Hawley's

Condensed Chemical

Dictionary

THIRTEENTH EDITION

Revised by

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water, sulfuric acid, nitric acid, hydrochloric acid, carbon disulfide, benzene, gasoline, or turpentine; very little affected by ether, chloroform, alkalies, but readily dissolved by ethanol.

"Delac" *[Uniroyal].* TM for a series of delayed-action rubber accelerators.

Delepine reaction. Preparation of primary amines by reaction of alkyl halides with hexamethylenetetramine followed by acid hydrolysis of the formed quaternary salts.

delhi hard. A ferrous alloy (d 7.75, mp 500C) containing, in addition to iron, 16.5–18% chromium, 1.1% carbon, 0.75–1% silicon, 0.35–0.5% manganese. It is resistant to cold ammonium hydroxide in all concentrations and to mine and seawaters and moist sulfurous atmospheres.

deliquescent. Tending to absorb atmospheric water vapor and become liquid. The term refers specifically to water-soluble chemical salts in the form of powders that dissolve in the water absorbed from the air. Such salts should be kept closely stoppered or otherwise enclosed.
See hygroscopic.

"Delrin" *[Du Pont].* TM for a type of acetal resin. White and colors available. Also supplied as pipe and fittings. Thermoplastic.
Use: Injection-molded and extruded parts, door handles, bushings, other mechanical items; underground pipe; automotive parts.

"Delsan" *[Du Pont].* TM for fungicide-insecticide seed treatment containing 60% thiram and 15% dieldrin.
Hazard: Toxic by ingestion and inhalation.

delta acid. See Casella's acid F.

delustrant. A substance used to produce dull surfaces on a textile fabric. Chiefly used are barium sulfate, clays, chalk, etc. They are applied in the finishing coat.

De Mayo reaction. Synthesis of 1,5-diketones by photoaddition of enol derivatives of 1,3-diketones to olefins, followed by a retro-aldol reaction.

"Demerol" Hydrochloride *[Sterling Drug].* TM for meperidine hydrochloride.

demeton. (Systox).
CAS: 8065-48-3. $C_8H_{19}O_3PS_2$. A mixture of *O,O*-diethyl-*O*-2-(ethylthio)ethyl phosphorothioate (demeton-*O*) and *O,O*-diethyl-*S*-2-(ethylthio)ethyl phosphorothioate (demeton-*S*).
Properties: (Mixture) Pale-yellow liquid. Bp 134C (2 mm Hg), d 1.118. Slightly soluble in water; soluble in most organic solvents.
Hazard: Toxic by skin absorption; cholinesterase inhibitor. Use may be restricted. TLV: 0.01 ppm.
Use: Systemic insecticide (absorbed by plant, which then becomes toxic to sucking and chewing insects).

demeton methyl. (*O,O*-dimethyl-*S*,2-(ethylthio)ethyl phosphorothiolate).
CAS: 8022-00-2.
Use: Systemic insecticide.

demineralization. Removal from water of mineral contaminants, usually present in ionized form. The methods used include ion-exchange techniques, flash distillation, or electrodialysis. Acid mine wastes may be purified in this way, thus alleviating the pollution problem.
See desalination; deionizing.

Demjanov rearrangement. Deamination of primary amines by diazotization to give rearranged alcohols.

Democritus. A Greek philosopher (approximately 465 BC). The first thinker of record to conceive of matter as existing in the form of small indivisible particles, which he called atoms. However, this concept was overshadowed by Aristotle's theories, and it was not until some 2000 years later that it was developed by John Dalton in England—an astonishing length of dormancy for one of the most creative ideas in the history of science.
See Dalton, John.

demulsification. The process of destroying or "breaking" an unwanted emulsion, especially water-in-oil types occurring in crude petroleum. Both chemical and physical means are used. Chemical means include addition of polyvalent ions to neutralize electrical charges or of a strong acid; physical means include heating, centrifuging, or use of high-potential alternating current.
See emulsion; nonylphenol.

demurrage. A fee imposed on shippers of chemicals and other products by the railroads for retaining freight cars at loading docks for more than a given period of time (usually 24 hr).

"DEN" *[Dow].* TM for a series of epoxy novolacs for multifunctional resins for all uses where maximum chemical or heat resistance is required.

denatonium benzoate. USAN for benzyldiethyl-[(2,6-xylylcarbamoyl)methyl]ammonium benzoate (Bitrex), a bitter-tasting compound approved as a denaturant for alcohol, mp 165C, soluble in water and alcohol, insoluble in ether.

denaturant. See alcohol, denatured.

denaturation. A change in the molecular structure of globular proteins that may be induced by

bringing a protein solution to its boiling point or by exposing it to acids or alkalies, or to various detergents. Denaturation reduces the solubility of proteins and prevents crystallization. It involves rupture of hydrogen bonds so that the highly ordered structure of the native protein is replaced by a looser and more random structure. It is usually irreversible but in some cases is reversible, depending on the protein and the treatment involved.
See degradation.

denatured alcohol. See alcohol, denatured.

denier. A unit used in the textile industry to indicate the fineness of a filament. If 9000 m of a filament weighs 1 g, the filament is 1 denier; if 10,000 m weighs 1 g, the filament is 1 grex. Sheer women's hosiery usually runs from 15 to 10 denier.

"Denox" *[Carus].* TM for "300 Highlighter" series, a group of products.
Use: Treating denim with stone washing and other finishes.

density. Mass per unit volume expressed in grams per cubic centimeter for solids and liquids, and usually as grams per liter for gases. Densities of some common substances follow:

	g/cc	g/L
sulfur	2.06	
aluminum	3.7	
sodium	0.967	
glycerol	1.27	
water*	1.0	
chlorine		3.214
carbon dioxide		1.977
air**		1.293
oxygen		1.429
hydrogen		0.0899

*Basis of comparison for solids and liquids.
**Basis of comparison for gases.
For discussion of density vs. specific gravity, see specific gravity. Apparent density is the mass of a unit volume of powder, usually expressed in grams per cubic centimeter, determined by a specified method (MPA definition, MPA Standard 9–50T). *Bulk density* is an alternative term for *apparent density.*
See current density.

"Deo-Base" *[Witco].* TM for light petroleum distillate, superfine grade of kerosene without its objectionable odor.

deodorant. A substance used to remove or mask an unpleasant odor. It may or may not have a distinctive odor of its own. Deodorants act (1) by adsorption (activated carbon, charcoal, chlorophyllin), (2) by replacement (pine oil or other perfume), (3) by neutralization (aluminum chlorohydrate), and (4) by oxidation or hydrogenation, e.g., of fish oils. The cosmetic industry supplies a wide variety of deodorants and antiperspirants, chiefly based on neutralization. Mouthwashes and breath "sweeteners" often contain calcium iodate, thymol, peppermint, or a similar substance to mask or replace odors.
See odor; cosmetic.

deoxidizer. An agent that removes oxygen from a compound or from a molten metal.

deoxy-. Preferred prefix indicating replacement of hydroxyl by hydrogen in the parent compound. The meaning is the same as that of desoxy, and the two prefixes are used interchangeably.

deoxyanisoin. (4′-methoxy-2-(*p*-methoxyphenyl)acetophenone). $CH_3OC_6H_4COCH_2C_6H_4OCH_3$.
Properties: Off-white to buff, crystalline powder; sweet, faint, cinnamon-like odor. Mp 110–112C.
Use: Intermediate.

deoxybenzoin. (α-phenylacetophenone, benzyl phenyl ketone). $C_6H_5CH_2COC_6H_5$.
Properties: Colorless crystals. Mp 53–60C. Slightly soluble in hot water; soluble in alcohols and ketones.
Use: Intermediate.

deoxycholic acid. (desocycholic acid).
CAS: 83-44-3. $C_{24}H_{40}O_4$. A bile acid, contains one less hydroxyl group than cholic acid.
Properties: Crystals. Mp 172–173C. Not precipitated by digitonin. Practically insoluble in water and benzene; slightly soluble in chloroform and ether; soluble in acetone and solutions of alkali hydroxides and carbonates; freely soluble in alcohol. Also available as sodium salt. Forms coordination compounds with fatty acids.
Derivation: Isolation from bile, organic synthesis.
Grade: Technical, FCC (as desoxycholic acid).
Use: Medicine, precursor for organic synthesis of cortisone, emulsifying agent in foods (up to 0.1%).

deoxycorticosterone. (4-pregnen-21-ol-3,20-dione; 11-deoxycorticosteroid).
CAS: 64-85-7. $C_{21}H_{30}O_3$. An adrenal cortical steroid hormone. Active in causing the retention of salt and water by the kidney.
Properties: Crystalline plates. Mp 141–142C. Freely soluble in alcohol and acetone.
Derivation: From adrenal cortex extract, synthesis from other steroids.
Use: Medicine (usually as acetate).

deoxyribonuclease. One of a group of enzymes that cause the splitting of deoxyribonucleic acids. Pancreatic deoxyribonuclease, the most widely studied, cleaves the acid at the 3′-phosphate bond. Other deoxyribonucleases cleave the 5′-phosphate bond.