



## IS 5301:1987, SPECIFICATION FOR SODIUM CHLORATE

Sodium chlorate is an inorganic compound with the chemical formula  $\text{NaClO}_3$ . It is a white crystalline powder that is readily soluble in water. It is a **powerful oxidizing agent** with hygroscopicity. The product is **highly toxic** and special safety precautions are required for handling the product. Contact of Sodium chlorate with wood, organic matter, ammonium salts, sulfur, various metals, and other chemicals may result in fires or explosions,

The main commercial use for sodium chlorate is for making chlorine dioxide ( $\text{ClO}_2$ ). The largest application of  $\text{ClO}_2$ , which accounts for more than 90% of the use of chlorate, is in bleaching of pulp to produce high brightness paper. It is also used as an oxidizing agent; as a substitute for potassium chlorate, as a weed killer, in medicine, in manufacturing explosives, dyes perchlorates, for leather tanning and finishing and as textile mordant.

Consumers of sodium chlorate expect certain quality parameters including high purity and minimal impurities, low levels of heavy metals (e.g., lead, arsenic, alkaline earths) and proper packaging to prevent contamination and ensure safe handling.

Keeping in view the applications of the product, the Indian Standard divided the product in two grades, viz. Pure Grade and Technical Grade. The pure grade which mainly find use in explosives and pharmaceuticals has higher purity (Min. 99.0%) and lower level of impurities like heavy metals, water insoluble matter, bromine and sulphate in compared to technical grade with minimum purity of 98.0% which is mainly used in the applications of bleaching paper. The methods of sampling and test for sodium chlorate pure and technical grade have also been prescribed.

As the product is toxic and flammable, the Indian Standard also specifies the special packaging requirements subject to the relevant provision of Red Tariff No. 18 of 1960, as well as provisions for transportation of dangerous goods listed under the United Nations System.

These specified quality parameters ensure that sodium chlorate meets the required standards for its intended applications and provides consumers with a reliable and effective product.