



**Precautionary Statement**Prevention measures

- Do not inhale powder/fume/gas/mist/vapor.
- Do not eat, drink, or smoke while using this product.
- Do not take contaminated working clothes out of the working places.
- Wash hands thoroughly after handling this product.
- Wear protection gloves.

Response

- In cases of skin contact, wash with plenty of soap and water.
- When skin irritation or a rash develops, seek medical attention.
- If contaminated clothes are reused, wash them thoroughly.
- When exposed, consult a doctor.
- In cases of feeling sick, seek medical attention.

Storage

- Lock and store.

Disposal

- Dispose of the content or container in accordance with international/domestic/prefectural/municipal regulations.

Other hazards not applicable to GHS classification

Hazards:	No findings
Environmental impact:	No findings
Physical and chemical hazards:	The risk of fire is small when handled in a usual manner.
Critical signs:	Nothing special
Outlines of assumed emergency:	Nothing special
Domestic/area information:	Not applicable

**3. Composition/Information on Ingredients**

Mixture or Single Chemical: Mixture

Chemical Name or General Name: 7097

Chemical Formula: <tin> Sn, <silver> Ag, <copper> Cu

Concentrations or Concentration ranges:

Chemical Name or Generic Name	Abbreviation	Content (wt.%)	Docket number of notice through Official Gazettes		CAS No.
			Chemical Substances Control Law	Industrial Safety and Health Law	
Tin	-	90-100	Not applicable	Not applicable	7440-31-5
Silver	-	1-10	Not applicable	Not applicable	7440-22-4
Copper	-	0.1-3	Not applicable	Not applicable	7440-50-8

## Ingredients subjected to regulations

Chemical Name or Generic Name	Industrial Safety and Health Law	PRTR Law
Tin	The specified chemical substance of the Law concerning reporting, etc. No. 322	Not applicable to the specified chemical substances
Silver	The specified chemical substance of the Law concerning reporting, etc. No. 137	Type I specified chemical substance No. 82
Copper	The specified chemical substance of the Law concerning reporting, etc. No. 379	Not applicable to the specified chemical substances

Impurities and stable additives contributing to GHS classification: Nothing special

#### 4. First Aid Measures

In cases of inhalation:

Nothing special

In cases of skin contact:

Wash the contact regions with plenty of soap and water.

In cases of entry into eye:

Flush eyes with plenty of clean water for several minutes.

If the eyes are damaged or irritated, seek medical attention if necessary.

Most important signs and symptoms:

Nothing special

Protection of persons performing emergency measures:

Nothing special

Special warnings to doctors:

Nothing special

#### 5. Firefighting Measures

Extinguishers:

Runoff water, chemical fire extinguishers, including foam, powder, or carbon dioxide, or sand, and the like

Inhibited extinguishers:

Nothing special

Hazards specific to fire:

Nothing special

Special firefighting procedures:

Fight from the windward side of the fire with runoff water, fine misty water, or various extinguishers.

Protection of persons performing firefighting measures:

Where appropriate, wear protection devices such as a firefighting gas mask and fire-resistant clothing.

## 6. Accidental Release Measures

Personal precautions/Protection devices and Emergency measures:

Wear protection gloves and a protection mask.

Environmental precautions:

Take care not to leak the product into the sewage and public water areas.

Methods and materials for containment and cleaning:

Sweep scattered substances and put them in an appropriate container.

Prevention procedures for secondary damage:

Nothing special

## 7. Handling and Storage

Handling Precautions

Technical measures:

Nothing special

Local or total ventilation:

Nothing special

Matters that demand attention:

Nothing special

Matters that demand attention for safe handling:

Nothing special

Storage Precautions

Technical measures:

Nothing special

Adequate storage conditions:

Avoid the following to prevent thermal storage and deterioration:

(1) Direct sunlight, (2) High temperature and high humidity,  
and (3) Outdoor storage.

Even when storing the product indoors, avoid places near incandescent lamps, mercury lamps, or other lighting equipment that will emit heat or strong ultraviolet rays.

Carefully store the products and avoid piling them too high in order to prevent toppling.

Safe packing materials for the container:

Use safe packing materials for the container.

## 8. Exposure Controls/Personal Protection

Facility measures:

Install equipment for hand wash and eyewash.

Standard control concentration:

Not applicable

Tolerable concentration level:

Tin	2mg/m <sup>3</sup>	TWA	ACGIH
Silver	0.01mg/m <sup>3</sup>	-	Japan Society for Occupational Health
Silver	0.1mg/m <sup>3</sup>	TWA	ACGIH
Copper	0.2 (fume) mg/m <sup>3</sup>	TWA	ACGIH
Copper	1 (dust, mist) mg/m <sup>3</sup>	TWA	ACGIH

Protective devices:

Respiratory protection:	When needed, use a protective mask.
Hand protection:	When needed, use protective gloves.
Eye protection:	When needed, use protective goggles.
Protection for skin and body:	When needed, wear working clothing, safety shoes, and the like.

Adequate health measures:

When the operations are finished, wash hands thoroughly and gargle, especially before eating, drinking, or smoking.

## 9. Physical and Chemical Properties

Appearance:	Solid (Metal)
Color:	Silver-gray
Odor (threshold for odor):	Not applicable
pH:	Not applicable
Melting point/Freezing point:	Solder, 217-229°C
Boiling points:	Tin, 2507°C Silver, 2212°C Copper, 2595°C
Initial boiling point:	Not applicable
Boiling range:	Not applicable
Flashing point:	Not applicable
Spontaneous ignition temperature (ignition point):	Not applicable
Combustibleness (solid, gas):	Not applicable
Combustible or explosive ranges (lower limit):	Not applicable
Combustible or explosive ranges (upper limit):	Not applicable
Vapor pressure:	Tin, 1 Pa Copper, 0.073 Pa
Vapor density:	Not applicable
Specific gravity:	Solder, 7.4
Solubility:	Not applicable
Octanol/water partition coefficient:	Copper, -0.57

Decomposition temperature: Not applicable  
 Other data: Nothing special

## 10. Stability and Reactivity

Stability: Stable under normal storage and handling conditions.  
 Possible hazardous reactions: Stable under normal storage and handling conditions.  
 Conditions to avoid: Nothing special  
 Materials to avoid: Nothing special  
 Hazardous decomposition products: Nothing special

## 11. Toxicological Information

Acute toxicity:

Silver	>5000mg/kg	LD <sub>50</sub> for rat (oral)	HSDB
Silver	>2000mg/kg	LD <sub>50</sub> for rat (dermal)	HSDB
Copper	0.12mg/kg	LDL <sub>0</sub> for rabbit (oral)	RETCS

Skin Corrosion/Irritation: No available data  
 Serious Eye Damage/Eye Irritation: Silver, eye irritative  
 Respiratory or Skin Sensitization: Silver may cause allergic skin reactions (skin sensitization).

Mutagenicity (Germ Cell Mutagenicity):

No available data

Carcinogenicity: No available data

Reproductive Toxicity: No available data

Specific Target Organ/systemic toxicity (Single Exposure):

Silver causes disorder to organs (respiratory system). Copper may irritate respiratory organs (respiratory tract irritation).

Specific Target Organ/systemic toxicity (Repeated Exposure):

Tin causes disorder to an organ (lung) through long-term or repeated exposure. Silver causes disorder (respiratory inhalation) to organs through long-term or repeated exposure. Copper causes disorder to an organ (liver) through long-term or repeated exposure.

Aspiration Hazard: No available data

## 12. Ecological Information

Ecological Toxicity; Fish: Copper may be hazardous from its long-term impact.  
 Crustacean: Copper may be hazardous from its long-term impact.  
 Algae: No available data  
 Persistence/Degradability: No available data

Bio-accumulation:	No available data
Transferability in soil:	No available data
Other hazardous impact:	Since there are no findings for many items, do not discharge in general environment.

### 13. Disposal Considerations

Residual product:

Entrust disposal to an industrial waste disposer approved by the prefectural governor and the like in accordance with related regulations and standards of the local government.

Contaminated containers and waste cloth:

Entrust disposal to an industrial waste disposer approved by the prefectural governor and the like in accordance with related regulations and standards of the local government.

Packing materials:

Dispose adequately in accordance with related regulations and standards of the local government.

### 14. Transport Information

International regulation; UN classification:

Not applicable to the classification criteria

UN number:

Not applicable to the classification criteria

Shipping name (UN Shipping name):

Not applicable to the classification criteria

Packing group: Not applicable to the classification criteria

Seawater pollutant: Not applicable to the classification criteria

Domestic regulation:

Refer to applicable regulations.

Special safety measures:

Nothing special

Specific safety measures and conditions during transport:

Cover the product with a sheet to prevent entry of foreign matter, water leakage, and direct sunlight.

When loading in bulk, arrange the product as low as possible or secure it to prevent falling.

Number of the Emergency Measure Guideline:

Not applicable

## 15. Regulatory Information

<Product>

The Industrial Safety and Health Law: Hazardous substance whose name, etc. is to be notified (paragraph 2 of Article 57; the order for Enforcement, in appended table 9, paragraph 2 of Article 18)

The PRTR Law: Type I specified chemical substance (paragraph 2 of Article 2; the order for Enforcement, in appended table 1, Article 1)

## 16. Other Information

Cited documents:

The MSDS of the ingredient manufacturing company

Information on GHS-model MSDS by Japan Advanced Information Center of Safety and Health

GHS classification results by National Institute of Technology and Evaluation

Revision history:

Established on July 9, 2010

Reviewed on September 3, 2012

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- (1) Since hazards are not evaluated completely, take adequate care in handling the product.
  - (2) In this MSDS, items necessary for proper use of our product and care that must be taken are collected concisely, and normal handling is assumed.
  - (3) It is the user's responsibility to take adequate care in handling the product with reference to this MSDS.
  - (4) Although the content is based on information and findings of makers available as of the date indicated, such data and evaluation will make no warranty. The MSDS may be modified according to amendment of regulations and new findings.
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