

*Hawley's*  
**Condensed Chemical  
Dictionary**  
*Fifteenth Edition*

**Richard J. Lewis, Sr.**

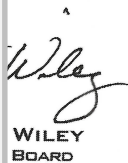


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grosopic. Decomposes above 220C. Very soluble in water; resistant to acid decomposition. Produced by *N*-acylation of  $\alpha$ -phenoxypropionic acid and G-aminopenicillanic acid (produced by fermentation using *Penicillium chrysogenum*).

**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.  $K_3PO_4 \cdot H_2O$  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 platinumchloride.** 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.**

$K_2H_3SbO_7 \cdot 4H_2O$ .

**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).  $K_4P_2O_7 \cdot 3H_2O$ .

**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-

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## POTASSIUM PYROSULFITE

1036

**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.  $KNaC_4H_4O_6 \cdot 4H_2O$ . 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-hexadecanoate).  
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.  $K_2SnO_3 \cdot 3H_2O$ .  
**Properties:** White to light-tan crystals. D 3.197. Soluble in water; insoluble in alcohol.  
**Grade:** Technical.  
**Hazard:** Highly toxic. TLV: 2 mg(Sn)/m<sup>3</sup>.  
**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.**  $KC_6H_2N_3O_8 \cdot H_2O$ .  
**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:** Technical  
**Hazard:** Flammable spontaneously, explosive  
**Use:** Reagent in medicine.

**potassium sulfite.**  
CAS: 10117-38-2  
**Properties:** White powder; sparingly soluble in water; sparingly soluble in alcohol; heating and slow decomposition  
**Grade:** Technical  
**Use:** Photographic, food and wine

**potassium sulfite thiocarbonate.**  
**Properties:** Yellowish white powder; soluble in water  
**Grade:** Technical  
**Hazard:** Toxic if inhaled  
**Use:** Analysis (test for soil fumigant).

**potassium sulfite thiocyanate.**

**potassium sulfite thiocyanate.**

**potassium tantum potassium fluoride.**

**potassium tartaric acid.**  
**Properties:** Colorless crystals; soluble in water; it loses water of crystallization on heating (200–220C)  
**Grade:** CP, technical  
**Use:** Manufacture of potassium bitartrate (tartaric), lab reagent

**potassium tellurite.**  
**Properties:** Gray crystals; decomposes at 100C  
**Use:** Analysis (test for tellurium)

**potassium tetrachloroaurate.**

**potassium tetrachloroaurate.**  
**Properties:** White crystals; soluble in alcohol  
**Use:** Metal plating

**potassium thiocyanide.** potassium cyanide).