	<b>SAFETY DATA SHEET</b>	
	In accordance with the criteria of Regulation No 1907/2006 (REACH) as amended	
<b>Metal dore</b>		
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## **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

### **1.1. Product identifier**

Metal dore.

**The registration number:** 01-2119543724-37-0008.

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

**Relevant identified uses:** For production of silver and gold.

**Uses advised against:** Not determined.

### **1.3. Details of the supplier of the safety data sheet**

**Supplier:** Huta Cynku "Miasteczko Śląskie" S.A.

**Address:** Poland; PL 42-610 Miasteczko Śląskie; Hutnicza 17 Str.

**Telephone/Fax:** +48 32 2888 444 (central)/+48 32 2888 687/885

**E-mail address** of the person responsible for the SDS: hcm@hcm.com.pl

### **1.4. Emergency telephone number**

112 (emergency call), 998 (fire brigade), 999 (ambulance)

## **SECTION 2: Hazards identification**

### **2.1. Classification of the substance or mixture**

#### **Classification according to Regulation 1272/2008/EC:**

Skin Irrit. 2; H315

Eye Irrit. 2; H319

STOT SE 3; H335

STOT RE 2; H373

**Hazards to man:** Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause damage to organs through prolonged or repeated exposure.

**Hazards to environment:** Does not meet the criteria of classification as dangerous for the environment.

**Hazard from physical and chemical properties:** Does not meet the criteria of classification.

In section 16 stated the meaning of H-phrases and symbols.

### **2.2. Label elements**

#### **Label accordance with Regulation 1272/2008/EC (CLP)**

**Hazard pictograms, signal words:** None.

**Hazard statements:** None.

**Precautionary statements:** None.

**The names of hazardous ingredients on the label:** None.

Label elements are permitted to be removed in accordance with Section 1.3.4. of CLP 1272/2008, account of its form in which it is placed on the market.

### **2.3. Other hazards**

No information on meeting the criteria for PBT or vPvB in accordance with Annex XIII of Regulation 1907/2006 (REACH). Tests have not been carried out.

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**SECTION 3: Composition/information on ingredients****3.1. Substances**

<b>Substance name:</b>	<b>Silver*</b>
<b>Concentration [%]:</b>	98.5
<b>CAS Number:</b>	7440-22-4
<b>EC Number:</b>	231-131-3
<b>Index Number:</b>	-
<b>Classification 1272/2008/EC:</b>	Eye Irrit.2; H319 STOT SE 3; H335 Skin Irrit. 2; H315 STOT RE 2; H373

<b>Substance name:</b>	<b>Copper</b>
<b>Concentration [%]:</b>	1-3
<b>CAS Number:</b>	7440-50-8
<b>EC Number:</b>	231-159-6
<b>Index Number:</b>	-
<b>Classification 1272/2008/EC:</b>	-

Contents of other contaminants is below 1%.

In section 16 stated the meaning of H-phrases and symbols.

\*Substance is not classified in Annex VI, Table 3.1 of Regulation 1272/2008. Classification of the substance manufacturer.

**3.2. Mixtures**

Not applicable.

**SECTION 4: First aid measures****4.1. Description of first aid measures**


In room temperature, metal dore doesn't hazardous for workers health. Contact with liquid metal cause severe burns. Information given below concerns work in conditions of exposure to vapours, fumes and dusts generating during mechanical or thermal treatment of product.

**Inhalation:** Move the affected person to fresh air and keep rested. Seek medical advice if necessary.

**Skin contact:** Immediately remove contaminated clothing and shoes. Flush contaminated skin with plenty of soap with water, then rinse with water. Seek medical advice if necessary (e.g. skin irritation). Wash clothing before reuse.

**Eye contact:** Check for and remove any contact lenses. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 15 minutes. Seek medical advice if necessary.

**Ingestion:** Rinse the mouth out with water. If conscious, give plenty of water to drink Do not induce vomiting unless advised by your doctor. Seek medical advice - show the SDS. The form of the product (solid) cause that oral exposure is unlikely. Ingestion of silver may be the consequence of non-basic hygiene after handling the product (e.g. not washing hands after handling the product), exposure to high concentrations of metal dore dusts and fumes.

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

**Inhalation:** May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

**Skin contact:** May cause skin irritation. May cause skin discoloration.

**Eye contact:** May cause irritation after exposure to fumes and dusts.

**Ingestion:** May cause irritation of the digestive tract. Effects may be cumulative. Ingestion of silver compounds may cause abdominal pain, rigidity, convulsions and shock. Chronic ingestion of silver salts may cause argyria characterized by a permanent blue-grey discoloration of the eyes, skin, mucous membranes, and internal organs. This effects are results from the accumulation of silver in the body.

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

Remove affected person from the contaminated product of the environment. In the event of health problems, consult your doctor or the center of toxicological concern. Provide the information contained in the SDS. If unconscious, do not give anything by mouth.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media:** Extinguishing media adapt to surrounding area. Extinguishing by powder and sand helps reduce the release of toxic fumes of metals.

**Unsuitable extinguishing media:** Not specified.

#### 5.2. Special hazards arising from the substance or mixture

In case of fire hazardous products may be formed: harmful and irritating fumes and vapors of silver. Do not inhale fumes and gases that produce during the fire.

#### 5.3. Advice for firefighters

Wear full protective equipment and self-contained breathing apparatus with independent air circulation. Containers exposed to fire or high temperature cool with water and if possible remove from the danger zone. Collect mechanically. Protect drains, surface waters and soil from pollution.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel:** Access of non-emergency personnel to the area of accident should be restricted until the completion of the disposal of the product. Wear appropriate personal protective equipment.

**For emergency responders:** Wear appropriate personal protective equipment.

#### 6.2. Environmental precautions

Secure the gullies. Prevent contamination of surface water and ground. In the event of any serious pollution of the environment, notify the appropriate administrative authority, control and rescue services. The used containers should be disposed by delivering to eligible organizations.

#### 6.3. Methods and material for containment and cleaning up

Protect damaged containers. Collect mechanically. Collected product put in a substitute container and refer to the destruction or re-use.

#### 6.4. Reference to other sections

Disposal - see Section 13. Personal protective equipment - see Section 8.

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Do not eat, drink, smoke or take drugs at work. Remove contaminated clothing and clean before reuse. Do not empty into drains. Wash your hands before break and after working with the product. Provide adequate ventilation. Avoid contact with eyes, skin, and clothing. After mechanical or thermal process avoid generation dusts and fumes of the product. Observe directions on label and instructions for use.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep in properly labeled, factory sealed, with a label which complies with current regulations. Store in a cool, dry and well ventilated place. Do not exceed the permissible storage space unit load. Avoid contact with strong acids, strong bases, ethyleneimine.

### 7.3. Specific end use(s)

For production of silver and gold.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

Substance name	TWA	STEL	BLV
<b>Silver, metallic</b> [CAS: 7440-22-4]	0.1 mg/m <sup>3</sup>	-	-
<b>Copper fume (as Cu)</b> [CAS: 7440-50-8]	0.2 mg/m <sup>3</sup>	=	-
<b>Copper and compounds: dust and mists (as Cu)</b>	1 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>	=

**Legal basis:** Ordinance on maximum permissible concentration and intensity of harmful factors in the work environment in accordance with national limit values.

[EH40/2005 Workplace exposure limits, fourth edition, published 2020, ISBN 978 0 7176 6733 8.](#)

### Monitoring procedures:

Use methods described in European Standards.

### 8.2. Exposure controls

Mandatory general regulations on occupational health. Do not allow to exceed the normative concentrations of hazardous constituents in the workplace. After work, wash and clean the surface of the body and clothing. Do not eat, drink, smoke or take drugs at work. Immediately remove contaminated clothing and clean before reuse. Wash hands and face before break and after working with the product. Avoid contact with eyes and skin. Do not inhale vapors, dusts and fumes of the product. Do not allow to contact with the food.

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**Eye/face protection:** Wear suitable protective glasses and protection of the face (in accordance with EN 166) in terms of exposure to product dust vapors and fumes.

**Skin Protection:** Wear suitable gloves e.g. rubber (in accordance with EN 374). After working with hot (molten) product wear suitable gloves resistant to high temperatures (in accordance with EN 407). According to the exposure when handling the product wear suitable protective clothing with long sleeves and trousers, aprons, safety shoes. After working with hot (molten) product wear protective clothing resistant to high temperature.

**Respiratory protection:** In terms of exposure to concentrations exceeding the limit values of TWA, the conditions of exposure to dusts, fumes and vapors of the product wear appropriate respiratory protection, for example, in a short-term exposure - a mask with an appropriate filter or breathing apparatus with independent air supply in conditions of exposure to high concentration.

**Thermal Hazards:** When working with hot (molten) product wear suitable gloves resistant to high temperatures (in accordance with EN 407). When working with hot (molten) product wear protective clothing resistant to high temperature.

Used personal protective equipment should meet the requirements of local/regional/national laws. The employer must provide personal protective equipment appropriate to the type of work and in accordance with all requirements, including maintenance and cleaning.

Concentrations of hazardous substances in the workplace should be monitored in accordance with acknowledged test methods. Mode, method, type and frequency of testing and measurement of harmful factors in the working environment should meet the requirements of local/regional/national laws.

**Environmental exposure controls:** The large amount of product should not be allowed to penetrate through the ground water, sewage, waste water or soil.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

<b><u>Physical state:</u></b>	<u>Solid</u>
<b><u>Colour:</u></b>	<u>Grey-silver</u>
<b><u>Odour:</u></b>	<u>Odourless</u>
<b><u>Melting point/freezing point:</u></b>	<u>961 °C (silver)</u>
<b><u>Boiling point or initial boiling point and boiling range:</u></b>	<u>2212 °C (silver)</u>
<b><u>Flammability:</u></b>	<u>Not combustible</u>
<b><u>Lower and upper explosion limit:</u></b>	<u>Not available</u>
<b><u>Flash point:</u></b>	<u>Not available</u>
<b><u>Auto-ignition temperature:</u></b>	<u>Not available</u>
<b><u>Decomposition temperature:</u></b>	<u>Not specified</u>
<b><u>pH:</u></b>	<u>Not available</u>
<b><u>Kinematic viscosity:</u></b>	<u>Not specified</u>
<b><u>Solubility:</u></b>	<u>Not soluble in water, soluble in acids according to the type and concentration (20 °C)</u>
<b><u>Partition coefficient n-octanol/water (log value):</u></b>	<u>Not available</u>
<b><u>Vapour pressure:</u></b>	<u>100 mmHg (1865 °C) (silver)</u>
<b><u>Density and/or relative density:</u></b>	<u>10.5 g/cm<sup>3</sup> (silver)</u>
<b><u>Relative vapour density:</u></b>	<u>Not applicable</u>

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**Particle characteristics:** Not specified**9.2. Other information****9.2.1. Information with regard to physical hazard classes**

Not specified.

**9.2.2. Other safety characteristics**

Not specified.

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Not reactive under normal conditions of use.

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

Not specified.

**10.4. Conditions to avoid**

Not specified.

**10.5. Incompatible materials**

Keep away from strong acids, strong bases, ethyleneimine.

**10.6. Hazardous decomposition products**

None under normal conditions of use and storage.

**SECTION 11: Toxicological information****11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity:** Based on available data, the classification criteria are not met.**Skin corrosion/irritation:** Causes skin irritation.**Serious eye damage/irritation:** Causes serious eye irritation.**Respiratory or skin sensitization:** Based on available data, the classification criteria are not met.**Germ cell mutagenicity:** Based on available data, the classification criteria are not met.**Carcinogenicity:** Based on available data, the classification criteria are not met.**Reproductive toxicity:** Based on available data, the classification criteria are not met.**STOT - single exposure:** May cause respiratory irritation.**STOT - repeated exposure:** May cause damage to organs through prolonged or repeated exposure.**Aspiration hazard:** Based on available data, the classification criteria are not met.**11.2. Information on other hazards****11.2.1. Endocrine disrupting properties**

Not specified.

**11.2.2. Other information**

According to section 1.3.4 of Regulation 1272/2008, product does not meet this threat, account of its form in which it is placed on the market.

**Toxicological data for silver:****Targets organs:** Kidneys.**Eye contact:** May cause irritation after exposure to fumes and dusts.**Skin contact:** May cause skin irritation. May cause skin discoloration.**Ingestion:** May cause irritation of the digestive tract. Effects may be cumulative. Ingestion of silver compounds may cause abdominal pain, rigidity, convulsions and shock.

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**Inhalation:** May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

**Chronic exposure:** Chronic ingestion of silver salts may cause argyria characterized by a permanent blue-grey discoloration of the eyes, skin, mucous membranes, and internal organs. This effects are results from the accumulation of silver in the body.

**Epidemiology:** The International Agency for Research on Cancer - IARC Group 4: Not classifiable as to its carcinogenicity.

**Teratogenicity:** No data.

**Reproductive Effects:** No data.

**Mutagenicity:** No data.

**Neurotoxicity:** No data.

**SECTION 12: Ecological information****12.1. Toxicity**

Not classified as dangerous for the environment.

**12.2. Persistence and degradability**

Not specified.

**12.3. Bioaccumulative potential**

Algae, daphnia, fresh water mussels, and fathead minnows were all found capable of accumulating silver; but the food chain was not an important route of silver accumulation for animals at higher tropic levels, suggesting no food chain magnification.

**12.4. Mobility in soil**

Sorption and precipitation processes are effective in reducing the concentration of dissolved silver and result in higher concentrations in the sediments than in the overlying waters. Sorption by manganese dioxide and precipitation with halides are probably the dominant controls on the mobility of silver in the aquatic environment.

**12.5. Results of PBT and vPvB assessment**

Not applicable.

**12.6. Endocrine disrupting properties**

Not specified.

**12.7. Other adverse effects**

Not specified.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods**

During removal of waste comply with the regional / national laws.


**Community legislation:**

- Directive **2008/98/EC** of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.
- European Parliament and Council Directive **94/62/EC** of 20 December 1994 on packaging and packaging waste as amended.

**Disposal methods for the product:** Do not introduce into the environment. Disposal in accordance with the local/national legislation.

**Disposal methods for used packing:** Product and containers and disposal in accordance with the local/national legislation.



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#### SECTION 14: Transport information

	<b>ADR</b>	<b>RID</b>	<b>AND</b>	<b>IMDG</b>	<b>ICAO TI</b>
<b><u>14.1. UN number or ID number</u></b>			None		
<b><u>14.2. UN proper shipping name</u></b>			None		
<b><u>14.3. Transport hazard class(es)</u></b>			None		
<b><u>14.4. Packing group</u></b>			None		
<b><u>14.5. Environmental hazards</u></b>			Not specified		
<b><u>14.6. Special precautions for user</u></b>	During cargo handling use personal protective equipment - see Section 8.				
<b><u>14.7. Maritime transport in bulk according to IMO instruments</u></b>			Not specified		

#### SECTION 15: Regulatory information

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

**Regulation (EC) No 1907/2006** of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.

**Regulation (EC) No 1272/2008** of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 as amended.

**Commission Regulation (EU) 2020/878** of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

**Directive 2008/98/EC** of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.

**European Parliament and Council Directive 94/62/EC** of 20 December 1994 on packaging and packaging waste as amended.

**Commission Regulation (EU) 2017/542** of 22 March 2017 amending Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures by adding an Annex on harmonised information relating to emergency health response.

**Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016** on personal protective equipment and repealing Council Directive 89/686/EEC.

##### 15.2. Chemical safety assessment


There are no data on the chemical safety assessment.

#### SECTION 16: Other information

##### **The full text of statements H under Sections 2 and 3:**

H315 - Causes skin irritation.



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H319 - Causes serious eye irritation.  
 H335 - May cause respiratory irritation.  
 H373 - May cause damage to organs through prolonged or repeated exposure.

**Key to abbreviations and acronyms:**

BLV - Biological limit values.  
 Eye Irrit. 2 - Serious eye damage/eye irritation, Hazard Category 2.  
 Skin Irrit. 2 - Skin corrosion/irritation, Hazard Category 2.  
 STEL - Short-term exposure limit.  
 STOT RE 2 - Specific target organ toxicity - Repeated exposure, Hazard Category 2.  
 STOT SE 3 - Specific target organ toxicity - Single exposure, Hazard Category 3,  
 Respiratory tract irritation.  
 TWA - 8 hours time-weighted average.

**Training advice:** Before use read the SDS.

**Sources of key data:**

SDS - in Polish (27.04.2012)

The information above is based on a current available data concerning the product, but also on the experience and knowledge in this field of the producer. They are neither a quality description of the product nor a guarantee of particular features. They are also treated as aid to safety in transport, storage and usage of the product. This does not free the user from the responsibility of improper usage of the information above also of improper compliance with the law norms in the field.

Prepared by ISOTOP Consulting Company; [www.isotop.pl](http://www.isotop.pl); e-mail: [reach@isotop.pl](mailto:reach@isotop.pl)

SDS from 15.05.2015 (Version 2) has been revised in sections 2.1, 2.2, 3.1, 3.2, 5.2, 5.3, 6.1, 6.2, 6.3, 8.1, 8.2, 9.1, 9.2, 11.1, 11.2, 12.6, 12.7, 13.1, 14.1, 14.2, 14.3, 14.4, 14.5, 14.6, 14.7, 15.1 and 16. Changes have been underlined.

This SDS replaces and annuls all the previous versions.