



>>Entry Name: Rhenium(VI) oxide (ReO₃)

Synonym(s): Rhenium trioxide

CAS Registry Number: 1314-28-9

Related CAS Registry Numbers(s): 12624-27-0

ReO₃

Molecular Formula: O₃Re

Molecular Weight: 234.205

Accurate Mass: 234.940489

Percentage Composition: O 20.49%; Re 79.51%

Source/Synthesis: Synth. (i) from Re₂O₇ and dioxan, (ii) from Re₂O₇ and CO, or (iii) from Re₂O₇ and Re or ReO₂

Use/Importance: Starting material for mixed metal oxides, particularly those with semi-conductor props.

Physical Description: Red solid, unreactive towards H₂O

Solubility: Sol. oxidising solvs.

Other Data: Dec. at 400° *in vacuo* to ReO₂ and Re₂O₇. Reduced to ReO₂ by acidified KI, and is dec. by strong alkali

Aldrich: 38099-7

>>Variant: Non-stoichiometric-form

Synonym(s): Rhenium oxide (Re_xO₃; *x* = 0.14 to 0.21)

Molecular Formula: O₃Re

Molecular Weight: 234.205

Accurate Mass: 234.940489

Percentage Composition: O 20.49%; Re 79.51%

Source/Synthesis: Synth. from ReO₃ and ReO₂ at 6.5 x 10⁴ atm.

Physical Description: Copper-coloured solid with metallic conductivity

References:

Meisel, K., *Z. Anorg. Allg. Chem.*, 1932, **207**, 1, (*cryst struct*)

Inorg. Synth., 1950, **3**, 186; 187, (*synth, props*)

Jeitschko, W. *et al.*, *J. Solid State Chem.*, 1972, **4**, 324, (*synth, struct, non-stoichiometric form*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **3**, 1616, (*synth*)

Synthetic Methods of Organometallic and Inorganic Chemistry, (ed. Hermann, W.A.), Thieme, 1997, **8**, 184, (*synth*)