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CONDENSED CHEMICAL DICTIONARY

Richard J. Lewis, Sr.

Thirteenth Edition

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1997

Hawley's

Condensed Chemical

Dictionary

THIRTEENTH EDITION

Revised by

Richard J. Lewis, Sr.

For Reference

Not to be taken from this room



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Use: Sequestering agent for iron, calcium, and magnesium ions; soap builder; detergent mixtures; deflocculator in drilling muds, paper, ceramics and textiles.

Armstrong's acid. (naphthalene-1,5-disulfonic acid). $C_{10}H_6(SO_3H)_2$.

Properties: White, crystalline solid. Soluble in water.

Derivation: Sulfonation of naphthalene with fuming sulfuric acid at low temperature followed by separation from the 1,6-isomer.

Use: Dye intermediate.

Arndt-Eistert synthesis. Procedure for converting an acid to its next higher homolog.

"Arnel" [Hoechst Celanese]. TM for an acetate fiber made from cellulose triacetate. It has a higher melting point, and is less soluble than cellulose acetate.

See acetate fiber; cellulose triacetate.

aromatic. (arene). A major group of unsaturated cyclic hydrocarbons containing one or more rings, typified by benzene, which has a 6-carbon ring containing three double bonds. The vast number of compounds of this important group, derived chiefly from petroleum and coal tar, are rather highly reactive and chemically versatile. The name is due to the strong and not unpleasant odor characteristic of most substances of this nature. Certain 5-membered cyclic compounds such as the furan group (heterocyclic) are analogous to aromatic compounds.

Note: The term "aromatic" is often used in the perfume and fragrance industries to describe essential oils that are not aromatic in the chemical sense.

aromaticity. A stable electron shell configuration in organic molecules, especially those related to benzene.

See resonance; orbital theory.

aromatization. See hydroforming.

"Arosurf TA100" [Witco]. (distearyldimethylammonium chloride).

CAS: 107-64-2. TM for powder cationic-quaternary fabric softener.

Use: For retail powdered detergent-softener, industrial laundry and pap-softening formulas, and cosmetic formulations.

arrack. An oriental distilled liquor which is obtained from palm or rice juice.

arrest point. The temperature at which a system of more than one component, being heated or cooled, absorbs or yields heat without changing temperature.

Arrhenius, Svante. (1859–1927). A native of Sweden, he won the Nobel prize in chemistry in 1903. He is best known for his fundamental investigations on electrolytic dissociation of compounds in water and other solvents, and for his basic equation stating the increase in the rate of a chemical reaction with rise in temperature:

$$\frac{d \ln k}{dT} = \frac{A}{RT^2}$$

in which k is the specific reaction velocity, T is the absolute temperature, A is a constant usually referred to as the energy of activation of the reaction, and R is the gas-law constant.

arrowroot. (maranta). The starch that is obtained from the roots of the maranta plant, which has many uses, including food ingredients, cosmetics, glues, and starches.

arsacetin. (sodium acetylarsanilate; sodium *p*-acetyl aminophenylarsonate). $CH_3CONHC_6H_4AsO(OH)ONa$.

Properties: White, crystalline powder; odorless; tasteless. Free of arsenous or arsenic acid. Solutions will admit of thorough sterilization. Soluble in cold water, but more so in warm water.

Use: Medicine (antisyphilitic).

arsanilic acid. (atoxylic acid; *p*-aminobenzenearsonic acid; *p*-aminophenylarsonic acid).

$C_6H_4 \cdot C_6H_4AsNO_3$.

Properties: White, crystalline powder; practically odorless. Mp 232C. Soluble in hot water; slightly soluble in cold water, alcohol, and acetic acid; insoluble in acetone, benzene, chloroform, and ether.

Derivation: By condensing aniline with arsenic acid, removing the excess of aniline by steam distillation in alkaline solution, and setting the acid free using hydrochloric acid.

Hazard: A poison. Yields flammable vapors on heating above melting point.

Use: Arsanilates, manufacture of arsenical medicinal compounds such as arsphenamine, veterinary medicine, grasshopper bait.

arsenic.

CAS: 7440-38-2. As. A nonmetallic element of atomic number 33, group Va of periodic table, aw 74.9216; valences of 2, 3, 5; no stable isotopes.

Properties: Silver-gray, brittle, crystalline solid that darkens in moist air. Allotropic forms: black, amorphous solid (β -arsenic); yellow, crystalline solid, d 5.72 (commercial product ranges from 5.6 to 5.9), mp 814C (36 atm), sublimes at 613C (1 atm), Mohs hardness 3.5. Insoluble in water and in caustic and nonoxidizing acids. Attacked by hydrochloric acid in presence of oxidant. Reacts with nitric acid. Low thermal conductivity; a semiconductor.

Derivation: Flue dust of copper and lead smelters from which it is obtained as white arsenic (arsenic