SAFETY DATA SHEET

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Surclean PT-10LF Sn100 Solder Paint Lead Free

Safety Data Sheet according to the REACH Regulation (EC 1907/2006), and the CLP Regulation(EC1272/2008).

1.Identification of the substance/mixture

1.1 Product identifier
PT-10LF Sn100 Solder Paint Lead Free

1.2 Relevant identified uses of the substance or mixture and uses advisedagainst
Soldering and surface coating at temperatures up to 500°C.

2.Hazards Identification

2.1 Classification of the substance or mixture
Classification according to the CLP Regulation (EC1272/2008):
Acute toxicity (Category 4), H302
Skin corrosive (Category 1B), H314
Eye effects (Category 1), H318
Specific target organ toxicity - single exposure [respiratory tract irritation] (Category 3), H335
Aquatic toxicity, acute (Category 1), H400
Aquatic toxicity, chronic (Category 1), H410

2.2 Label elements
Labelling according to CLP Regulation (EC1272/2008)

Pictograms

Signal word Danger

Hazard statements	
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H335	May cause respiratory irritation
H410	Very toxic to aquatic life with long lasting effects
Precautionary statements	
P260	Do not breathe fumes
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P301 + 330 + 331, P310	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.
P303 + 361 + 353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305 + 351 + 338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing
P391	Collect spillage
P403 + 233	Store in a well ventilated place. Keep container tightly closed
P501	Dispose of contents/container in accordance with local/regional/national/international regulations

2.3 Other hazards

None.

3.Composition/Information on Ingredients

3.2 Mixtures

Declarable components

Substance	Weight (%)	EC/CAS No:	Registration No:	Classification according to Regulation (EC) No 1278/2008
Zinc Chloride	25-50 of liquid fraction	231-592-0 7646-85-7	01-2119472431-44	Acute Tox. 4; H302 Skin Corr. 1B; H314 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 STOT SE 3; H335:C ≥ 5% Acute Tox. 4; H302 Eye Irrit. 2: H319
Ammonium chloride	<20 of liquid fraction	235-186-4 12125-02-9	01-2119487950-27	

For H statements, see section 16.

Other components:

Substance	Weight (%)	EC No:	Registration No:
Tin	50-80	231-141-8 7440-31-5	01-2119486474-28-0024 Some of this substance is exempted from the registration requirements in accordance with Article 2.7(d), as it is a recovered substance.

4.First Aid Measures

4.1 Description of first aid measures

General	Show this safety data sheet to medical personnel.
Inhalation	Move person to fresh air and keep resting in half-upright position. If not breathing, give artificial respiration. Consult a doctor. If unconscious, place in recovery position. Maintain an airway. Loosen tight clothing, such as collar, tie, belt or waistband.
Ingestion	Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Consult a doctor immediately. If unconscious, place in recovery position. Maintain an airway. Loosen tight clothing, such as collar, tie, belt or waistband.

Eye contact	Check for contact lenses and remove if present. Wash the eyes thoroughly with water, occasionally lifting upper and lower eyelids. Consult a doctor if irritation or other symptoms occur.
Skin contact	Wash affected area with soap and plenty of water. Wearing appropriate gloves, remove contaminated clothing. Consult a doctor if irritation occurs. In case of contact with molten metal, cool skin rapidly with cold water.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation	Respiratory tract irritation, coughing, wheezing, shortness of breath. May cause inflammation. Symptoms may be delayed.
Ingestion	Throat and stomach pains, diarrhoea, vomiting. Causes burns to the mouth, throat and stomach.
Eye contact	Pain, watering and redness. Causes serious eye damage.
Skin contact	Pain, irritation or redness and possibly blisters. Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically. If large quantities have been ingested or inhaled,contactpoison centre or doctor immediately.

5.Firefighting Measures

5.1 Extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Fire may cause decomposition, producing nitrogen oxides, hydrogen chloride, ammonia and zinc oxide fumes.

5.3 Advice for fire fighters

If large quantities are involved, wear appropriate protective clothing and self-contained breathing apparatus.Avoid contact with skin. Remove containers or product away from fire.This product is very toxic to aquatic organisms. Water used to extinguish fires should not be allowed to enterdrains or other watercourses.

6.Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Wear protective clothing and equipment to prevent skin and eye contact (see Section 8). Do not breathe fumes. Keep unauthorised personnel from the spillage area.

6.1.2 For emergency responders

Wear protective clothing and equipment to prevent skin and eye contact (seeSection 8). Wear respiratory protection if ventilation is inadequate. Keep unauthorised personnel from the spillage area.

6.2 Environmental precautions

This product is very toxic to aquatic organisms. Do not discharge into drains,surface waters or groundwater. In case of entry into waterways, soil or drains, inform the responsible authorities.

6.3 Methods and materials for containment and clearing up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for recovery or for disposal in accordance with local and national regulations (see Section 13).

6.4 Reference to other sections

See section 8: Exposure Controls/Personal Protection.
See section 13: Disposal Considerations.

7.Handling and Storage

7.1 Precautions for safe handling

Wear protective clothing (see Section 8). Avoid contact with skin and eyes and avoid breathing fumes from heated product.

7.2 Conditions for safe storage, including any incompatibilities

Store in original containers. Keep container tightly closed in a dry, well ventilated place, out of the reach of children and away from food and drink.

7.3 Specific end use(s)

No specific precautions required

8.Exposure Controls/Personal Protection

8.1 Control parameters

Occupational exposure standards:

UK EH40	Zinc chloride Ammonium chloride (fume) in (inorganic compounds) 2mg/m3 8hr TWA	1mg/m3 8hr TWA, 2mg/m3 15min STEL 10mg/m3 8hr TWA, 25mg/m3 15 min STEL 4mg/m3 15min STEL
France ED 984	Chlorure de zinc (fumées) Chlorure d'ammonium (fumées) Etain	1mg/m3 VME 10mg/m3 VME pas catalogué
Germany TRGS900	Zinn(IV) Verbindungen, anorganische (einetembare Fraktion) Zinn(II) Verbindungen, anorganische (einetembare Fraktion)	2mg/m3 Grenzwert 8mg/m3 Grenzwert

In countries other than the UK, France and Germany, different exposure limits may apply.

PNECs and DNELs

Ammonium chloride:

DNEL

Oral:	Long-term - systemic effects, general population 55.2 mg/kg
Skin:	Long term - systemic effects, general population 55.2 mg/kg Long-term - systemic effects, worker 128.9 mg/kg
Inhalation:	Long-term - systemic effects, general population 9.4 mg/m3 Long-term - systemic effects, worker 43.97 mg/m3

PNEC

Aquatic compartment	freshwater 0.25 mg/L
Aquatic compartment	marine water 0.025 mg/L
Aquatic compartment	sediment in freshwater 0.9 mg/kg
Aquatic compartment	sediment in marine water 0.09 mg/kg
Aquatic compartment	water, intermittent releases 0.43 mg/L
Sewage treatment plant	13.1 mg/L
Terrestrial compartment	soil 50.7 mg/kg

8.2 Exposure controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks andimmediately after handling the product.

8.2.1 Engineering controls

Use only with adequate ventilation. If operations generate fumes or vapour, use process enclosure, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

8.2.2 Personal Protective Equipment

Respiratory protection

Where risk assessment shows that air-purifying respirators are appropriate, use a full-face or half-face respirator with type EN143 P3 cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.

Hand protection

Use protective gloves tested to EN374. Material of gloves: natural rubber,neoprene, butyl, PVC, nitrile or viton. Insulating gloves should be worn when handling molten or hot metal.

Eye protection

A face shield or safety goggles or safety glasses tested to EN166 should be worn.

Skin and Body Protection

For processing involving hot or molten metal, use heat-resistant safety clothing. If there is a risk of flux splashes, use chemical resistant clothing.

Hygiene measures

Wash hands after handling product.

9.Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance:	Grey, pasty liquid
Odour:	Slightly oily
Odour threshold:	No data
pH:	4.0 approx.
Melting point:	<0°C to 232°C
Boiling point:	>100ºC
Flashpoint:	No data
Evaporation rate:	Not required for hazard assessment
Flammability (solid/gas):	Not required for hazard assessment
Upper/lower flammability limits:	Not required for hazard assessment
Vapour pressure:	Not required for hazard assessment
Vapour density:	No data
Relative density:	3.0 approx.
Solubilities:	The flux part is soluble in water, leaving a residue of tin powder
Partition coefficient, n-octanol/water:	Not applicable
Autoignition temperature:	Not required for hazard assessment
Decomposition temperature:	Not required for hazard assessment
Viscosity:	Not required for hazard assessment
Explosive properties:	Not explosive
Oxidising properties:	Not oxidising

9.2 Other information - No additional information.

10. Stability and Reactivity

10.1 Reactivity

No specific test data related to reactivity is available for this product or its ingredients.

10.2 Chemical stability

Stable under recommended storage and handling conditions. Reacts with bases and oxidising agents.

10.3 Possibility of hazardous reactions

No data available. See section 10.5.

10.4 Conditions to avoid

Stable under recommended storage and handling conditions.

10.5 Incompatible materials

Strong oxidising agents, alkalis.

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. See section 5.

11. Toxicological Information

11.1 Information on toxicological effects

Likely route of entry	Inhalation	
Acute Toxicity	**Zinc chloride**	LD_{50} oral - rat: 350mg/kg
		LD_{50} inhalation – rat: ≤1.975 mg/m^3
	Ammonium chloride	LD_{50} oral - rat: 1410mg/kg.
	Tin	LD_{50} oral - rat: >2000 mg/kg - OECD 423.
		LC_{50} inhalation - rat: >5 mg/L - OECD 403.
		LD_{50} dermal - rat: >2000 mg/kg - OECD 402.
Skin corrosion/irritation	**Causes severe skin burns (Category 1B). Ingestion may cause burns to the mouth, throat and stomach.**	
	Zinc chloride	Causes severe skin burns
	Tin	Not irritating (rabbit) – OECD 404

Serious eye damage/irritation	Causes severe eye damage (Category 1). Symptoms may include pain, watering and redness.	
	Zinc chloride	causes severe eye damage.
	Ammonium chloride	rabbit: causes eye irritation.
	Tin	Not irritating (rabbit) – OECD 405.
Respiratory or skin sensitisation	**Zinc chloride**	Not sensitising.
	Ammonium chloride	Not sensitiser.
	Tin	Not sensitising to lungs or skin.
Germ cell mutagenicity	**Zinc chloride**	Ames test negative.
	Tin	Ames test: Not mutagenic – OECD 471. In vitro mammalian cytogenicity: Not mutagenic – OECD 473. In vitro gene mutation in mammalian cells: Not mutagenic – OECD 476.
Carcinogenicity	**Zinc chloride**	is not classifiable for carcinogenicity based on its IARC, ACGIH, NTP or EPA classifications.
	Tin	not carcinogenic. Both the Ames test and in vitro chromosome aberration test (CHO cells) are negative.
Reproductive toxicity	**Tin**	For tin, both the Ames test and in vitro chromosome aberration test (CHO cells) are negative.
STOT-single exposure	May cause respiratory irritation, coughing wheezing or shortness of breath. Causes inflammation and oedema of the bronchi and destruction of mucous membranes.	
	Tin	No effects.
STOT-repeated exposure	**Tin**	repeated dose toxicity (oral gavage) NOEL >1000 mg/kg/day (rat). 28 day subacute study _ OECD 407
Aspiration hazard	No data available.	

12. Ecological Information

12.1	**Zinc chloride**	
	Fresh water, acute LC_{50}	- fish (Cyprinus carpio): 0.4-2.2 ml/L (96hr) - (Oncorhynchus kisutch): 1.6-2.7 mg/L - invertebrates (Daphnia magna): 0.2 mg/L (48hr)
	Fresh water, acute EC_{50}	- invertebrates (Daphnia magna): 158 mg/L (48hr)
	Fresh water, NOEC	- algae (Chlorella vulgaris): 560 mg/L (35 day)
	Activated sludge, industrial,	- EC_{50}- 30 mg/L

Ammonium chloride

Fresh water, acute LC_{50}	- fish (Cyprinus carpio): 209ml/L (96hr) -fish (Oncorhynchus mykiss): 3.98mg/L (96h) -Invertebrates (Daphnia magna): 161mg/L (48hr)

Tin

Short term toxicity to fish 96 h LC_{50}: >12.4 µg/L (NOEC 12.4 µg/L) *Pimephales promelas* (total tin from aged solutions of tin) – OECD 203.
Long term toxicity to aquatic invertebrates 7 days: LC_{50} (mortality) >3200 µg/L, EC_{50} (reproduction) 1303 µg/L (total tin from aged tin solutions) – *Daphnia magna* – EPA 1002.0.
Toxicity to algae EC_{50} (72 h): >19.2 µg/L (total tin from aged tin solutions) - *Pseudokirchnerella subcapitata* – OECD 201.

12.2 Persistence and degradability
Zinc chloride – not applicable.
No other data available.

12.3 Bioaccumulative potential
Zinc chloride
Pimephales promelas (flathead minnow) 63 days, bioconcentration factor (BCF): 21000.

12.4 Mobility in soil
For tin, Log Kd: 2.1 - 4.3 L/kg.

12.5 Results of PBT and vPvB assessment
Not applicable to inorganic substances.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects

13. Disposal Considerations

13.1 Waste treatment methods

13.1.1 Product / Packaging disposal: Unused product should be returned to the supplier. Empty packaging shouldbe disposed of as hazardous waste. Any product which cannot be used or returned to the supplier should be disposed of according to local, regional and national legislation complying with the European Waste Directive 2008/98/EC.

Waste codes and designations according to the European Waste Catalogue:
06 03 13* Wastes from Inorganic Chemical Processes: solid salts and solutions containing heavy metals. 11 01 98* Wastes from Chemical Surface Treatment: other wastes containing dangerous substances.

13.1.2 Waste treatment-relevant information: Do not allow product to reach soil, waterways or drains.

13.1.3 **Sewage disposal-relevant information:** Do not allow product to reach sewage system.

13.1.4 **Other disposal recommendations:** Avoid dispersal of spilled material and runoff, and contact with soil,waterways, drains and sewers.

14. Transport Information

		ADR/RID	IMDG
14.1	**UN Number:**	3264	3264
14.2	**UN Proper shipping name:**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ZINC CHLORIDE)	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS ZINC CHLORIDE)
14.3	**Transport hazard class(es):**	8	8
14.4	**Packing group:**	III	III
14.5	**Environmental hazards:**	Yes.	Marine pollutant.
14.6	**Special precautions for user:**	See section 7.	See section 7.

14.7 **Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:**
Not applicable.

15. Regulatory Information

15.1 **Safety, health and environmental regulations/legislation specific for the substance or mixture**
The components of this product are not subject to authorisation or restriction and are not listed as substances of very high concern.

15.2 **Chemical Safety Assessment**
A Chemical Safety Assessment has been carried out for ammonium chloride and tin.

16. Other Information

H statements used in section 3.2

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Eye effects
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

List of Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
bw	Body weight
CAS No.	Chemical Abstract Service registry number
CLP	Classification Labelling and Packaging Regulation EC 1272/2008
DNEL	Derived No Effect Level
dw	Dry weight
EC_{50}	Concentration giving half maximal response
EC No.	European Community number
EPA	Environmental Protection Agency
IARC	International Agency for Research on Cancer
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IMDG	International Maritime Dangerous Goods
Kd	Water-soil partition coefficient
LC_{50}	Lethal concentration to 50% of the test organisms
LD_{50}	Lethal dose to 50% of the test organisms
MARPOL 73/78	International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978
NTP	National Toxicity Program
NOEC	No Observed Effect Concentration [in environment]
NOEL	No Observed Effect Level
PBT	Persistent, bioaccumulative and toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation EC 1907/2006
RID	European Agreement concerning the International Carriage of Dangerous Goods by Rail
STEL	Short Term Exposure Limit
STOT	Specific Target Organ Toxicity

TWA	Time Weighted Average
VME	Valeur Moyenne d'Exposition
vPvB	Very Toxic Very Bio-accumulative

Method used for classification
Calculation method.

Legal Statement

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