

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830
Date of issue: 31/01/2020 Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Name : Copper
Trade name : Thermo ZF / Thermo ZF + / Thermo ZF Sigma
EC-No. : 231-159-6
CAS-No. : 7440-50-8
Formula : Cu

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Wire Electrical Discharge Machining

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Thermocompact
181, Route de Sarves - Metz-Tessy - CS 70021
74371 PRINGY CEDEX - FRANCE
T +33 (0)4 50 65 69 02 - F +33 (0)4 50 27 17 37
thermo@thermocompact.com - www.thermocompact.com

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital, Guy's & St Thomas' Hospital Trust	Dudley Road B18 7QH Birmingham	0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours)	-

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Not classified

Adverse physicochemical, human health and environmental effects

To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

No labelling applicable

2.3. Other hazards

PBT : Not applicable
vPvB : Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Name : Copper
CAS-No. : 7440-50-8
EC-No. : 231-159-6

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Chromium (Impurity)	(CAS-No.) 7440-47-3 (EC-No.) 231-157-5	< 1	Not classified
magnesium (Impurity)	(CAS-No.) 7439-95-4 (EC-No.) 231-104-6	< 1	Not classified
Zirconium (Impurity)	(CAS-No.) 7440-67-7 (EC-No.) 231-176-9	< 0,1	Flam. Sol. 1, H228

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : In case of inhalation of fumes of molten material or dust: Move the affected person away from the contaminated area and into the fresh air. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : Rinse with plenty of water. In case of redness or irritation, call a doctor.

First-aid measures after eye contact : Rinse eyes with water as a precaution. In case of redness or irritation, call a doctor.

First-aid measures after ingestion : Get medical advice/attention.

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

Symptoms/effects after inhalation : Inhalation of fumes may cause metal fume fever.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Special powder against metallic fire (Class D). Sand.

Unsuitable extinguishing media : Water. Halogenated compounds.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not classified as flammable according to EC criteria, but may present a risk in the event of a fire.

Hazardous decomposition products in case of fire : Toxic vapours may be released. Metallic oxides.

5.3. Advice for firefighters

Firefighting instructions : Contain the extinguishing fluids by bunding. Do not breathe fumes.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Avoid contact with skin and eyes. Do not attempt to take action without suitable protective equipment.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Shovel into suitable and closed container for disposal. Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

Concerning disposal elimination after cleaning, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Avoid contact with skin and eyes.
Hygiene measures : Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry, cool, well-ventilated area. Keep away from heat.
Incompatible materials : Acids.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper (7440-50-8)	
EU - Occupational Exposure Limits	
Local name	Copper
IOELV TWA (mg/m ³)	0,01 mg/m ³ (respirable fraction)
Notes	(Year of adoption 2014)
Regulatory reference	SCOEL Recommendations
United Kingdom - Occupational Exposure Limits	
Local name	Copper
WEL TWA (mg/m ³)	0,2 mg/m ³ fume (as Cu) 1 mg/m ³ and compounds, dusts and mists (as Cu)
WEL STEL (mg/m ³)	2 mg/m ³ and compounds, dusts and mists (as Cu)
Regulatory reference	EH40/2005 (Third edition, 2018). HSE

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Chromium (7440-47-3)

EU - Occupational Exposure Limits

Local name	Chromium metal
IOELV TWA (mg/m ³)	2 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC

United Kingdom - Occupational Exposure Limits

Local name	Chromium
WEL TWA (mg/m ³)	0,5 mg/m ³ 0,5 mg/m ³ Chromium (II) compounds (as Cr) 0,5 mg/m ³ Chromium (III) compounds (as Cr) 0,05 mg/m ³ Chromium (VI) compounds (as Cr)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

Zirconium (7440-67-7)

United Kingdom - Occupational Exposure Limits

Local name	Zirconium
WEL TWA (mg/m ³)	5 mg/m ³ compounds (as Zr)
WEL STEL (mg/m ³)	10 mg/m ³ compounds (as Zr)
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:

Protective gloves. The protective gloves to be used must comply with the specifications of the regulation 2016/425 and the resultant standard EN 374. Breakthrough time : refer to the recommendations of the supplier

Eye protection:

Not required for normal conditions of use

Skin and body protection:

Not required for normal conditions of use

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Massive.
Colour	: No data available
Odour	: Odourless.
Odour threshold	: No data available

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

pH	: Not applicable
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: Not applicable
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Solubility	: Water: Insoluble
Partition coefficient n-octanol/water (Log Pow)	: Not applicable
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: Non oxidizing material according to EC criteria.
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None to our knowledge.

10.5. Incompatible materials

Acids.

10.6. Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (dermal)	: Not classified (Based on available data, the classification criteria are not met)
Acute toxicity (inhalation)	: Not classified (Based on available data, the classification criteria are not met)
Skin corrosion/irritation	: Not classified (Based on available data, the classification criteria are not met) pH: Not applicable
Serious eye damage/irritation	: Not classified (Based on available data, the classification criteria are not met) pH: Not applicable
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Technical impossibility to obtain the data)

Copper (7440-50-8)

Viscosity, kinematic	Not applicable
----------------------	----------------

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term (acute)	: Not classified (Based on available data, the classification criteria are not met)
Hazardous to the aquatic environment, long-term (chronic)	: Not classified (Based on available data, the classification criteria are not met)

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Copper (7440-50-8)

Partition coefficient n-octanol/water (Log Pow)	Not applicable
---	----------------

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Copper (7440-50-8)

PBT : Not applicable

vPvB : Not applicable

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	: Dispose of in accordance with relevant local regulations.
Additional information	: The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

14.2. UN proper shipping name

Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
----------------	----------------	----------------	----------------	----------------

14.3. Transport hazard class(es)

Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
----------------	----------------	----------------	----------------	----------------

14.4. Packing group

Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
----------------	----------------	----------------	----------------	----------------

14.5. Environmental hazards

Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
----------------	----------------	----------------	----------------	----------------

14.6. Special precautions for user

Overland transport

Not applicable

Transport by sea

Not applicable

Air transport

Not applicable

Inland waterway transport

Not applicable

Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Copper is not on the REACH Candidate List

Copper is not on the REACH Annex XIV List

Thermo ZF / Thermo ZF + / Thermo ZF Sigma is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of hazardous chemicals.

Thermo ZF / Thermo ZF + / Thermo ZF Sigma is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ECHA	European Chemicals Agency
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods

Thermo ZF / Thermo ZF + / Thermo ZF Sigma

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

PBT	Persistent Bioaccumulative Toxic
Pow (log)	n-octanol/water partition coefficient
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative

Data sources : ECHA (European Chemicals Agency).
Other information : Safety data sheet established by : LISAM TELEGIS
17 rue de la Couture F-60400 Passel
www.lisam-telegis.com.

Full text of H- and EUH-statements:

Flam. Sol. 1	Flammable solids, Category 1
H228	Flammable solid.

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.