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Condensed Chemical Dictionary

Fifteenth Edition

Richard J. Lewis, Sr.

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groscopic. Decomposes above 220C. Very soluble in water; resistant to acid decomposition. Produced by *N*-acylation of α-phenoxypropionic acid and G-aminopenicillanic acid (produced by fermentation using *Penicillium chrysogenum*).
Grade: NF.
Use: Antibiotic.

potassium phenoxymethylpenicillin. (potassium penicillin V).
CAS: 132-98-9. $KC_{16}H_{17}N_2O_5S$.
Properties: White, crystalline powder; odorless. Very soluble in water; slightly soluble in alcohol; insoluble in acetone.
Grade: USP.
Use: Antibiotic.

potassium phosphate, dibasic. (DKP; potassium hydrogen phosphate; potassium monophosphate; dipotassium orthophosphate). K_2HPO_4.
Properties: Hygroscopic, white crystals or powder. Very soluble in water. Converted to pyrophosphate by ignition.
Derivation: Action of phosphoric acid on potassium carbonate.
Grade: Commercial, pure, highest purity, NF, FCC.
Use: Buffer in antifreezes; ingredient of "instant" fertilizers; nutrient for penicillin culturing; humectant; in pharmaceuticals; foods as a buffer, sequestrant, and yeast food; and as a laboratory reagent.

potassium phosphate, monobasic. (MKP; potassium acid phosphate; potassium diphosphate; potassium orthophosphate; potassium dihydrogen phosphate). KH_2PO_4.
Properties: Colorless crystals. D 2.338, mp 253C. Acid in reaction; soluble in water; insoluble in alcohol.
Derivation: Action of phosphoric acid on potassium carbonate.
Grade: Technical, CP, FCC.
Use: Baking powder, nutrient solutions, yeast foods, buffer and sequestrant, lab reagent.

potassium phosphate, tribasic. (potassium phosphate, neutral; potassium phosphate normal; tripotassium orthophosphate; potassium phosphate, tertiary; tripotassium phosphate).
CAS: 7778-53-2. $K_3PO_4 \bullet H_2O$ or K_3PO_4.
Properties: Granular, white powder; deliquescent. Mp (anhydrous) 1,340C, d (anhydrous) 2.564 (17C). Soluble in water giving strongly basic solution. Insoluble in alcohol.
Grade: Reagent, technical, FCC.
Use: Purification of gasoline, water softening, liquid soaps, fertilizer, in foods as an emulsifier, laboratory reagent.

water; insoluble in alcohol; slowly oxidized by air to phosphate.

potassium platinichloride. See potassium chloroplatinate.

potassium polymetaphosphate. $(KPO_3)_n$.
The molecular weight may be as high as 500,000.
Properties: White powder; odorless. Insoluble in water; soluble in sodium salt solutions that may have high viscosity.
Derivation: Dehydration of monobasic potassium phosphate.
Grade: Technical, FCC.
Use: Fat emulsifier and moisture-retaining agent in foods.
See sodium metaphosphate.

potassium polysulfide. K_2S_n.
Properties: Crystals. Soluble in water and alcohol.
Hazard: Moderate fire risk. Toxic by ingestion, irritant to skin and eyes.
Use: Fungicide.

potassium prussiate, red. See potassium ferricyanide.

potassium prussiate, yellow. See potassium ferrocyanide.

potassium 3-pyridinecarboxylate. See potassium nicotinate.

potassium pyroantimonate.
$K_2H_2SbO_7 \bullet 4H_2O$.
Properties: White, crystalline powder or granules. Slightly soluble in cold water; readily soluble in hot water; insoluble in alcohol.
Grade: Reagent, technical.
Use: Starch sizes and flame-retarding compounds.

potassium pyroborate. See potassium tetraborate.

potassium pyrophosphate. (TKPP; tetrapotassium pyrophosphate; potassium pyrophosphate, normal). $K_4P_2O_7 \bullet 3H_2O$.
Properties: Colorless crystals or white powder. Somewhat hygroscopic in air (deliquescent at a relative humidity of above 40–45%). Similar to tetrasodium pyrophosphate except for greater solubility. D 2.33, dehydrates at about 300C, mp 1,090C. Soluble in water; insoluble in alcohol.
Grade: Technical, 99.4%, 60% solution, FCC.
Use: Soap and detergent builder, sequestering agent, peptizing and dispersing agent.

potassium pyrosulfate. (potassium acid sul-

Use: Acid flux in analysis, laboratory reagent.

potassium pyrosulfite. See potassium metabisulfite.

potassium rhodanide. See potassium thiocyanate.

potassium ricinoleate. $C_{17}H_{32}OHCOOK$.
Properties: White paste. Soluble in water. Combustible.
Use: Emulsifying agent.

potassium silicate.
Properties: (Solid) Weight ratio SiO_2:K_2O varies with grade from 2.1:1 to 2.5:1; colorless anhydrous lump, shattered or granular. Soluble in water at high temperature and pressure; insoluble in alcohol. (Solution) Colorless liquid, Bé range 29–48 degrees.
Derivation: Supercooled melt of potassium carbonate and pure silica sand.
Use: (Solid) Manufacture of glass and refractory material, welding rods, high-temperature mortars, binder in carbon arc-light electrodes, detergents, catalyst, adhesives.

potassium silicofluoride. See potassium fluosilicate.

potassium sodium carbonate. See sodium potassium carbonate.

potassium sodium ferricyanide. $K_2NaFe(CN)_6$.
Properties: Red crystals, over 99% pure. Mp (decomposes); nonhygroscopic and stable. Easily soluble in water.
Derivation: From ferrocyanides.
Use: Blueprint paper and photography.

potassium-sodium phosphate. See sodium-potassium phosphate.

potassium sodium tartrate. (Rochelle salt; sodium potassium tartrate).
CAS: 304-59-6. $KNaC_4H_4O_6 \bullet 4H_2O$. It is salt of L(+)-tartaric acid.
Properties: Colorless, transparent, efflorescent crystals or white powder; cool, saline taste. Unstable above 225C, d 1.77, mp 70–80C. Soluble in water, insoluble in alcohol, loses water of crystallization at 140C.
Derivation: Potassium acid tartrate is dissolved in water, the solution saturated with sodium carbonate, concentrated after purification, and crystallized.

potassium sorbate. (potassium-2,4-hexadienoate).
CAS: 590-00-1. $CH_3CH{:}CHCH{:}CHCOOK$.
Properties: White powder. Mp 270C (decomposes), d 1.36 (25/20C). Soluble in water (25C).
Grade: Technical, FCC.
Use: Bacteriostat and preservative in meats, sausage casings, wines, etc.

potassium stannate.
CAS: 12125-03-0. $K_2SnO_3 \bullet 3H_2O$.
Properties: White to light-tan crystals. D 3.197. Soluble in water; insoluble in alcohol.
Grade: Technical.
Hazard: Highly toxic. TLV: 2 mg(Sn)/m³.
Use: Textiles (dyeing and printing), alkaline tin-plating bath.

potassium stearate. (stearic acid potassium salt).
CAS: 593-29-3. $C_{17}H_{35}COOK$.
Properties: White, crystalline powder; slight odor of fat. Mw 322.57. Soluble in hot water and alcohol.
Grade: Commercial, contains considerable palmitate; FCC.
Use: Anticaking agent, binder, emulsifier, stabilizer for chewing gum, base for textile softeners.

potassium strontium chlorate. See strontium potassium chlorate.

potassium styphnate. $KC_6H_2N_3O_8 \bullet H_2O$.
Properties: Yellow prisms. Mp loses water at 120C.
Hazard: Explodes when shocked or heated.
Use: High explosive.

potassium sulfate.
CAS: 7778-80-5. K_2SO_4.
Properties: Colorless or white, hard crystals or powder; bitter saline taste. D 2.66, mp 1,072C. Soluble in water; insoluble in alcohol.
Derivation: (1) By treatment of potassium chloride either with sulfuric acid or with sulfur dioxide, air, and water (Hargreaves process); (2) by fractional crystallization of a natural sulfate ore; (3) from salt-lake brines.
Grade: Highest purity medicinal, commercial, crude, CP, agricultural, reagent, technical.
Use: Reagent in analytical chemistry, medicine (cathartic), gypsum cements, fertilizer for chloride-sensitive crops such as tobacco and citrus, alum manufacture, glass manufacture, food additive.

potassium sulfhydrate. See potassium hydrosulfide.

potassium sulfide.
CAS: 1312-73-8. K_2S.

Grade: Technica
Hazard: Flamma
spontaneously, e
Use: Reagent in
medicine.

potassium sulfi
CAS: 10117-38
Properties: Whi
water; sparingly
heating and slo
Grade: Technic
Use: Photographi
food and wine

potassium sulfo
thiocarbonate).
Properties: Yel
scopic; soluble
Grade: Technic
Hazard: Toxic
Use: Analysis (te
soil fumigant.

potassium sulfo
thiocyanate.

potassium sulfo
thiocyanate.

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potassium tart
Properties: Col
uble in water; i
heat (200–220
Grade: CP, tec
Use: Manufactu
thartic), lab re

potassium tellu
Properties: Gra
decomposes at
Use: Analysis (

potassium tetr
ammonochro

potassium tetr
Properties: Whi
soluble in alco
Use: Metal poli
istry.

potassium thio
ide; potassium
cyanide).