# SAFETY DATA SHEET

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

**Revision Date** 30-Nov-2024 **Revision Number** 5

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THECOMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Description:** Tin plating powder, electroless, part A
**Cat No. :** 44176

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Recommended Use** Laboratory chemicals.
**Uses advised against** No Information available

### 1.3. Details of the supplier of the safety data sheet

**Company**

Avocado Research Chemicals Ltd.
(Part of Thermo Fisher Scientific)
Shore Road, Heysham
Lancashire, LA3 2XY,
United Kingdom
Office Tel: +44 (0) 1524 850506
Office Fax: +44 (0) 1524 850608

**E-mail address** begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
**CHEMTREC** Tel. No. **US:**001-800-424-9300 / **Europe:**001-703-527-3887

**Poison Centre - Emergency information services**

**Ireland :** National Poisons Information Centre (NPIC) -
**01 809 2166** (8am-10pm, 7 days a week)
**Malta :** +356 2395 2000
**Cyprus :** +357 2240 5611

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

**GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567**

**Physical hazards**

| | |
|---|---|
| Substances/mixtures corrosive to metal | Category 1 (H290) |

**Health hazards**

| | |
|---|---|
| Acute oral toxicity | Category 4 (H302) |
| Skin Corrosion/Irritation | Category 1 B (H314) |
| Serious Eye Damage/Eye Irritation | Category 1 (H318) |
| Skin Sensitization | Category 1 (H317) |
| Carcinogenicity | Category 2 (H351) |
| Reproductive Toxicity | Category 2 (H361d) |
| Specific target organ toxicity - (repeated exposure) | Category 2 (H373) |
| **Environmental hazards** | |
| Chronic aquatic toxicity | Category 2 (H411) |

*Full text of Hazard Statements: see section 16*

**2.2. Label elements**

**Signal Word** **Danger**

**Hazard Statements**

H290 - May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

**Precautionary Statements**

P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician

**2.3. Other hazards**

Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

**3.2. Mixtures**

| Component | CAS No | EC No | Weight % | GHS Classification - According to |
|---|---|---|---|---|

| | | | | GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567 |
|---|---|---|---|---|
| Thiourea | 62-56-6 | EEC No. 200-543-5 | 53.0 | Acute Tox. 4 (H302)<br>Carc. 2 (H351)<br>Repr. 2 (H361d)<br>Aquatic Chronic 2 (H411) |
| Stannous chloride | 7772-99-8 | EEC No. 231-868-0 | 15.0 | Met. Corr. 1 (H290)<br>Acute Tox. 4 (H302)<br>Acute Tox. 4 (H332)<br>Skin Sens. 1 (H317)<br>Skin Corr. 1B (H314)<br>Eye Dam. 1 (H318)<br>STOT SE 3 (H335)<br>STOT RE 2 (H373)<br>Aquatic Chronic 3 (H412) |
| Citric acid | 77-92-9 | EEC No 201-069-1 | 15.0 | Eye Irrit. 2 (H319)<br>STOT SE 3 (H335) |
| Tetrasodium EDTA | 64-02-8 | EEC No. 200-573-9 | 8.0 | Acute Tox. 4 (H302)<br>Eye Dam. 1 (H318)<br>Acute Tox. 4 (H332) |
| Sodium chloride | 7647-14-5 | 231-598-3 | 8.0 | - |
| Magnesium chloride, hexahydrate | 7791-18-6 | | 1.0 | - |

*Full text of Hazard Statements: see section 16*

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

**General Advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.

**Skin Contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

**Ingestion** Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Self-Protection of the First Aider** No special precautions required.

### 4.2. Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. May cause allergic skin reaction. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

**Suitable Extinguishing Media**
Carbon dioxide ($CO_2$). Powder. Water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. $CO_2$, dry chemical, dry sand, alcohol-resistant foam.

**Extinguishing media which must not be used for safety reasons**
No information available.

### 5.2. Special hazards arising from the substance or mixture

The product causes burns of eyes, skin and mucous membranes.

**Hazardous Combustion Products**
Nitrogen oxides (NOx), Hydrogen chloride, Sodium oxides, Magnesium oxides, Tin oxides.

### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Avoid contact with skin, eyes or clothing.

### 6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Should not be released into the environment. Do not allow material to contaminate ground water system.

### 6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

### 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe dust. Do not ingest. If swallowed then seek immediate medical assistance.

**Hygiene Measures**
Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before

re-use. Wash hands before breaks and after work.

### 7.2. Conditions for safe storage, including any incompatibilities

Corrosives area. Keep containers tightly closed in a dry, cool and well-ventilated place.

**Technical Rules for Hazardous Substances (TRGS) 510 Storage Class (LGK) (Germany)** Class 8B

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

**Exposure limits**
List source(s): **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

| Component | The United Kingdom | European Union | Ireland |
|---|---|---|---|
| Stannous chloride | STEL: 4 mg/m³ 15 min<br>TWA: 2 mg/m³ 8 hr | | |

**Biological limit values**
This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

**Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)**
See table for values

| Component | Acute effects local (Dermal) | Acute effects systemic (Dermal) | Chronic effects local (Dermal) | Chronic effects systemic (Dermal) |
|---|---|---|---|---|
| Thiourea<br>62-56-6 ( 53.0 ) | | | | DNEL = 3.4mg/kg bw/day |
| Stannous chloride<br>7772-99-8 ( 15.0 ) | | DNEL = 0.69mg/kg bw/day | | DNEL = 0.34mg/kg bw/day |
| Sodium chloride<br>7647-14-5 ( 8.0 ) | | DNEL = 295.52mg/kg bw/day | | DNEL = 295.52mg/kg bw/day |

| Component | Acute effects local (Inhalation) | Acute effects systemic (Inhalation) | Chronic effects local (Inhalation) | Chronic effects systemic (Inhalation) |
|---|---|---|---|---|
| Thiourea<br>62-56-6 ( 53.0 ) | | | | DNEL = 1mg/m³ |
| Stannous chloride<br>7772-99-8 ( 15.0 ) | DNEL = 12.84mg/m³ | DNEL = 2.01mg/m³ | DMEL = 12mg/m³ | DNEL = 1mg/m³ |
| Sodium chloride<br>7647-14-5 ( 8.0 ) | | DNEL = 2068.62mg/m³ | | DNEL = 2068.62mg/m³ |

**Predicted No Effect Concentration (PNEC)**
See values below.

| Component | Fresh water | Fresh water sediment | Water Intermittent | Microorganisms in sewage treatment | Soil (Agriculture) |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Thiourea<br>62-56-6 ( 53.0 ) | PNEC = 0.01mg/L | PNEC = 0.0725mg/kg sediment dw | PNEC = 0.038mg/L | PNEC = 0.38mg/L | PNEC = 2.725mg/kg soil dw |
| Stannous chloride<br>7772-99-8 ( 15.0 ) | PNEC = 0.8mg/L | PNEC = 51.37mg/kg sediment dw | PNEC = 4.24µg/L | PNEC = 1.06ng/L | |
| Sodium chloride<br>7647-14-5 ( 8.0 ) | PNEC = 5mg/L | | | PNEC = 500mg/L | PNEC = 4.86mg/kg soil dw |

| Component | Marine water | Marine water sediment | Marine water intermittent | Food chain | Air |
|---|---|---|---|---|---|
| Thiourea<br>62-56-6 ( 53.0 ) | PNEC = 0.001mg/L | PNEC = 0.00725mg/kg sediment dw | | | |

**8.2. Exposure controls**

**Engineering Measures**
None under normal use conditions. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal protective equipment**

**Eye Protection** Goggles (European standard - EN 166)

**Hand Protection** Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|---|---|---|---|---|
| Natural rubber<br>Nitrile rubber<br>Neoprene<br>PVC | See manufacturers recommendations | - | EN 374 | (minimum requirement) |

**Skin and body protection** Long sleeved clothing.

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

**Respiratory Protection** No protective equipment is needed under normal use conditions.

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
**Recommended Filter type:** Particle filter

**Small scale/Laboratory use** Maintain adequate ventilation

**Environmental exposure controls** Prevent product from entering drains. Do not allow material to contaminate ground water system.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**9.1. Information on basic physical and chemical properties**

| | | |
|---|---|---|
| **Physical State** | Solid | |
| **Appearance** | Varies | |
| **Odor** | No information available | |
| **Odor Threshold** | No data available | |
| **Melting Point/Range** | No data available | |
| **Softening Point** | No data available | |
| **Boiling Point/Range** | No information available | |
| **Flammability (liquid)** | Not applicable | Solid |
| **Flammability (solid,gas)** | No information available | |
| **Explosion Limits** | No data available | |
| **Flash Point** | No information available | **Method -** No information available |
| **Autoignition Temperature** | No data available | |
| **Decomposition Temperature** | No data available | |
| **pH** | No information available | |
| **Viscosity** | Not applicable | Solid |
| **Water Solubility** | Insoluble in water | |
| **Solubility in other solvents** | No information available | |

**Partition Coefficient (n-octanol/water)**

| **Component** | **log Pow** |
|---|---|
| Thiourea | -0.92 |
| Citric acid | -1.72 |

| | | |
|---|---|---|
| **Vapor Pressure** | 23 hPa @ 20 °C | |
| **Density / Specific Gravity** | 1.4 g/cm3 | @ 20 °C |
| **Bulk Density** | No data available | |
| **Vapor Density** | Not applicable | Solid |
| **Particle characteristics** | No data available | |

**9.2. Other information**

**Evaporation Rate** Not applicable - Solid

## SECTION 10: STABILITY AND REACTIVITY

**10.1. Reactivity**

None known, based on information available

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

**Hazardous Polymerization** No information available.
**Hazardous Reactions** None under normal processing.

**10.4. Conditions to avoid**

Incompatible products. Excess heat.

**10.5. Incompatible materials**

Oxidizing agent.

**10.6. Hazardous decomposition products**

Nitrogen oxides (NOx). Hydrogen chloride. Sodium oxides. Magnesium oxides. Tin oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

**Product Information**

**(a) acute toxicity;**

| | |
|---|---|
| **Oral** | Category 4 |
| **Dermal** | Based on available data, the classification criteria are not met |
| **Inhalation** | Based on available data, the classification criteria are not met |

**Toxicology data for the components**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Thiourea | LD50 = 1750 mg/kg ( Rat ) | LD50 > 6810 mg/kg ( Rat ) | > 0.9 mg/L ( Rat ) 4 h |
| Stannous chloride | LD50 = 1910 mg/kg ( Rat ) | - | LC50 = 2mg/l (4h) rat (OECD 436) |
| Citric acid | LD50 = 3 g/kg ( Rat ) | >2 g/kg ( Rat ) | - |
| Tetrasodium EDTA | LD50 = 1780 - 2000 mg/kg ( Rat ) | - | - |
| Sodium chloride | LD50 = 3550 mg/kg ( Rat ) | LD50 > 10000 mg/kg ( Rabbit ) | LC50 > 42 mg/L ( Rat ) 1 h |
| Magnesium chloride, hexahydrate | LD50 = 8100 mg/kg ( Rat ) | - | - |

**(b) skin corrosion/irritation;** Category 1 B

**(c) serious eye damage/irritation;** Category 1

**(d) respiratory or skin sensitization;**

| | |
|---|---|
| **Respiratory** | No data available |
| **Skin** | Category 1 |

No information available

**(e) germ cell mutagenicity;** No data available

| Component | Test method | Test species | Study result |
|---|---|---|---|
| Stannous chloride<br>7772-99-8 ( 15.0 ) | OECD Test Guideline 476<br>Gene cell mutation | in vitro<br>Mammalian | negative |

**(f) carcinogenicity;** Category 2

| Component | Test method | Test species / Duration | Study result |
|---|---|---|---|
| Stannous chloride<br>7772-99-8 ( 15.0 ) | OECD Test Guideline 451 | Rat<br>mouse<br>2 years | negative |

The table below indicates whether each agency has listed any ingredient as a carcinogen

**(g) reproductive toxicity;** Category 2

| Component | Test method | Test species / Duration | Study result |
|---|---|---|---|
| Stannous chloride<br>7772-99-8 ( 15.0 ) | OECD Test Guideline similar to OECD 416 | rabbit<br>15 days | NOAEL =<br>41.5<br>mg/kg bw/day |

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** Category 2

**Target Organs** Cardiovascular system, Blood.

**(j) aspiration hazard;** Not applicable
Solid

**Symptoms / effects,both acute and delayed** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

### 11.2. Information on other hazards

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

**Ecotoxicity effects** The product contains following substances which are hazardous for the environment. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

| Component | Freshwater Fish | Water Flea | Freshwater Algae |
|---|---|---|---|
| Thiourea | LC50: = 10000 mg/L, 96h (Brachydanio rerio)<br>LC50: > 600 mg/L, 96h (Pimephales promelas) | EC50: = 35 mg/L, 48h (Daphnia magna) | EC50: 3.8 - 10 mg/L, 72h (Desmodesmus subspicatus)<br>EC50: = 6.8 mg/L, 96h (Desmodesmus subspicatus) |
| Stannous chloride | | EC50 = 19.5 mg/L/48h | |
| Citric acid | Leuciscus idus: LC50 = 440-760 mg/L/96h | EC50 = 120 mg/L/72h | |
| Tetrasodium EDTA | LC50: = 121 - 1592 mg/L, 96h static (Lepomis macrochirus) | EC50: = 140mg/l, 48h (Daphnia magna) | |
| Sodium chloride | Pimephals prome: LC50: 7650 mg/L/96h | EC50: 1000 mg/L/48h | |

| Component | Microtox | M-Factor |
|---|---|---|
| Thiourea | EC50 = 3100 mg/L 30 min<br>EC50 = 3395 mg/L 15 min | |
| Citric acid | Photobacterium phosphoreum: EC50 = 14 mg/L/15 min | |

### 12.2. Persistence and degradability

Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

**Persistence** Insoluble in water, May persist.

**Degradability** Not relevant for inorganic substances.

**Degradation in sewage treatment plant** Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

### 12.3. Bioaccumulative potential

May have some potential to bioaccumulate; Product has a high potential to bioconcentrate

| Component | log Pow | Bioconcentration factor (BCF) |
|---|---|---|
| Thiourea | -0.92 | No data available |
| Citric acid | -1.72 | No data available |

**12.4. Mobility in soil** Spillage unlikely to penetrate soil The product is insoluble and sinks in water Is not likely mobile in the environment due its low water solubility.

**12.5. Results of PBT and vPvB assessment** No data available for assessment.

**12.6. Endocrine disrupting properties**
**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**12.7. Other adverse effects**
**Persistent Organic Pollutant** This product does not contain any known or suspected substance
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

**13.1. Waste treatment methods**

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**European Waste Catalogue (EWC)** According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

**Other Information** Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

**IMDG/IMO**

**14.1. UN number** UN1759
**14.2. UN proper shipping name** CORROSIVE SOLID, N.O.S.*
**Technical Shipping Name** (Tin(II) chloride, anhydrous)
**14.3. Transport hazard class(es)** 8
**14.4. Packing group** III

**ADR**

**14.1. UN number** UN1759
**14.2. UN proper shipping name** Corrosive solid, n.o.s.
**Technical Shipping Name** (Tin(II) chloride, anhydrous)
**14.3. Transport hazard class(es)** 8
**14.4. Packing group** III

**IATA**

| | |
|---|---|
| **14.1. UN number** | UN1759 |
| **14.2. UN proper shipping name** | CORROSIVE SOLID, N.O.S* |
| **Technical Shipping Name** | (Tin(II) chloride, anhydrous) |
| **14.3. Transport hazard class(es)** | 8 |
| **14.4. Packing group** | III |

**14.5. Environmental hazards** Dangerous for the environment
Product is a marine pollutant according to the criteria set by IMDG/IMO

**14.6. Special precautions for user** No special precautions required.

**14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

**International Inventories**
Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

| Component | CAS No | EINECS | ELINCS | NLP | IECSC | TCSI | KECL | ENCS | ISHL |
|---|---|---|---|---|---|---|---|---|---|
| Thiourea | 62-56-6 | 200-543-5 | - | - | X | X | KE-33805 | X | X |
| Stannous chloride | 7772-99-8 | 231-868-0 | - | - | X | X | KE-33845 | X | X |
| Citric acid | 77-92-9 | 201-069-1 | - | - | X | X | KE-20831 | X | X |
| Tetrasodium EDTA | 64-02-8 | 200-573-9 | - | - | X | X | KE-13654 | X | X |
| Sodium chloride | 7647-14-5 | 231-598-3 | - | - | X | X | KE-31387 | X | X |
| Magnesium chloride, hexahydrate | 7791-18-6 | - | - | - | X | X | - | X | X |

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | DSL | NDSL | AICS | NZIoC | PICCS |
|---|---|---|---|---|---|---|---|---|
| Thiourea | 62-56-6 | X | ACTIVE | X | - | X | X | X |
| Stannous chloride | 7772-99-8 | X | ACTIVE | X | - | X | X | X |
| Citric acid | 77-92-9 | X | ACTIVE | X | - | X | X | X |
| Tetrasodium EDTA | 64-02-8 | X | ACTIVE | X | - | X | X | X |
| Sodium chloride | 7647-14-5 | X | ACTIVE | X | - | X | X | X |
| Magnesium chloride, hexahydrate | 7791-18-6 | - | - | - | - | X | X | X |

**Legend:** X - Listed '-' - Not Listed **KECL** - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

**Authorisation/Restrictions according to EU REACH**

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|---|---|---|---|---|
| Thiourea | 62-56-6 | - | Use restricted. See entry 75. (see link for restriction details) | - |
| Stannous chloride | 7772-99-8 | - | - | - |
| Citric acid | 77-92-9 | - | Use restricted. See entry 75. (see link for restriction details) | - |

| | | | | |
|---|---|---|---|---|
| Tetrasodium EDTA | 64-02-8 | - | Use restricted. See entry 75. (see link for restriction details) | - |
| Sodium chloride | 7647-14-5 | - | - | - |
| Magnesium chloride, hexahydrate | 7791-18-6 | - | - | - |

**REACH links**
*https://echa.europa.eu/substances-restricted-under-reach*

**Seveso III Directive (2012/18/EC)**

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements |
|---|---|---|---|
| Thiourea | 62-56-6 | Not applicable | Not applicable |
| Stannous chloride | 7772-99-8 | Not applicable | Not applicable |
| Citric acid | 77-92-9 | Not applicable | Not applicable |
| Tetrasodium EDTA | 64-02-8 | Not applicable | Not applicable |
| Sodium chloride | 7647-14-5 | Not applicable | Not applicable |
| Magnesium chloride, hexahydrate | 7791-18-6 | Not applicable | Not applicable |

**Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals**
Not applicable

**Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?**
Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .
Take note of Directive 94/33/EC on the protection of young people at work
Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

**National Regulations**

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

**WGK Classification** Water endangering class = 3 (self classification)

| Component | Germany - Water Classification (AwSV) | Germany - TA-Luft Class |
|---|---|---|
| Thiourea | WGK3 | Class I : 20 mg/m³ (Massenkonzentration) |
| Stannous chloride | WGK3 | |
| Citric acid | WGK1 | |
| Tetrasodium EDTA | WGK2 | |
| Sodium chloride | WGK1 | |

| Component | France - INRS (Tables of occupational diseases) |
|---|---|
| Sodium chloride | Tableaux des maladies professionnelles (TMP) - RG 78 |

| Component | Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81) | Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC) | Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Citric acid<br>77-92-9 ( 15.0 ) | Prohibited and Restricted Substances | | |
| Tetrasodium EDTA<br>64-02-8 ( 8.0 ) | Prohibited and Restricted Substances | | |
| Sodium chloride<br>7647-14-5 ( 8.0 ) | Prohibited and Restricted Substances | | |

### 15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

## SECTION 16: OTHER INFORMATION

**Full text of H-Statements referred to under sections 2 and 3**

H290 - May be corrosive to metals
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H351 - Suspected of causing cancer
H361d - Suspected of damaging the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H335 - May cause respiratory irritation
H412 - Harmful to aquatic life with long lasting effects

**Legend**

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**IECSC** - Chinese Inventory of Existing Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**ENCS** - Japanese Existing and New Chemical Substances
**AICS** - Australian Inventory of Chemical Substances
**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit
**ACGIH** - American Conference of Governmental Industrial Hygienists
**DNEL** - Derived No Effect Level
**RPE** - Respiratory Protective Equipment
**LC50** - Lethal Concentration 50%
**NOEC** - No Observed Effect Concentration
**PBT** - Persistent, Bioaccumulative, Toxic

**TWA** - Time Weighted Average
**IARC** - International Agency for Research on Cancer
Predicted No Effect Concentration (PNEC)
**LD50** - Lethal Dose 50%
**EC50** - Effective Concentration 50%
**POW** - Partition coefficient Octanol:Water
**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code
**OECD** - Organisation for Economic Co-operation and Development
**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association
**MARPOL** - International Convention for the Prevention of Pollution from Ships
**ATE** - Acute Toxicity Estimate
**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**

https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:**

| | |
|---|---|
| **Physical hazards** | On basis of test data |
| **Health Hazards** | Calculation method |
| **Environmental hazards** | Calculation method |

**Training Advice**

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

| | |
|---|---|
| **Prepared By** | Health, Safety and Environmental Department |
| **Revision Date** | 30-Nov-2024 |
| **Revision Summary** | Not applicable. |

**This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.**

**Disclaimer**

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## End of Safety Data Sheet