

# HACKH'S CHEMICAL DICTIONARY

[*American and British Usage*]

*Containing the Words Generally Used in Chemistry,  
and Many of the Terms Used in the Related  
Sciences of Physics, Astrophysics, Mineralogy,  
Pharmacy, Agriculture, Biology,  
Medicine, Engineering, etc.*

*Based on Recent Chemical Literature*

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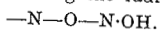
in fused potassium nitrate at 500°C. ation is thereby minimized.

Al steels containing 0.2-0.6% C, ened by nitridation.

e name for prills of ammonium nitrate th a deliquescence-preventing additive.  $H_2NO_2 = 62.1$ . Colorless crystals, **yl-**  $C_6H_5NH\cdot NO_2 = 138.1$ . Colorless, soluble in water.

group of compounds derived from ad differing from nitramines by the radical  $-COO-$ ; as,  $NO_2\cdot NH\cdot COOH$ , c acid.

An organic compound containing  $-NH\cdot NO_2$  or  $=N\cdot NO_2$ . (2) Picryl An indicator, changing at pH 10.5 s (weakly alkaline) to brown (strongly ethyl-  $Et_2N\cdot NO_2 = 118.1$ . Colorless 6. **dimethyl-**  $Me_2N\cdot NO_2 = 90.1$  stals, m.58, soluble in water. **ethyl-** = 90.1. Colorless liquid, m.3. **iso-** containing the radical



$h\cdot NO_2 = 138.1$ . Colorless crystals, in water. **phenyl methyl-**  $MeNPh\cdot$  2. Colorless crystals, m.39, soluble **opyl-**  $PrNH\cdot NO_2$ . Colorless liquid,

radical  $NO_2NH-$ . **n. acetic acid.** = 120.2. A homolog of nitro- (colorless crystals, m.103, soluble in y acid).

$C_6H_2O_8N_2 = 230.07$ . Dinitrodihy- inone, m.100, decomp. 170, soluble

$F_3N:NO\cdot OH = 138.1$ . Diazoben- phenylisonitramine. An isomer of ine. Colorless crystals, m.46, soluble

$C_6H_4\cdot NO_2 = 138.1$ . **ortho-** or needles, m.71, soluble in water. **yellow needles**, m.114, slightly soluble **a-** or **1,4-** Yellow needles, m.146, r. All used in organic synthesis and for strong acids. **di-** See *dinitro-*

mpounds derived from benzene by n of 2 or more H atoms by one or and  $NO_2-$  radicals. The higher- s are powerful explosives.

salt of nitric acid, or compound radical  $-NO_3$ . (2) Nitration.  $O_3-$  ion, colorless, and forming no gitates with metallic ions. **n. of**

**n. n. of potash.** Potassium n. lium n. **n. of soda-potash-** A crude er: sodium nitrate 75, potassium fertilizer.

ing an organic compound con-  $O_2$  group.

ral form of sodium nitrate. roduction of the  $NO_2$  group into opound, usually by means of a ric and nitric acids.

ndicating an organic compound radical  $-O\cdot NO_2$ . Cf. *nitrito-*.

l, usually double-jacketed, with

heating or cooling coils and stirring device, used for nitration.

**Nitrazine Paper.** Trademark for a filter paper, impregnated with sodium dinitrophenyl azonaphthol disulfonate; used to indicate pH values: yellow 4.5, olive green 6.2, blue 7.0. **N. yellow.** An indicator dye (pH 6.5: yellow—acid to blue-green—alkaline).

**nitre.** Niter. **n. air.** See *oxygen*.

**nitrenes.** Compounds of the type  $R_2C:NR:CR_2$ . **nitriacidium ion.** Nitracidium ion.

**nitric acid.**  $HNO_3 = 63.02$ . Colorless liquid,  $d_{20} 1.53$ , m.—40.3, b.86, soluble in water; used extensively as its aqueous solutions: (1) Fuming: 86%  $HNO_3$  with some  $N_2O_4$ . Brown-red fuming liquid, d.1.48-1.5; an energetic oxidizing agent in chemical analysis and synthesis. (2) Concentrated: 65%  $HNO_3$ . Aqua fortis, azotic acid. Faintly yellow liquid, d.1.40-1.42. Used as a solvent for metals and an oxidizing agent; in etching and many chemical operations; and to nitrate organic compounds. (3) 32-34%  $HNO_3$ . d.1.20. (4) Dilute: 10%  $HNO_3$ . Colorless liquid, d.1.06; a reagent, solvent, and acidifying agent. **chloro-** See *chloro-*. **per-**  $HNO_4$ . An acid of doubtful existence.

**n. anhydride.** Nitrogen pentoxide. **n. hydrate.**  $HNO_3 + 32\% H_2O$ .  $d_{15.5} 1.414$ , b.121.

**nitric ether.** Ethyl nitrate.

**nitric oxide.**  $NO = 30.0$ .  $N_2O_2 = 60.0$ . Nitrogen dioxide. Colorless gas,  $d_{air} = 1.0366$ , b.—153, soluble in water. Formed in the electric arc from air; oxidizes readily to nitrogen peroxide.

**nitridation.** (1) Formation of metallic nitrides by heating metals in nitrogen to increase hardness. Cf. *nitration*. (2) De-electronation in the ammonia system, analogous to oxidation in the water system. Cf. *nitridizing agent*.

**nitride.** A binary compound of nitrogen and a metal. The alkali and earth-alkali nitrides are readily hydrolyzed:  $Mg_3N_2 + 6H_2O = 3Mg(OH)_2 + 2NH_3$ .

**nitridizing agent.** A substance that furnishes nitrogen or causes an exchange of electrons in liquid ammonia; as, hydrazoic acid (ammononitric acid),  $HN_3$ ; analogous to nitric acid,  $HNO_3$ , as oxidizing agent.

**nitriifiable.** Describing a nitrogen compound that can be transformed into nitrates by soil bacteria.

**nitrication.** Oxidation of the nitrogen in ammonia to nitrous and nitric acid or salts.

**nitrifiers.** Soil bacteria which oxidize ammonia and its derivatives to nitrites (as nitromonas) or to nitrates (as nitrobacter).

**nitriifying.** To cause the oxidation of ammonia or atmospheric nitrogen to nitrites and nitrates, e.g., by n. bacteria and n. catalysts.

**nitrilase.** A catalase that converts aldehydes to cyanohydrins,  $R\cdot CHO\cdot H\cdot CN$ .

**nitriole.** A cyanide prepared from an acid amide,  $R\cdot CONH_2 - H_2O = R\cdot CN$ ; on hydrolysis they yield the corresponding acid and evolve ammonia.

**n. group.** The negative  $\equiv N$  from ammonia after substitution of its 3 H atoms. **n. rubber.** q. v.

**nitrioles.** Cyanides. Organic compounds containing the radical  $-CN$ . **acid-** Nitrile. A name indicating the relation of n. with the  $-COOH$  group:  $-C(:O)\cdot OH \rightarrow -C(:O)\cdot NH_2 \rightarrow -C:N$ . **basic-**  $NR_3$ . A tertiary amine having 3 different C atoms attached

to the same N. di- Dicyanide. A compound containing 2  $-CN$  radicals. **mono-** A compound containing one  $-CN$  radical.

**nitri-** Prefix indicating a triple-bond nitrogen atom,  $\equiv N$ .

**Nitrilon.** Trade name for a polyacrylonitrile synthetic fiber.

**nitrene.**  $N_3 = 42.02$ . A hypothetical allotropic form of nitrogen analogous to ozone,  $O_3$ . See *active nitrogen*.

**nitrite.** A salt of nitrous acid, or a compound containing the radical  $-NO_2$ . The inorganic nitrites of the type  $MNO_2$  are all insoluble, except the alkali nitrites. The organic nitrites or nitrito compounds may be isomeric, but not identical with the corresponding nitro compounds.

**nitrito-** Describing an organic compound containing the radical  $-O\cdot N\cdot O$  (oxynitroso). **n. cobalamin.** Vitamin  $B_{12c}$ . The vitamin produced by replacing the  $-CN$  group of vitamin  $B_{12}$  by a  $-NO_2$  group.

**nitro-** (1) A prefix which denotes the presence of

the radical  $-NO_2$  or  $-N \begin{array}{c} \diagup O \\ \diagdown O \end{array}$ . Nitro compounds

are usually yellowish in color, and differ from the less stable, isomeric nitrito compounds. Cf. *nitroxyl*, *nitrite*, *nitrito*. (2) A misnomer for nitrate; as, nitroglycerin (glyceryl nitrate). **aci-** Isonitro-. The radical  $HOON=$ . **iso-** See *iso-*.

**nitroacid.** A compound containing both the radicals  $-COOH$  and  $-NO_2$ ; as:  $NO_2\cdot CH_2\cdot COOH$ , nitroacetic acid;  $NO_2\cdot CH_2\cdot CH_2\cdot COOH$ , nitropropionic acid.

**nitroalizarin.**  $C_{14}H_5O_2(OH)_2NO_2 = 285.1$ .  **$\alpha-$**  or **4,1,2-** Yellow crystals, decomp. 290.  **$\beta-$**  or **3,1,2-** Alizarin orange. Orange-yellow crystals, decomp. 244, slightly soluble in water, soluble in alcohol; used as dye, and as an intermediate in organic synthesis.

**nitroamine.** Nitramine.

**nitroanisole.**  $C_6H_4(OMe)NO_2 = 153.1$ . **ortho-** 1-Methoxy-2-nitrobenzene. Yellow liquid, d.1.268, m.9, b.265. **meta-** m.38, b.258. **para-** Colorless or yellowish plates, d.1.233, m.54, b.258. Insoluble in water, soluble in alcohol or ether.

**nitroanthracene.**  $C_{14}H_9NO_2 = 223.2$ . Nitrosoanthrone. Yellow needles, m.146, insoluble in water, soluble in benzene or chloroform.

**nitroanthraquinone.**  $C_6H_4(CO)_2C_6H_3NO_2 = 253.1$ .  **$\alpha-$**  or **1-** Yellow needles, m.228, subliming when heated, insoluble in water, soluble in alcohol or ether.  **$\beta-$**  or **2-** Yellow needles, m.184, subliming when heated, insoluble in water, soluble in alcohol or ether.

**n. sulfonic acid.** A reagent for sugars.

**Nitrobacter.** A soil bacterium or other micro-organism that oxidizes ammonia and its derivatives, or atmospheric nitrogen, to nitrites or nitrates.

**nitrobacteria.** Soil bacteria; as, Nitrobacter, Nitrosococcus, or Nitrosomonas.

**nitrobarite.**  $Ba(NO_3)_2$ . A native barium nitrate.

**nitrobenzaldehyde.**  $C_6H_4(NO_2)CHO = 151.1$ . **ortho-** Yellow needles, m.44, slightly soluble in water. **meta-** Colorless needles, m.58. **para-** Colorless prisms, m.106, soluble in water; used in indigo synthesis.