

1. IDENTIFICATION OF THE SUBSTANCE AND THE SUPPLIER

Product identifier	: Solder paste BS-10,BS-15		
Manufacturer	: TAIYO ELECTRIC IND.CO.,LTD.	Section	: Engineering department
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2. HAZARD IDENTIFICATION

<GHS classification>

Flammable liquids	: Not classified
Acute toxicity(Oral)	: Not classified
Acute toxicity(Dermal)	: Category 3
Inhalation(Gases)	: No classification
Inhalation(Vapors)	: Not classified
Inhalation(Dusts/Mists)	: Category 1
Skin corrosion/Irritation	: Category 1
Serious eye damage/eye irritation	: Category 1
Sensitization(Respiratory)	: Classification not possible
Sensitization(Skin)	: Not classified
Germ cell mutagenicity:	: Category 2
Carcinogenicity	: Classification not possible
Reproductive toxicity	: Category 2
Specific target organ systemic toxicity(Single exposure)	: Category 1 (hepatic, respiratory system pancreas)
Specific target organ systemic toxicity(Repeated exposure)	: Category 1 (hepatic, lungs, systemic toxicity)
Hazardous to the aquatic environment	
Acute hazard	: Category 1
Chronic hazard	: Category 2

< GHS label elements >



< Hazard Statement >

Danger

< Hazard and toxicity information >

- Suspected of causing genetic defects
- Fatal if inhaled
- Causes severe skin burns and eye damage
- Very toxic to aquatic life
- Suspected of damaging fertility or the unborn child
- Toxic to aquatic life with long lasting effects
- Toxic in contact with skin
- damage to organs (hepatic, respiratory system, pancreas)
- Cause damage to organs (hepatic, lungs, systemic toxicity)through prolonged or repeated exposure

< Precautionary statement >

【Prevention】

- If this is not the intended use, avoid release to the environment
- Do not eat, drink or smoke when using this product.
- Do not handle until all safety precautions have been read and understood.
- Use only outdoors or in a well —ventilated area
- Wear respiratory protection.
- Obtain special instructions before use.
- Wash hands thoroughly after handling.
- Use personal protective equipment as required.
- Do not breathe dust/fume/gas/mist/vapors/spray.
- Wear protective gloves/eye protection/face shield/protective clothing

【Response】

- IF SWALLOWED : Rinse mouth. Do not induce vomiting. Get immediate medical advice/attention.
- IF IN EYES : Rinse cautiously with water for several minutes. Get immediate medical advice/attention.
- IF INHALED : Remove victim to fresh air. Get medical advice/attention.
- IF ON CLOTHS : Take off immediately all contaminated clothing and wash it before reuse.
- IF ON SKIN : Wash with plenty of soap and water. Get medical advice/attention.
- IF EXPOSED OR CONCERNED : Get immediate medical advice/attention.
- IF RELEASED : Collect spillage.

【Storage】

Avoid the direct rays of the sun and store in tightly sealed containers at a well-ventilated cool place.

【Disposal】

- Dispose of contents/container in accordance with local/regional/national/international regulations.

3.COMPOSITION / INFORMATION ON INGREDIENTS

Classification of the chemical substance or/mixture : Mixture

Chemical name or common name: Solder paste

<Concentration or Concentration range>

Chemical name	Percent (wt %)	Chemical formula	Law Concerning the Examination and Regulation of Manufacture ,etc. of Chemical Substances	CAS No.
Zinc Chloride	4 - 6%	ZnCl ₂	1-264	7646-85-7
Ammonium chloride	1 - 3%	NH ₄ Cl	1-218	12125-02-9
Vaseline	80 - 90%	C ₁₅ H ₃₂ - C ₂₀ H ₄₂	Not applicable	8009-03-8
Paraffine wax	6 - 9%	C _n H _{2n+2} (C=20 -35)	Not applicable	8002-74-2
Water	2 - 4%	H ₂ O	Not applicable	7732-18-5

<Legally relevant components>

Chemical name	Industrial Safety and Hygiene Law Enforcement Order Article 18-2	PRTR
Zinc Chloride	Substances to be notified #94	List of Class 1 designated Chemical Substances #1-1
Ammonium chloride	Substances to be notified #96	Not applicable
Vaseline	Not applicable	Not applicable
Paraffine wax	Substances to be notified #170	Not applicable
Water	Not applicable	Not applicable

4.FIRST-AID MEASURES

- IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention.
- IF ON SKIN : Wash with plenty of soap and water. Get medical advice/attention.
- IF IN EYES : Rinse cautiously with water for several minutes. Get immediate medical advice/attention.
- IF SWALLOWED : Rinse mouth. Do not induce vomiting. Get immediate medical advice/attention.

Most important effects and symptoms :No information available

Protection for first-aid responders	: No information available
Note to physician	: No information available

5.FIRE- FIGHTING MEASURES

Extinguishing media:	: Powder type fire extinguishing agent, foam type fire extinguishing agent, carbon dioxide, sand
Unsuitable extinguishing media:	: Mist may be used for cooling purposes but cylindrical water flow should not be used for extinguishing fire.
Specific hazards arising from the chemical if burning	: Black smoke, the carbon monoxide, and other toxic gases are generated by pyrolysis and the incomplete combustion, and there is a possibility of danger by these inhalations.
Specific firefighting measures	: Spray water to the surrounding facilities and cool them. : Fire-fighting shall be conducted from the windward of the fire as much as possible.
Special protective equipment for fire fighter	: in the firefighting, wear appropriate protective equipment (gloves, glasses, mask, atmosphere-supplying respirator).

6.ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: In case of indoors, conduct ventilation sufficiently until the disposals completed. Be careful so that it will not come into contact with the skin as much as possible, and wear protective gloves (made of rubber or resin) protective glasses (glass or resin goggle type) and boots (rubber etc).
Environmental precautions	: Pay attention so that the product does not flow into the sewage or public water area.
Methods and materials for containment and cleaning up	: Wipe off most of the containment with waste cloth and the like, then wipe off the residual with alcohol. Sweep up the residue, and store in a suitable container.
Prevention of secondary disaster	: Use safe tools which will not generate sparks.

7.HANDLING AND STORAGE

[Handling]	
Appropriate engineering controls	: Handle in a place with good ventilation Wear suitable protective items such as protective glasses and protective gloves.
Local exhaust/Total ventilation	: The partial exhaust is used at the handling place in an indoor work place.

General precautions : Make efforts to keep the working place tidy and in order, and keep away from fire.

Precautions for safe handling : See the disclaimer of 「2 HAZARD IDENTIFICATION」.

【Storage】

Appropriate engineering controls : No information available.

Appropriate storage conditions : Avoid the direct rays of the sun and store in tightly sealed containers at a well ventilated place.

Safe containers and packaging materials : Appropriate containers and packaging materials.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls : Install equipment to wash the hands and eyes nearby.
Use closed type apparatuses and equipment or local air exhauster.

Exposure limit : Not established.

Tolerable concentration

Zinc chloride	1mg/m ³	TWA	ACGIH
Zinc chloride	2mg/m ³	STEL	ACGIH
Ammonium chloride	10mg/m ³	TWA	ACGIH
Ammonium chloride	20mg/m ³	STEL	ACGIH
Vaseline	3mg/m ³ (as mineral oil mist)	---	Japan Society for Occupational Health
Paraffin wax	1mg/m ³	TWA	ACGIH

【Personal protective equipment】

Respiratory protection : Use a protective mask as required.

Hand protective equipment : Use protective gloves as required.

Eyes/Face Protection : Wear protective glasses as required.

Skin and personal protective equipment : Use work clothes and safety shoes as required.

Appropriate hygiene measures : After work, wash hands well and gargle before smoking, eating etc.

9.PHYSICAL AND CHEMICAL PROPERTIES

Shape, color : High viscosity liquid / Milk white

Odor/Odor threshold : Not applicable / Not applicable

PH	: Less than 5
Melting point / Freezing point	: [Zinc chloride] 190°C [Water] 0°C
Boiling point	: [Zinc chloride] 732°C [Vaseline] 302°C [Paraffin wax] 322°C [Water] 0°C
Initial boiling point and boiling range	: Not applicable
Flash point	: [Product] over 199°C [Paraffin wax] 190°C
Autogenous ignition temperature	: [Paraffin wax] 245°C
Flammability (solid, gas)	: Not applicable
Lower flammability or explosive limits	: [Vaseline] 0.9Vol% [Paraffin wax] 0.6Vol%
Upper flammability or explosive limits	: [Vaseline] 7Vol% [Paraffin wax] 6.5Vol%
Vapor pressure	: Not applicable
Vapor density (air=1)	: Not applicable
Evaporation rate	: Not applicable
Specific gravity (Relative density)	: [Product] 1 (Specific gravity) [Zinc chloride] 2.907(Specific gravity) [Vaseline] 0.9g/cm ³ [Paraffin wax] 0.9(Specific gravity)
Solubility	: [Product] Water insoluble [Zinc chloride] 4320g/L
Partition coefficient; n-octanol / water	: [Paraffin wax] 6
Decomposition temperature	: Not applicable

10. STABILITY AND REACTIVITY

Chemical stability	: Stable at storage conditions described in the Storage Items.
Possibility of hazardous reactions	: Since it is an organic substance, if it comes into contact with oxidizing substance, there is danger of ignition and explosion.
Conditions to avoid	: Avoid contact with direct rays of the sun, flame and high temperature body.
Incompatible materials	: Strong acid or strong alkali.
Hazardous decomposition products	: No information available.

11. TOXICOLOGICAL INFORMATION

Acute toxicity				
	Zinc chloride	1100mg/kg	Oral rat (LD50)	EU-RAR

Zinc chloride	173mg/kg	Hypodermic guinea pig (LD50)	IUCLID
Ammonium chloride	1650mg/kg	Oral rat (LD50)	ACGIH
Paraffin wax	>5000mg/kg	Oral rat (LD50)	IUCLID
Paraffin wax	>3600mg/kg	Hypodermic rabbit (LD50)	IUCLID

[Zinc chloride] Harmful if swallowed. Fatal if inhaled. Fatal in contact with skin.

[Ammonium chloride] Toxic if swallowed.

Skin corrosion/ irritation	: [Zinc chloride] Causes severe skin burns and eye damage. : [Ammonium chloride] Causes mild skin irritation.
Serious eye damage/eye irritation	: [Ammonium chloride] Causes serious eye irritation.
Respiratory sensitization	: No information available
Skin sensitization	: No information available
Mutagenicity (Germ cell mutagenicity)	: [Zinc chloride] Suspected of causing genetic defects.
Carcinogenicity	: No information available
Reproductive toxicity	: [Zinc chloride] Suspected of damaging fertility or the unborn child. : [Ammonium chloride] Suspected of damaging fertility or the unborn child.
Specific target organ systemic toxicity - Single exposure	: [Zinc chloride] Causes damage to organs(respiratory system, liver, pancreas). : [Ammonium chloride] May cause respiratory irritation.
Specific target organ systemic toxicity - Repeated exposure	: [Zinc chloride] Causes damage to organs (liver, lung) through prolonged or repeated exposure. : [Ammonium chloride] Causes damage to organ(Systemic toxicity) through prolonged or repeated exposure.

12.ECOLOGICAL INFORMATION

Ecotoxicity •Fish	: [Ammonium chloride] 0.696 Rainbow trout ECETOC Toxic to aquatic life with long lasting effects. Harmful to aquatic life.
Ecotoxicity •Crustacean	: [Zinc chloride] 0.1mg/l-48hr Daphnia magna CERL Hazard Data Collection Very toxic to aquatic life with long lasting effects. Very toxic to aquatic life.
Ecotoxicity •Algae	: No information available
Persistence /Degradability	: No information available
Bio accumulative Potential	: No information available

Mobility in soil	: No information available
Other adverse effects	: Because of many unknown items do not discard in general environment.

13.DISPOSAL CONSIDERATIONS

Residual waste	: Commit disposal special waste disposal contractors approved by the Metropolitan, Hokkaido ,or Prefectural Governors in case of Japan.
Contaminated containers	: As for containers that have been used, remove the contents completely, and commit disposal to industrial waste disposal contractor that have received approval from the municipalities.

14.TRANSPORT INFORMATION**【international regulations】**

UN classification	: Class 9 (Miscellaneous dangerous goods)
UN Number	: 3077
UN proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID,N.O.S.
Packing group	: III
Marine pollutant	: Environmentally hazardous substance

【Domestic regulations】 : Refer to laws and regulation that are applied

Special precautions	: No information available
Special precautions and conditions which a user needs to comply with transport	: In order to prevent mingling of foreign matter, water leakage, and direct rays of the sun, cover the goods with a sheet. Be careful of fire. Conduct packaging indication, and transportation in accordance with the corresponding laws and regulations. Load so that there will be no tumbling dropping or damaging, and securely conduct load collapse prevention. Prior to transport, verify that there is no damage, corrosion or leakage of the container.

15.REGULATORY INFORMATION

Follow all regulation in your country.	
Industrial Safety and Health Act in Japan	: Substances to be notified, which are specified in Law article 57-2 Cabinet order number 18-2 [Zinc chloride]#94 [Ammonium chloride]#96 [Paraffin wax]#170
Fire Service Act in Japan	: Specified combustibles, Flammable solid
Ship Safety Act in Japan	: Hazardous Substances

Aviation Law in Japan	: Other hazardous substances
Ordinance on the Prevention of Organic Solvent Poisoning in Japan	: Not applicable
PRTR in Japan	: [Zinc chloride] List of Class 1 designated Chemical Substances #1-1
RoHS in EU	: Compliance (regulated substances are not included)
Occupation safety and health act in Korea	: [Zinc chloride] [Ammonium chloride] [Paraffin wax] ---Exposure standard-setting substance [Vaseline]---Not applicable
Toxic Chemicals Control Act in Korea	: [Zinc chloride] ---Toxic products [Ammonium chloride] [Vaseline] [Paraffin wax]---Not applicable
Safety Control of Dangerous Substances Act in Korea	: Not applicable
The Waste Control Act in Korea	: [Zinc chloride] [Vaseline]---Not applicable [Zinc chloride] [Ammonium chloride]--- Specified waste
Persistent Organic Pollutants Control Act in Korea	: Not applicable

16. Other information

The information herein is given in good faith, but not a warranty. Final determination of suitability any of material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist.