

STANNOUS CHLORIDE (DIHYDRATE)

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

STANNOUS CHLORIDE (DIHYDRATE)
Synonyms: Tin(II) chloride dihydrate; Tin dichloride dihydrate
CAS: 10025-69-1

Other means of identification:

Not relevant

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Electroplating (tin/tin-alloy plating baths, sensitising/activation step for electroless plating), reducing agent in analytical chemistry, mordant/dyeing auxiliary, catalyst, stabiliser in PVC and other polymer applications, tinning of metal surfaces. For industrial user only.
Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), per the established classification for stannous chloride.

Acute Tox. 4	Acute oral toxicity, Category 4, H302
Eye Irrit. 2	Eye irritation, Category 2, H319

2.2 GHS label elements, including precautionary statements:

GHS: Warning
Hazard statements:
H302 – Harmful if swallowed.
H319 – Causes serious eye irritation.

Precautionary statements:

P264: Wash hands thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/eye protection.
P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P501: Dispose of contents/container in accordance with local/national regulations.

2.3 Other hazards which do not result in classification:

Aqueous solutions are acidic and may hydrolyse to form hydrochloric acid and insoluble basic tin salts on dilution; readily oxidised by air to the stannic (Sn(IV)) state in solution.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Stannous Chloride Dihydrate, SnCl₂·2H₂O
In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 10025-69-1	Stannous Chloride Dihydrate — Acute Tox. 4: H302; Eye Irrit. 2: H319 – Warning	≥ 98% (typical commercial/technical grade)

To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance if symptoms occur, showing the SDS of this product.

By inhalation:

Remove the person affected from the area of exposure, provide fresh air and keep at rest. Seek medical attention if discomfort persists.

By skin contact:

Remove contaminated clothing. Wash skin thoroughly with plenty of soap and water. Seek medical advice if irritation persists.

By eye contact:

Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention – causes serious eye irritation.

By ingestion/aspiration:

Rinse mouth with water. Do not induce vomiting. Call a Poison Control Centre or doctor if feeling unwell.

4.2 Most important symptoms/effects, acute and delayed:

Acute: gastrointestinal discomfort if swallowed; eye irritation on contact. No significant delayed/chronic effects established for routine handling.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Non-combustible; use extinguishing media appropriate to the surrounding fire (water spray, foam, dry chemical powder, carbon dioxide).
Unsuitable: None known

5.2 Specific hazards arising from the chemical:

Non-flammable, non-combustible inorganic solid. On heating/combustion of surrounding materials, may emit irritating hydrogen chloride and tin oxide fumes.

5.3 Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and protective clothing as a general precaution in case of surrounding fire.

Additional provisions:

Non-applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid contact with eyes. Avoid generating dust. Use personal protective equipment described in section 8.

For emergency responders:

No special equipment required beyond standard PPE (gloves, eye protection, dust mask).

6.2 Environmental precautions:

Avoid release of significant quantities to drains and watercourses. Prevent entry into drains where practicable.

6.3 Methods and materials for containment and cleaning up:

Sweep or vacuum up (avoid generating airborne dust) and place in a suitable, labelled container for reuse or disposal.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid contact with eyes. Avoid generating and breathing dust. Handle with adequate ventilation.

B. Technical recommendations for the prevention of fires and explosions:

Non-combustible; no special fire precautions required beyond general good practice.

C. Technical recommendations on general occupational hygiene:

Do not eat, drink or smoke while handling. Wash hands after handling.

D. Technical recommendations to prevent environmental risks:

Avoid uncontrolled discharge to the environment.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Minimum Temp.	Ambient
Maximum Temp.	Ambient (cool, dry conditions)
Maximum time	Typical value – refer to current specification sheet

B. General conditions for storage:

Store in tightly closed containers in a dry, well-ventilated area, away from moisture and strong oxidising agents. For additional information see subsection 10.5.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be assessed in the workplace, per the Factories Act, 1948, as amended, and generally referenced international occupational exposure limits for tin and inorganic tin compounds:

Identification	Occupational Exposure Limit Type	Value
Stannous Chloride Dihydrate CAS: 10025-69-1	Time Weighted average (8 hrs), as Sn	2 mg/m³ (typical reference value for inorganic tin compounds)

8.2 Appropriate engineering controls:

Use local exhaust ventilation/dust suppression to keep airborne concentrations below occupational exposure limits.

B. Respiratory protection:

Use a particulate (dust) respirator when exposure limits may be exceeded.

C. Specific protection for the hands:

Protective gloves (e.g. nitrile) recommended for prolonged or repeated handling.

D. Eye and face protection:

Safety glasses or goggles – mandatory, due to eye irritation classification.

E. Bodily protection:

Standard work clothing; coveralls recommended in dusty environments.

F. Additional emergency measures:

Eyewash station recommended in work areas.

Environmental exposure controls:

Avoid uncontrolled discharge to the environment. See subsection 7.1.D.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance		
Physical state at 20°C	Solid (crystals)	
Appearance	Crystalline solid	

Color	White to slightly yellowish
Odor	Odourless
Odour threshold	Not relevant *
Volatility	
Boiling point at atmospheric pressure	≈652°C (anhydrous)
Vapour pressure at 20°C / 50°C	Negligible
Evaporation rate at 20°C	Not relevant *
Product Description	
Density / Relative density at 20°C	≈2.71 g/cm³
Dynamic / Kinematic viscosity	Not relevant *
Concentration	≥98% (typical)
pH	≈1–2 (aqueous solution, 50 g/L – acidic due to hydrolysis)
Vapour density at 20°C	Not relevant *
Partition coefficient n-octanol/water 20°C	Not relevant *
Solubility in water at 20°C	Readily soluble, ≈2000 g/L (with partial hydrolysis)
Decomposition temperature	Loses water of crystallisation ≈37–100°C
Melting point/freezing point	≈37°C (dihydrate)
Flammability	
Flash Point	Non-applicable
Flammability (solid, gas)	Non-flammable
Autoignition temperature	Not relevant *
Lower / Upper flammability limit	Not relevant *
Particle Characteristics	
Median equivalent diameter	Typical value – refer to current specification sheet

* Not relevant due to the nature of the product, not providing information on the properties of its hazards.

9.2 Other information:

Explosive properties	Not relevant *
Oxidising properties	Not an oxidiser; acts as a reducing agent
Corrosive to metals	Mildly corrosive to some metals in aqueous solution (acidic)
Heat of combustion	Not relevant *
Surface tension at 20°C	Not relevant *
Refraction index	Not relevant *

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Acts as a reducing agent; readily oxidised by air, especially in aqueous solution, to stannic (Sn(IV)) compounds. Reacts with strong oxidising agents, sometimes vigorously.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use when protected from moisture and air. Aqueous solutions are less stable and oxidise/hydrolyse over time.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions are not expected with normal handling. Avoid contact with strong oxidisers.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Gradual oxidation possible	Not applicable	Not applicable	Avoid – hygroscopic, hydrolyses to HCl

10.5 Incompatible materials:

Strong Oxidising Agents	Strong Bases	Water (excess)	Air/Moisture	Nitrates
Avoid contact – may react vigorously	Forms insoluble tin hydroxide	Hydrolyses to basic chloride + HCl	Gradual oxidation to Sn(IV)	Avoid contact – reducing/oxidising incompatibility

10.6 Hazardous decomposition products:

Thermal decomposition may release hydrogen chloride (HCl) gas and tin oxide fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Harmful if swallowed (H302). May cause gastrointestinal irritation, nausea, vomiting.

B. Inhalation (acute effect):

May cause mild irritation of the respiratory tract at high dust concentrations.

C. Contact with skin and eyes (acute effect):

Causes serious eye irritation (H319). Not classified as a skin irritant per current criteria, but prolonged contact should be avoided.

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria for carcinogenicity, mutagenicity and reproductive toxicity are not met based on available data. IARC: Not listed.

E. Sensitizing effects:

Classification criteria for respiratory or skin sensitisation are not met based on available data.

F. Specific target organ toxicity (STOT) – single exposure:

Classification criteria are not met based on available data.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Not applicable (solid).

Product-specific toxicological information:

Identification	Acute Toxicity	Genus
Stannous Chloride Dihydrate CAS: 10025-69-1	LD50 oral: ≈700 mg/kg (as tin(II) chloride, typical published range)	Rat
	LD50 dermal: Not established	–

SECTION 12: ECOLOGICAL INFORMATION

Not classified as hazardous to the aquatic environment under current GHS criteria; nonetheless good environmental practice should be followed.

12.1 Toxicity:

Acute Toxicity	Species	Genus
LC50: Typical value – refer to current specification sheet	Non-applicable	Fish
EC50: Typical value – refer to current specification sheet	Non-applicable	Crustacean

12.2 Persistence and degradability:

Inorganic substance; biodegradability concept not applicable. Hydrolyses/oxidises in aqueous/aerobic environments to less soluble tin(IV) species.

12.3 Bioaccumulative potential:

Not expected to bioaccumulate significantly.

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	Low to moderate	Low (hydrolyses/precipitates)

12.5 Results of PBT and vPvB assessment:

Not applicable; does not meet PBT/vPvB criteria.

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Dispose of in accordance with local and national regulations, preferably via a licensed waste handler; neutralise acidic solutions before disposal where applicable. For packaging: avoid treatments as far as possible – use dedicated containers.
Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR 2023 / RID 2023):

14.1 UN number	Not applicable – not classified as dangerous goods for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by sea (IMDG 41-22):

14.1 UN number	Not applicable – not classified as dangerous goods for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Marine pollutant	No
14.6 Special precautions for user	Non-applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

Transport of dangerous goods by air (IATA/ICAO 2024):

14.1 UN number	Not applicable – not classified as dangerous goods for transport
14.2 UN proper shipping name	Non-applicable
14.3 Transport hazard class(es)	Non-applicable
14.4 Packing group	N/A
14.5 Environmental hazard	No
14.6 Special precautions for user	Non-applicable
14.7 Transport in bulk (Annex II MARPOL 73/78, IBC Code)	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

H302: Harmful if swallowed.

H319: Causes serious eye irritation.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

The United Nations Economic Commission for Europe (UNECE); publicly available GHS classification references for CAS 10025-69-1.

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation | LD50: Lethal Dose 50 | LC50: Lethal Concentration 50 | EC50: Effective Concentration 50 | Koc: Partition coefficient of organic carbon | IARC: International Agency for Research on Cancer

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product; it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within Suraj Chemicals' awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.

END OF SAFETY DATA SHEET