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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name/designation : Tin
 Chemical name : Tin
 EC No : 231-141-8
 CAS No. : 7440-31-5

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

Main use category : Industrial use
 Specific use(s) : Metals

1.3. Details of the supplier of the safety data sheet

Company : Trafigura Beheer BV
 Gustav Mahlerplein 102, ITO Tower - 20th Floor
 1082 MA Amsterdam , The Netherlands
 Telephone: +31 20 504 1852
 E-mail: TrafiguraReach@trafigura.com

1.4. Emergency telephone number

Emergency telephone : +32 3 575 03 30 (This telephone number is available 24 hours per day, 7 days per week.)

IRELAND (REPUBLIC OF)
 National Poisons Information Centre
 Beaumont Hospital : +35 318 37 99 64
 UNITED KINGDOM
 National Poisons Information Service
 (Newcastle Centre) : 0870 600 6266 (UK only)
 Regional Drugs and Therapeutics Centre,
 Wolfson Unit

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.1. Classification according to Regulation (EU) 1272/2008

CLP-Classification : This substance is classified as not hazardous according to regulation (EC) No. 1272/2008 [CLP].

Not classified

2.1.2. Classification according to EU Directives 67/548/EEC or 1999/45/EC


Classification : The product is non-dangerous in accordance with Directive 67/548/EEC.

Not classified

2.2. Label elements

2.2.1. Labelling according to Regulation (EU) 1272/2008

Not applicable.

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2.2.2. Labelling according to Directives (67/548 - 1999/45)

Not relevant

2.3. Other hazards

Other hazards : Results of PBT and vPvB assessment :
Not applicable
Product/Substance is inorganic.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance name	Product identifier	%	Classification according to Directive 67/548/EEC
Tin	(CAS No.) 7440-31-5 (EC No) 231-141-8 (REACH-no) 01-2119486474-28-XXXX	> 99	Not classified

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Tin	(CAS No.) 7440-31-5 (EC No) 231-141-8 (REACH-no) 01-2119486474-28-XXXX	> 99	Not classified

Full text of R-, H- and EUH-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation : Keep at rest.
Provide fresh air.
When in doubt or if symptoms are observed, get medical advice.

Skin contact : Wash off with soap and water.
When in doubt or if symptoms are observed, get medical advice.


Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Get medical attention if irritation develops and persists.

Ingestion : Rinse mouth.
Do not induce vomiting.
Call a physician immediately.

Additional advice : First aider: Pay attention to self-protection!
See also section 8 .
Never give anything by mouth to an unconscious person or a person with cramps.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
When in doubt or if symptoms are observed, get medical advice.

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

Inhalation : No adverse effects are expected. Inhalation of dust may cause irritation of the respiratory system.

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- Skin contact : No adverse effects are expected. Contact with dust can cause mechanical irritation or drying of the skin. Contact with hot product will cause thermal burns.
- Eye contact : No adverse effects are expected. Dust contact with the eyes can lead to mechanical irritation. Contact with hot product will cause thermal burns.
- Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.

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

Not applicable.

SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
- Extinguishing media which shall not be used for safety reasons : Strong water jet

5.2. Special hazards arising from the substance or mixture

- Fire hazard : This material is combustible, but will not ignite readily. (at high temperatures)
- Specific hazards : Evacuate area.
Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Hazardous decomposition products: SnOx

5.3. Advice for firefighters

- Advice for firefighters : Special protective equipment for firefighters.
In case of fire: Wear self-contained breathing apparatus.
Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures


- For non-emergency personnel : Provide adequate ventilation.
Evacuate area.
Use personal protective equipment as required.
See also section 8
Avoid contact with skin, eyes and clothes.
Do not breathe dust.
Do not breathe fumes.
Avoid generation of dust.
- For emergency responders : Only qualified personnel equipped with suitable protective equipment may intervene.
See also section 8.

6.2. Environmental precautions

- Environmental precautions : Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

- Methods for cleaning up : Take up mechanically and collect in suitable container for disposal.
Dispose according to legislation.

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6.4. Reference to other sections

See also section 8
See also section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Handling :
- Provide adequate ventilation.
 - Use personal protective equipment as required.
 - See also section 8.
 - Avoid contact with skin, eyes and clothes.
 - Do not breathe dust.
 - Do not breathe fumes.
 - After use replace the closing cap immediately.
 - Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH value, time).
 - Take any precaution to avoid mixing with incompatible materials
 - See also section 10
 - Do not allow to enter into surface water or drains.
- Advices on general occupational hygiene :
- Wash hands and face before breaks and immediately after handling of the product.
 - Keep away from food, drink and animal feedingstuffs.
 - When using do not eat, drink or smoke.
 - Wash contaminated clothing before re-use.

7.2. Conditions for safe storage, including any incompatibilities

- Storage :
- Keep container tightly closed in a cool, well-ventilated place.
 - Do not store near or with any of the incompatible materials listed in section 10.
- Packaging material :
- Keep/Store only in original container.

7.3. Specific end use(s)


No data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limit values :

Tin (7440-31-5)		
Austria	MAK (mg/m ³)	2 mg/m ³
Austria	MAK Short time value (mg/m ³)	4 mg/m ³
Belgium	Limit value (mg/m ³)	2 mg/m ³
Cyprus	OEL TWA (mg/m ³)	2 mg/m ³
Gibraltar	OEL TWA (mg/m ³)	2 mg/m ³ (existing scientific data on health effects appear to be particularly limited)
Greece	OEL TWA (mg/m ³)	2 mg/m ³
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
Spain	VLA-ED (mg/m ³)	2 mg/m ³
Switzerland	VME (mg/m ³)	0,02 mg/m ³
Switzerland	VME (ppm)	0,004 ppm
Finland	HTP-arvo (8h) (mg/m ³)	2 mg/m ³

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Tin (7440-31-5)		
Ireland	OEL (8 hours ref) (mg/m ³)	2 mg/m ³
Malta	OEL TWA (mg/m ³)	2 mg/m ³
Poland	NDS (mg/m ³)	2 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	2 mg/m ³

Recommended monitoring procedures: : Personal monitoring
Concentration measurement in air

Tin (7440-31-5)	
DNEL/DMEL (workers)	
Acute - systemic effects, dermal	133,3 mg/kg bodyweight/day
Acute - systemic effects, inhalation	11,75 mg/m ³
Long-term - systemic effects, dermal	133,3 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	11,75 mg/m ³
DNEL/DMEL (general population)	
Acute - systemic effects, dermal	80 mg/kg bodyweight
Acute - systemic effects, inhalation	3,476 mg/kg bodyweight/day
Acute - systemic effects, oral	80 mg/kg bodyweight
Long-term - systemic effects, oral	80 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	3,476

8.2. Exposure controls

Personal protective equipment	: The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. Respirator with a half face mask (EN 140) Respirator with a full face mask (EN 136) Recommended Filter type: P (EN 143)
Hand protection	: Wear chemically resistant gloves (tested to EN374) Recommended material: NBR (Nitrile rubber), Polyethylene The selection of specific gloves for a specific application and time of use in a working area, should also take into account other factors on the working space, such as (but not limited to): other chemicals that are possibly used, physical requirements (protection against cutting/drilling, skill, thermal protection), and the instructions/specification of the supplier of gloves.
Eye protection	: Tightly fitting safety goggles (EN 166)
Body protection	: Wear suitable protective clothing.
Thermal hazard protection	: Not required under normal use. Molten form : Protective gloves against thermal risks (EN 407) Protective clothing (heat-resistant)
Engineering control measures	: Avoid dust formation. A washing facility/water for eye and skin cleaning purposes should be present. Organisational measures to prevent /limit releases, dispersion and exposure See also section 7

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Environmental exposure controls : Do not allow to enter into surface water or drains.
Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	: solid
Colour	: white
Odour	: odourless
Odour Threshold	: No data available
pH	: Not applicable
Melting point/range	: 231,9 °C
Boiling point/boiling range	: 2507 °C
Flash point	: study scientifically unjustified
Evaporation rate	: No data available
Flammability (solid, gas)	: Non-flammable.
Explosion limits (LEL, UEL)	: Not applicable
Vapour pressure	: 1 Pa @ 1224 °C
Vapour density	: No data available
Density	: study scientifically unjustified
Relative density	: 7,31 g/cm ³ @ 20 °C
Water solubility	: 0,004 mg/l @ 20 °C
Solubility in other solvents	: study scientifically unjustified
Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: study scientifically unjustified
Explosive properties	: Not applicable The study does not need to be conducted because there are no chemical groups associated with explosive properties present in the molecule.
Oxidizing properties	: Not applicable The classification procedure needs not to be applied because there are no chemical groups present in the molecule which are associated with oxidising properties.

9.2. Other information

No data available


SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity : none
See also section 10.5

10.2. Chemical stability

Stability : The product is stable under storage at normal ambient temperatures.

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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions : Risk of violent reaction. :
 Chlorine
 Oxidising agent
 Copper nitrate
 Ammonium nitrate (< 200°C)
 See also section 10.5

10.4. Conditions to avoid

Conditions to avoid : None under normal processing.
 See also section 7
 Handling and storage

10.5. Incompatible materials

Incompatible materials : Strong acids Oxidizing agent chlorine Alkali See also section 7 Handling and storage

10.6. Hazardous decomposition products

Hazardous decomposition products : Hazardous decomposition products formed under fire conditions. See also section 5.2

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met.)

Tin (7440-31-5)	
LD50/oral/rat	> 2000 mg/kg bodyweight
LD50/dermal/rat	> 2000 mg/kg
LC50/inhalation/4h/rat	> 0,005 mg/m ³
Tin (7440-31-5)	
LD50/oral/rat	> 2000 mg/kg bodyweight
LD50/dermal/rat	> 2000 mg/kg bodyweight
LC50/inhalation/4h/rat	> 5 g/m ³

Skin corrosion/irritation : Not classified (Based on available data, the classification criteria are not met.)
 pH: Not applicable

Serious eye damage/eye irritation : Not classified (Based on available data, the classification criteria are not met.)
 pH: Not applicable


Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met.)

Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met.)

Carcinogenicity : Not classified (Based on available data, the classification criteria are not met.)

Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met.)
 NOAEL: 1000 mg/kg bodyweight/day

Specific target organ toxicity (single exposure) : Not classified (Based on available data, the classification criteria are not met.)

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Specific target organ toxicity (repeated exposure) : Not classified (Based on available data, the classification criteria are not met.)

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Additional information	NOAEL, subacute, Rat: 1000 mg/kg bw/day

Tin (7440-31-5)	
NOAEL (subacute,oral, animal/male,28 days)	1000 mg/kg bodyweight
NOAEL (subacute,oral, animal/female,28 days)	1000 mg/kg bodyweight

Aspiration hazard : Not classified (Based on available data, the classification criteria are not met.)

Other information

Symptoms related to the physical, chemical and toxicological characteristics,see section 4.2.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity : Ecological injuries are not known or expected under normal use.

Tin (7440-31-5)	
LC50 fish 1	> 14,4 µg/l
EC50 other aquatic organisms 1	(28d) > 1000 mg/kg sediment dw
ErC50 (algae)	>= 19,2 µg/L
LOEC (chronic)	(7d) 200 µg/L

Tin (7440-31-5)	
LC50 fish 1	> 12,4 µg/l (96h)
EC50 other aquatic organisms 1	> 1000 mg/kg sediment dw Long-term toxicity of organisms living in the sediment
ErC50 (algae)	> 19,2 µg/L (72h)
LOEC (chronic)	200 µg/L Toxicity to aquatic invertebrates

12.2. Persistence and degradability

Persistence and degradability : The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Bioaccumulation : Does not bioaccumulate.

12.4. Mobility in soil


Mobility : Log Kd 2.1 - 1.3 L/kg

12.5. Results of PBT and vPvB assessment

PBT/vPvB : The study does not need to be conducted because the substance is inorganic.

12.6. Other adverse effects

Other information : No data available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste from residues / unused products : Where possible recycling is preferred to disposal or incineration.
Dispose according to legislation.
- Contaminated packaging : If recycling is not practicable, dispose of in compliance with local regulations.
- Additional ecological information : Should not be released into the environment.
- List of suggested waste codes/waste designations in accordance with the EWC: : Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: Transport information

14.1. UN number

UN-No. : NA

14.2. UN proper shipping name

Proper Shipping Name : NA
Proper shipping name IATA/IMDG : NA

14.3. Transport hazard class(es)

14.3.1. Overland transport

ADR/RID : Not classified for this transport way.

14.3.2. Inland waterway transport (ADN)

ADN : Not classified for this transport way.

14.3.3. Transport by sea

IMDG : Not classified for this transport way.
Class or Division : Not applicable

14.3.4. Air transport

ICAO/IATA : Not classified for this transport way.
Class or Division : Not applicable

14.4. Packing group

Packing group : NA

14.5. Environmental hazards


Other information : Not applicable.

14.6. Special precautions for user

Special precautions for user : Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Code: IBC : Not applicable.

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SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Restrictions on use : Not applicable

This product contains an ingredient according to the candidate list of Annex XIV of the REACH Regulation 1907/2006/EC.

: none

Authorisations

: Not applicable

15.1.2. National regulations

15.2. Chemical safety assessment

Chemical Safety Assessment

: A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information


Key literature references and sources for data : <http://esis.jrc.ec.europa.eu/>
CSR

Abbreviations and acronyms

: ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin
 ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
 CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC
 IATA = International Air Transport Association
 IMDG = International Maritime Dangerous Goods Code
 LEL = Lower Explosive Limit/Lower Explosion Limit
 UEL = Upper Explosive Limit/Upper Explosion Limit
 REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
 EC50 = Median Effective Concentration
 LC50 = Median lethal concentration
 LD50 = Median lethal dose
 TLV = Threshold limits
 TWA = time weighted average
 STEL = Short term exposure limit
 persistent, bioaccumulating and toxic (PBT).
 vPvB = very persistent and very bioaccumulating
 WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

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