



>>Entry Name: Potassium oxide (K₂O), 8CI

Synonym(s): Potassium monoxide. Dipotassium oxide

CAS Registry Number: 12136-45-7

K₂O

Molecular Formula: K₂O

Molecular Weight: 94.196

Accurate Mass: 93.922329

Percentage Composition: K 83.01%; O 16.99%

Source/Synthesis: Synth. by heating together stoichiometric quantities of K metal and K₂O₂ or by partial oxidation of liq. K followed by vacuum distillation of excess metal.

Also synth. by thermal dec. of KAlO₂ at 1100°

Use/Importance: Additive to glasses, glazes, ceramics and enamels. Also used in oxidation dehydrogenation catalysts

Physical Description: Yellowish white powder; hygroscopic. Reacts with H₂O with formn. of KOH. Dec. on heating with loss of O₂

Melting Point: Mp 740°

Solubility: Sol. EtOH, Et₂O

Other Data: ΔH_f° -363 kJ mol⁻¹; ΔG_f° -322 kJ mol⁻¹; S° 94 J K⁻¹ mol⁻¹

References:

Kozhevniko, G.N. *et al.*, *CA*, 1966, **64**, 9207h, (*synth*)

Sidorov, T.A., *Zh. Prikl. Spektrosk.*, 1967, **7**, 376, (*ir*)

Touzain, P. *et al.*, *Can. J. Chem.*, 1970, **48**, 3358, (*struct, polymorphs*)

DeKozak, A. *et al.*, *Rev. Chim. Miner.*, 1976, **13**, 190, (*polymorphs*)

Chase, M.W. *et al.*, *J. Phys. Chem. Ref. Data*, 1985, **14**, 1413, (*thermodyn data*)