

## **Tin Chloride Dihydrate**

## **Stannous Chloride**

- Catalog Nr. Q555
- **Definition** Tin(II) chloride (stannous chloride) is a white crystalline solid with the formula SnCl2. It forms a stable dihydrate, but aqueous solutions tend to undergo hydrolysis, particularly if hot. SnCl2 is widely used as a reducing agent (in acid solution), and in electrolytic baths for tin-plating. Tin(II) chloride should not be confused with the other chloride of tin; tin(IV) chloride or stannic chloride (SnCl4).

**CAS Number** 10025-69-1

Application A solution of tin(II) chloride containing a little hydrochloric acid is used for the tinplating of steel, in order to make tin cans. An electric potential is applied, and tin metal is formed at the cathode via electrolysis.

It is used as a catalyst in the production of the plastic polylactic acid (PLA).

Tin(II) chloride also finds wide use as a reducing agent. This is seen in its use for silvering mirrors, where silver metal is deposited on the glass:  $Sn2+(aq) + 2 Ag + \rightarrow Sn4+(aq) + 2 Ag(s)$ 

A related reduction was traditionally used as an analytical test for Hg2+(aq). For example, if SnCl2 is added dropwise into a solution of mercury(II) chloride, a white precipitate of mercury(I) chloride is first formed; as more SnCl2 is added this turns black as metallic mercury is formed. Stannous chloride can be used to test for the presence of gold compounds. SnCl2 turns bright purple in the presence of gold.

In organic chemistry, SnCl2 is mainly used in the Stephen reduction, whereby a nitrile is reduced (via an imidoyl chloride salt) to an imine which is easily hydrolysed to an aldehyde.[3] The reaction usually works best with aromatic nitriles Aryl-CN. A related reaction (called the Sonn-Müller method) starts with an amide, which is treated with PCl5 to form the imidoyl chloride salt. The Stephen reduction is less used today, because it has been mostly superseded by diisobutylaluminium hydride reduction.

Additionally, PDCP is used to selectively reduce aromatic sitre groups to asilines [4]

Technical Data

## PROPERTIES

Appearance:	Colorless crystals.
Odor:	Slight odor of hydrochloric acid.
Solubility:	118g/100ml water @ 0C (32F).
Specific Gravity:	2.71
Melting point:	38°C
Density:	2.71 g/cm <sup>3</sup>
Solubility in water:	very good (>100 g/100 ml at 20°C)
Decomposes below bo	piling point at 652°C

Hazardous Decomposition Products: When heated to decomposition it emits toxic and corrosive fume of hydrochloric acid. Hazardous Polymerization: Will not occur.

We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products, may be used. We accept no responsibility for test results obtained by the application of this information or the safety and suitability of our products, either alone or in combination with other products. Users are advised to make their own test to determine the safety and suitability of each product or product combination for their own purposes. Unless otherwise agreed in writing, we sell the products without warranty, and buyers and users assume all responsibility and liability for loss or damage arising from the handling and use of our products, whether used alone or in combination with other products.