

(13) Sulphur dichloride, SCl<sub>2</sub>  
CAS No. 10545-99-0  
HS No. 28.12.10.90  
TDG No. 1828  
NIOSH/RTECS No. WS 4500000

**Synonyms:** Chloride of sulfur, chlorine sulfide, dichlorosulflane, monosulfur dichloride.

**Physical properties:** MW: 102.96, mp: -78°, bp: 59°, d.1355. It is a reddish brown liquid with a pungent odour; it is unstable and so sold as an 80% mixture of SCl<sub>2</sub> with S<sub>2</sub>Cl<sub>2</sub> as 20%. It reacts rapidly with water and is soluble in benzene and carbon tetrachloride.

**Synthesis:** Preparation is similar to the monochloride except that the final state of chlorination proceeds slowly and should be carried out below 40°C. The crude product is 80% SCl<sub>2</sub> and it can be distilled with 0.1% PCl<sub>3</sub> to obtain pure SCl<sub>2</sub> which can be stored at room temperature.

**Reactivity:** It is oxidized by SO<sub>3</sub> or ClSO<sub>3</sub>H to give thionyl chloride. Its reactions are similar to sulphur monochloride e.g., addition to alkenes.

**Toxicology:** It is a poisonous irritant and corrosive to the skin, eyes and mucous membranes. It reacts violently with Al, K, Na and solvents such as water, acetone, dimethyl sulphoxide. It emits SO<sub>x</sub> and halide fumes which are toxic on decomposition.

**Uses:** Used as a chlorinating agent, vulcanization of rubber, insecticide intermediate production, as a chlorinating agent in parathion manufacture, on the production of antioxidants, lubricating oil additives and the production of the fungicide captafol.

**Suppliers:** Seven suppliers are listed: USA (1), India (1), Japan(2), France (1), Germany (1) and the UK (1).