

Safety Data Sheet according to UK REACH Regulation

HALE's Solution (Iron(III) Chloride)

Revision date: 18.07.2023

Product code: 12711.xxxxx

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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.c	de
Internet:	http://www.morphisto.de	
1.4. Emergency telephone	Morphisto GmbH, Tel: +49(0)69 400 3	3019-60, Mo-Fr.: 09-16Uhr

number:

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

This mixture is not classified as hazardous in accordance with GB CLP Regulation.

2.2. Label elements

GB CLP Regulation

Special labelling of certain mixtures

EUH208	Contains Iron(III) chloride. May produce an allergic reaction.
EUH210	Safety data sheet available on request.

Additional advice on labelling

This mixture is classified as not hazardous according to Regulation (EC) 1272/2008 [CLP].

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) 2017/2100 or Commission Delegated 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 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]. This mixture is classified as not hazardous according to Regulation (EC) 1272/2008 [CLP].

SECTION 3: Composition/information on ingredients

3.2. Mixtures



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Chemical characterization aqueous solution

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Hazardous components

CAS No	Chemical name	-		Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
7705-08-0	Iron(III) chloride			< 1 %
	231-729-4		01-2119497998-05	
Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1; H302 H315 H318 H317				

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 %
	dermal: LD50 =	>2000 mg/kg; oral: LD50 = 450 mg/kg	

Further Information

This product 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. If breathing is irregular or stopped, administer artificial respiration. Medical treatment necessary. In case of accident by inhalation: remove casualty to fresh air and keep at rest. In case of respiratory tract irritation, consult a physician.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

After contact with eyes

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

After ingestion

Rinse mouth immediately and drink 1 glass of of water. 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.



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Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Non-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

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. 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

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).



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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

DNEL/DMEL values

CAS No	Substance	-	_	
DNEL type		Exposure route	Effect	Value
7705-08-0	Iron(III) chloride			
Worker DNEL,	long-term	dermal	systemic	2,8 mg/kg bw/day

Additional advice on limit values

To date, no national critical limit values exist.

8.2. Exposure controls



Appropriate engineering controls

Provide adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear eye/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 >= 8 h Butyl rubber. - Thickness of glove material: 0,5 mm Breakthrough time >= 8 h CR (polychloroprenes, Chloroprene rubber). - Thickness of glove material: 0,5 mm Breakthrough time >= 8 h NBR (Nitrile rubber). - Thickness of glove material: 0,35 mm Breakthrough time >= 8 h PVC (Polyvinyl chloride). - Thickness of glove material: 0,5 mm Breakthrough time >= 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.



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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

-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.

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 an	d	100 °C
boiling range:		
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:		2-3
Viscosity / kinematic:		not determined
Water solubility:		very soluble
Solubility in other solvents		-
No information available.		
Partition coefficient n-octanol/water:		No information available.
Vapour pressure:		No information available.
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. no	ne	
Sustaining combustion:		Not sustaining combustion
Self-ignition temperature		
Solid:		No information available.
Gas:		No information available.
Oxidizing properties		
none		



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Other safety characteristics

Evaporation rate: Solvent separation test: Solvent content: Solid content: Sublimation point: Softening point: Pour point: Viscosity / dynamic: Flow time: No information available. not determined not determined No information available. not determined not determined not determined not determined 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 (HCI).

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

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 450 mg/kg	Rat	Gestis	
	dermal	LD50 >2000 mg/kg	Rabbit	Gestis	

Irritation and corrosivity

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

Sensitising effects

Contains Iron(III) chloride. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

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



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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
7705-08-0	Iron(III) chloride						
	Acute fish toxicity	LC50 22,56 mg/l	20,95-		Pimephales promelas (fathead minnow)	suppliers SDS.	
	Acute crustacea toxicity	EC50 mg/l	27,9		Daphnia magna (Big water flea)	suppliers SDS.	

12.2. Persistence and degradability

The product has not been tested.

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

BCF

CAS No	Chemical name	BCF	Species	Source
7705-08-0	Iron(III) chloride	2756-9622		

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 UK REACH.

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



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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

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

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 the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:14.2. UN proper shipping name:14.3. Transport hazard class(es):14.4. Packing group:

Inland waterways transport (ADN)

14.1. UN number or ID number:

14.2. UN proper shipping name:

14.3. Transport hazard class(es):

14.4. Packing group:

Marine transport (IMDG)

<u>14.1. UN number or ID number:</u> 14.2. UN proper shipping name:

14.3. Transport hazard class(es):

14.4. Packing group:

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:

14.2. UN proper shipping name: 14.3. Transport hazard class(es):

14.4. Packing group:

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:

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

No dangerous good in sense of this transport regulation. No dangerous good in sense of this transport regulation. No dangerous good in sense of this transport regulation. No dangerous good in sense of this transport regulation.

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No



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SECTION 15: Regulatory information

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

EU regulatory information	
2010/75/EU (VOC):	No information available.
2004/42/EC (VOC):	No information available.
Information according to 2012/18/EU	Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Water hazard class (D):

(SEVESO III):

- - 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

SECTION 16: Other information

Changes

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

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)

Abbreviations and acronyms

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. pon 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



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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 VwVwS: Verwaltungsvorschrift wassergefaehrdender Stoffe WGK: Wassergefaehrdungsklasse 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).

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
EUH208	Contains Iron(III) chloride. May produce an allergic reaction.
EUH210	Safety data sheet available on request.

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.



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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 hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)