IS 245 : 2020 Specification for Trichloroethylene, Technical
(Fourth Revision)

Trichloroethylene (TCE) having a chemical formula of C_2HCl_3 is popularly known as 'Trichlor'. It is generally prepared by chlorination of acetylene or ethylene in a two-step process, using catalysts like ferric chloride.

TCE is a clear colourless liquid with excellent **solvent** properties. It is used a solvent for oils, fats, waxes, greases, tar, gums, resins and other organic materials. This solvent finds wide application in both liquid and vapour phase for **degreasing of metal objects**, varying from watches to automobiles parts. The additional property of non-flammability of trichloroethylene has led to its extensive use in **dry cleaning**. TCE is also used as an industrial refrigerant and in formulating anaesthesia. This standard does not address pharma grade TCE.

This standard was first published in 1950 and revised in 1962, 1970 and 1988. The standard prescribes the requirements, sampling and test methods for technical grade trichloroethylene only. Based on its utility, the standard mentions 2 types of TCE.
   a) *Type 1* - A stabilized material suitable for metal degreasing, dry cleaning, extraction of oil and fats and similar purposes; and
   b) *Type 2* - A specially stabilized material suitable for unusually severe duty metal degreasing, particularly for aluminium, magnesium and their alloys.

The standard includes requirements of relative density, distillation and residue on evaporation that define the purity of the material and alkalinity and free chlorine for verifying that the impurities/contaminants are contained. The requirement of resistance to corrosion addresses the probability of corrosion while using TCE for degreasing highly polished steel components.

The standard prescribes that the material is to be packed securely in closed mild steel or galvanized steel drums. It shall be protected from light and stored in a cool and well-ventilated place, to contain losses due to evaporation and safety.