

Safety Data Sheetaccording to Regulation (EC) No 1907/2006 and (EU) No
2020/878**HALE's Solution (Iron(III) Chloride)**

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 1 of 14

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

HALE's Solution (Iron(III) Chloride)

UFI: TA64-P179-600S-0NA4

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

Use as laboratory reagent. The product is intended for research, analysis and scientific education.

Uses advised against

Any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name: MORPHISTO GmbH

Street: Schumannstr. 144

Place: D-63069 Offenbach

Telephone: +49 (0) 69 / 400 3019-60

Telefax: +49 (0) 69 / 400 3019-64

E-mail: info@morphisto.de

Contact person: Morphisto GmbH

E-mail: gefahrstoffmanagement@morphisto.de

Internet: http://www.morphisto.de

1.4. Emergency telephone number:

Morphisto GmbH, Tel: +49(0)69 400 3019-60, Mo-Fr.: 09-16 Uhr

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

This mixture is not classified as hazardous in accordance with Regulation (EC) No 1272/2008.

2.2. Label elements**Additional advice on labelling**

Label elements: none.

2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB) at levels of 0.1% or higher. Ecological information: The substance/mixture does not contain any components that are considered to be hazardous according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in amounts of 0.1 % or more have endocrine disrupting properties. Toxicological information: The substance/mixture does not contain any components that are to be classified according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1 % or more have endocrine disrupting properties. This mixture is classified as not hazardous according to Regulation (EC) 1272/2008 [CLP]. This mixture is classified as not hazardous according to Regulation (EC) 1272/2008 [CLP]. This mixture is classified as not hazardous according to Regulation (EC) 1272/2008 [CLP].

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Chemical characterization**

aqueous solution

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No
2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 2 of 14

Relevant ingredients

CAS No	Chemical name	Quantity
	EC No Index No REACH No	
	Classification (Regulation (EC) No 1272/2008)	
7705-08-0	Iron(III) chloride	< 1 %
	231-729-4 01-2119497998-05	
	Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1; H302 H315 H318	
7646-85-7	zinc chloride	< 0.001 %
	231-592-0 030-003-00-2 01-2119472431-44	
	Acute Tox. 4, Skin Corr. 1B, STOT SE 3, Aquatic Acute 1, Aquatic Chronic 1; H302 H314 H335 H400 H410	
10025-73-7	Chromium(III) chloride, anhydrous	< 0.001 %
	233-038-3 01-2120065910-58	
	Met. Corr. 1, Acute Tox. 4, Skin Sens. 1, Aquatic Chronic 2; H290 H302 H317 H411	
7718-54-9	nickel dichloride	< 0.01 %
	231-743-0 028-011-00-6 01-2119486973-20	
	Carc. 1A, Muta. 2, Repr. 1B, Acute Tox. 3, Acute Tox. 3, Skin Irrit. 2, Resp. Sens. 1, Skin Sens. 1, STOT RE 1, Aquatic Acute 1, Aquatic Chronic 1; H350i H341 H360D H331 H301 H315 H334 H317 H372 H400 H410	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
7705-08-0	231-729-4	Iron(III) chloride	< 1 %
		oral: LD50 = 500 mg/kg	
7646-85-7	231-592-0	zinc chloride	< 0.001 %
		dermal: LD50 = >2000 mg/kg; oral: LD50 = 1100 mg/kg STOT SE 3; H335: >= 5 - 100	
10025-73-7	233-038-3	Chromium(III) chloride, anhydrous	< 0.001 %
		dermal: LD50 = >2000 mg/kg; oral: LD50 = 440 mg/kg	
7718-54-9	231-743-0	nickel dichloride	< 0.01 %
		inhalation: ATE = 3 mg/l (vapours); inhalation: ATE = 0,5 mg/l (dusts or mists); oral: LD50 = 105 - 681 mg/kg Skin Irrit. 2; H315: >= 20 - 100 Skin Sens. 1; H317: >= 0,01 - 100 STOT RE 1; H372: >= 1 - 100 STOT RE 2; H373: >= 0,1 - < 1 Aquatic Acute 1; H400: M=1 Aquatic Chronic 1; H410: M=1	

Further Information

This mixture contains no substances of very high concern (SVHC) (> 0,1%) which are included in the Candidate List according to Article 59 of REACH.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air. In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of respiratory tract irritation, consult a physician.

Safety Data Sheetaccording to Regulation (EC) No 1907/2006 and (EU) No
2020/878**HALE's Solution (Iron(III) Chloride)**

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 3 of 14

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.

After ingestion

Do NOT induce vomiting. Rinse mouth thoroughly with water. Let water be drunken in little sips (dilution effect).
Observe risk of aspiration if vomiting occurs. Never give anything by mouth to an unconscious person or a person with cramps. When in doubt or if symptoms are observed, get medical advice.

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

No information available.

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**Co-ordinate fire-fighting measures to the fire surroundings. Sand. Foam. Carbon dioxide (CO₂). Extinguishing powder.

In case of major fire and large quantities: Water spray jet. Water mist.

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixtureNon-flammable. In case of fire may be liberated: Carbon monoxide. Carbon dioxide (CO₂).**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus. In case of fire and/or explosion do not breathe fumes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Co-ordinate fire-fighting measures to the fire surroundings.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Wear personal protection equipment (refer to section 8).

Avoid contact with skin, eyes and clothes.

6.2. Environmental precautions

Prevent spread over a wide area (e.g. by containment or oil barriers). Do not allow to enter into soil/subsoil.

6.3. Methods and material for containment and cleaning up**For cleaning up**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

Other information

Clean contaminated objects and areas thoroughly observing environmental regulations.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 4 of 14

7.1. Precautions for safe handling

Advice on safe handling

Wear suitable protective clothing. (See section 8.)

Conditions to avoid: aerosol or mist formation

Avoid contact with skin, eyes and clothes.

Advice on protection against fire and explosion

Usual measures for fire prevention.

Advice on general occupational hygiene

Take off contaminated clothing. Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff.

Further information on handling

General protection and hygiene measures: See section 8.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Only use containers specifically approved for the substance/product. Make sure spills can be contained (e.g. sump pallets or kerbed areas).

Hints on joint storage

Do not store together with: Explosives. Oxidizing solids. Oxidizing liquids. Organic peroxides. Self-reactive substances and mixtures. Radioactive substances. Infectious substances.

Further information on storage conditions

Recommended storage temperature: 15-25°C

Protect against: frost. UV-radiation/sunlight. heat. Humidity

7.3. Specific end use(s)

See section 1.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values

CAS No	Name of agent	ppm	mg/m ³	fib/cm ³	Category	Origin
-	Nickel compounds (inhalable fraction, measured as Ni)	-	0.1		TWA (8 h)	EU

DNEL/DMEL values

CAS No	Name of agent	Exposure route	Effect	Value
7646-85-7	zinc chloride			
Worker DNEL, long-term	inhalation	systemic	1 mg/m ³	
Worker DNEL, long-term	dermal	systemic	8,3 mg/kg bw/day	

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 5 of 14

PNEC values

CAS No	Name of agent	
Environmental compartment		Value
7646-85-7	zinc chloride	
Freshwater		0,0206 mg/l
Marine water		0,0061 mg/l
Freshwater sediment		117,8 mg/kg
Marine sediment		56,5 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,1 mg/l
Soil		35,6 mg/kg
7718-54-9	nickel dichloride	
Freshwater		0,0003136 mg/l
Freshwater (intermittent releases)		0,003136 mg/l

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye protection/face protection. Wear eye/face protection. EN 166

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. 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. Wear suitable gloves.

Suitable material:

FKM (fluororubber). - Thickness of glove material: 0,4 mm

Breakthrough time $\geq$ 8 h

Butyl rubber. - Thickness of glove material: 0,5 mm

Breakthrough time $\geq$ 8 h

CR (polychloroprenes, Chloroprene rubber). - Thickness of glove material: 0,5 mm

Breakthrough time $\geq$ 8 h

NBR (Nitrile rubber). - Thickness of glove material: 0,35 mm

Breakthrough time $\geq$ 8 h

PVC (Polyvinyl chloride). - Thickness of glove material: 0,5 mm

Breakthrough time $\geq$ 8 h

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Before using check leak tightness / impermeability. In the case of wanting to use the gloves again, clean them before taking off and air them well.

Skin protection

Use of protective clothing. Suitable protective clothing: Lab apron.

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500 (D).

Respiratory protection

In case of inadequate ventilation wear respiratory protection. With correct and proper use, and under normal conditions, breathing protection is not required.

Respiratory protection necessary at:

-exceeding exposure limit values

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 6 of 14

-insufficient ventilation and aerosol or mist formation

Suitable respiratory protective equipment: particulates filter device (DIN EN 143). Type:: P1-3

The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. The wearing time limitations according to GefStoffV in conjunction with the rules for the use of respiratory protective devices (BGR 190) must be observed.

Environmental exposure controls

No special precautionary measures are necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	
Colour:	orange-brown	
Odour:	characteristic	
Melting point/freezing point:		No information available.
Boiling point or initial boiling point and boiling range:		100 °C
Flammability:		No information available.
Lower explosion limits:		No information available.
Upper explosion limits:		No information available.
Flash point:		No information available.
Auto-ignition temperature:		No information available.
Decomposition temperature:		No information available.
pH-Value (at 20 °C):		2-3
Viscosity / kinematic:		not determined
Water solubility:		very soluble
(at 20 °C)		
Solubility in other solvents		
No information available.		
Partition coefficient n-octanol/water:		No information available.
Vapour pressure:		23 hPa
Density (at 20 °C):		1,00 g/cm³
Relative vapour density:		No information available.
Particle characteristics:		not applicable

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

The product is not: Explosive.

Sustaining combustion:

Not sustaining combustion

Self-ignition temperature

Solid:

No information available.

Gas:

No information available.

Oxidizing properties

none

Other safety characteristics

Evaporation rate:

No information available.

Solvent separation test:

not determined

Solvent content:

not determined

Solid content:

No information available.

Sublimation point:

not determined

Softening point:

not determined

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 7 of 14

Pour point: not determined
Viscosity / dynamic: not determined
Flow time: not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3. Possibility of hazardous reactions

Refer to chapter 10.5.

10.4. Conditions to avoid

Protect against: UV-radiation/sunlight. heat.

10.5. Incompatible materials

Materials to avoid: Oxidizing agents, strong. Reducing agents, strong.

10.6. Hazardous decomposition products

In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂). Hydrogen chloride (HCl).

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.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
7705-08-0	Iron(III) chloride				
	oral	LD50 500 mg/kg	Rat	ECHA	
7646-85-7	zinc chloride				
	oral	LD50 1100 mg/kg	Rat	ECHA	
	dermal	LD50 >2000 mg/kg	Rabbit	ECHA	
10025-73-7	Chromium(III) chloride, anhydrous				
	oral	LD50 440 mg/kg	Rat	suppliers SDS.	
	dermal	LD50 >2000 mg/kg	Rabbit	suppliers SDS.	
7718-54-9	nickel dichloride				
	oral	LD50 105 - 681 mg/kg	Rat	GESTIS	
	inhalation vapour	ATE 3 mg/l			
	inhalation dust/mist	ATE 0,5 mg/l			

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 8 of 14

Irritation and corrosivity

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

Other information

The mixture is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
7646-85-7	zinc chloride					
	Acute fish toxicity	LC50 mg/l	0,4-2,2	96 h	Cyprinus carpio (Common Carp)	suppliers SDS.
	Acute crustacea toxicity	EC50 mg/l	0,33	48 h	Daphnia magna	IUCLID
10025-73-7	Chromium(III) chloride, anhydrous					
	Acute fish toxicity	LC50 mg/l	31,5	96 h	Fundulus heteroclitus (Mummychog)	suppliers SDS.
	Acute crustacea toxicity	EC50 mg/l	9,87	48 h	Daphnia magna (Big water flea)	suppliers SDS.
7718-54-9	nickel dichloride					
	Acute fish toxicity	LC50	6,9 mg/l	96 h	Cyprinus carpio (Common Carp)	suppliers SDS.
	Acute algae toxicity	ErC50 mg/l	0,66	72 h	Pseudokirchneriella subcapitata	
	Acute crustacea toxicity	EC50 mg/l	6,68	48 h	Daphnia magna (Big water flea)	suppliers SDS.

12.2. Persistence and degradability

The product has not been tested.

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 9 of 14

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
7646-85-7	zinc chloride			
	Theoretical carbon dioxide:	0,3229 mg/mg		

12.3. Bioaccumulative potential

No indication of bioaccumulation potential.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
7705-08-0	Iron(III) chloride	-4
10025-73-7	Chromium(III) chloride, anhydrous	-3

BCF

CAS No	Chemical name	BCF	Species	Source
7646-85-7	zinc chloride	96,05		

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal. Non-contaminated packages may be recycled. The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Control report for waste code/ waste marking according to (EWC) European Waste Catalogue:

List of Wastes Code - residues/unused products

160509 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

List of Wastes Code - used product

160509 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08

List of Wastes Code - contaminated packaging

150106 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); mixed packaging

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled. Handle contaminated packages in

Safety Data Sheet

according to Regulation (EC) No 1907/2006 and (EU) No 2020/878

HALE's Solution (Iron(III) Chloride)

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 10 of 14

the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Safe handling: see section 7

Personal protection equipment: see section 8

14.7. Maritime transport in bulk according to IMO instruments

not relevant

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 27, Entry 75

Directive 2010/75/EU on industrial emissions: No information available.

Directive 2004/42/EC on VOC in paints and varnishes: No information available.

Information according to Directive 2012/18/EU (SEVESO III): Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Water hazard class (D): - - non-hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

Iron(III) chloride

zinc chloride

Safety Data Sheetaccording to Regulation (EC) No 1907/2006 and (EU) No
2020/878**HALE's Solution (Iron(III) Chloride)**

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 11 of 14

Chromium(III) chloride, anhydrous
nickel dichloride**SECTION 16: Other information****Changes**

This data sheet contains changes from the previous version in section(s): 2,3,4,6,8,9,11,13,15,16.

Rev. 2,0; 02.05.23, Individual safety data sheet based on 10174_collect, general revision / adjustment section
1-16

Rev. 2,1; 18.07.2023; general adjustment(s).

Rev. 2,2; 21.01.2025; general adjustment(s).

Safety Data Sheetaccording to Regulation (EC) No 1907/2006 and (EU) No
2020/878**HALE's Solution (Iron(III) Chloride)**

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 12 of 14

Abbreviations and acronyms

Met. Corr: Substance or mixture corrosive to metals
Acute Tox: Acute toxicity
Skin Corr: Skin corrosion
Skin Irrit: Skin irritation
Eye Dam: Eye damage
Resp. Sens: Respiratory sensitisation
Skin Sens: Skin sensitisation
Muta: Germ cell mutagenicity
Carc: Carcinogenicity
Repr: Reproductive toxicity
STOT SE: Specific target organ toxicity - single exposure
STOT RE: Specific target organ toxicity - repeated exposure
Aquatic Acute: Acute aquatic hazard
Aquatic Chronic: Chronic aquatic hazard
ADR: Accord européen sur le transport des marchandises dangereuses par Route
AwSV: Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen
AGW: Arbeitsplatzgrenzwert
AVV: Abfallverzeichnisverordnung
CAS: Chemical Abstracts Service
CLP: Classification, Labelling and Packaging of substances and mixtures
DNEL: Derived No Effect Level
d: day(s)
EAKV: Europäisches Abfallverzeichnis gemäß Entwurf Abfallverzeichnisverordnung
EINECS: European INventory of Existing Commercial chemical Substances
ELINCS: European List of Notified Chemical Substances
ECHA: European Chemicals Agency
EWC: European Waste Catalogue
IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)
h: hour
LOAEL: Lowest observed adverse effect level
LOAEC: Lowest observed adverse effect concentration
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
NOAEL: No observed adverse effect level
NOAEC: No observed adverse effect level
NLP: No-Longer Polymers
N/A: not applicable
OECD: Organisation for Economic Co-operation and Development
PNEC: predicted no effect concentration
PBT: Persistent bioaccumulative toxic
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
REACH: Registration, Evaluation, Authorisation of Chemicals
SVHC: substance of very high concern
TRGS Technische Regeln fuer Gefahrstoffe
UN: United Nations
VOC: Volatile Organic Compounds

Safety Data Sheetaccording to Regulation (EC) No 1907/2006 and (EU) No
2020/878**HALE's Solution (Iron(III) Chloride)**

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 13 of 14

VwVwS: Verwaltungsvorschrift wassergefährdender Stoffe
WGK: Wassergefährdungsklasse
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation
intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety
assessment, chapter R.20 (Table of terms and abbreviations).
EC/EEC: European Community/European Economic Community
EU: European Union
M-factor: Multiplying factor
IATA: International Air Transport Association
DGR: Dangerous Goods Regulations
ICAO: International Civil Aviation Organization
TI: Technical Instructions
VOC: volatile organic compound

Relevant H and EUH statements (number and full text)

H290	May be corrosive to metals.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H350i	May cause cancer by inhalation.
H360D	May damage the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

Safety Data Sheetaccording to Regulation (EC) No 1907/2006 and (EU) No
2020/878**HALE's Solution (Iron(III) Chloride)**

Revision date: 21.01.2025

Product code: 12711.xxxxx

Page 14 of 14

H410 Very toxic to aquatic life with long lasting effects.
H411 Toxic to aquatic life with long lasting effects.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations. Classification according to Regulation (EC) No 1272/2008 [CLP] - Classification procedure:

Health hazards: Calculation method.

Environmental hazards: Calculation method.

Physical hazards: On basis of test data and / or calculated and / or estimated.

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)