



>>Entry Name: Chlorosulfuric acid

Synonym(s): Chlorosulfonic acid. Sulfuric chlorohydrin

CAS Registry Number: 7790-94-5

ClS(O)₂OH

Molecular Formula: ClHO₃S

Molecular Weight: 116.525

Accurate Mass: 115.933492

Percentage Composition: Cl 30.43%; H 0.86%; O 41.19%; S 27.52%

Source/Synthesis: Synth. from SO₃ + HCl

Use/Importance: Commercially available. Chlorosulfonating and condensing agent. Oxidiser

Physical Description: Strong acid, colourless liq., sharp odour; fumes in moist air

Melting Point: Mp -80°

Boiling Point: Bp 155°

Solubility: Sol. CHCl₃, CH₂Cl₂, Py; insol. CS₂, CCl₄

Density: d²⁸ 1.77

pKa Value: pK_a 5.9

Other Data: Dec. by H₂O to HCl + H₂SO₄

Hazard & Toxicity: Dec. explosively on contact with H₂O, alcohols, acids. Highly toxic irritant, corrosive. Incompatible with many org. compds.

Aldrich: 32025-0

Fluka: 26388

Sigma: C7638

References:

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Gmelin Handbook Inorg. Chem., Syst. No. 9, 1963, **B3**, 1834, (bibl)

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Brauer, G., *Handbuch Prep. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **1**, 388, (synth)

Kirk-Othmer Encycl. Chem. Technol., 3rd edn., Wiley, 1978, **5**, 873

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