Safety data sheet
This SDS is an English translation of COMMISSION REGULATION (EU) 2020/878, without any country-specific legislation

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SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name: IWELD Copper wire (DIN1733 (CuSi3))

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

Relevant identified uses: Welding and soldering product
The product is intended for professional use

Specific process or activity: welding (welding process)

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:
IWELD Kft.
H-2314 Halásztelek
II. Rákóczi Ferenc street 90/B
Tel.: +36 24 532 625
info@iweld.hu

Responsible for the safety data sheet:
Liverton Kft
H-2314 Halásztelek
Mária street 46.
Tel.: +36 20 9442 543
liverton@liverton.hu

For the updated safety data sheet please visit our website www.iweld.hu

1.4 24 hours Emergency telephone number:

Egészségügyi Toxikológiai Tájékoztató Szolgálat H-1096 Budapest, Nagyvárad tér 2. Tel: +36 80 201-199 (ingyenes, éjjel-nappal hívható szám) +36 1 476-6464
e-mail: ettsz@okbi.antsz.hu

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Section	Hazard class	Category	Hazard class and category	Hazard statement
3.4S	skin sensitisation	1	Skin Sens. 1	H317
3.9	specific target organ toxicity- - repeated exposur	1	STOT RE1	H372

Code	Supplemental hazard information
EUH032	contact with acids liberates very toxic gas

SECTION 2: HAZARDS IDENTIFICATION

EUH212	Warning! Hazardous respirable dust may be formed when used. Do not breathe dust

For full text of abbreviations: see SECTION 16.

2.2 GHS Label elements, including precautionary statements

Pictogram(s): GHS07, GHS08

Signal word: Danger

Hazard statements:
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.

Precautionary statements: No precautionary statement
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P314 Get medical advice/attention if you feel unwell.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- supplemental hazard information
  EUH032 Contact with acids liberates very toxic gas.
  EUH212 Warning! Hazardous respirable dust may be formed when used. Do not breathe dust.
- hazardous ingredients for labelling nickel powder

2.3 Description of any hazards not otherwise classified
Avoid breathing dust. Avoid contact with eyes. Avoid skin contact.
When this product is used in a welding process, the most significant hazards are electric shock, fumes, gases, radiation, spatter, slag and heat.
Shock: electric shock can kill.
Fumes: Overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function and nervous system.
Gases: gases may cause gas poisoning.
Radiation: arc rays can severely damage eyes or skin.
Spatter, slag and heat: spatter and slag can damage eyes. Spatter, slag, melting material, arc rays and hot welds can cause burn injuries and start fires.
Substance(s) formed under the conditions of use.
The welding fumes produced from this welding electrode may contain the listed constituent(s) of Sec.3 and/or their complex metallic oxides as well as solid particles or other constituents from the consumables, base metal, or base metal coating not listed
Sec.3. The welding fumes may contain Mn, Ni, Cr(VI) and their compounds. Refer to Sec.8 and 10.
Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance () Preparation () Article (X)

Név	Termékazonosító	%	Osztályozás a 1272/2008/EK rendelet
Manganese	(CAS-No) 7439-96-5 (EK-Szám) 231-105-1	0,91	Not classified
Silicium	(CAS-Szám) 7440-21-3 (EK-Szám) 231-130-8	2,96	Flam. Sol. 2, H228
Aluminium	(CAS-Szám) 7429-90-5 (EK-Szám) 231-072-3	0,001	Not classified
Copper	(CAS-Szám) 7440-50-8 (EK-szám) 231-159-6	96,972	Not classified
Zinc	(CAS-Szám) 7440-66-6 (EK-szám) 231-175-3	0,005	Not classified
Tin	(CAS-Szám) 7440-31-5 (EK-szám) 231-141-8	0,002	Not classified
Lead	(CAS-Szám) 7439-92-1 (EK-szám) 231-100-4	0,004	Not classified
Iron	(CAS-Szám) 7439-89-6 (EK-szám) 231-100-4	0,06	Not classified

Abbreviation: CAS No. is Chemical Abstract Service Registry Number.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General notes
Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered.
Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Disconnect and turn off the power. If the victim is semi- or unconscious, open the airway. If the victim cannot breath, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.
Electrical shock
Disconnect and turn off the power. If the victim is semi- or unconscious, open the airway. If the victim cannot breath, give artificial respiration. If there is no pulse, massage the chest and apply artificial respiration.

Following inhalation
Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. If experiencing respiratory symptoms: Call a doctor.

Following skin contact
Brush off loose particles from skin. Rinse skin with water/shower. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

Following eye contact
Do not rub the eyes. Mechanical stress can cause damage to the cornea. Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Following ingestion
Rinse mouth with water (only if the person is conscious).

4.2 Most important symptoms and effects, both acute and delayed

Symptoms.
Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).
Long-term (chronic) overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects. Refer to Section 11 for more information.
Hazards.
Welding hazards are complex and may include physical and health hazards such as but not limited to electric shock, physical strains, radiation burns (eye flash), thermal burns due to hot metal or spatter and potential health effects of overexposure to welding fume or dust. Refer to Section 11 for more information.

4.3 Indication of any immediate medical attention and special treatment needed
No data available. Treat symptomatically and supportively.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
As shipped, this product is non flammable. However, welding arc and spark can ignite combustible and flammable products, Coordinate firefighting measures to the fire surroundings, Dry extinguishing powder, Carbon dioxide (CO2), Water spray

5.2 Special hazards arising from the substance or mixture
No further relevant information available.
Hazardous combustion products
During fire hazardous fumes/smoke could be produced.
5.3 Advice for firefighters
In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

5.4 Further information
No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel
Remove persons to safety.

For emergency responders
Wear breathing apparatus if exposed to vapours/dust/spray/gases. Use personal protective equipment as required. If airborne dust and/or fume is present, use adequate engineering controls and, if needed, personal protection to prevent overexposure. Refer to recommendations in Section 8.

6.2 Environmental precautions:

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and materials for containment and cleaning up:

Advice on how to contain a spill
Covering of drains.

Advice on how to clean up a spill
Take up mechanically.

Other information relating to spills and releases
Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections
Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

Keep away from fire.

Recommendations
Reduction of fumes and dusts.
Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places were dust is formed. Read and understand the manufacturer's instruction and the possible precautionary label on the product.
Prevention of electric shock.
Do not touch live electrical parts such as the welding wire and welding machine terminals. Wear insulated gloves and safety boots. If welding must be performed in damp locations or with wet clothing, on metal structures or when in cramped positions such as sitting , kneeling or lying, or if there is a high risk of unavoidable or accidental contact with workpiece, use the following equipment: Semiautomatic DC Welder, DC Manual (Stick) Welder, or AC Welder with Reduced

SECTION 7: HANDLING AND STORAGE

Voltage Control.
Prevention of fire and explosion.
Remove flammable and combustible materials and liquids.
Prevention of harm when handling welding consumables.
Handle with care to avoid stings and cuts. Hold the welding wire manually when loosening the wire.

Advice on general occupational hygiene
Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities:

Managing of associated risks
- explosive atmospheres

Removal of dust deposits.
- flammability hazards

Keep away from fire. Keep away from combustible material.
- incompatible substances or mixtures

Acids, Alkalis, Oxidisers
Control of effects

Protect against external exposure, such as
High temperatures, Humidity
Consideration of other advice

Store in a well-ventilated place. Keep container tightly closed.
- general rule

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside a wall. Keep welding consumables away from chemical substances like acids which could cause chemical reactions.
- ventilation requirements

Use local and general ventilation.
- packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)
Welding (welding process).

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Limits:
Not established for the finished product. The following exposure limit is recommended in

Workplace

Country	Name of agent	CAS No	Identi-fier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Notation	Source
EU	manganese	7439-96-5	IOELV		0,2			i	2017/164/ EU
HU	dust		FEH		10			i	ITM rendelet
HU	dust		FEH		6			r	ITM rendelet
HU	manganese	7440-47-3	FEH		2				ITM rendelet

Relevant DNELs/DMELs/PNECs and other threshold levels

Relevant DNELs of components of the mixture:

Name of sub-stance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Manganese	7439-96-5	DNEL	0.2 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Manganese	7439-96-5	DNEL	0.004 mg/ kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

Relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Manganese	7439-96-5	PNEC	0.034 mg/l	aquatic organisms	freshwater	short-term (single instance)
Manganese	7439-96-5	PNEC	0.003 mg/l	aquatic organisms	marine water	short-term (single instance)
Manganese	7439-96-5	PNEC	0.028 mg/l	aquatic organisms	water	intermittent release
Manganese	7439-96-5	PNEC	100 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Manganese	7439-96-5	PNEC	3.3 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Manganese	7439-96-5	PNEC	0.34 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Manganese	7439-96-5	PNEC	3.4 mg/kg	terrestrial organ-isms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

Use enough ventilation, local exhaust at the arc, or both, to keep the fumes and gases below the TLVs in the worker's breathing zone and the general area. Use extra ventilation when welding galvanized plate or coated plate. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear helmet or use face shield with filter lens. As a rule of thumb, start with a shade which is too dark to see the weld zone. Then go to the next lighter shade which gives sufficient view of the weld zone. Provide protective screens and flash goggles, if necessary, to shield others.

Skin protection
Wear hand, head, and body protection which help to prevent injury from radiation, sparks and electrical shock. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Wear dry gloves free of holes or split seams. Train the welder not to permit electrically live parts or electrodes to contact skin or clothing or gloves if they are wet. Insulate yourself from the work piece and ground using dry plywood, rubber mats or other dry insulation.

Hand protection
Welding gloves according to EN12477:2001 and A1:2005 in case of arc welding. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. The ex- act break through time should be requested at the protective glove manufacturer and must be observed.

Breakthrough times of the glove material
Use gloves with a minimum breakthrough times of the glove material: >480 minutes (permeation: level 6).

Other protection measures
Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling. Wear head, hand and bodyprotection which help to prevent injury form radiation, sparks and electric shock. At a minimum this includes welder's gloves and protective face shield and may include arm protectors, aprons, hats, shoulder protection as well as dark substantial clothing.
Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Ear protection
Wear earplugs or earmuffs when using engine driven arc welding machine or pulsed arc welding machine that generates high- level noise.

Advice on hygiene measures
Do not eat, drink or smoke when using this product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants

Respiratory protection
Keep your head out of fumes. Use enough ventilation and local exhaust to keep fumes and gases from your breathing zone and the general area. Use respirable fume respirator or air supplied respirator when welding in confined space or where local ex- haust or ventilation does not keep exposure below TLV. Keep head out of the fumes and gases.

Environmental exposure controls
Take appropriate precautions to avoid uncontrolled release into the environment. Keep away from drains, surface and ground water.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	solid: wire or rod
Colour	grey
Odour	characteristic
Melting point/freezing point	not determined
Boiling point or initial boiling point and boiling range	not determined
Evaporation rate	not determined
Flammability	non-combustible
Lower and upper explosion limit	LEL: UEL: not relevant
Flash point	not determined
Auto-ignition temperature	information on this property is not available
Decomposition temperature	no data available
pH (value)	not applicable

Kinematic viscosity	not relevant
Solubility(ies)	not determined

Partition coefficient n-octanol/water (log value)	this information is not available

Vapour pressure	not determined

Density	not determined
Relative vapour density	this information is not available

Particle characteristics	no data available

9.2 Other information

Information with regard to physical hazard classes	hazard classes acc. to GHS (physical hazards): not relevant
Other safety characteristics	there is no additional information

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Contact with chemical substances could cause generation of gas.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Contact with acids, alkalis and oxidizing agents could cause reaction and generation of gas.

10.4 Conditions to avoid

Keep away from heat Acids Alkalis Oxidisers.

10.5 Incompatible materials

Oxidisers, Acids, Alkalis

10.6 Hazardous decomposition products

Manganese has a low exposure limit, in some countries, that may be easily exceeded. Welding fumes and gases are generated as byproducts during the welding. The composition and quantity of fumes and gases cannot be recognized simply. The composition and quantity of the fumes and gases are dependent upon the base metal being welded (included coating such as solvent, paint, plating), the welding process, welding procedure, welding parameter and electrodes used. Other conditions which also in- fluence the quantity of the fumes and gases to which workers may be exposed include the number of welding spots, the volume of the worker area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities.). The fumes and gases are different in percent and form from the ingredients listed in Section 3. The fumes and gases include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc., as noted above. Reasonably expected fume constituents produced during arc welding include the oxides of iron, manganese and other metals present in the welding consumable or base metal. And, it is known that these metal oxides are complex oxides, not single compounds. Hexavalent chromium compounds may be in the welding fume of consum- ables or base metals which contain chromium. Nickel compounds may be in the welding fume of consumables or base metals which contain Nickel. Gaseous and particulate fluoride may be in the welding fume of consumables which contain fluoride. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

The International Agency for Research on Cancer (IARC) has determined welding fumes and ultraviolet radiation from welding are carcinogenic to humans (Group 1). According to IARC, welding fumes cause cancer of the lung and positive associations have been observed with cancer of the kidney. Also according to IARC, ultraviolet radiation from welding causes ocular melanoma. IARC identifies gouging, brazing, carbon arc or plasma arc cutting, and soldering as processes closely related to welding. Read and understand the manufacturer’s instructions, Safety Data Sheets and the precautionary labels before using this product.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)

Acute toxicity

Short-term (acute) overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dry- ness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (e.g. asthma, emphysema).

Cr:The presence of chromium/chromate in welding fumes can cause irritation of nasal membranes and skin.

Ni: The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever.

F: Exposure to the fluoride ion in welding fumes may cause hypocalcemia-calcium deficiency in the blood that can result in muscle cramps and inflammation and necrosis of mucous membranes.

Gases: Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death.

Acute toxicity of components of the mixture

Acute toxicity of components of the mixture					
Name of substance	**CAS No**	**Exposure route**	**Endpoint**	**Value**	**Species**
Manganese	7439-96-5	oral	LD50	>2,000 mg/kg	rat
Manganese	7439-96-5	inhalation: dust/ mist	LC50	>5.14 mg/l/4h	rat

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitization

May cause an allergic skin reaction.

Ni: Nickel and its compounds are skin sensitizers with symptoms ranging from slight itch to severe dermatitis.

Suspected of causing cancer.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Summary of evaluation of the CMR properties

Welding fumes (not otherwise specified) are possibly carcinogenic to humans.

Arc rays: Skin cancer has been reported.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Long term exposure to welding and allied processes gasses, dusts and fumes may contribute to pulmonary irritation or pneumoconiosis and other pulmonary effects. The severity of the change is proportional to the length of the exposure. The changes may be caused by non-work factors such as smoking, etc.

Mn: Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances and spastic gait. The effect of manganese on the nervous system is irreversible.

Fe: Inhalation of to much iron oxide fume over a long time can cause siderosis, sometimes called "iron pigmentation"of the lung, which can be seen on a cest x-ray but causes little or no disability. Chronic overexposure to iron (>50-100 mg Fe per day) can result in pathological deposition of iron in body tissues of which are firbrosis of the pancreas, diabetes mellitus and lever cirhosis.

11.2 Information on other hazards

There is no additional information.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Name of substance	CAS No	Endpoint	Value	Species	Exposure time
Manganese	7439-96-5	LC50	>3.6 mg/l	fish	96 h
Manganese	7439-96-5	EC50	>1.6 mg/l	aquatic	48 h
Manganese	7439-96-5	ErC50	4.5 mg/l	algae	72 h
Manganese	7439-96-5	NOEC	3.6 mg/l	fish	96 h
Manganese	7439-96-5	LOEC	5.3 mg/l	algae	72 h
Manganese	7439-96-5	growth rate (Er- Cx)	3.4 mg/l	algae	72 h
Manganese	7439-96-5	growth (EbCx) 10%	2.6 mg/l	algae	72 h
Manganese	7439-96-5	LC50	<15.61 mg/l	fish	28 d
Manganese	7439-96-5	EC50	19.5 mg/l	aquatic	21 d
Manganese	7439-96-5	NOEC	1.7 mg/l	aquatic	10 d
Manganese	7439-96-5	growth (EbCx) 20%	<1.1 mg/l	aquatic invertebrates	21 d

12.2 Persistence and degradability
Tungsten will slowly react with water, oxygen, and other compounds to form a wide variety of tungsten compounds

12.3 Bio accumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bio accumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1 % or higher.

12.6 Other adverse effects
Due to the product size and the product's form, these products are not anticipated to cause adverse effects on aquatic life, however, large releases of Tungsten into a body of water may be harmful to aquatic plants and animals

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Firstly should consider the recovery or recycling as possible. Disposal must be made according to local and national regulations. Offer non-recyclable products to a licensed disposal company. Do not dump into any sewers, on the ground or intoany body of water.

Contaminated packaging
Dispose of as unused product

SECTION 14: TRANSPORT INFORMATION

14.1 UN Number: ADR, IMDG, IATA

ADR/RID: Not regulated as dangerous goods
IMDG: Not regulated as dangerous goods
IATA: Not regulated as dangerous goods

14.2 UN proper shipping name: ADR, IMDG, IATA
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods

14.3 Transport hazard class(es): ADR, IMDG, IATA
ADR/RID: Not regulated as dangerous goods
IMDG: Not regulated as dangerous goods
IATA: Not regulated as dangerous goods

14.4 Packing group: ADR, IMDG, IATA
ADR/RID: Not regulated as dangerous goods
IMDG: Not regulated as dangerous goods
IATA: Not regulated as dangerous goods.

14.5 Environmental hazards: No.

SECTION 15: REGULATORY INFORMATION

EU Regulations
Classification according to 67/548/EEC or 1999/45/EC
Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC
Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2010

US Regulations
TSCA Inventory Status: All of the components of this product are listed or exempt from the TSCA inventory.

OSHA: None of the components in this product are considered highly hazardous by OSHA
Health & Safety Reporting List: None of the components are on the Health & Safety Reporting List
International Chemical Substances list:

List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list

2012/18/EU (Seveso III)			
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the applica- tion of lower and upper-tier requirements**	**Notes**
	not assigned		

Water Framework Directive (WFD)

List of pollutants (WFD)				
Name of substance	**Name acc. to inventory**	**CAS No**	**Listed in**	**Remarks**
Manganese	Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment		A)	
Manganese	Metals and their compounds		A)	

EINECS: European Inventory of Existing Commercial Chemical Substances
TSCA: TSCA Chemical Substance Inventory
DSL: Canada Domestic Substance List
IECSC: Inventory of Existing Chemical Substances in China
NZioC: New Zealand Inventory of Chemicals
PICCS: Philippines Inventory of Chemicals and Chemical Substances
KECI: Korea Existing Chemicals Inventory
AICS: Australian Inventory of Chemical Substances

SECTION 16: OTHER INFORMATION

Abbreviations:

Abbr.	Descriptions of used abbreviations
2006/15/EC	Commission Directive establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC
2017/164/EU	Commission Directive establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
2017/2398/EU	Directive of the European Parliament and of the Council amending Directive 2004/37/EC on the protection of work- ers from the risks related to exposure to carcinogens or mutagens at work
Acute Tox.	Acute toxicity
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the In- ternational Carriage of Dangerous Goods by Road)
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
ATE	Acute Toxicity Estimate
Carc.	Carcinogenicity

CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EbC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits (http://www.nationalarchives.gov.uk/doc/open-government-licence/)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	Indicative occupational exposure limit value
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethal- ity during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a spe- cified time interval
LEL	Lower explosion limit (LEL)
LOEC	Lowest Observed Effect Concentration
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concern- ing the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
SVHC	Substance of Very High Concern
TWA	Time-weighted average

UEL	Upper explosion limit (UEL)
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H301	Toxic if swallowed.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H412	Harmful to aquatic life with long lasting effects.

Further Information:

- This safety data sheet was prepared in accordance with UN GHS Rev.6, The EU CLP REGULATION (EC) No 1272/2008, and ANSI Z400.1
- The above information is based on the data of which we are aware and is believed to be correct as of the date hereof.

More information:

The information contained in this safety data sheet is based on sources, technical knowledge and current legislation at European and state level, without being able to guarantee its accuracy. This information cannot be considered a guarantee of the properties of the product, it is simply a description of the security requirements. The occupational methodology and conditions for users of this product are not within our awareness or control, and it is ultimately the responsibility of the user to take the necessary measures to obtain the legal requirements concerning the manipulation, storage, use and disposal of chemical products. The information on this safety data sheet only refers to this product, which should not be used for needs other than those specified.