Benzopyrene (Benzo[a]pyrene),  $C_{20}H_{12}$ , is a five-ring polycyclic aromatic hydrocarbon that is mutagenic and highly carcinogenic. It acts as a procarcinogen, because the ultimate metabolite that causes cancer is benzo[a]pyrene diol epoxide, by interacting with the DNA.

polyethylene glycol

Polyethylenglykol, das

(chem.)

Acronym (engl.): PEG Acronym (dt.): PEG

PEG (PEO, POE,  $HO-(CH_2-CH_2-O-)_n-H$ ) is a polyether. It is the oligomer or polymer of ethylene oxide. Polyethylene glycol can be used to create very high osmotic pressures (>10<sup>6</sup> Pa).

polyolefins

Polyolefine, die (Polyolefin, das)

(chem.)

Polyethylene and polypropylene are two ubiquitious polyolefins.

polyvalent

mehrwertig

(chem.)

Polyvalent atoms such as carbon are capable of forming more complex structures

than monovalent ones.

POM (BE)

(pharm.)

Acronym/Abbreviation referral: see prescription only medicine

poppet valve

Tellerventil, das

(eng.)

Poppet valves are generally very robust and resilient, so they are frequently used

as industrial directional control valves.

port

Hafen, der

(eng.)

The goods could not leave the port because some documents were missing.

port, portside

backbord

(general)

Portside is the left side of a ship.

positioner

Stellungsregler, der; Stellgerät, das

(eng.)

Valve positioners are available as pneumatic, electro-pneumatic and digital

models.

Download free eBooks at bookboon.com

positive locking formschlüssig, Formschluss, der (eng.)

The metal piece was installed with positive locking.

**postgraduate** Aufbaustudiengangs – (sci.)

He earned a postgraduate degree in economics.

potable trinkbar, genießbar (pharm.)

The tap water was not potable.

potable water Trinkwasser, das (chem.)

1.3 billion people do not have access to sufficient potable water.

potassium Kalium, das (chem.)

Acronym (engl.): K Acronym (dt.): K

Potassium ions are colorless in water.

pottery Tonware, die (chem.)

Pottery is sensitive to shock.





poultice Umschlagpaste, die; Kataplasma (pharm.)

A poultice can be applied to inflamed parts of the body.

**pound** Pfund, das (eng.)

Acronym (engl.): lb, lbm

1 pound weighs approx. 0.45 kg.

pounds per square inch (chem.)

Acronym/Abbreviation referral: see psi

pounds per square inch (chem. eng.)

absolute

Acronym/Abbreviation referral: see psia

pounds per square inch
gauge (chem.)

Acronym/Abbreviation referral: see psig

pounds per square inch, Pfund pro Quadratzoll, das (lbf/in²) (eng.)
pound-force per square

inch (lbf/in²)

Acronym (engl.): psi

Acronym/Abbreviation referral: see psi

1 psi is approx. 0.069 bar or 6900 Pa. The atmospheric pressure at sea level

(standard) is 14.7 psi.

**pounds-force per** Absolutdruck in Pfund pro Quadratzoll, der (eng.)

square inch absolute

Acronym (engl.): psia

Acronym/Abbreviation referral: see psia

A 4.3 psia pressure suit was developed for astronauts in the International Space

Station.

pounds-force per Pfund pro Quadratzoll Überdruck, der (eng.)
square inch gauge

Acronym (engl.): psig

Acronym/Abbreviation referral: see psig

The solenoid valve operates from vacuum to 3,000 psig.

**pour point** Stockpunkt, der; Fließpunkt, der (chem.)

The pour point is an important parameter for lubricants and other petroleum

products.

pour, to gießen (eng.)

The worker poured the mixture into the vessel.

powder Puder, das; Pulver, das (chem.)

The aerodynamic properties of powders can be used to transport them in industrial applications by pneumatic conveying. There are 2 regimes: dilute phase conveying and dense phase conveying. Hydraulic conveying (i.e. conveying with

water instead of air) is another option.

power Leistung, die (eng.)

Power is measured in Watt (W).

power factor Leistungsfaktor, der; Phasenwinkel, der (eng.)

The power factor can be between 0 and 1. In a purely resistive AC circuit, voltage and current waves are in phase. When reactive loads such as capacitors or inductors are present, energy storage in the loads results in a time difference between the current and voltage waves. The following memory hook helps to memorize the relations: "CIVIL" – in a Capacitor, I (current) leads Voltage,

Voltage leads I (current) in an inductor L.

power plant Kraftwerk, das (eng.)

Power plants can be situated close to the feedstock or to the consumer.

PPE (chem. eng.)

Acronym/Abbreviation referral: see personal protective equipment

precious metal Edelmetall, das (chem.)

The best-known precious metals are gold and silver.

precipitant Fällungsmittel, das (chem.)

Silver was reclaimed by precipitation of AgCl.

precipitation Niederschlag, der; Fällung, die (chem.)

The solution showed hardly any percipitation.

**pre-clinical studies** vorklinische Studien, die (*med.*)

Pre-clinical studies involve in vitro (test tube) and in vivo (animal) experiments.

**precommissioning** Vorbereitungen zur Inbetriebnahme, die; Precommissioning, das (chem. eng.)

In the construction of a (chemical) plant, precommissioning is the testing, adjustment and verification that the entire installation is working according to the designed purpose so that the systems involved are brought to a stage where they are ready for commissioning. Precommissioning is a part of the Mechanical

Completion activity.

preliminary vorläufig (general)

A preliminary report was issued 2 weeks after the incident.

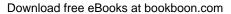
premium Prämie, die; Aufschlag, der; Zuschlag, der (econ.)

Fine chemicals of superior purity can be sold with a premium.

**prescription** Verschreibung, die; Rezept, das (pharm.)

He was given a prescription for sedative drugs.







prescription drug (pharm.)

Acronym/Abbreviation referral: see POM

prescription drug,

rezeptpflichtiges Medikament, das

(pharm.)

rx-only drug, legend drug, prescription only drug

Acronym/Abbreviation referral: see prescription only medicine Vitamins are

generally no prescription drugs.

prescription only

verschreibungspflichtiges Arzneimittel, das;

(pharm.)

medicine

rezeptpflichtiges Arzneimittel, das

Acronym/Abbreviation referral: see POM Many antibiotics are POM.

pressure Druck, der (chem.)

The pressure in the combustion chamber can reach 142 bar.

pressure gauge Druckmesser, der; Manometer, das (eng.)

The pressure gauge was destroyed by overstretching.

**pressure regulator** Druckregler, der (chem.)

The pressure regulator was set at 2.3 bar.

pressure relief valve Abblaseventil, das; Überdruckventil, das (eng.)

A pressure relief valve has to vent into an unconfined area.

pressure swing

adsorption

Druckwechseladsorption, die

(chem. eng.)

N<sub>2</sub> can be produced by fractionation of air, membrane separation or pressure

swing adsorption.

**prestressed concrete** Spannbeton, der (eng.)

With prestressed concrete, bridges with a longer span than feasible with ordinary

reinforced concrete can be built.

prestudy Vorstudie, die (chem. eng.)

During the prestudy, it was discovered that the warehouse needs an expansion,

too.

**prevailing** vorherrschend (general)

The prevailing opinion about waste incinceration is positive.

primary air Primärluft, die (chem. eng.)

The primary air preheater was designed for a maximum pressure of 2\*106 Pa.

**primer** Grundieranstrich, der; Initialsprengstoff, der (eng.)

Azides are commonly used as primers.

**pro analysi** in Analysenqualität (*chem.*)

Acronym (engl.): p.a.

The company sells p.a. grade chemicals.

**probability of** Ausfallswahrscheinlichkeit bei Bedarf, die (chem. eng.)

failure on demand

Acronym (engl.): PFD

SIL 4 has a PFD better than 10<sup>-4</sup>.

probe Sonde, die (eng.)

The sample was taken by a water-cooled probe.

**procedure** Anweisung, die (general)

The operating procedure for the distillation column was updated only 2 weeks

ago.

process Verfahren, das (chem. eng.)

The process has not yet been implemented in a large scale plant.

**process analytical** Process Analytical Technology, (chem. eng.)

technology (process

analytical techniques) Technologie zur (pharmazeut.) Prozessanalyse, die

Acronym (eng.): PAT Acronym (dt.): PAT

Process Analytical Technology (PAT) has been defined by the United States Food and Drug Administration (FDA) as a concept to analyze and control pharmaceutical manufacturing processes through the measurement of Critical

Process Parameters (CPP).

process capability Prozessfähigkeit, die

(chem. eng.)

The process capability can be expressed by the  $c_{\rm pk}$  (six sigma approach), which basically means that the standard deviation of a production process needs to

be smaller than the product specifications.

process chemistry,

Verfahrenstechnik, die

(chem. eng.)

process engineering

He holds a tenure in process chemistry.

process development

Verfahrensentwicklung, die

(chem. eng.)

During process development, one should also think about the energy

consumption.

process engineer

Prozessingenieur (in), der (die);

(chem. eng.)

Verfahrenstechniker(in), der (die)

The process engineer proposed to lower the temperature in the discharge zone.

process flow diagram

Fließbild, das

(chem. eng.)

Acronym (engl.): PFD

A process flow diagram (PFD) is a diagram commonly used in chemical and process engineering to indicate the general flow of plant processes and equipment. The PFD displays the relationship between major equipment of a plant and does not show minor details such as piping details and designations (those can be seen on a P&ID). Another commonly-used term for a PFD is a

flow sheet.

process industry

Prozessindustrie, die

(chem. eng.)

Chemicals, food and drinks and pharmaceuticals are produced by the process

industry.

process intensification Prozess-Intensivierung, die

(chem. eng.)

Acronym (engl.): PI

Process intensification is an approach to build much smaller (i.e. intensified) chemical plants that are significantly cheaper and safer than existing ones.

process measuring

Mess-, Steuer- und Regeltechnik, die; MSR-Technik, die

(chem. eng.)

and control technology

The process measuring and control technology department was reorganized.

process technology Verfahrenstechnologie, die (chem. eng.)

The process technology was covered by 3 patents.

process water Brauchwasser, das (chem. eng.)

The process water was more corrosive than expected.

process, to verarbeiten (chem.)

The plants processes waste oil.

processing Verarbeitung, die (chem. eng.)

The processing of concrete is performed at throughputs of 50 t/h and more.

**procurement** Einkauf, der (econ.)

The procurement of local equipment is generally less costly than to import it

from offshore.

**prodrug** Pro-Pharmakon, das (pharm.)

A prodrug is a pharmacological substance which is administered in an inactive

form. It is then metabolised in vivo into an active metabolite.





produce darstellen, herstellen (chem.)

The chemist produced  $H_2$  from water.

**product** Produkt, das (chem. eng.)

The new employee studied the product range of his company.

**production site** Produktionsstätte, die (chem. eng.)

The company has production sites in three countries.

**profit** Gewinn, der (econ.)

The owners of a company are interested in its profit.

profit and loss Gewinn- und Verlustrechung, die (econ.)

statement,

income statement

Acronym (engl.): P&L

Acronym (dt.): GuV

A profit and loss statement (P&L) or income statement indicates how revenues ("top line") were transformed into net income ("bottom line") of a corporation to see how much money was made in the period of interest, typically 1 year. Thereby, the P&L differs from the balance sheet, which represents a single point

in time.

**proforma invoice** Pro-forma -Rechnung, die (econ.)

A proforma invoice can be sent upfront to a buyer if not all details are known.

It is often used for customs clearance purposes.

profuse übermäßig, reichlich (general)

Ingestion of large amounts of propylene glycol can result in rapid heartbeat and

profuse sweating.

**programmable logic** PLC Steuerung, die; Speicher-Programmierbare Steuerung, die (eng.)

control(ler)

Acronym (dt.): SPS

A programmable logic controller (PLC) is used for the automation of industrial

processes.

**prohormone** Prohormon, das (pharm.)

Vitamin D is a group of fat -soluble prohormones, the two major forms of which are vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). Vitamin D3 is

produced in skin exposed to sunlight.

**Project Management** Beratungsfirma für Projektmanagement, die; PMC-Firma, die (chem. eng.)

Consultancy

Acronym (engl.): PMC Acronym (dt.): PMC

The PMC suggested to speed up the project.

**propagation** Ausbreitung, die (general)

The propagation of the flue was faster than expected.

**propellant** Treibgas, das; Treibmittel, das (chem.)

A hypergolic propellant consists of fuel and oxidizer. It ignites spontaneously

upon contact of the two media, e.g. hydrazine and nitrogen tetraoxide.

**properties** Eigenschaften, die (chem.)

The professor wanted to know the properties of helium from the candidate.

proposed International (pharm.)

Nonproprietary Name

Acronym (engl.): pINN

Acronym/Abbreviation referral: see International Nonproprietary Name

protective clothing Schutzkleidung, die; Schutzanzug, der; Schutzbekleidung, die (chem.)

A chemsuit (hazmat suit) is a special type of protective clothing.

protein Eiweiß, das; Protein, das (chem.)

Proteins are polypeptide molecules. The distinction is that peptides are short

and polypeptides/proteins are long. They are composed of amino acids.

**prussic acid** Blausäure, die (chem.)

Prussic acid is a solution of hydrogen cyanide (HCN) in water. HCN reacts with

ketones and aldehydes to give cy anohydrins.

**psi** Pfund pro Quadratzoll, das (*chem. eng.*)

*Acronym/Abbreviation referral: see pounds per square inch* 1 bar = 100,000 Pa =

14.5 psi.

psia Pfund pro Quadratzoll absolut (chem. eng.)

Acronym/Abbreviation referral: see pounds-force per square inch absolute

Psia is the gauge pressure plus local atmospheric pressure.

**psig** Pfund pro Quadratzoll (relativ, laut Manometer) (chem. eng.)

Acronym/Abbreviation referral: see pounds-force per square inch gauge

Psig is a unit of pressure relative to the surrounding atmosphere. By contrast,

psia measures the pressure relative to vacuum.

pulley Rolle, die; Flaschenzug, der (eng.)

A pulley is a grooved wheel that can accomodate a rope or cable. It can be used

to change the direction of an applied force.

pulp Zellstoff, der (chem.)

Pulp is a fibrous material made from wood which can be converted into paper.



pump Pumpe, die (chem. eng.)

The impeller of the pump was destroyed by solids.

pump head Pumpendruck, der (eng.)

The pump head was 3 bar.

punch Prägestempel, der; Locheisen, das; Stanzer, der (eng.)

The punch was made from hardened metal.

**punch list** Liste mit offenen Punkten, die (chem. eng.)

A punch list is a "to do" list which contains items of a project that require

rectification or completion before the entire work scope is completed.

pungent beißend, scharf, stechend (chem.)

Glutaraldehyde (pentane- 1,5-dial, pentanedial, glutural,  $C_5H_8O_2$ ) is a liquid with a pungent odor. It is used to sterilize medical and dental equipment.

**purchase order** Bestellung, die (econ.)

Acronym (engl.): PO

A purchase order was issued.

**purchase, to** kaufen (econ.)

Raw materials can be purchased from one supplier in order to claim volume

discount.

purge, to spülen (chem.)

The reactor was purged with nitrogen.

**purification** Reinigung, die (chem.)

Reagents for delicate processes can be subjected to a purification step by recrystallization, i.e. dissolution in a very pure solvent, crystallisation and crystal

recovery.

**purportedly** angeblich, wie man sagt (general)

Most medications are potent and safe after the expiration date. A rare exception

is a case of renal damage purportedly caused by expired tetracycline.

**putrefaction** Fäulnis, die (pharm.)

Putrefaction is the decomposition of animal proteins by putrefying bacteria. It usually yields amines such as putrescine  $(NH_2(CH_2)_4NH_2 (1,4-diaminobutane, butanediamine)$  and cadaverine  $(NH_2(CH_2)_5NH_2, pentane-1,5-diamine)$ .

pylon Hochspannungsmast, der; Pylon, der (eng.)

A pylon has the shape of a truncated pyramid.

pyruvic acid Brenztraubensäure, die (chem.)

Pyruvic acid (2-oxopropanoic acid, CH<sub>3</sub>COCOOH) is the simplest alpha-keto acid. The carboxylate anion (-COO<sup>-</sup>) of pyruvic acid is known as pyruvate, which plays an important role in biochemical processes.

**quantum well** Quantentopf, der; Potentialtopf, der (phys.)

Quantum wells, which can be produced in semiconductors, are used in some

lasers.

**quarry** Steinbruch, der (eng.)

Because of dust formation, quarries are situated in remote areas.

**quarter-turn screw,** Blattschraube, die (eng.)

flat leaf screw

The hose was connected to the tank by a flat leaf screw.

quartz Quarz, der (chem.)

Quartz crystals exhibit the piezoelectric effect.

quaternary ammonium quaternäre Ammoniumverbindungen, die (chem.)
compounds, quaternary
ammonium salts,

quaternary amines

Acronym (engl.): quats

Quats are positively charged ions of the structure  $NR^+$  with R being alkyl groups. Unlike the ammonium ion  $NH_4^+$ , the primary, secondary, or tertiary ammonium cations, the quaternary ammonium cations are permanently charged, independent of the pH of their solution.

quats (chem.)

Acronym/Abbreviation referral: see quaternary ammonium compouonds

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**quench, to** abschrecken, quenchen (eng.)

The radicals were quenched on the vessel wall.

quenching Löschen, das; Qenchen, das (chem.)

Flame quenching on metal surfaces results in the formation of pollutants such

as CO and unburnt hydrocarbons.

quick lime gebrannter Kalk, der (chem.)

Acronym (engl.): CaO Acronym (dt.): CaO

Calcium oxide (CaO, burnt lime, quick lime) is obtained from the thermal decomposition of calcium carbonate (CaCO<sub>3</sub>, calcite) in a lime kiln above 825°C

in a process called calcination or lime-burning.

quicksilver, Quecksilber, das (chem.)

mercury Acronym (engl.): Hg

Acronym (dt.): Hg

Quicksilver is a synonym for mercury (hydrargyrum).





quiescent, stagnant ruhig, unbewegt (general)

The nearly quiescent flow was observed.

**quotation** Kostenvoranschlag, der (econ.)

The quotation met the client's expectations.

R&D (sci.)

Acronym/Abbreviation referral: see research and development

R. Ph. (pharm.)

Acronym/Abbreviation referra l: see Registered Pharmacist

rack Gestell, das (eng.)

Rack storage of pallets requires forklifts.

radial engine Sternmotor, der (eng.)

Private planes are sometimes equipped with radial engines.

radiation Strahlung, die (chem.)

Ionizing radiation can be divided into alpha, beta and gamma radiation.

railcar Schienenfahrzeug, das (eng.)

In contrast to a railway car, a railcar is self-propelled.

rancid ranzig (chem.)

Butyric acid, CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>-COOH, gives the characteristic, unpleasant smell to

rancid butter.

random sample Stichprobe, die (pharm.)

A random sample of employees was picked to test the new software.

randomly zufällig (general)

The sample was randomly selected.

range Bereich, der; reichen (sci.)

The measurements range from 4 to 65 mg/m<sup>3</sup>.

rated capacity Nennkapazität, die (eng.)

The rated capacity of the extruder is 7.5 t/h.

rated power Nennleistung, die (eng.)

The engine has a rated powder of 3.7 kW.

ratholing Schachtbildung, die (chem. eng.)

The vibrating bottom is supposed to prevent ratholing in silos.

rating Dimensionierung, die; Klassifizierung, die (eng.)

The level sensor has no rating for use in dust -explosive atmospheres.

ratio Verhältnis, das (general)

The 12C/16C isotope ratio can be measured to estimate the age of a sample.

raw material Rohstoff, der (chem.)

He was looking for two missing raw materials in the warehouse.

RCRA (chem. eng.)

Acronym/Abbreviation referral: see Resource Conservation and Recovery Act

REACH (chem. eng.)

Acronym/Abbreviation referral: see Registration, Evaluation and Authorisation of

Chemicals

reaction Reaktion, die (chem.)

According to the IUPAC definition, a chemical reaction is a process that results

in the Interconversion of chemical species.

readily soluble leichtlöslich (pharm.)

The readily soluble heavy metals were extracted from the soil sample.

reading Anzeige auf einem Gerät, die (chem.)

The instrument reading was faulty.

reagent Reagenz, das (chem. eng.)

In contrast to solvents and catalysts, a reagent (or reactant) is a substance that

is consumed during a chemical reaction.

real power Wirkleistung, die (eng.)

The ratio between real power and apparent power in an AC circuit is called

power factor.

real-estate agent Immobilienmakler, der; Makler, der (general)

The real-estate agent was very experienced in the area.

rear axle Hinterachse, die (eng.)

The rear axle broke during the accident.

rear drive Heckantrieb, der (eng.)

The truck is equipped with rear drive.

rear view Rückansicht, die (eng.)

The rear view of some houses is more attractive than the front view.

reassessment Neubewertung, die (general)

After the cost estimation, a reassessment of the project profitability was carried

out.

rebars (eng.)

Acronym/Abbreviation referral: see reinforcing bars

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receipt Beleg, der (econ.)

Reimbursement of expenses can only be made against original receipts.

receivables Forderungen, die; Kundenforderungen, die; Außenstände, die (econ.)

To improve the cash flow, the receivables were screened for overdue payments.

receptacle Wandsteckdose, die; Auffanggefäß, das; Auffangbehälter, der (eng.)

Power plugs are inserted into power sockets (=power receptacles, power outlets).

reclaimed rubber Altgummi, der (chem.eng.)

Reclaimed rubber can be used to save natural resources.

**recommendation** Empfehlung, die (general)

The chemist made a recommendation about two suppliers.

recommended empfohlene Belastungsgrenze, die (chem.)

exposure limit

The recommended exposure limit is the highest allowable airborne concentration

of a substance that is not expected to give damage to a person at work.

recommended (pharm.)

International

Nonproprietary Name

Acronym (engl.): rINN

Acronym/Abbreviation referral: see International Nonproprietary Name

recommissioning Wiederinbetriebnahme, die (chem. eng.)

After a 6-month shutdown, the plant was in a condition for recommissioning.

recovered glass Altglas, das (chem. eng.)

Recovered glass needs to be freed from metal parts prior to processing.

recovered paper Altpapier, das (chem. eng.)

Recovered paper can be used to produce cardboard.

recovery Rückgewinnung, die (chem. eng.)

Recovery of solvent is done to meet emission requirements.

rectangle Rechteck, das (sci.)

An sheet of paper in A4 format constitutes a rectangle.

rectangular rechtwinkelig (sci.)

The surface area of a rectangular piece of land can be figured out easily.

rectifier Gleichrichter, der (eng.)

A rectifier converts alternating current (AC) to direct current (DC). The opposite

device is called an inverter.

red line drawing Rotpause, die (chem. eng.)

The engineer marked the changes in a red line drawing.

redox reaction Redoxreaktion, die (chem.)

Examples of a redox reaction are the oxidation of carbon by oxygen to carbon dioxide or the reduction of carbon by hydrogen to methane. The former reaction is associated with a loss of electrons (oxidation), the latter one with a gain of

electrons (reduction) for the carbon.

reducer Reduzierstück, das (chem.)

A reducer is a component in a pipeline that reduces the pipe size from one

diameter to another.

reducing agent Reduktionsmittel, das (chem.)

A reducing agent becomes oxidized in a redox reaction and is therefore the

electron donor.

reducing valve Überdruckventil, das; Druckminderventil, das (chem. eng.)

The reducing valve on the gas bottle was frozen because of the Joule-Thomson effect. At room temperature, all gases except hydrogen, helium and neon cool

down upon expansion.

reduction Reduktion, die (chem.)

An example of a reduction is the reaction of benzene to cyclohexane in the

presence of a platinum catalyst according to  $C_6H_6 + 3H_2 --> C_6H_{12}$ .

redundancy Redundanz, die (general)

Critical process equipment can be built in redundancy.

reel Rolle, die (eng.)

A reel is used to redirect a rope.

refinery Raffinerie, die (chem. eng.)

The world's largest refineries process over 500,000 barrels of crude oil per day.

1 barrel (bbl) is 42 US gallons or 159 l.

reflux Rückfluss, der (chem. eng.)

By boiling the sample under reflux for 8 h, 80% of the total mass could be

dissolved.

refraction Brechung, die (eng.)

Refraction, as described by Snell's law, is the change in direction of a wave due

to a change in its speed, e.g. at an interface between 2 media.

refractive index Brechungsindex, der (eng.)

The refractive index (n) of glass is around 1.5. Therefore, the speed of light in glass (v) is 1/1.5 = 0.67 times the speed of light in vacuum (c) according to

n = c/v. n is dependent on the wavelength.



refractory feuerfest, feuerbeständig (chem.)

Refractories are non-metallic materials that are used above 1000°F (538°C).

refractory feuerfestes Erzeugnis, das (chem. eng.)

The oxides of aluminium (alumina, Al<sub>2</sub>O<sub>3</sub>), silicon (silica, SiO<sub>2</sub>) and magnesium

(magnesia, MgO) can be used to produce refractories.

refractory material feuerfestes Material, das (chem. eng.)

A furnace is typically lined with refractory material.

regenerative thermal thermische Nachverbrennungsanlage mit regenerativer (chem. eng.)

**oxidiser** Abluftvorwärmung, die; regenerative thermische

Oxidationstechnik, die; RTO-Anlage, die

regenerative thermal oxidizer (AE)

Acronym (engl.): RTO

An RTO unit can cope with sulfur-containing gases, which would poison the

catalyst in a CCU.

register ton Registertonne, die; (general)

Bruttoregistertonne, die

1 register ton, a unit of volume used for the cargo capacity of a ship, is defined

as 100 cubic feet (2.83 m<sup>3</sup>).

Registered Pharmacist zugelassener Apotheker, der (pharm.)

Acronym (engl.): R. Ph.

He worked as a Registered Pharmacist in the United States.

Registration, (chem. eng.)

**Evaluation and** 

Authorisation of

Chemicals

Acronym (engl.): REACH

REACH is a new European Chemicals Policy that came into effect in 2007. REACH applies to all chemicals with a production or import volume exceeding

1 tonne/year.

registry of toxic effects RTECS (Datenbank toxikologischer Informationen, die) (chem. eng.) of chemical substances

Acronym (engl.): RTECS

Published by NIOSH, RTECS presents basic toxicity data of numerous substances.

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reinforced verstärkt (eng.)

The cover is made from fibre-reinforced plastics.

reinforced concrete Stahlbeton, der (eng.)

Reinforced concrete is used in most skyscrapers.

reinforcing bars Betonrippenstahl (eng.)

A rebar, or reinforcing bar, is a carbon steel bar that is commonly used in reinforced concrete and reinforced masonry structures. It has ridges for better

mechanical anchoring into the concrete.

release Freisetzung, die; Freigabe, die (pharm.)

In that accident, 2 tons of chlorine were released.

remainder Rest, der (chem.)

When dividing 27 by 4, 6 is the quotient and 3 is the remainder, because

 $27=6\times4+3$ .

remains Rückstand, der (chem.)

There were some metallic remains in the ash.

remedy Abhilfe, die; Lösung, die; Medikament, das (pharm.)

In homeopathy, concordant remedies are remedies of similar action but of

dissimilar origin.

remittance Geldüberweisung, die; Geldsendung, die; Remission, die (econ.)

A remittance, or "money sent home", is a transfer of money by a foreign worker

to his home country.

remitter, buyer, client, Auftraggeber, der (econ.)

principal

Extra costs are to be borne by the principal.

**remuneration** Bezahlung, die; Entgelt, das; (econ.)

Vergütung, die

The employee's remuneration included stock options.

repatriation Wiedereinbürgerung, die; Rückführung, die (general)

After 12 years abroad, repatriation of the employee was a challenging task.

reportable quantity meldepflichtige Menge, die (chem. eng.)

Acronym (engl.): RQ

RQ is the amount of a substance that, when spilled, must be reported to

authorities under CERCLA.

research Forschung, die (sci.)

Research and development are vital to the growth of any chemical company.

research and Forschung und Entwicklung, die (sci.)

development

Acronym (engl.): R&D Acronym (dt.): F&E

In Finland, R&D spendings amount to 3.4% of the GNP.

researcher Forscher(in), der (die) (sci.)

The researcher was hired from competition.

residence time Verweilzeit, die (chem. eng.)

A narrow residence time distribution is often advantageous.





residue Rückstand, der (eng.)

Ash and soot are combustion residues.

resilient rückstellfähig, rückfedernd (eng.)

A resilient material can store energy elastically.

resin Harz, das (chem.)

Since two weeks, the resin has been more sticky than usually.

Resource Conservation (chem.)

and Recovery Act

Acronym (engl.): RCRA

RCRA (pronounced as "rick-rah") or "Wreck-rah") is an US law governing the

disposal of solid and hazardous waste.

respirator Atemgerät, das; Gasmaske, die; Beatmungsgerät, das (general)

A respirator is a device designed to protect the wearer from inhaling harmful dusts, fumes, vapors, and/or gases. There are cost-effective, disposable masks

and reusable models with replaceable filter cartridges.

respiratory system Atemwege, die (pharm.)

Ammonia can cause irritation to the respiratory system, the eyes and the skin.

responsibility Verantwortung, die (general)

It is a responsibility of engineers to check and verify their assumptions.

retail customer Kleinabnehmer, der; Einzelhandelskunde, der (econ.)

Retail customers are entitled to extensive warranties.

retention Zurückhaltung, die (eng.)

The adsorption column did not show any retention for H<sub>2</sub>S.

retention time Retentionszeit, die (chem. eng.)

Retention time is an important parameter in gas chromatography.

reticule, reticle, Fadenkreuz, das (eng.)

crosshair

In old instruments, the reticule was made from a thread of the brown recluse

spider, an animal with 3 pairs of eyes.

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retractable einziehbar (eng.)

Planes usually have a retractable landing gear.

retrofit, to nachträglich hinzufügen, nachrüsten, nachrüstbar, Nachrüstung, die (eng.)

A larger column was retrofitted into the HPLC instrument.

return line Rücklauf, der (chem.)

The return line showed strong fouling.

revamp Überholung, die; Modernisierung, die (chem. eng.)

A revamp is a major modification to an industrial plant in operation.

reverse osmosis Umkehrosmose, die (chem. eng.)

The desalination of seawater to freshwater is based on reverse osmosis.

(eng.)

revolutions per minute Umdrehungen pro Minute, die

Acronym (engl.): rpm

Acronym (dt.): U/min, UPM

A dental drill runs with up to 800,000 rpm.

reward Belohnung, die (general)

A working machine is an inventor's greatest reward.

**rhomb, rhombus** Rhombus, der; Raute, die (sci.)

The area of a rhombus is the product of the lengths of its diagonals divided by

two.

ribbon Band, das (eng.)

The man attached the wooden stick to the scaffold using a rubber ribbon.

right angle rechter Winkel, der (sci.)

When placing tiles on the floor, right angles in the corners come in handy for

the do-it-yourselfer.

right-hand(ed) thread Rechtsgewinde, das (eng.)

Most threads are right-handed. This means that a bolt or nut, seen from the

top, is tightened by turning it in clockwise direction.

rigid steif (eng.)

By using H-type steel bars, he could build a rigid structure.

rim Rand, der; Felge, die (eng.)

The rim was too rough for the next processing step.

rinse, to ausspülen, abspülen, spülen (eng.)

After cutting the meat, the cook rinsed the knife with water.

rivet Niete, die (eng.)

The rivets are made from stainless steel.

rock salt Steinsalz, das; Kochsalz, das (chem.)

The solubility of rock salt (NaCl) in water is 359 g/l at 25°C.

rod Stange, die (eng.)

The mechanic used a rod to bridge the gap.





rodent Nagetier, das (pharm.)

Rodent poisons fall into 2 categories: anticoagulant agents and hypercalcemic agents. Anticoagulants (most common type) block the production of vitamin K so that the rodent will bleed to death. Hypercalcemic agents contain vitamin D. These poisons work by raising the calcium content in the rodent's blood stream

to toxic levels.

roller mill Walzwerk, das (eng.)

A roller mill can be found in a steel factory.

rolling friction Rollreibung, die (eng.)

Rolling friction is smaller than static friction.

Roots blower Roots-Gebläse, das (chem. eng.)

The Roots blower is a positive displacement pump. This type of blower is

frequently used as supercharger in cars.

rope ladder Strickleiter, die (eng.)

A rope ladder was supplied for emergencies.

rotary cement kiln Zementdrehrohrofen, der (chem. eng.)

The heat losses of the rotary cement kiln were analysed.

rotary evaporator Rotavapor, der (chem.)

A rotary evaporator is used to gently remove solvents from a sample by

evaporation under reduced pressure.

rotary feeder, Drehschieber, der; Drehventil, das; (chem. eng.)

rotary valve Zellenradschleuse, die; Zellenrad, das

A rotary valve can be used to transfer solids between 2 pressure levels.

rotary kiln Drehrohrofen, der (chem. eng.)

The rotary kiln was plugged by molten ash.

rotary pump, Drehkolbenpumpe, die; Kreiselpumpe, die (chem. eng.)

rotary vane pump

A rotary vane pump uses vanes mounted to a rotor that operates in a cavity.

rotating current, Drehstrom, der (eng.) three -phase current Three phase current is used on engines. There are hardly any engines > 10 kW that use single phase electricity (design, vibration, efficiency advantages). In industry, such engines are used to drive pumps, fans, blowers and compressors. rough calculation Überschlagsrechnung, die (eng.) A rough calculation revealed that the pump had been designed too small. round off, to abrunden (eng.) 3.74 can be rounded off to 3.7. round robin test Ringversuch, der (eng.) The lab participated in a round robin test. round up, to aufrunden (eng.) 3.76 can be rounded up to 3.8. royalty Tantieme, die; Autorenhonorar, das; Kreiselpumpe, die (econ.) Lizenzgebühr, die; Lizenz, die; Nutzungsgebühr, die The author received 2% royalties on the sales of his book. RQ (chem. eng.) Acronym/Abbreviation referral: see reportable quantity **RTECS** (chem. eng.) Acronym/Abbreviation referral: see registry of toxic effects of chemical substances **RTO** (chem. eng.) Acronym/Abbrevation referral: see regenerative thermal oxidizer rubber Gummi, der (eng.) Rubber is a soft material. rubber hose Gummischlauch, der (eng.) A rubber hose can be connected to a silo truck to unload it.

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Gummischlauch, der

rubber tube

The rubber tube burst from the high pressure.

(eng.)

rubbing alcohol Reinigungsalkohol, der; Franzbranntwein, der (chem.)

Isopropanol is used as rubbing alcohol.

rule of thumb Faustregel, die (eng.)

As a rule of thumb, the lifetime of electronic equipment can be assumed to be

5 years.

running water Fließwasser, das (eng.)

A water ring pump consumes a high amount of running water.

rust Rost, der (eng.)

Stainless steel does not develop rust.

Rx-only drugs (AE) (pharm.)

Acronym/Abbreviation referral: see POM

sacrificial anode Opferanode, die (eng.)

The pipeline was protected by equally spaced sacrificial anodes.



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**SADT** (chem.)

Acronym/Abbreviation referral: see self accelerating decomposition temperature

safety Sicherheit, die (general)

Safety has to be a key concern in the design, operation and decommissioning

of a chemical plant.

safety data sheet (chem. eng.)

Acronym/Abbreviation referral: see SDS

safety instrumented

SIF

(chem. eng.)

function

Acronym (engl.): SIF

A Safety Instrumented Function (SIF) is defined as a function implemented by an SIS, which is intended to achieve or maintain a safe condition of the plant

at all times.

**Safety Instrumented** 

SIS

(chem. eng.)

**System** 

Acronym (engl.): SIS

A Safety Instrumented System (SIS) is a common form of process control for industrial processes.

Safety Intergrity Level SIL, Sicherheitsintegritätslevel

(chem. eng.)

Acronym (engl.): SIL

Safety Integrity Level SIL is a measure of risk reduction provided by a SIF based on four levels. Each level represents an order of magnitude of risk reduction. Every SIF has a SIL assigned to it. The SIS and equipment does not have a SIL assigned to it.

safety relief valve Sicherheitsventil, das (eng.)

A safety relief valve has to be designed for the maximum flow rate.

safety wire, lockwire

Sicherheitsdraht, der

(eng.)

Safety wires (lockwires) are common in the aircraft and racing industries as additional precaution to keep vital fasteners from unintentionally loosening due to vibration.

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sales force Verkaufsmannschaft, die; Außendienst, der (pharm.)

The hit rate of the competitor's sales force was 17%.

sales margin Verkaufsspanne, die (econ.)

Acronym (engl.): SM

The sales margin of the chemical was 50 €/ton below expectations.

saliva Speichel, der (pharm.)

Human saliva consists to 98% of water.

salve, ointment Salbe, die (pharm.)

Salves can be based on hydrocarbons (e.g. hard paraffin, soft paraffin), fat and

water soluble substances (e.g. polyethyleneglycol (PEG)).

sampler Probennehmer, der (chem. eng.)

The sampler was installed in the wrong location.

sandstone Sandstein, der (eng.)

Sandstone can be easily processed.

sanitiser Desinfektionsmittel, das (pharm.)

sanitizer (AE)

The nurse used a sanitizer for her hands before touching the tools.

saponification Verseifung, die (chem.)

Soap, which consists of sodium or potassium salts of fatty acids, is obtained by the saponification of fat with lye. Thereby, the fats are hydrolyzed to alkali salts

of fatty acids and glycerol.

saponification value Verseifungszahl, die (chem.)

The saponification value is a measure of the average molecular weight (chain length) of fatty acids, which are carboxylic acids with long unbranched aliphatic

tails (chains). These can be either saturated or unsaturated.

sarcoma Sarkom, das (med.)

A sarcoma is a cancer of the connective tissue (bone, cartilage, fat) resulting in

mesoderm proliferation.

saturated gesättigt (chem.)

Hexane is a saturated hydrocarbon.

saturated steam Sattdampf, der (chem.)

The temperature of dry saturated steam at 10 bar (absolute) is 180°C.

saturation vapor Sättigungsdampfdruck, der (chem.)

pressure

At saturation vapor pressure, a substance in the gas phase is in equilibrium with

the liquid phase of that substance beneath.

scaffold Baugerüst, das (eng.)

A scaffold is no permanent installation.

scale Maßstab, der (eng.)

The scale on the layout diagram is 1:75.

scale-up Scale-up, das; Übertragung auf die Großanlage, die (chem. eng.)

Scale-up often relies on the use of dimensionless numbers.



scaly schuppig (pharm.)

Muskovite is a scaly mineral with a pearlescent shine.

scanty knapp, spärlich, notdürftig (general)

The information provided by the MSDS is scanty.

scattering Streuung, die (chem.)

Scattering of sunlight on air molecules makes the sky appear blue.

schedule Plan, der; operativer Ablauf, der; Terminplan, der; (econ.)

Fahrplan, der; Ablaufplan, der

The project schedule was endangered by the results of the soil investigation.

scholar Gelehrter, der (sci.)

A good scholar is able to explain a complicated situation in simple words.

science Wissenschaft, die (sci.)

Calculating the Peclet number is not rocket science.

scientist Wissenschafter(in), der (die) (sci.)

On international conferences, scientists can exchange thoughts with their peers.

scope Geltungsbereich, der; Rahmen, der; (general)

Spielraum, der; (Projekt)Umfang, der The project scope was not clearly defined.

SCR (chem. eng.)

Acronym/Abbreviation referral: see selective catalytic reduction

scrap Schrott, der; Abfall, der (eng.)

There is a scrapyard close to the plant.

scrap copper Altkupfer, das (eng.)

Scrap copper is collected and processed by specialized companies.

scraper Schaber, der (eng.)

Kitchen scrapers can be made from metal, plastics, wood or rubber.

screen Bildschirm, der; Filter, der; Sieb, das (eng.)

The process engineer studied the temperature drop on his screen.

screen cloth Siebgewebe, das (eng.)

The industrial screen cloth has 10 mesh, i.e. 1651 µm wide openings.

screen pack Siebplatte, die; Siebpaket, das (eng.)

The screen pack was blocked by metallic parts.

screw Schraube, die (eng.)

The bar was secured by two screws.

screw cap Schraubdeckel, der; Verschlusskappe, die (eng.)

A screw cap is a closure on a container, i.e. a mechanical device which is screwed

on and off (reclosable).

screw conveyor Schneckenförderer, der (eng.)

A screw conveyor can be used to transport solids or sludges.

screw driver Schraubenzieher, der (eng.)

His screw driver was too small to losen the connection.

screw gauge Gewindelehre, die (eng.)

The workshop was not equipped with a screw gauge.

screw joint Schraubverbindung, die (eng.)

The screw joint failed due to too high forces.

scrubber Wäscher, der; Gaswäscher, der (chem. eng.)

The scrubber was designed for a maximum SO, capturing capacity of 500 g/h.

SD (chem.)

Acronym/Abbreviation referral: see shutdown

SDS (chem. eng.)

Acronym/Abbreviation referral: see material safety data sheet

seal Dichtung, die; Abdichtung, die (eng.)

In contradiction to the vendor's statement, the seal was not completely gas tight.

sealing compound Dichtungsmasse, die (eng.)

The application limit of the sealing compound was overlooked.

seam Naht, die (eng.)

The seam between the steel plates was ground.

seaport Seehafen, der; Hafenstadt, die (eng.)

Dover in the UK is one of the busiest seaports for passengers.

seaworthy seetüchtig (eng.)

After the storm, the ship was not seeworthy any more.

second order reaction Reaktion zweiter Ordnung, die (chem.)

In a second order reaction, the reaction rate is determined by the concentration

of two chemical species.

secondary air Sekundärluft, die; Zusatzluft, die (chem. eng.)

By using secondary air, the CO emissions could be reduced by 85%.



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seed crystal Impfkristall, der (chem.)

Impurities on the vessel wall can act as seed crystals.

segregation Seigerung, die; Trennung, die (eng.)

The day supervisor proposed to wet the powder in an attempt to limit segregation.

seizure Krampf, der (med.)

Ingestion of the herbicide by humans can lead to seizures.

selective catalytic reduction

SCR-Verfahren, das; selektive katalytische Reduktion, die

(chem. eng.)

Acronym (engl.): SCR Acronym (engl.): SCR

SCR catalysts are manufactured from various ceramic materials used as carriers, e.g. titanium dioxide. As active catalytic components, oxides of base metals (e.g. vanadium and tungsten), zeolites, and various precious metals are used.

selective non-catalytic SNCR-Verfahren, das; selektive

(chem. eng.)

reduction nicht-katalytische Reduktion, die

Acronym (engl.): SNCR Acronym (engl.): SNCR

SNCR is a method to reduce  $\mathrm{NO_x}$  emissions in power plants that burn biomass, waste and coal. The process involves injecting either ammonia or urea into the combustion chamber to react with the nitrogen oxides. The reduction can be

described as 4 NO + 4 NH $_3$  + O $_2$  --> 4 N $_2$  + 6 H $_2$ O.

self accelerating selbstbeschleunigende Zersetzungstemperatur, die; SADT, die (chem.)

decomposition

temperature Acronym (engl.): SADT

Acronym (engl.): SADT

The SADT of an organic peroxide needs to be looked up in its MSDS to determine

a safe storage temperature.

self acting selbsttätig (eng.)

Self acting filling machines can operate over the weekend.

self cleaning selbstreinigend (eng.)

The lotus effect explains self cleaning surfaces.

**self supporting** selbsttragend (*eng.*)

The self supporting roof was designed to withstand wind speeds of 130 m/s.

self-aspirated selbstansaugend (eng.)

The flare has a self-aspirated igniter.

self-contained umluftunabhängiges Atemschutzgerät, (chem. eng.)

breathing apparatus das; schwerer Atemschutz, der

In order to enter the vessel, the worker put on a self-contained breathing

apparatus.

semi finished product Halbzeug, das (eng.)

Over the last month, the company had built up a too high stock level of semi

finished products.

semi metal Halbmetall, das (chem.)

A semimetal is a material with a small overlap in the energy of the conduction band and valence band. Metalloids are a group of chemical elements that are neither metal nor nonmetal. Semimetals, in contrast to metalloids, can be elements (arsenic, antimony, bismuth) or compounds (HgTe). Tin and graphite

are semimetals, but no metalloids.

semi-batch Teilfließbetrieb, der (chem. eng.)

In a semi-batch operation, one reactand is already present, while the second one is continuously fed to the process. It is also possible to withdraw one product continuously. A typical avantage of a semi-batch operation is a controlled reaction with higher yields. Examples of this reaction type are esterifications.

semiconductor Halbleiter, der (chem.)

By doping, silicon can be made a p-type or an n-type semiconductor. The most common dopants are acceptors from group III ( $\rightarrow$  p-type) or donors from group

V elements ( $\rightarrow$  n-type).

semilog graph, halblogarithmische Darstellung, die (sci.)

**semi-log** A semilog graph is a convenient way to visualize data that are changing with

an exponential relationship.

semi-log plot,

senior advisor Chefberater, der; leitender Berater, der (econ.)

The senior legal advisor left the company to found his own business.

senior management gehobenes Management, das (econ.)

The investment proposal was not approved by senior management.

sensitiser Sensibilisator, der (chem.)

sensitizer (AE)

Tetracene (C<sub>18</sub>H<sub>12</sub>, naphthacene) is a common sensitiser. It is used in organic

light-emitting diodes (OLEDs).

sensitising allergisierend, Sensibilisierung, die (pharm.)

sensitizing (AE)

The risk of allergic sensitization and the development of allergies varies with

age.

sensitive to heat wärmeempfindlich (eng.)

The researcher was not aware that his construction was sensitive to heat.





separating funnel Scheidetrichter, der (chem.)

A separating funnel is used for liquid-liquid extractions to separate the components of a mixture between two immiscible solvent phases of different

densities, which are typically water and an organic solvent.

separation process Trennverfahren, das (chem. eng.)

Common separation processes in chemical engineering are adsorption, centrifugation, chromatography, crystallisation, drying, extraction, filtration

and sieving.

set screw Stellschraube, die (eng.)

The apprentice did not know which set screw he should engage.

setting time Abbindezeit, die (eng.)

The man disregarded the setting time of the formulation.

settle, to sich absetzen (eng.)

The flocculated material was allowed to settle for 10 min prior to filtration.

settling tank Absetzbecken, das (eng.)

The level sensors in the settling tanks of the waste water treatment plant did

not work.

sewage Abwasser, das (eng.)

Untreated sewage water from the mill was sent to the river.

sewer Abflusskanal, der (eng.)

A leak in the sewer system was discovered by accident.

sewing machine Nähmaschine, die (eng.)

The knowledge how to operate a sewing machine is not so widespread among

men.

shackle Lastöse, die; Haltebügel, der; Zuglasche, die (eng.)

Shackles are common construction elements.

shaft Welle, die; Schacht, der (eng.)

The shaft has a specific torque density of 10 Nm/mm<sup>3</sup>.

share Anteil, der (econ.)

Everybody had contributed his share to the success of the project.

shavings Hobelspäne, die (Hobelspan, der) (eng.)

Shavings can be converted into wood pellets.

shear Scherung, die (eng.)

Shear is the deformation of materials when parallel internal surfaces slide past

each another.

shear modulus Schubmodul, der (eng.)

The shear modulus (modulus of rigidity, G) of diamond is 480 GPa, whereas it is only 80 GPa for steel and 0.1 GPa for polyethlyene (room temperature). G is

defined as the ratio of shear stress to shear strain.

shear strength Scherfestigkeit, die (eng.)

Shear strength is an important parameter in material science. Ductile materials generally fail in shear (e.g. aluminum), whereas brittle materials (e.g. cast iron)

fail in tension.

sheath Hülle, die; Schutzhülle, die; Mantel, der (eng.)

The sheath is the outer layer of a cable.

**sheathing** Verkleidung, die; Betonschalung, die (eng.)

By sheathing, he applied a weatherproof cladding to his house.

sheet metal Blech, das (eng.)

Sheet metal is used for the production of cars.

shelf life Lagerbeständigkeit, die; Lagerfähigkeit, die (pharm.)

The shelf life of a product is influenced by its exposure to light and heat.

shielding gas Schutzgas, das (chem. eng.)

Nitrogen, carbon dioxide or argon can be used as shielding gas.

shift Schicht, die (Arbeitsteam, das) (econ.)

At shift handover, valuable information was lost.

shift supervisor, Schichtführer, der; Schichtmeister, der (chem. eng.)

shift leader

The shift supervisor was responsible for a team of 6.

ship yard Schiffswerft, die (eng.)

The boat was taken to the ship yard for maintenance.

shock absorber Stoßdämpfer, der (eng.)

Screens for the removal of over-and undersized particles are equipped with

shock absorbers so that they do not disturb the equipment close by.

shock wave Stoßwelle, die (eng.)

An object moving at supersonic speed creates a shock wave.

shop floor Fabrikshalle, die; Werkstatt, die; Produktionsstätte, die (chem. eng.)

In contrast to white collar workers, blue collar workers in the process industries

generally perform their tasks on the shopfloor.

short circuit Kurzschluss, der (eng.)

The short circuit was caused by a broken glass inside a heating hood.



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Short Term Exposure STEL, Durchschnittswert der letzten 15 Minuten, der (chem.)

Limit

Acronym (engl.): STEL

STEL is the highest concentration permitted for short periods of time, generally

15-30 minutes.

short-pass filter für kurzwelliges Licht durchlässiger Filter, der (eng.)

A short-pass filter transmits wavelengths below a specific wavelength.

short-term exposure (chem.)

value

Acronym/Abbreviation referral: see STEV

**shotcrete** Spritzbeton, der (eng.)

Shotcrete can be applied on vertical and overhead surfaces.

shovel Schaufel, die (eng.)

With the larger shovel, he could easily dig a hole into the ground.

shunt Nebenwiderstand, der; Nebenschlusswiderstand, der; (eng.)

Messwiderstand, der; Shunt, der

In electronics, a shunt is a device which allows electric current to pass around

another point in the circuit.

shutdown, shut down abfahren; Stillstand, der (chem.)

Acronym (engl.): SD

The plant was shut down in a controlled way.

**shutoff device,** Absperrarmatur, die (chem.eng.)

isolation valve,

shutoff valve

The shutoff valve was stuck.

SI unit SI- Einheit, die (eng.)

The SI system (International System of Units, SI from French "Système

International d'Unités") has seven base units:

1) metre (m) for length,

2) kilogram (kg) for mass,

3) second (s) for time,

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4) ampere (A) for electric current,

5) Kelvin (K) for thermodynamic temperature,

6) candela (cd) for luminous intensity, and

7) mole (mol) for the amount of substance.

Three nations have not officially adopted the SI system as their primary and sole measurement system: Liberia, Myanmar and the United States.

sickle Sichel, die

(eng.)

Some country flags show a sickle.

side effect Nebenwirkung, die

(pharm.)

Dolasetron (C<sub>19</sub>H<sub>20</sub>N<sub>2</sub>O<sub>3</sub>) is a well-tolerated drug with few side effects, e.g.

headache, dizziness, and constipations.

side valve Seitenventil, das

(chem.)

The engine was equipped with side valves.

sieve Sieb, das

(chem.)

This sieve has 500 mesh.

SIF

(chem. eng.)

Acronym/Abbreviation referral: see safety instrumented function

sign a contract, to

einen Vertrag unterschreiben

(econ.)

The general manager refused to sign the contract.

SIL

(chem. eng.)

Acronym/Abbreviation referral: see Safety Integrity Level

silencer

Schalldämpfer, der

(eng.)

Blowers that are installed inside a production building should be equipped with

silencers.

silica, silicon dioxide

Siliziumdioxid, das

(chem.)

Acronym (engl.):  $SiO_2$ Acronym (dt.):  $SiO_2$ 

Fibers for data transmission via light are produced from silica.

silicic acid Kieselsäure, die (chem.)

Silicic acid is a general name for compounds with the formula  $[SiO_x(OH)_{4-2x}]n$ . In dilute aqueous solutions, metasilicic acid  $(H_2SiO_3)$ , orthosilicic acid  $(H_4SiO_4)$ , disilicic acid  $(H_2Si_2O_5)$  and pyrosilicic acid  $(H_6Si_2O_7)$  can be found. In the solid state, they condense to polymeric silicic acids.

silicon Silizium, das (chem.)

The Czochralski process is used to produce single crystals of semiconductors (e.g. silicon), metals and salts. Typical ingot diameters are 200 mm and 300 mm. The thickness of standard silicon wafers is 0.2 to 0.75 mm.

silicone, polysiloxane Silikon, das (chem.)

Silicone (not to be confused with silicon) consists of polymerized siloxanes (polysiloxanes). Silicones are mixed inorganic-organic polymers with the formula  $[R_2SiO]_n$ , where R stands for organic groups such as methyl, ethyl or phenyl, that are attached as side groups to an inorganic silicon-oxygen backbone (...-Si-O- Si-O-Si-O-...).

silk Seide, die (chem.)

Silk is a natural protein fiber, i.e. a chain of amino acids.



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single crystal, Einkristall, der (chem.)

monocrystal

Wafers are made from silicon single crystals. These can be obtained in the

Czochralski process.

sink Ausguss, der (chem.)

The sink must not be misused for solvents.

SIS (chem. eng.)

Acronym/Abbreviation referral: see Safety Instrumented System

sketch Skizze, die (eng.)

He captured his idea in a sketch inside his laboratory notebook.

skill Fähigkeit, die (general)

Each employee should be deployed according to his individual skills to achieve

optimum results.

skimmer Abstreifer, der; Abschäumer, der; Siphon, der; Skimmer, der (chem. eng.)

Skimmers are frequently used to remove oil floating on water.

**skylight** Dachfenster, das; Luke, die; Oberlicht, das (eng.)

The skylight was properly dimensioned.

slide, to (slid, slid) gleiten (eng.)

The mercury droplets were sliding on the laboratory bench.

sliding friction Gleitreibung, die (eng.)

The new tire causes lower sliding friction than the previous model.

slit Spalt, der (eng.)

At the slit, the waves were diffracted.

slope Neigung, die; Böschung, die (eng.)

The slope of the ramp was 10°.

slot Schlitz, der (eng.)

The student tried to model nitrogen conversion in a slot burner.

**slotted** gekerbt, geschlitzt, genutet (eng.)

A slotted spoon can be compared to a sieve.

slotted hole, slot hole Langloch, das (eng.)

The slotted hole showed sharp edges.

sludge Schlamm, der (chem. eng.)

Sewage sludge cannot be readily used as a fertilizer.

sluice valve Keilschieber, der; Hauptschieber, der; Absperrschieber, der (chem. eng.)

Sluice valves normally have flanged ends.

slurry, der; Schlamm, der; Aufschlämmung, die (chem. eng.)

Slurry pipelines are used to transport coal, copper, iron, bauxite and oil sands,

but also trailings for disposal.

SM (econ.)

Acronym/Abbreviation referral: see sales margin

smear Ausstrich, der; Abstrich, der (pharm.)

She performed a smear test.

**smear, to** ausstreichen, schmieren (*pharm.*)

He smeared the paint onto the wall.

smell riechen; Geruch, der (chem.)

The smell of natural gas comes from butanethiol (C, HoSH), which has a "skunk"

odor.

smelter Metallhütte, die; Hüttenwerk, das (eng.)

In a smelter, metal is obtained by reduction from its ore.

smoke Rauch, der (fest in gas) (chem.)

Cigarette smoke contains more than 600 substances.

smooth sanft (eng.)

A coupling is used for smooth engine power transmission.

snake venom Schlangengift, das (chem.)

Snake venom is a mixture of toxins and different enzymes used for other

purposes like increasing the prey's uptake of toxins.

**snap ring, retainer,** Sprengring, der

circlip

A circlip is a fastener that permits rotation, but prevents lateral movement.

SNCR (chem. eng.)

Acronym/ Abbreviation referral: see selective non-catalytic reduction

soap bubble Seifenblase, die (eng.)

A good recipe for soap bubbles consists of dishwashing detergent, glycerin and

water in the ratio of 5:1:100.

soap stone Speckstein, der (chem.)

Soap stone is largely composed of talc, which is a hydrated magnesium silicate

with the chemical formula Mg<sub>3</sub>Si<sub>4</sub>O<sub>10</sub>(OH)<sub>2</sub>.

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soda ash, soda Soda, das (chem.)

Acronym (engl.): Na<sub>2</sub>CO<sub>3</sub> Acronym (dt.): Na<sub>2</sub>CO<sub>3</sub>

Soda ash, which is industrially produced in the Solvay process according to 2  $NaCl + CaCO_3 --> Na_2CO_3 + CaCl_2$ , can be found in the ash of many plants.

sodium Natrium, das (chem.)

Acronym (engl.): Na Acronym (dt.): Na

Sodium has a cubic body centered crystal structure and melts at 98°C.

(chem.)

sodium dodecyl Natriumlaurylsulfat, das;

sulphate Natriumdodecylsulfat, das

Acronym (engl.): SDS, NaDs

Acronym (dt.): SDS

NaC<sub>12</sub>H<sub>25</sub>SO<sub>4</sub>; SDS is an anionic surfactant used in many cleaning agents.

sodium hydroxide Natriumhydroxid, das (chem.)

Acronym (engl.): NaOH Acronym (dt.): NaOH

Sodium hydroxide, which can be bought as pellets, is deliquescent if exposed to air moisture. Also, it will absorb  $CO_2$  and therfore has to be sealed for storage.

sodium hydroxide Natronlauge, die (chem.)

Acronym (engl.): NaOH Acronym (dt.): NaOH

Unlike NaOH, the hydroxides of most metals are insoluble in water, so sodium

hydroxide can be used to precipitate metal hydroxides.

sodium silicate, Wasserglas, das (chem.)

soluble glass,

water glass

An aquaeous solution of sodium metasilicate, Na<sub>2</sub>SiO<sub>3</sub>, is used in the "chemical

garden".

SOF (eng.)

Acronym/Abbreviation referral: see solar occultation flux

erweichen soften, to (chem.)

> Glass can be made from pure silica (SiO<sub>2</sub>), but fused silica has a high glass transition point of approx. 1200°C. The softening temperature of glass can be lowered, however, by adding lime (CaCO<sub>3</sub>) and soda (Na<sub>2</sub>CO<sub>3</sub>) before melting, to incorporate calcium and sodium oxide into the glass.

softener Weichmacher, der (chem.)

> Fabric softeners work by coating the surface of the cloth fibers with a thin layer of chemicals which act as lubricant and are electrically conductive, thus making the fibers feel smoother and preventing the buildup of static electricity. Typical softeners are based on quaternary ammonium salts with one or two long alkyl chains.

soil Boden, der (eng.)

> To determine the required length of the ground pillars, a soil investigation was performed.

solar occultation flux Verdeckung des solaren Strahlungsflusses, die (eng.)

Acronym (engl.): SOF

SOF is a method to quantify emissions from point sources such as volcanoes or industrial production plants.

Weichlöten, das soldering (eng.)

> For soldering, it is advantageous to use an eutectic alloy (e.g. 63% tin and 37% lead), because it is easier to obtain reliable joints.

solenoid Magnet-; Magnet, der (chem.)

The solenoid valve broke down.

solicitor Rechtsanwalt, der (jur.)

attorney, attorney-at-law (AE)

An attorney is knowlegdeable about the jurisdiction in his country.

solid fest; Feststoff, der (chem.)

Aerogels are the lightest known solids. Their density can be below 2 kg/m<sup>3</sup>.

solid solution Mischkristall, der (chem.)

In a solid solution, some atoms or molecules in a crystalline structure are partly

substituted without a change in the structure.

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solid state physics Festkörperphysik, die (chem.)

Electrical and thermal properties of condensed matter are described by solid

state physics.

solid state reaction Festkörperreaktion, die (chem.)

A solid-state reaction is a chemical reaction system in the absence of a solvent. Advantages can be easy purification, a high reaction rate and cost savings.

solid wood Vollholz – (eng.)

Furniture from solid wood is regarded as superior quality.

solidification Erstarrung, die (chem.)

Solidification usually starts at the surface, which is the coldest area.

solidify, to erstarren (chem.)

When a material starts to solidify, multiple crystals begin to grow in the liquid

to yield a polycrystalline solid.



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solubility Löslichkeit, die (chem.)

When added to water, ethanol can act as solubility enhancer for trichloroethylene, a substance which was widely used as a degreasing agent and that can now be

found in contaminated soil.

solute gelöster Stoff, der (chem.)

Glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>) is a solute in blood. The concentration of blood sugar is

between 4 and 6 mM (mmol/l).

solvent Lösungsmittel, das (chem.)

Acetone (CH<sub>3</sub>COCH<sub>3</sub>), the simplest ketone, is a polar, aprotic solvent (i.e. does

not release acidic hydrogen H<sup>+</sup>). It dissolves most plastics.

soot Ruß, der (chem.)

Soot is a byproduct of fuel-rich combustion processes.

sophisticated ausgeklügelt (general)

He has developed a sophisticated formula to predict the yield of his reaction.

soundproofing Schalldämmung, die; Lärmschutz, der (eng.)

Soundproofing can be achieved by noise reduction and noise absorption.

source Quelle, die (general)

She forgot to quote the source of her information.

space group Raumgruppe, die (chem.)

There are 230 space groups to describe all possible crystal symmetries.

spacer Distanzstück, das; Abstandshalter, der (chem.)

The patent is about a molecular spacer that is covalently bonded to the substrate.

spacing Abstand, der (chem.)

In hexa-tert-butyldisilane, the spacing between the 2 Si atoms is longer than in

any other silane.

spare part Ersatzteil, der (eng.)

For each critical process equipment, spare parts need to be kept on stock.

spark Funke, der (chem.)

A spark caused by static electricity can ignite several gases.

spark plug Zündkerze, die (eng.)

A spark plug is used in internal combustion engines working on the Otto

principle.

SPC (chem. eng.)

Acronym/Abbreviation referral: see statistical process control

speciality gas Spezialgas, das (chem. eng.)

specialty gases (AE)

The company sells over 30 speciality gases.

species Spezies, die (chem.)

CO, H<sub>2</sub>O and OH are species present in flames.

specific density, spezifische Dichte, die; relative Dichte, die (eng.)

relative density

The specific density (relative density) of a substance is the ratio of its density to

that of a given reference material, for instance air or water.

specific gravity, spezifisches Gewicht, das; relatives Gewicht, das (eng.)

relative gravity

Aluminium has a specific gravity of 2.7, so it is 2.7 times as dense as water. Lead

has a specific gravity of 11.35, so it is 11.35 times as dense as water.

**specifications** Spezifikationen, die (econ.)

The technical specifications of the plant were derived from laboratory

experiments.

specifications, Pflichtenheft, das (econ.)

product requirement specifications

The supplier handed over the draft of his product requirement specifications to

the client for review.

specifications, Lastenheft, das (econ.)

specification sheet,

functional specification, customer requirement specifications

The specifications were based on the input of 2 engineers.

specimen Probe, die; Testkörper, der (chem.)

The specimen was characterized by its emission spectrum.

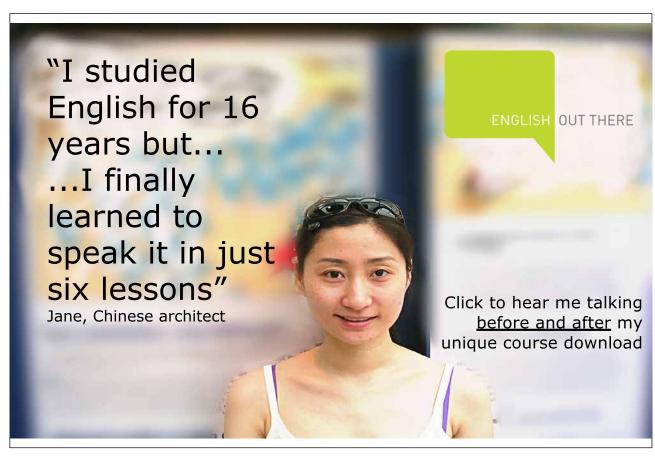
specs. (econ.)

Acronym/Abbreviation referral: see specifications (short form for ~)

spectrometry Spektrometrie, die (chem.)

Mass spectrometry is a sensitive technology to determine the mass/charge ratio

of sample (fragments).





spectroscopy Spektroskopie, die (chem.)

In spectroscopy, the interaction of light with matter is measured as emission,

absorption or scattering in order to gain information on the sample.

speed Geschwindigkeit, die; Drehzahl, die (eng.)

The speed of ships is commonly stated in knots.

**speed of sound** Schallgeschwindigkeit, die (eng.)

The speed of sound in water and in steel is approx. 1,500 and 4,500 m/s,

respectively.

sphere Kugel, die (sci.)

A sphere has a minimum surface/volume ratio.

splash proof spritzwassersicher (eng.)

Splash proof equipment is classified as IP54. The IP Code (International Protection Rating, Ingress Protection Rating) is an international standard that describes the degree of protection provided against the intrusion of solid objects,

dust and water into electrical enclosures.

splash water Spritzwasser, das (eng.)

When manual cleaning is performed in a plant, all electrical equipment must

be protected against splash water.

splash, to spritzen (eng.)

Protective goggles avoid harm to the eyes from aggressive liquid splashes.

splice, to verbinden, spleißen, zusammenfügen (eng.)

The technician spliced the two cables.

spoke Speiche, die (eng.)

Spokes can be made of different materials, depending on whether they have to withstand tension (e.g. bicycle wheel) or compression (horse carriage wheel).

spool Spule, die; Rolle, die (eng.)

The solenoid spool was malfunctioning.

**spoonful** einen Löffel voll (*chem.*)

She added a spoonful of pigment to the mixture.

spotting test Tüpfelprobe, die (chem.)

The spotting test for Mo (Molybdenum) in CrNi steel can tell the materials

1.4401 and 1.4571 apart.

spray, to sprühen, spritzen (eng.)

A protective coating was sprayed onto the conveyor belt.

spreadsheet Tabellenblatt, das (eng.)

The assistant prepared a spreadsheet with all costs.

spring Feder, die (eng.)

A spring is described by Hook's law.

**sprinkle, to** bespritzen, bestreuen, berieseln (*chem.*)

He sprinkled the surface with powder.

spruce Fichte, die (general)

Spruce, an evergreen tree, is amongst the most important woods for paper

manufacture.

square with rechtwinkelig zu (eng.)

The warehouse is sited square with the main road.

staff Belegschaft, die (econ.)

The staff was invited to visit the customer.

staggered gestaffelt (eng.)

The student drew the alkane in staggered conformation in Newman projection.

**stagnant** stillstehend, unbewegt (general)

The nearly stagnant flow was observed.

stainless rostfrei (chem.)

Stainless steel is used in all equipment that is directly exposed to the product.

stand pipe, Steigrohr, das (eng.)

**standpipe** A standpipe was installed to wash the silos.

standard deviation Standardabweichung, die (sci.)

Acronym (engl.):  $\sigma$ Acronym (dt.):  $\sigma$ 

In case of a Gaussian distribution, 66% of all values fall within the mean +/- 1

standard deviation.

standard temperature Normalbedingungen, die (chem. eng.) and pressure

Acronym (engl.): STP Acronym (dt.): NTP

The current version of IUPAC's definition of STP is a temperature of 0°C (273.15

K, 32 °F) and an absolute pressure of 100 kPa (14.504 psi).

stannous zinnhaltig, Zinn, das (chem.)

Acronym (engl.): Sn Acronym (dt.): Sn

Stannous fluoride (tin(II) fluoride) is a common ingredient in toothpaste,

because it converts apatite into fluoroapatite in the enamel.





starboard Steuerbord (eng.)

Starboard is the right side of a ship (green navigation light). The left side is

referred to as port (red navigation light).

starch Stärke, die (chem.)

The carbohydrate starch  $(C_6H_{10}O_5)_n$ ) is a polysaccharide. It is a polymer of glucose monosaccharide joined together by glycosidic bonds. Starch has 2 components: amylose (linear polymer of glucose) and amylopectin (highly

branched polymer of glucose).

start up, to anfahren; Anfahren, das (chem. eng.)

**start-up** Starting up a cracker can take several days.

starting torque Anlaufmoment, das (eng.)

The extruder was heated to 240°C to lower the starting torque.

state of matter Aggregatzustand, der (chem.)

Plasma is the fourth state of matter.

state of the art, Stand der Technik, der (eng.)

**state-of-the -art** In patent law, the state of the art or "prior art" is the starting point to assess the

novelty of an invention.

state variable Zustandsvariable, die (chem. eng.)

State variables (state parameters, thermodynamic variables) describe the momentary condition of a thermodynamic system. Examples are pressure,

temperature, mass, density, entropy and enthalpy.

state friction Haftreibung, die (eng.)

The coefficient of static friction between steel and steel was determined as 0.8

in case of dry surfaces and as 0.3 in the presence of a thick oxide layer.

**statistical process** statistische Prozesskontrolle, die (chem. eng.)

Acronym (engl.): SPC

control

Using SPC tools, the product quality could be improved significantly.

steam Wasserdampf, der; Dampf, der (chem.)

Plants that have oversized boilers and steam distribution systems should

investigate a steam pressure reduction in order to save energy.

steam boiler Dampfkessel, der (chem. eng.)

Steam boilers fall under the pressure vessel directive and therefore have to meet

certain minimum requirements.

steam engine Dampfmaschine, die (eng.)

A steam engine can convert heat from almost any source into mechanical work. Without steam condensation, the efficiency is on the order of 1-10% (historic steam locomotives) compared to 85-90% for power plants that use steam in

cogeneration.

**steam reforming** Dampfreformieren, das (chem. en g.)

In steam reforming, the following endothermic reaction takes places:  $C_nH_{2n+2}$ +

 $nH_2O --> nCO + (2n+1)H_2$ .

steel Stahl, der (chem.)

Steel is an alloy consisting mostly of iron, where the carbon content lies between 0.2% and 2% by weight. In 2004, the global steel production surpassed 1 billion

tonnes/year.

steel refining Stahlfrischen, das (chem. eng.)

During steel refining, vacuum can be applied to remove unwanted gaseous

components such as hydrogen before further processing.

steel wool Stahlwolle, die (eng.)

Because of its high surface area, steel wool can be ignited with a lighter.

**steelmaking** Stahlproduktion, die (eng.)

Some people say that steelmaking is more an art than a science.

steelmaking plant Stahlwerk, das (eng.)

The profitability of a steelmaking plant is driven by its production costs.

STEL zulässige Kurzzeitbelastung, die (chem.)

Acronym/Abbreviation referral: see Short Term Exposure Limit

stencil Schablone, die (eng.)

The labelling of the silos was done with a stencil.

sterilise, sterilize, to keimfrei machen, sterilisieren (pharm.)

sterilize, to (AE)

Ultraviolet light was used to sterilize (i.e. to completely eliminate all

microorganisms) the tools.

STEV zulässige Kurzzeitbelastung, die (chem.)

Acronym/Abbreviation referral: see STEL

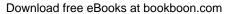
sticky klebrig (chem.)

The first adhesives were natural sticky substances such as plant resins or saps.

stimulant analeptisch, stimulierend, Stimulant (pharm.)

Caffeine  $(C_8H_{10}N_4O_2)$  and nicotine  $(C_{10}H_{14}N_2)$  are two common stimulants.







stirrer tank, Rührkessel, der (chem. eng.)

stirrer vessel, stirred tank,

stirred vessel

The key process variables of the stirrer tank (residence time, volume, temperature, pressure, species concentrations and heat transfer coefficients) were specified in the kick-off meeting.

stock solution Stammlösung, die (chem.)

A stock solution is generally a concentrated solution which will be diluted for actual use. Their use helps to save preparation time and storage space. Also, they can improve the accuracy of an analysis.

stock(s) Aktie(n), die (econ.)

At company A, employees are entitled to free stock.

stockpile Halde, die; stapeln (chem.)

The sulphur stockpile was ready for transportation.

stoichiometric stöchiometrisch (chem.)

The air/fuel eqivalence ratio lambda is 1 for a stoichiometric mixture.

stop valve Absperrhahn, der; Absperrventil, das; Absperrarmatur, die (chem. eng.)

The stop valve was designed for a pressure of 100 bar.

stopcock Absperrhahn, der (chem. eng.)

The stopcock made from glass did not move any more, because the sodium

hydroxide had reacted with the glass to form sodium silicate.

stopper Stopfen, der (pharm.)

He used a ground glass stopper to temporarily seal the flask.

stopper plug Stöpsel, der (chem.)

The stopper plug in the drain was not tight any more due to corrosion.

**stopping device** Arretiervorrichtung, die (chem.)

He placed a stopping device in front of the door to prevent it from closing.

storage Lagerung, die (general)

The storage of combustible material has to meet certain regulations.

stove Ofen, der; Zimmerofen, der (chem.)

In order to store the heat, the stove was surrounded by soapstone.

STP (chem.)

Acronym/Abbreviation referral: see standard temperature and pressure

strainer Abscheider, der; Schmutzfänger, der (eng.)

The strainer was blocked with rust particles.

streak Schliere, die (general)

She carefully tried to remove the streaks from the lens.

strength Stärke, die (eng.)

The strength of the connection was overestimated.

stress mechanische Beanspruchung, die (eng.)

In material science, stress can be defined as the average amount of force exerted

per unit area (SI unit: Pa).

stress cycle Lastwechselfolge, die (eng.)

She investigated the effect of stress cycle frequency upon fatigue and corrosion

of the alloy.

stress strain curve Spannungs -Dehnungskurve, die; Kraft-Dehnungskurve, die (eng.)

The stress strain curve of a material shows the relationship between stress (based on the applied force), and strain (derived from the deformation of the sample such as elongation, compression or distortion). Ductile and brittle materials

behave differently.

stress whitening Weißbruch, der (chem. eng.)

The formation of white areas in a deformation process of a polymer article, created by microvoids in the material, is called stress whitening. It is especially

critical for polypropylene.

stretch, to dehnen, recken (eng.)

The rubber ribbon was stretched until it tore.

strip chart Meßstreifen, der (chem.)

The housewife used a stripchart to determine the hardness of her water.

strip, to abreichern (chem.)

By steam stripping, polycyclic aromatic hydrocarbons (PAH) can be removed

from harbor soils.

stroke Takt, der (eng.)

The car has got a 4 stroke engine.

structural change Gefügeänderung, die (chem.)

The metastable phase underwent a structural change when it was heated.

stud Bolzen, der; Gewindebolzen, der; Dübel, der (eng.)

The mechanic was looking for a suitable stud.

study Studie, die (general)

A feasibility study typically ends up at a cost estimation of  $\pm$ 40%.





stuff Dinge, die (ugs.) (general)

Foodstuff production has to follow several strict regulations.

**stupor** Stupor, der; Benommenheit, die (med.)

Vitamin D deficiency can cause stupor.

**subcontractor** Unterauftragnehmer, der (econ.)

The work of subcontractors is difficult to assess.

submarine U-Boot, das (eng.)

On submarines, CO, has to be filtered out of the air.

submerged unter Wasser (eng.)

After the heavy rainfalls, parts of the cellar were submerged in water.

submersible pump Tauchpumpe, die (chem. eng.)

A submersible pump is a pump which has a hermetically sealed motor.

subsidiary Tochterunternehmen, das (econ.)

Foreign subsidiaries are often controlled by the headquarters.

subsidy Subvention, die; Zuschuss, der; Beihilfe, die (econ.)

Extensive subsidies were granted for companies who decided to move to the

region.

substance Stoff, der (chem.)

To the over 81 million organic and inorganic chemical substances that have a CAS Registry Number (CASRN), approx. 4,000 new substances are added every

day.

substation Schaltanlage, die; Umspannwerk, das (eng.)

The substation was placed next to the production hall.

succinic acid Bernsteinsäure, die (chem.)

Succinic acid, a dicarboxylic acid, has the formula C<sub>4</sub>H<sub>6</sub>O<sub>4</sub>.

succussion Erschütterung, die (pharm.)

"Dynamisation" or "potentisation" is a process used by homeopaths whereby a remedy is diluted with alcohol or water and then vigorously shaken by ten hard

strikes against an elastic body, which is called "succussion".

suck off, to absaugen (eng.)

In welding processes, fumes have to be sucked off.

suction filter, Nutsche, die; Büchnertrichter, der (chem.)

Büchner funnel, Buechner funnel

A Büchner funnel is used for suction filtration with a piece of filter paper as

filter medium.

suction pressure Saugdruck, der (eng.)

The pump can provide a suction pressure of 200 mbar.

sulfuric acid Schwefelsäure, die (chem.)

The largest fraction of the more than 150 million tonnes/year of sulfuric acid that are produced worldwide is used for ore processing and fertilizer manufacturing.

sulphur Schwefel, der (chem.)

sulfur (AE)

Acronym (engl.): S Acronym (dt.): S

Thioethers (R-S-R') are the sulfur equivalents of ethers (R-O-R'). While ethers are relatively stable, thioethers are easily oxidized to the sulfoxides (R-S(=O)-

R'), which can be further oxidized to sulfones  $(R-S(=O)_2-R')$ .

**sundry costs** diverse Kosten, die; sonstige Kosten, die (*econ.*)

The cost estimation did not consider sundry costs.

superconductor Supraleiter, der (sci.)

Transformers, power storage devices, magnetic levitation devices and motors

are promising future applications of superconductors.

supercooled unterkühlt (chem.)

Water can be supercooled to -42°C.

supercritical überkritisch (chem.)

CO<sub>2</sub> behaves as a supercritical fluid above its critical temperature of 31.1°C and its critical pressure of 72.9 bar. When used as a solvent, supercritical CO<sub>2</sub> does

not denature most substances due to the low temperatures involved.

superficial oberflächlich (general)

He took a superficial look at the article.

superfund (AE) US-Gesetz zur Beseitigung von Umweltschäden, das (chem. eng.)

Superfund is the common name for CERCLA (Comprehensive Environmental

Response, Compensation, and Liability Act).

superheated überhitzt (chem.)

Superheated water is liquid, pressurized water at temperatures between the

boiling point (100°C) and the critical temperature (374°C).

superheated steam überhitzter Dampf, der (chem.)

Superheated steam and liquid water cannot coexist under thermodynamic

equilibrium.



superheater Überhitzer, der (eng.)

A superheater in a boiler increases the capacity of the plant and reduces the

steam consumption of the steam turbine.

supernatant obenstehend; Überstand, der (chem. eng.)

Traces of mineral oil were discovered in the supernatant.

supersaturate, to übersättigen (chem.)

Both liquids and gases can become supersaturated. An example are scuba divers' tissues that become supersaturated with  $\rm N_2$ . If the divers ascend too fast, the  $\rm N_2$ 

forms bubbles, resulting in decompression sickness.

supersonic überschall- (eng.)

The Concorde was a commercial supersonic jet.

supplier Lieferant, der (econ.)

Suppliers, customers, shareholders and employees are some of the relevant

stakeholder groups of a corporation.

supply line, supply Vorlauf, der (chem. eng.)
pipe, feed, forerun

The supply line was manufactured from stainless steel.

suppository Zäpfchen, das (pharm.)

Suppositories can be based on a greasy substance such as cocoa butter, in which the active ingredient and other excipients are dissolved. They can also be made from a water soluble base such as polyethylene glycol (PEG). Suppositories are

used for rectal administration.

surface Oberfläche, die (chem.)

SERS (surface enhanced Raman spectroscopy) is a technique to gain information

about the surface of a sample.

surface mining Tagebau, der (eng.)

In contrast to underground mining, all overburden (overlying rock and soil) has to be removed in surface mining. Surface mining is necessary for materials

that do not allow tunneling such as sand or gravel.

surface tension Oberflächenspannung, die (eng.)

It is surface tension and not buoyancy that prevents a water strider from sinking.

survey Untersuchung, die; Umfrage, die; Befragung, die (general)

She did not participate in the survey because she felt that she would not stay

anonymous.

susceptible anfällig (general)

Steel under water is susceptible to corrosion.

suspension point Aufhängepunkt, der (eng.)

The suspension point was chosen to balance the load.

sustainable nachhaltig (general)

The engineer did not consider the work instruction for operators a sustainable

solution to prevent the incident from reoccurring.

sweetener Süßstoff, der (pharm.)

Aspartame (Aspartyl-phenylalanine-1-methylester) is an artificial sweetener. The compound is a methyl ester of the dipeptide of aspartic acid and phenylalanine, 2 amino acids. Phenylalanine is an a-amino acid with the formula  $HO_2CCH(NH_2)$ 

CH<sub>2</sub>C<sub>6</sub>H<sub>5</sub>.

switch Schalter, der (eng.)

The woman activated the switch.

swivel arm Schwenkarm, der (eng.)

The swivel arm proved to be a major improvement.

synthesis Synthese, die (chem.)

The dream of many organic chemists is the synthesis of a new blockbuster drug.

**synthon** Synthon, das; Synthesebaustein, der (*chem.*)

Carbon dioxide, carbon monoxide and cyanide are C1 synthons. Acetylene and

acetaldehyde are C2 synthons.

syringe Spritze, die (pharm.)

A glass syringe can be used to inject small samples (1-10 μl) into a gas

chromatograph or mass spectrometer.

T&C (econ.)

Acronym/Abbreviation referral: see general terms and conditions

T&G (eng.)

Acronym/Abbreviation referral: see tongue and groove

TA (chem.)

Acronym/Abbreviation referral: see turnaround

tablet Tablette, die (pharm.)

A tablet is a mixture of active substances and excipients (e.g. binders, flavours,

pigments) compressed to a small solid.

tabular tafelförmig (eng.)

Talc is composed of tabular particles.

tag Aufkleber, der; Etikett, das; Bezeichnungsschild, das; Tag, der (chem. eng.)

In a chemical plant, a tag is a unique code defining the location and function

of a physical component in an installation.





tagging Kennzeichnung, die; Identifizierung, die (chem. eng.)

The project team started tagging of the plant.

tail fin Schwanzflosse, die; Heckflosse, die (eng.)

Airlines have their logos painted on the tailfins of their aircraft.

tailrace Unterwasser, das; Unterwasserkanal, der (eng.)

The race bringing water to the water wheel is called headrace. The one carrying

water away from the wheel is the tailrace.

talc Talk, der; Talkum, das (chem.)

In plastics compounds, talc influences the shrinkage behaviour of the product.

tamper proof seal Entnahmesicherung, die (pharm.)

A tamper proof seal on a tablet packaging prevents unnoticed opening.

tamper-resistant manipulationssicher, fälschungssicher (pharm.)

Packages which cannot be resealed are considered tamper-resistant.

tantalum Tantal, das (chem.)

Acronym (engl.): Ta Acronym (dt.): Ta

Unlike gold, tantalum is not dissolved by aqua regia.

tap Hahn, der (eng.)

The water tap was dripping for months before it was repaired.

tapped coil Abzweigspule, die; Anzapfspule, die (eng.)

The transformer has 2 tapped coils made of copper.

tapped hole Gewindeloch, das (eng.)

The tapped hole was suitable for M6 bolts.

tar Teer, der (chem.)

Tar is obtained by destructive distillation of organic matter such as coal, petroleum or wood, often as a byproduct. Destructive distillation is the process of pyrolysis carried out in a distillation apparatus where the volatile products

are collected and the tar remains in the bottom.

tar pitch Pech, das (chem.)

Pitch that is made from petroleum is called bitumen.

tare Tara, die (eng.)

The tare is the weight of an empty container, vessel or vehicle. Gross weight

minus tare = net weight (weight of the goods loaded).

tartaric acid Weinsäure, die (chem.)

Tartaric acid, which is one of the main acids in wine, is added to some foods as an antioxidant.  $C_4H_6O_6$  is chiral, meaning that it has molecules which cannot

be superimposed on their mirror-images.

task force Arbeitsgruppe, die (econ.)

The task force did not have a clear mandate.

tax Steuer, die (econ.)

Value added tax is between 10 and 30% in most countries.

TBR (chem. eng.)

Acronym/Abbreviation referral: see trickle bed reactor

TCO (econ.)

Acronym/Abbreviation referral: see total costs of ownership

technical technisch (eng.)

For technical reasons, the throughput was reduced.

technical guidelilne technische Richtkonzentration, die (chem.)

concentration

Acronym (dt.): TRK- Wert, der; TRK, die

The technical guidance concentration for butadiene is 5 ppm.

technician Techniker(in), der (die) (eng.)

The technican could fix the problem with the transducer easily.

technique Technik, die (eng.)

Filtration is a widespread sample purification technique.

**technology** Technologie, die (eng.)

Wireless communication is an emerging technology.

tee T-Stück, das (general)

A legal golf tee must not be longer than 4 inches (~102 mm), and it must not

indicate the line of play or influence the movement of the ball.

telemetry Fernmessen, das; Telemetrie, die (eng.)

Telemetry is used in industrial production plants.

temper, to tempern (eng.)

Like annealing, tempering is a heat treatment technique for metals and alloys. Steel can be tempered to render it more tough by transforming brittle martensite

into bainite or a combination of ferrite and cementite.

template Vorlage, die (general)

Using a template can save a considerable amount of time.

**temporary** befristet, temporär, kurzzeitig (general)

The temporary work permit was already expired.

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tender Gebot, das; Angebot, das (nach einer Ausschreibung) (econ.)

After the invitation to bid, 5 tenders were received.

tendering, call for bids Ausschreibung, die

The tendering (call for bids) process took 3 months.

tensile dehnbar, zugbeanspruchbar (eng.)

The instrument measures tensile deformation.

tension Spannung, die (eng.)

Tension, the pulling force exerted by a cable or chain, is measured in Newton, the SI unit of force  $[kgm/s^2]$ . It always acts parallel to the string by which it is

(econ.)

applied.

teratogenic teratogen, reproduktionstoxisch, reprotoxisch, (med.)

fortpflanzungsgefährdend, fruchtschädigend

The following chemicals are known or suspected teratogenic substances: 1,3-butadiene, cadmium oxide, ethyl benzene, ethylene glycol, and styrene.

**terpolymer** Terpolymer, das; Terpolymerisat, das (*chem.*)

A terpolymer consists of polymer chains composed of three distinct monomers such as vinyl chloride (CH<sub>2</sub>=CHCl), vinyl acetate (CH<sub>3</sub>COOCH=CH<sub>2</sub>) and

maleic acid (COOH -CH=CH-COOH).

test piece Prüfkörper, der (eng.)

Test pieces that were produced under varying conditions will distort the results.

test tube Reagenzglas, das (chem.)

Test tubes can be found in most laboratories.

tetrahedron Tetraeder, das (chem.)

A tetrahedron is a triangular pyramid with a dihedral angle of 70.53°. It is

composed of 4 triangles.

tetravalent vierwertig (chem.)

Carbon is a tetravalent atom.

thaw, to auftauen (chem.)

If the Russian permafrost soil started to thaw, methane would be liberated. Permafrost is defined as soil at or below the freezing point of water

(0°C, 32°F) for at least two years.

theoretical plate theoretischer Boden, der (chem. eng.)

In order to improve the separation, the number of theoretical plates in the

column should be increased.

theory Theorie, die (sci.)

A good theory describes a model which is derived from experimental data.

thermocouple Thermoelement, das (eng.)

The thinner a thermocouple is constructed, the faster its response time can be.

thermoplastics Thermoplaste, die (chem.)

Thermoplastics are polymeric materials without crosslinking. They can be brought into a defined shape in the liquid state (melt) by e.g. injection moulding

or extrusion.

thermoset Duromer, das (chem.)

Thermosets are crosslinkable or crosslinked polymeric materials that, unlike

thermoplastics, cannot be formed in the molten state.

thermowell Schutzrohr, das; Wärmesonde, die (eng.)

A temperature sensor sitting in a thermowell generally has a slower response

than an in-situ temperature sensing device.

thesis Dissertation, die (sci.)

He wrote a cumulative thesis composed of 8 journal articles.

thickening Eindicken, das (chem.)

In cooking, starch is a common thickening agent. Starch, a carbohydrate with

the formula  $(C_6H_{10}O_5)_n$ , is a polysaccharide.

thin fluid, low dünnflüssig (chem.)

viscosity The viscosity of water at 20°C is 1×10<sup>-3</sup> Pa·s. Compared to glycerol (viscosity

of 1.5 Pa·s), water is a low viscosity liquid. The study of viscosity is known as

rheology.

thread Gewinde, das; Faden, der (eng.)

The droplet was suspended on a thin thread.

thread gauge Gewindelehre, die (eng.)

The thread gauge did not fit, because it belongs to a different standard.

three way stopcock Dreiwegehahn, der (chem.)

He could not find a supplier for a three way stopcock made from Teflon™.

three way valve Dreiwegeventil, das; Dreiwegehahn, der (chem. eng.)

Three-way valves have three ports.

threshold Schwelle, die (eng.)

Below the threshold current, a laser does not emit light.



threshold limit value, zulässige Höchstbelastung, die; TLV-Wert, der maximum allowable concentration

(chem.)

Acronym (engl.): TLV

TLV is the airborne concentration of a substance below which no adverse effect in people is observed. One can distinguish between

- TLV-C (ceiling limit, concentration that should not be exceeded even instantaneously).
- TLV-STEL (short term exposure limit, maximum concentration for a continuous 15-minute exposure period).
- TLV-TWA (time-weighted average, concentration for a normal 8-hour work day or 40-hour work week).

threshold value Schwellenwert, der (eng.)

The threshold value that the oxygen sensor can detect is 0.5%.

throat lozenge Hustenbonbon, das (pharm.)

A throat lozenge is a small, medicated candy to soothe irritated tissues of the throat, e.g. from an influenza.

throttle, to drosseln (eng.)

In order to slow down the polymerization reaction, the feed of the catalyst was throttled.

through-hole Durchgangsbohrung, die (eng.)

In contast to a blind hole, a through-hole goes all the way through the substrate.

throughput Durchsatz, der; Ausstoß, der (chem. eng.)

The throughput of the plant was limited by the raw material conveying.

thrust Schub, der (eng.)

The thrust of the engine is 135 kN.

tie rod Zugstange, die; Verbindungsstrebe, die (eng.)

The spokes of bicycle wheels are tie rods.

tie-in point Einbindepunkt, der (chem. eng.)

The tie-in points for cooling water and instrument air were not shown on the

layout diagram.

**tighten, to** festziehen, abdichten (*eng.*)

Screws on vibrating machinery have to be tightened from time to time.

tile Fliese, die (eng.)

Tiles break easily when there is a cavity below them.

tilted geneigt (eng.)

The water ran down the tilted board.

Time Weighted Durchschnittswert, der (chem.)

**Average** Acronym (engl.): TWA

TWA is the average amount of an agent's concentration over a specified period

of time, usually 8 hours.

tin Zinn, das (chem.)

Acronym (engl.): Sn Acronym (dt.): Sn

Tin (atomic number 50) is the element with the greatest number of stable

isotopes (ten). There are 28 additional unstable isotopes.

tin can, tinned can Weißblechdose, die (eng.)

A tin can combines the physical strength and relatively low price of steel with the corrosion resistance of tin. Similar properties can be reached by aluminium,

though.

tin pest Zinnpest, die (chem.)

Below 13.2 °C, pure tin transforms from the allotrope of white tin (ß-modification, ductile) to grey tin ( $\alpha$ -modification, brittle). Eventually, it

decomposes to powder, which is known as tin pest.

tissue Gewebe, das (eng.)

Tissue paper is a special thin, translucent paper that is used for wrapping various

items.

titer Titer, der; Normalfaktor, der (chem.)

The titer deviated by 12% and had to be discarded.

titrimetric Urtiter, der (chem.)

**standard** Benzoic acid (C<sub>5</sub>H<sub>5</sub>COOH) was used as titrimetric standard.

TLV (chem.)

Acronym/Abbreviation referral: see threshold limit value

toe (eng.)

Acronym/Abbreviation referral: see tonne of oil equivalent

ton Tonne, die (eng.)

The chemicals were transported in a plastic ton.

tongue and groove, Nut und Feder, die (eng.)

key and slot

Acronym (engl.): T&G

Tongue and groove joints are common for fitting together boards of wood, e.g.

for a parquet floor.

tonnage Raumgehalt, der; Tonnage, die; Frachtraum, der (general)

Harbour dues are generally based on tonnage.





tonne of oil equivalent

Rohöleinheit, die

(eng.)

Acronym (engl.): toe Acronym (dt.): RÖE

The tonne of oil equivalent (toe) is a unit of energy: It corresponds to 41.87 GJ

or 11.63 MWh.

tonne, metric

Tonne, die (1000 kg)

(eng.)

tonne

Acronym (engl.): t, MT

Acronym (dt.): t

The tonne of trinitrotoluene (TNT, C<sub>6</sub>H<sub>2</sub>(NO<sub>2</sub>)<sub>3</sub>CH<sub>3</sub>, 2,4,6-Trinitrotoluene) is

used as a proxy for energy.

tool

Werkzeug, das

(eng.)

The workers had brought along their own tools.

toothed wheel

Zahnrad, das

(eng.)

The toothed wheel could withstand a torque of 500 Nm.

torque

Drehmoment, das

(eng.)

The engine has a torque of 50 Nm at 2,000 rpm.

total costs of

Gesamtkosten während des Lebenszyklus, die

(econ.)

ownership

Acronym (engl.): TCO

In an investment project, it is advisable to judge different vendors based on the

total costs of ownership of their equipment.

toxic

giftig

(chem.)

Botulinum toxin, a protein which is produced by the bacterium clostridium

botulinum, is one of the most toxic naturally occurring substances.

trace analysis

Spurenanalyse, die

(chem.)

In trace analysis, detection limits below 1 µg/kg (1 ppb) can sometimes be

achieved.

trace constituent

Spurenbestandteil, der

(chem.)

Ozone (O<sub>3</sub>) is a trace constituent of the atmosphere.

trade fair Messe, die (eng.)

A trade fair is a good opportunity to get an overview about competitors.

trademark Handelsmarke, die; Schutzmarke, die (econ.)

Trademark infringements can lead to serious legal action.

trailer Anhänger, der (econ.)

A trailer is generally an unpowered vehicle pulled by a powered vehicle.

transducer Messumwandler, der; Messumformer, der; Signalumwandler, der (eng.)

A transducer is an electric or electronic device that transforms energy from one

manifestation into another, e.g. pressure into a current signal.

transesterification Umesterung, die (chem.)

Transesterification is the process of exchanging the alcohol group of an ester by a different one according to: R'OH+R'COOR --> R'OH+R'COOR. The process is used in the synthesis of polyesters, in which diesters undergo transesterification with diols to form macromolecules. For example, dimethyl terephthalate and ethylene glycol react to form polyethylene terephthalate (PET) and methanol

(CH<sub>3</sub>OH).

transient kurzlebig (chem.)

Radicals are transient species.

transition metal Übergangsmetall, das (chem.)

Many interesting properties of the transition metals are the result of their partly

filled d subshells.

**translucent** durchscheinend (eng.)

Thin metal films are translucent.

transmission Übertragung, die (eng.)

Power transmission at high voltage is associated with lower losses than at

medium voltage.

transmission gear Übersetzungsgetriebe, das (eng.)

The transmission gear accounts for 25% of the total weight of his car.

**transmitter** Fühler, der; Geber, der; Messwertgeber, der (eng.)

The pressure transmitter seemed to be defect.

transshipment, Umladung, die (econ.)

transhipment

Negotiations about a new transshipment center in China failed.

trial Versuch, der (eng.)

The trials did not prove his theory.

triangular file Dreikantfeile, die (eng.)

To finish the corners, she used a triangular file.

trickle bed reactor Rieselbettreaktor, der (chem. eng.)

Acronym (engl.): TBR

A TBR is a three-phase reactor that consists of flow of liquid and gas with a fixed bed of catalyst. It is often used in the petroleum industry for hydroprocessing

of oils.





tripod Dreibein, das (eng.)

The photographer was looking for his tripod.

tripotic dreiprotonig (chem.)

Citric acid (2-hydroxypropane-1,2,3-tricarboxylic acid, C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>) is a weak

organic acid. It is triprotic.

**trituration** Zerreibung, die (pharm.)

Trituration, a process in homeopathy, is the grinding of powders in a mortar

with a pestle.

trityl Trityl, das (chem.)

In organic chemistry, a trityl group is a triphenylmethyl group Ph<sub>2</sub>C (example:

triphenylmethyl chloride = trityl chloride).

troy ounce Feinunze, die (eng.)

Acronym (engl.): ozt, oz (tr)

One troy ounce (ozt) weighs 31.10g, which is approx. 10% more than the

avoirdupois ounce (oz), which is 28.35 g.

truncated cone Kegelstumpf, der (sci.)

The foundation of the building looks like a truncated cone.

tubular heat exchanger Rohrbündelwärmeaustauscher, der (chem. eng.)

The tubular heat exchanger could be cleaned faster than the previously installed

plate heat exchanger.

tungsten Wolfram, das (chem.)

Acronym (engl.): W Acronym (dt.): W

Of all pure metals, tungsten has the highest melting point with 3422°C.

turbid trüb (eng.)

The solution is passed through a filter to remove the turbid appearance.

turbulence Wirbel, der; Turbulenz, die (eng.)

The Reynolds number describes the transition from a laminar to a turbulent

flow.

turn key, turnkey schlüsselfertig (chem. eng.)

A turn key installation of a (chemical) plant is a lump sum contract under which the contractor engineers, delivers and installs the facility until it is ready

for operation.

turnaround, der; Abschaltung, die; Shutdown, der; Revision, die (chem. eng.)

Acronym (engl.): TA

A turnaround is a scheduled stop of a plant for maintenance purposes. The plant is brought to a safe status, including making it gas -free to allow work in

relevant areas.

**turnbuckle** Spannschraube, die; Kettenspanner, der; Spannvorrichtung, die (eng.)

A turnbuckle is a device for adjusting the tension or length of ropes and cables.

turnover Umsatz, der (econ.)

The company's turnover quadrupled within 2 years.

turnover rate Lagerumschlagszeit, die (econ.)

The turnover rate could be accelerated from 40 to 25 days.

turnstile Drehkreuz, das (general)

A turnstile cannot be used as an emergency exit.

tuyère Windform, die; Blasdüse, die (chem. eng.)

Blast furnaces have several tuyères through which the hot blast is injected into the furnace. Tuyères are usually made from copper (melting point 1084°C) and

cooled by a water jacket.

TWA (chem.)

Acronym/Abbreviation referral: see Time Weighted Average

tweezers Pinzette, die (sci.)

The scientist carefully picked up the sample with his tweezers.

**twenty-foot container,** 20 Fuss Container, der

(eng.)

20-ft container

The capacity of a container ship is measured in Twenty-foot Equivalent Unit (TEU), which is the number of standard 20-foot containers that it can carry. One 20-ft container measures  $20 \times 8.0 \times 8.5$  feet  $(6.1 \times 2.4 \times 2.6 \text{ m}^3)$ . Most containers used today measure 40 feet (12 metres) in length.

twist Drall, der

(eng.)

An inlet valve is designed to give some twist to the gas entering the combustion

chamber.

UEL (chem.)

Acronym/Abbreviation referral: see upper explosive limit

UL (chem. eng.)

Acronym/Abbreviation referral: see Underwriters Laboratories

**unambiguous** eindeutig (general)

Asbestos was unambiguously proven to be a cancerogen.



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**unbreakable** bruchsicher (eng.)

Laboratory glassware made out of virtually unbreakable glass would be very

handy.

**undergraduate** Grundstudium- (sci.)

The lecture was easy to understand for undergraduate students.

**underground mining** Bergbau untertage, der (eng.)

Underground mining is carried out in depths exceeding 3,700 meters, for

instance in the Savuka gold mine in South Africa.

**underpressure** Unterdruck, der (eng.)

Silos are normally designed to withstand an underpressure of 10 mbar.

**Underwriters** Underwriters Laboratories (general)

Laboratories

Acronym (engl.): UL

UL is an American product safety testing and certification organization. It evaluates products and materials for compliance to specific requirements, and permits acceptable products to carry a UL certification mark, as long as they remain compliant with the standards. Such products are said to be "UL Listed".

UL in the US can be compared to the TÜV in Germany.

**undiluted** unverdünnt (*chem.*)

The student poured undiluted glycerine into the flask.

uniform einheitlich (general)

The company follows an engineering policy so that all plants have uniform safety

systems.

uninterrupted power unterbrechungsfreie Stromversorgung, die (eng.)

supply, uninterruptile

power supply

Acronym (engl.): UPS Acronym (dt.): USV

The UPS was designed to supply power for 15 minutes.

**union** Gewerkschaft, die (econ.)

Unions in Scandinavia are very powerful.

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unit Einheit, die (chem.)

The SI unit of length is meter (m).

unit operation Verfahrensschritt, der; Unit Operation (chem.eng.)

Mixing, crystallisation, adsorption and drying are unit operations.

United States United States Adopted Name

(pharm.)

**Adopted Name** 

Acronym (engl.): USAN Acronm (dt.): USAN

United States Adopted Names are unique nonproprietary names assigned to pharmaceuticals marketed in the United States. An example is paracetamol

(INN), which is called acetaminophen (USAN) in the US.

unload, to entladen, löschen (Ladung) (eng.)

The cargo was unloaded from the ship.

**unskilled worker** Hilfsarbeiter, der (general)

By following training courses, the unskilled worker qualified himself for a better

job.

**untight** undicht (eng.)

Untight pipelines can contaminate the environment.

**upmanning** Personalaufstockung, die (econ.)

The additional orders of the last months necessitated upmanning of the plant

by 10%.

upper explosion (chem.)

**limit** Acronym/Abbrevation referral: see upper explosive limit

**upper explosive limit** obere Explosionsgrenze, die (chem.)

Acronym (engl.): UEL Acronym (dt.): OEG

The UEL of hydrogen is ~77%.

**upright** senkrecht (eng.)

The steel structure was brought into an upright position.

UPS (eng.)

Acronym/Abbreviation referral: see uninterrupted power supply

**upstream** vorgelagert, vorgeschaltet, (chem. eng.)

flussaufwärts

Fractionated distillation occurs upstream of fuel blending.

urea Harnstoff, der (chem.)

Urea, NH, CONH, is used as a raw material for the production of melamine.

uric acid Harnsäure, die (chem.)

Uric acid, C<sub>5</sub>H<sub>4</sub>N<sub>4</sub>O<sub>3</sub>, is a heterocyclic compound.

USAN (pharm.)

Acronym/Abbreviation referral: see United States Adopted Name

USCSB (chem.)

Acronym/Abbreviation referral: see CSB



**used paper** Altpapier, das (general)

In many countries, used paper from households is collected and recycled.

**utilities** Betriebsmittel, die (chem. eng.)

Typical utilities in a plant are water, compressed air, nitrogen, electricity and

steam.

utility boiler Dampfkessel der Energieerzeuger, der; Dampfkessel, der (chem. eng.)

Utility boilers are used to produce steam.

value Wert, der (general)

The value reported by the lab confirmed the first analysis.

value creation Wertschöpfung, die (econ.)

In order to offer attractive products, the value creation of a company's customers

has to be understood.

value engineering Value Engineering, das; Wertanalyse, die (chem. eng.)

By value engineering, the process could be simplified and the investment costs

reduced by 5%.

valve Ventil, das (chem. eng.)

After the acquisition of the valve manufacturer, the quality of his parts improved.

valve seat Ventilsitz, der (eng.)

The valve seat is the surface against which the intake and exhaust valves of an

internal combustion engine rest.

valve, instrument Armatur, die (chem.)

The instruments were labelled.

vanilla pod Vanilleschote, die (chem.)

vanilla bean (AE)

Vanillin (4-hydroxy -3-methoxybenzaldehyde, C<sub>o</sub>H<sub>o</sub>O<sub>2</sub>) is contained in vanilla

pods.

vaporize, to verdampfen (chem.)

vaporise, to

vaporize, to (AE)

To vaporize a substance, the heat of vaporization (latent heat) has to be supplied.

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vapour Dampf, der (chem.)

vapor (AE)

Unrefined oil has a high vapour pressure due to the presence of substances like

propane.

vapour lock Dampfblasensperre, die; Dampfsack, der (eng.)

vapor lock (AE)

If normal diesel fuel is used in some aircraft engines instead of kerosene,

dangerous vapour locks in the fuel lines can occur.

vapour pressure Dampfdruck, der (chem.)

vapor pressure (AE)

According to Raoult's law, the vapor pressure of an ideal solution can be derived from the vapor pressure of each chemical component and the mole fraction of

the components present in the solution.

variable costs variable Kosten, die (eng.)

The target for this quarter was to cut the variable costs by 5%.

varnish Lack, der (chem.)

A varnish is a transparent, hard, and protective film applied to wood as a

protection from environmental effects.

vendor package Einheit des Lieferanten, die (econ.)

The air supply system should be bought as a complete vendor package.

**venom** Gift, das; Schlangengift, das (*chem.*)

The dose of a bee sting is approximately 0.1 mg of venom per "shot".

vent, to belüften, entlüften (chem. eng.)

The exhaust gases are vented outside the production hall.

ventilation Entlüftung, die; Belüftung, die (eng.)

In production halls, natural ventilation is generally not sufficient.

venting Entlüftung, die (chem. eng.)

Venting of explosion panels has to be directed towards unconfined space.

vertigo Schwindel, der; Schwindelgefühl, das (med.)

Formaldehyde can cause coughing, dyspnea, headache and vertigo.

vessel Gefäß, das (eng.)

The vessel was coated with enamel.

vial Gefäß, das; Fläschchen, das (pharm.)

The vial was filled with 100 ml of hydrochloric acid.

vice Schraubstock, der (eng.)

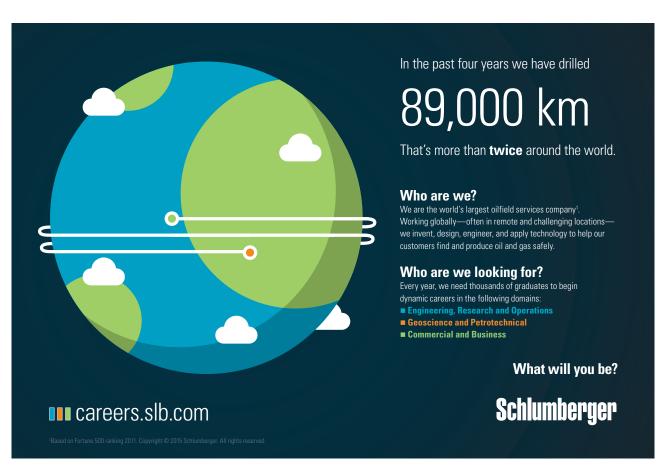
When it fell onto the floor, the vice left behind a big hole.

visbreak, to cracken, aufspalten (chem. eng.)

Peroxides can be used for the visbreaking of polymers.

visbreaking Cracken, das; Aufspalten der langkettigen (chem. eng.)

Kohlenwasserstoffe bei der Rohölraffinierung, das Visbreaking is an important process to obtain olefins.



303

viscous dickflüssig (eng.)

The reaction product was so viscous that it could hardly be removed from the

flask.

visible sichtbar (chem.)

Visible light ranges from approx. 400 nm (red) to 800 nm (blue).

visualisation Visualisierung, die; Anzeige, die (eng.)

visualization (AE)

The visualisation in the control room was overloaded with information.

vitiate, to verunreinigen (eng.)

The river was vitiated by various effluents.

vitiated air pipe Abluftrohr, das (eng.)

The vitiated air pipe was 15 m long.

VOC (chem.)

Acronym/Abbreviation referral: see volatile organic compounds

volatile flüchtig (chem.)

Hexane is more volatile than octane.

volatile organic flüchtige organische Verbindungen (chem.)

compounds

Acronym (engl.): VOC

Trees are an important biological source of VOC; it is known that they emit large amounts of VOC, especially isoprene (2-methyl-1,3-butadiene,  $C_5H_8$ ) and

terpenes  $((C_5H_8)_n)$ .

volumetric standard Urtiter, der (pharm.)

A volumetric standard has to be stored in a way that its concentration remains

constant.

vortex Wirbel, der; Strudel, der (eng.)

Directly downstream of the hydropower plant, strong vortices could be spotted

in the water.

WACC (econ.)

Acronym/Abbreviation referral: see weighted average cost of capital

wage garnishment Lohnpfändung, die (econ.)

He tried to avoid wage garnishment by selling his car.

warehouse Lager, das; Lagerhaus, das (econ.)

The insurance company insisted on an upgrade of the fire protection system in

the warehouse.

warpage Verzug, der; Wölbung, die (eng.)

Warepage is an undesired shape change of an injection-moulded article due to

anisotropic shrinkage during cooling down.

warranty Gewährleistung, die (econ.)

For new products, consumers get a warranty for 2 years.

wash bottle Waschflasche, die (chem.)

The wash bottle was used to remove liberated HCl from the reaction.

washer Dichtungsring, der; Beilagscheibe, die (eng.)

Washers are commonly used as spacers. Also, they distribute load more evenly.

waste heat Abwärme, die (chem. eng.)

Waste heat can be minimized by using cogeneration.

waste incineration Müllverbrennung, die (chem. eng.)

In a modern waste incineration plant, the flue gas treatment systems are more

complex than the plant as such.

waste water Abwasser, das (chem. eng.)

Wastewater is a collective term for any water which has been contaminated by

anthropogenic influence.

water gas Wassergas, das (chem.)

Water gas is a synthesis gas that contains carbon monoxide and hydrogen. It

can be produced by passing steam over red-hot coke.

water jet Wasserstrahl, der (chem.)

For water jet cutting, plain water jets and abrasive water jets that contain abrasive

particles can be used.

water level, spirit level Wasserwaage, die (eng.)

The bricklayer used a water level.

water repellent wasserabweisend (pharm.)

The wall was rendered water- repellent by a PVC coating.

water softening Wasserenthärtung, die (pharm.)

Citric acid (C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>) is used in soaps for water softening.

waterproof, watertight wasserdicht (chem.)

Standard concrete is not waterproof.

waterproofing Imprägnierung, die; Imprägnieren, das; Wasserabdichtung, die (eng.)

Waterproofing of the basement was achieved by applying an HDPE membrane

to the walls.

wave Welle, die (chem.)

Waves of electromagnetic radiation can travel through vacuum. They propagate

at the speed of light (299,792,458 m/s).

wave number Wellenzahl, die (chem.)

In contrast to the wavelength, the wave number is directly proportional to the energy of a photon. A wavelength of 10  $\mu m$  corresponds to a wave number of

1000 cm<sup>-1</sup>.

wavelength Wellenlänge, die (chem.)

Acronym (engl.):
Acronym (dt.):

An acoustic wave in air of 500 Hz has a wavelength of 0.68 m, travelling at 343

m/s (20°C).

wear and tear Verschleiß, der (eng.)

Wear and tear are excluded from vendor warranties.

weathering Verwittern, das (eng.)

Weathering has turned the wood surface to a greyish color.

wedge Keil, der (eng.)

The door was arrested with a wedge.

weighted average cost gewichtete durchschnittliche Kapitalkosten, die (econ.)

of capital

Acronym (engl.): WACC

The WACC is the minimum rate that a company needs to earn on its capital employed (which has different sources: debt and equity). It is the minimum return that a company must earn in order to satisfy its creditors (debt) and

owners (equity).

welding Schweißen, das (eng.)

To ensure a lasting connection, the steel pipes were welded together.

well Brunnen, der (eng.)

The landlord had the nitrate content in the water from his well measured.

wet steam Nassdampf, der (chem.)

Wet steam reduces the thermal efficiency of a steam engine.

wet, to benetzen (chem.)

A hydrophobic surface is non-wettable for water.

white collar worker Angestellter, der; Büroangestellter, der (econ.)

The fraction of white collar workers in his company is 35%.

wholesale customer Großhandelskunde, der (econ.)

Wholesale customers typically benefit from different payment terms than retail

customers.

winch Winde, die (eng.)

Winches are used on cranes.

window of opportunity Chance, die; Marktchance, die (econ.)

A window of opportunity for a certain product only exists for a limited period

of time.

wine cellars Kellerei, die (general)

CO<sub>2</sub> accumulation is a risk in wine cellars.

wing Flügel, der (eng.)

Wings provide lift to an aircraft.

wire gauze Drahtnetz, das (eng.)

The wire gauze was placed over the Bunsen burner.

wire mesh Drahtgeflecht, das (eng.)

A fine metal and nylon wire mesh can be used as a water filter.

wiring diagram, Schaltplan, der (eng.)

wiring scheme

The wiring diagram was printed on A3.

withstand, to standhalten (eng.)

Polypropylene (PP) can withstand higher temperatures than polyethylene (PE).

wood drill Holzbohrer, der (eng.)

A wood drill is not suitable for concrete.

work in the field, to im Außendienst tätig sein (econ.)

People working in the field need to have a driving licence.

workers' representative Betriebsrat, der (econ.)

Last year, the company elected a workers' representative.

workforce Belegschaft, die (econ.)

Our workforce is 50 men strong.

working experience, Arbeitserfahrung, die (general)

work experience

He has gained most of his working experience abroad.

write off, to abschreiben (econ.)

After the fire, the total inventory had to be written off.

year to date seit Jahresbeginn (econ.)

Acronym (engl.): YTD

After the fire, the total inventory had to be written off.

yield stress Streckgrenze, die (eng.)

After surpassing the yield stress, a given material will begin to deform plastically.

Some of this deformation is permanent.

YTD (econ.)

Acronym/Abbreviation referral: see year to date

zinc Zink, das (chem.)

Acronym (engl.): Zn Acronym (dt.): Zn

Zinc oxide is a commonly used white pigment.