



>>Entry Name: Potassium peroxymonosulfate triple salt

Synonym(s): Peroxymonosulfuric acid monopotassium salt mixture with dipotassium sulfate and potassium hydrogen sulfate, 9Cl. Potassium caroate. Caroot. Curox. Oxone

CAS Registry Number: 37222-66-5

Related CAS Registry Numbers(s): 12168-75-1 12501-41-6 70693-62-8

$\text{K}_5(\text{HSO}_5)_2(\text{HSO}_4)(\text{SO}_4)$ or $2\text{KHSO}_5 \cdot \text{KHSO}_4 \cdot \text{K}_2\text{SO}_4$

Molecular Formula: $\text{H}_3\text{K}_5\text{O}_{18}\text{S}_4$

Molecular Weight: 614.768

Accurate Mass: 613.63876

Percentage Composition: H 0.49%; K 31.80%; O 46.85%; S 20.86%

disordered but contains $(\text{HSO}_5)^-$ ions

Source/Synthesis: Synth. by reaction of H_2O_2 , KOH and H_2SO_4 to give KHSO_5 which is then treated with stoichiometric quantities of H_2SO_4 and K_2SO_4 . Also obt. by reaction of oleum with H_2O_2 (86%) at -5° to give KHSO_5 to which aq. K_2CO_3 is added

Use/Importance: Commercially available. Major component of bleaches and detergents. Excellent reagent for oxidation of sulfides to sulfones and possibly sulfoxides. Denture cleaners, metal etching and pickling, effluent treatment, wool treatment, org. synth.

Physical Description: Air-stable colourless monoclinic cryst. or white powder

Solubility: V. sol. H_2O (2.5 g per 100 cm^3 at 20°)

Hazard & Toxicity: Corrosive. Irritating to skin, eyes and mucous membranes. Toxic. LD_{50} (rat, orl) 1204 mg/kg

Aldrich: 22803-6

Fluka: 60404

Sigma: P1429

References:

Aldrich Library of FT-IR Spectra, 1st edn., 1985, **2**, 1265C, (ir)

Kennedy, R.J. *et al.*, *J.O.C.*, 1960, **25**, 1901, (uses)

Trost, B.M. *et al.*, *Tet. Lett.*, 1981, **22**, 1287, (uses)

Flanagan, J. *et al.*, *Chem. Comm.*, 1984, 1574, (synth, ir, Raman, struct)

Franck, W. *et al.*, *Ullmann's Encycl. Ind. Chem.*, 5th edn., 1985, **A19**, 188

Ger. Pat., 1986, 3 427 119; *CA*, **104**, 112274, (synth)

Sigma-Aldrich Library of Chemical Safety Data, 1988, **2**, 2667B, (haz)