

# METALLI

## SAFETY DATA SHEET – STL-1255-XXX

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### SECTION 1: Identification of the substance/preparation and of the company/undertaking

#### Product Identifier

Product Trade Name(s) **STL-1255-XXX**

#### Description and application of the substance/preparation:

This MSDS is applicable to all pastes with product codes conforming to the following system:

First segment (binder) – Second segment (alloy) – third segment (%metal code) See **example** below:

#### ABC-9999-XXX

(1) –(2)– (3)



- (1) The first segment (the binder code) consists of three letters or a number and two letters.
- (2) The middle segment (the alloy code) may appear in basic form (no suffix letter), or with of several suffix letters.
- (3) The last segment (3 characters: first 2 digits denote % metal of the paste, with last character being A,B,C,D,E,F,G,H,K,S, or T).

#### Product category:

Product type: A braze paste consisting of powdered filler metal and flux suspended in a binder and used for joining metals by heating the parts to be joined and this product to or above the melting temperature of the filler metal.

This MSDS applies to products containing 60% metal or greater.

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

Company name	Metalli A/S Nyholms alle 46 2610 Rødovre Denmark
E-mail	<a href="mailto:info@metalli.dk">info@metalli.dk</a>
Telephone number	+45 3670 0544

### SECTION 2: Hazards Identification

#### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

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**Health:** Acute Toxicity (Oral, Category 4)  
Reproductive Toxicity, Category 2

**Environment:** Acute Hazards to the Aquatic Environment, Category 1  
Chronic Hazards to the Aquatic Environment, Category 1

### 2.2 Label

Classification according to Regulation (EC) No 1272/2008 (CLP)



**Exclamation mark**      **Health hazard**      **Environment**

**Signal Word**      WARNING

**Hazard statement(s)**      H302 Harmful if swallowed.  
H361 Suspected of damaging fertility or the unborn child  
H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statement(s)**

**Prevention:**      P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P264 Wash exposed skin thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment  
P280 wear protective gloves, clothing, eye protection and face protection.

**Response:**      P308+P313: If exposed or concerned: Get medical attention.  
P330 Rinse mouth

**Storage:**      P391 Collect spillage.

**Disposal:**      P405 Store locked up.

**Disposal:**      P501: Dispose of container in accordance with local, regional and national regulations.

### 2.3 Other hazard

**Immediate concerns**      Warning! Product contains fluoride: in use above 500°C (930°F) in the presence of water vapor, hydrogen fluoride gas is evolved. Hydrogen fluoride gas can cause irritation to the respiratory tract, and delayed

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burns to the eyes and skin. It can also cause fluid in the lungs (pulmonary edema), and death. Avoid contact with skin, eyes, and inhalation of vapors.

Fumes from the soldering/brazing process are irritating to the eyes and respiratory system. Hot metal can cause eye and skin burns. Avoid breathing fumes from the soldering/brazing process. Use only with adequate ventilation.

### SECTION 3: Compositional information

#### 3.1 Mixtures

Name	CAS-nr.	Einecs No.	CLP - classificarion	
Potassium difluorodihydroxyborate(1-)	85392-66-1	286-925-2	Acute Tox. (O), Cat. 4; Rep. Tox., Cat. 2; H302; H361+1 	<35
Silver	7440-22-4	231-131-3	Aquatic Acute, Cat. 1; Aquatic Chronic, Cat. 1; H400; H410 	15 - 70
Copper	7440-50-8	231-159-6	Acute Tox. (O), Cat. 4; Aquatic acute, Cat. 1; Aquatic chronic, Cat. 2; H302; H410 	5 - 45
Zink	7440-66-6	231-175-3	Aquatic Acute, Cat. 1; Aquatic Chronic, Cat. 1; H410 	1 - 35
Tin	7440-31-5	231-141-8	Ikke klassiferet	0 - 15

#### Additional information:

The specific chemical identity of the flux/binder formulation ingredients are being withheld as a trade secret. Disclosure will be provided to medical personnel in the event of an emergency. See Section 8 for exposure limits of hazardous ingredients (Where applicable).

**NOTE:** This SDS is prepared to cover multiple alloys with the same GHS Hazard Classification and may list substances not applicable to the named product. Please see the specific alloy composition and melt point range.

For full text of H- statements: See section 16

### SECTION 4: First aid measures

#### 4.1 Inhalation

Remove victim to fresh air. If not breathing, trained personal may give artificial respiration. If breathing is difficult, give oxygen by trained personnel. Seek medical attention.

#### Skin contact

Immediately remove contaminated clothing, watch and jewelry. Do not attempt to remove any material bonded to the skin. Flush area of skin contact immediately with large amounts of water for at least 15 minutes. If irritation

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persists after flushing, get medical attention promptly. Launder contaminated clothing before reuse.

### Eye contact

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water or eyes wash for at least 15 minutes. Liquid should be lukewarm, because cold water can damage the eye. Get medical attention if irritation persists.

### Ingestion

If swallowed: Do not induce vomiting, unless instructed to do so by medical personnel, never give anything by mouth to an unconscious person. Get medical attention immediately.

## 4.2 The important symptoms and effects, both acute and delayed

### Eyes

Eye contact may cause irritation and/or burning sensation

### Inhalation

Inhalation of powder, dust or fumes may be irritating to the respiratory system.

Inhalation of some metals may cause metal fume fever: See section 11.

### Skin:

May cause irritation and burns to exposed tissue. Hot molten metal may cause burns to the skin.

### Ingestion

If swallowed, this product may cause gastrointestinal discomfort, nausea, vomiting.

## 4.3 Indication of any immediate medical attention and special treatment required treat symptomatically.

Treat symptomatically. Fluorides can reduce serum calcium levels resulting in potentially fatal hypocalcemia. Focus medical efforts on combating shock and reducing systemic toxicity of fluoride ion.

## SECTION 5: Fire fighting measures

**5.1 Flammable class:** Non-flammable solid

**Extinguishing media:** For fires involving this product, use dry chemical, carbon dioxide, foam, water spray. Do not use water if metal is molten.

**5.2 Special hazards arising from the substance or mixture:**

During the soldering/brazing process, hazardous decomposition products may be released: See section 10.

### Explosion hazards:

This material is classed as a non-flammable solid. Product will burn under fire conditions.

Emits toxic and corrosive fumes under fire condition.

**5.3 Fire fighting procedures:** Move containers from the fire area if it can be done without risk. Avoid inhalation of vapours mists.

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**Fire fighting equipment:** Exposure to decomposition products may be a hazard to health. Wash away any material that comes into contact with the body, clothing or equipment. When fighting fires involving this product, wear full protective gear. For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

### SECTION 6: Accidental release measures

- 6.1 General procedures:** Waste disposal method: Scoop up excess material and wash affected areas with soap and water. Avoid contact with skin and eyes. Collect material into sealed and labeled containers for disposal. Clean contaminated surface thoroughly. Dispose in accordance with federal, state and local regulations.
- Special protective equipment:** Avoid inhaling vapor and /or mists. Do not get spilled material on skin, clothing, or in eyes. Wear full protective clothing. See section 8. Remove all contaminated clothing.
- Emergency personnel:** Same.
- 6.2 Environment:** Avoid contamination of water bodies during cleanup and disposal. Do not flush to sewer. Advise relevant authorities if material enters sewers, water sources or low-lying areas.
- 6.3 Methods and materials for containment and cleaning up:** Recover spilled material. Reclaim this material whenever possible. Collect material into sealed and labeled containers for reclamation or disposal.
- 6.4 Note** See section 8 for protective equipment. See section 13 for more information.

### SECTION 7: Handling and storage

- 7.1 Handling** Ventilate the room. Do not breathe smoke, gases or vapors generated. Do not eat, drink, smoke eat, drink, smoke or have food in work areas. Follow the directions on the label and the manual.  
During processing: turn on the local exhaust ventilation system. Take general hygiene measures when handling chemicals. Wash hands before breaks and after work. Keep away from food and animal feed. Discard contaminated clothing and protective equipment before entering a dining room.
- 7.2 Storage** Keep lid tightly closed except when removing product and store at ambient temperatures of 5-25° Celsius (41-77° F)(to maximize shelf life of Product). Store dry.

### SECTION: 8 Exposure controls/personal protection

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### Control parameters

CAS	Chemical name		UK WEL
85392-66-1	Potassium difluorodihydroxyborate (-1)	LTEL (TWA)	2.5 mg/m <sup>3</sup> (Inorganic fluorides, as F)
7440-22-4	Silver	LTEL (TWA)	0.1 mg/m <sup>3</sup>
7440-50-8	Copper	LTEL (TWA)	0.2 mg/m <sup>3</sup> (fume as cu) Resoirable Dust - 1 mg/m <sup>3</sup> (dusts & mists, as Cu)
		STEL	2 mg/m <sup>3</sup> (dust & mists, as Cu)
7440-66-6	Zinc	LTEL (TWA)	10 mg/m <sup>3</sup> (zinc oxide fume) (OSHA PEL, no UK WEL applies)
7440-31-5	Tin	LTEL (TWA)	2 mg/m <sup>3</sup>
		STEL	4 mg/m <sup>3</sup>

#### 8.1 Engineering controls:

The use of local ventilation is required to maintain the concentration of fumes evolved from the soldering/ brazing process to well below the occupational exposure limits, within the operator's breathing zone and the general vicinity. Use of process enclosures, exhaust systems, and other engineering/administrative controls should be designed in accordance with local conditions. Please refer to ACGIH document, industrial ventilation, A manual of recommended practices (most recent edition), for details.

#### 8.2 Personal protective equipment

##### Eyes and face:

Wear safety glasses with side shields as a minimum protection. Must conform to EN 166

##### Skin:

Wear chemical resistant gloves. When material is heated, wear thermal-insulated gloves to protect against burns. Change gloves often. Must conform to EN 374.

##### Respiratory:

when exposure limits (listed above) are exceeded or ventilation is inadequate, wear a NIOSH or European standard approved respirator, in accordance with OSHA respirator regulations (29 CFR 1910.134) or European standards (EN 136/140/145). Filter B E P3 EN 14387. Consult ANSI Z88.2 *American National standard for Respiratory protection* for guidance on proper selection, use and care of respirators.

##### Protective clothing:

Avoid skin contact. Wear chemical resistant clothing (long-sleeved shirt buttoned at the wrist) as necessary to prevent contact. For soldering/brazing operations where hot metal parts are handled and molten metal may be present, wear heat-resistant gloves and clothing to protect from burns.

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<b>Work hygienic practices:</b>	Minimize exposure in accordance with good hygiene practice. Good general hygienic practices include: eating, drinking and smoking should not be permitted in work areas. Wash thoroughly after handling, and before eating, drinking, using tobacco, applying cosmetics, or using the toilet. Keep area clean. Remove contaminated clothing promptly. Launder contaminated clothing before reuse. Avoid contact with eyes, skin, and clothing. Avoid breathing dust, vapour or mist.
<b>Other use precautions:</b>	Educate and train employees in the safe use and handling of this product.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<b>Flashpoint and method:</b>	Not applicable
<b>Appearance</b>	Viscous paste.
<b>Odour</b>	Characteristic odour
<b>Color</b>	Gold
<b>pH</b>	Not Applicable
<b>Vapour pressure</b>	0.093 mm HG at 68° F/20°C (for C039)
<b>Vapour density</b>	>1.00 (air=1) (for C039)
<b>Boiling point:</b>	530°-623°F (277-328°C (for C039)
<b>Melting Point</b>	alloy >538°C (1000°F)
<b>Solubility in water</b>	Negligible
<b>Evaporation rate:</b>	No data available
<b>Specific gravity:</b>	>2.000 (water=1)
<b>Auto-ignition temperature</b>	Not Determined

### SECTION 10: Stability and reactivity

<b>10.1 Stability:</b>	This material is not expected to be reactive at ambient conditions.
<b>10.2 Polymerization:</b>	Stable under normal conditions of use
<b>10.3 Possibility of hazardous reactions:</b>	Will not occur.
<b>10.4 Conditions to avoid:</b>	Avoid contact with incompatible materials. Avoid extreme heat. Avoid prolonged exposure to air and moisture.
<b>10.5 Incompatible materials:</b>	Materials to avoid: Strong reducing agents such as metal hydrides or alkali metals (Reaction with these material may generate hydrogen gas, which could create an explosive hazard), acids(produces HF gas), strong alkalies, oxidizing agents, strong oxidizers, acetylene, ammonia, hydrogen peroxide, bromine azide, chlorine trifluoride, ethyleneimine, oxalic acid, nitric acid, sulphuric acid, alkalies, bromates, strong bases, magnesium, chlorates, iodates, halogens, halogenated hydrocarbons, moisture, cupric nitrate, peroxides, sulphur.
<b>10.6 Hazardous decomposition products:</b>	Decomposition products may include, but are not limited to: smoke, fumes, carbon oxides (CO, CO <sub>2</sub> ), highly corrosive and toxic

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hydrofluoric acid fumes. Metallic decomposition products may include: metal oxide fumes, copper fume, zinc oxide fumes, tin oxides.

### SECTION 11: Toxicological information

#### Acute

Chemical name	ORAL LD <sub>50</sub>	Dermal LD <sub>50</sub>	Inhalation LC <sub>50</sub>
Copper (CAS 7440-50-8)	Not established	Not established	Not established

#### Notes:

If excessive quantities of zinc oxide fume are inhaled, it can result in the condition called metal fume fever. The symptoms of metal fume fever will occur within 3 to 10 hours, and include immediate dryness and irritation of the throat, tightness of the chest, and coughing which may later be followed by flu-like symptoms of fever, malaise, perspiration, frontal headache, muscle cramps, low back pain, occasionally blurred vision, nausea, and vomiting. There are no recognized complications, after effects, or chronic effect that from this condition.

#### Eye effects:

**Flux ingredient(s):** Eye contact may cause Burns severe eye damage.

**Binder:** Eye contact may cause irritation.

**Alloy:** Can cause irritation and abrasion

#### Skin effects:

**Flux ingredient(s):** Skin contact may cause: severe irritation, burns.

**Binder:** Skin contact may cause irritation.

**Alloy:** Hot molten metal may cause burns to the skin. Wear protective equipment when working with molten metal.

**Silver:** Skin contact with silver powder may produce localized irritation and/or argyria (permanent blue-gray discoloration of the skin).

**Copper:** Skin contact may cause irritation and dermatitis.

**Tin:** No adverse effects expected. May cause skin irritation.

#### Skin absorption

This material contains one or more components which may cause adverse effects if absorbed through the skin.

#### Ingestion:

**Flux ingredient(s):** Harmful if swallowed. Ingestion may cause severe irritation, burns.

**Binder:** Ingestion may cause gastrointestinal discomfort, diarrhea.

**Silver:** prolonged ingestion of silver compounds may cause a permanent bluish discoloration of the skin, eyes and mucous membranes.

**Copper:** Ingestion may cause nausea, vomiting, diarrhea.

**Zinc:** Ingestion of soluble salts of this material may cause abdominal irritation resulting in nausea and vomiting.

**Tin:** Ingestion of large doses may cause nausea, vomiting, diarrhea.

#### Inhalation:

**Flux ingredient(s):** If inhaled, may cause burns severe irritation.

**Binder:** If inhaled, may cause irritation of the respiratory tract, coughing sneezing.

**Silver:** Prolonged inhalation of silver compounds may cause a permanent bluish discoloration of the skin, eyes and mucous membranes.



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**Copper:** If inhaled, may cause sneezing, nausea, weakness, fever, fumes from heating may cause metal fume fever.

**Zinc:** This material is relatively non-toxic to humans by inhalation. However, acute overexposure to zinc oxide fume may cause metal fever, characterized by flu-like symptoms such as chills, fever, nausea and vomiting.

**Tin:** No adverse effects expected. Inhalation of dust may cause mechanical irritation.

<b>Sensitization:</b>	This material was not made with any components known to be skin or respiratory sensitizers.
<b>Carcinogenicity</b>	This product was not formulated with any ingredients that are classified as carcinogenic by IARC, NTP, ACGIH, OSHA or the UK HCS.
<b>Mutagenicity</b>	This material was not made with components identified as being mutagenic.
<b>Reproductive effects</b>	Contains borates: Animal ingestion studies in several species, at high doses, indicate that borates cause reproductive and developmental effects. A human study occupational exposure to borate dust showed no adverse effect on reproduction.
<b>Target organs</b>	Affected target organs eyes, kidney, liver, respiratory system, skin, central nervous system, bones (fluorosis), calcification of ligaments and vertebrae, teeth, conjunctiva, mucous membranes, lungs.

### SECTION 12: Ecological information

<b>12.1</b>	<b>Toxicity</b>	Material – Expected to be toxic to aquatic organisms Material - May cause long-term adverse effects in the aquatic environment.
	<b>Aquatic toxicity (acute)</b>	No data available
<b>12.2</b>	<b>Persistence and degradability</b>	No data available
<b>12.3</b>	<b>Bioaccumulative potential</b>	No data available
<b>12.4</b>	<b>Mobility in soil</b>	No data available
<b>12.5</b>	<b>Results of PBT and vPvB assessment</b>	No data available
<b>12.6</b>	<b>Other adverse effects</b>	No data available

### SECTION 13: Disposal considerations

<b>13.1</b>	<b>Disposal method:</b>	Dispose of in according with EC, national and local regulations, or sell to refiner.
<b>13.2</b>	<b>Product disposal:</b>	Disposal of waste material from the use of this product may be subject to federal, state and local regulations. Waste characterizations and compliance with applicable laws are the sole responsibility of the waste generator. Reclaimed scrap metal has monetary value. Contact a commercial reclaimer for information on recycling scrap metals. All recovered material should be packaged, labeled, transported and disposed or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices.

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- 13.3 Empty container:** Do not reuse empty containers. Dispose of empty container in accordance with EC, national and local regulations.

### SECTION 14: Transport information

#### Land transport ADR/RID (cross-border)

ADR/RID Class	
<b>14.1 UN number</b>	<b>3077</b>
<b>14.2 UN proper shipping name</b>	environmentally hazardous substances, solid, n.o.s (Copper metal powder)
<b>14.3 Transport hazard class (es)</b>	9 environmentally hazardous substances
<b>14.4 Packing group</b>	III
<b>14.5 Environmental hazards</b>	
Marine pollutant	Copper metal powder
<b>Tunnel restriction code</b>	-
<b>Labels required</b>	-
<b>14.6 Special precautions for user</b>	-
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code</b>	
Transport in bulk	No further instructions, see above.
Additional information	This product is classified for transport per US DOT, ADR/RID, ICAO/IATA and IMO/IMDG.

#### Maritime transport IMDG

IMDG Class	
<b>14.1 UN number</b>	<b>3077</b>
<b>14.2 UN proper shipping name</b>	environmentally hazardous substances, solid, n.o.s (Copper metal powder)
<b>14.3 Transport hazard class (es)</b>	9 environmentally hazardous substances
<b>14.4 Packing group</b>	III
<b>14.5 Environmental hazards</b>	
Marine pollutant	Copper metal powder
<b>Tunnel restriction code</b>	-
<b>Labels required</b>	-
<b>14.6 Special precautions for user</b>	-
<b>Special precautions for user – Sea</b>	Marine Pollutants having a net quantity of 5 L or less for liquids or a net mass per single or inner packaging of 5kg or less solids are not subject to any other provision of the code relevant to marine pollutants.
<b>14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code</b>	
Transport in bulk	No further instructions, see above.
Additional information	This product is classified for transport per US DOT, ADR/RID, ICAO/IATA and IMO/IMDG.

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Air transport ICAO-TI and IATA-DGR		
	<b>ICAO/IATA Class</b>	
<b>14.1</b>	<b>UN number</b>	<b>3077</b>
<b>14.2</b>	<b>UN proper shipping name</b>	environmentally hazardous substances, solid, n.o.s (Copper metal powder)
<b>14.3</b>	<b>Transport hazard class (es)</b>	9 environmentally hazardous substances
<b>14.4</b>	<b>Packing group</b>	III
<b>14.5</b>	<b>Environmental hazards</b>	
	Marine pollutant	Copper metal powder
	<b>Tunnel restriction code</b>	-
	<b>Labels required</b>	-
<b>14.6</b>	<b>Special precautions for user- Air</b>	A197: May be shipped as "Not restricted" provided that the net quantity in any receptacle does not exceed 5 kg or 5 L.
<b>14.7</b>	<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code</b>	
	Transport in bulk	No further instructions, see above.
	Additional information	This product is classified for transport per US DOT, ADR/RID, ICAO/IATA and IMO/IMDG.

### SECTION 15: Regulatory information

- 15.1** Regulations / legislation specific for the substance or mixture reach the Safety, Health and Environment.
- RoHS** This products was not made with any components regulated under the RoHS Directive 2011/65/EU.
- European Union This safety datasheet complies with the requirements of regulations (EC) No. 1907/2006 and 1272/2008.
- 15.2** Chemical Safety: Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

#### Relevant H-statements (number and full text)

Acute Tox, (o), Cat. 4:	Acute Toxicity (Oral), Category 4
Aquatic acute, Cat. 1:	Acute Hazards to the Aquatic Environment, Category 1
Aquatic Chronic, Cat. 1:	Chronic Hazards to the Aquatic Environment, Category 1
Aquatic Chronic, Cat. 2:	Chronic Hazards to the Aquatic Environment, Category 2
Rep. Tox, Cat. 2:	Reproductive toxicity, Category 2
H302	Harmful if swallowed.
H361-1	Suspected of damaging fertility or the unborn child.
H400	Very toxic to aquatic life.
H401	Very toxic to aquatic with long lasting effects.

**Education: A prerequisite is to have a thorough knowledge of this safety.**