



SAFETY DATA SHEET FERRIC CHLORIDE SOLUTION

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

1.1. Product identifier

Product name	FERRIC CHLORIDE SOLUTION
Product number	11279
Synonyms; trade names	IRON (III) CHLORIDE SOLUTION, VO - FLOC 1133, FERRIC CHLORIDE 40% SOL, FERRIC CHLORIDE SOLUTION 41%, IRON (III) CHLORIDE SOLUTION 13.8% FE, HYDREX 3250, FERRIC CHLORIDE 40% P GRADE

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

Identified uses	Water Treatment For further information, see attached Exposure Scenario.
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	11279

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Met. Corr. 1 - H290
Health hazards	Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318
Environmental hazards	Not Classified

2.2. Label elements

Hazard pictograms



Signal word	Danger
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Hazard statements	H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. H290 May be corrosive to metals.
Precautionary statements	P234 Keep only in original packaging. P270 Do not eat, drink or smoke when using this product. P302+P352 IF ON SKIN: Wash with plenty of water. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/ container in accordance with national regulations.
Contains	FERRIC CHLORIDE

2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

FERRIC CHLORIDE			30-60%
CAS number: 7705-08-0	EC number: 231-729-4	REACH registration number: 01-2119497998-05	
Classification Met. Corr. 1 - H290 Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318			

The full text for all hazard statements is displayed in Section 16.

Composition comments The data shown are in accordance with the latest EC Directives.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Get medical attention. Get medical attention if any discomfort continues.
Ingestion	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Do not induce vomiting. Get medical attention.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

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

Inhalation	Gas or vapour in high concentrations may irritate the respiratory system.
Ingestion	Harmful if swallowed. Nausea, vomiting.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye damage. May cause permanent damage if eye is not immediately irrigated.

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

Notes for the doctor Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Use fire-extinguishing media suitable for the surrounding fire.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Hydrogen chloride (HCl). Chlorides.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet Avoid contact with skin and eyes.

6.2. Environmental precautions

Environmental precautions Avoid discharge into water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with inert, damp, non-combustible material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13. Flush contaminated area with plenty of water.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Avoid spilling. Provide adequate ventilation. Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Avoid freezing.

Storage class Corrosive storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

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FERRIC CHLORIDE

Long-term exposure limit (8-hour TWA): WEL 1 mg/m³

Short-term exposure limit (15-minute): WEL 2 mg/m³

as Fe

WEL = Workplace Exposure Limit.

FERRIC CHLORIDE (CAS: 7705-08-0)

Ingredient comments

WEL = Workplace Exposure Limits

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

The following protection should be worn: Chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. It is recommended that gloves are made of the following material: Butyl rubber. Neoprene. Polyvinyl chloride (PVC). To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

Provide eyewash station and safety shower. Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection

If ventilation is inadequate, suitable respiratory protection must be worn. Mask filter for respirable fine particles (FFP2) EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Oily liquid. Liquid.
Colour	Dark. Brown.
Odour	No information available.
Odour threshold	No information available.
pH	pH (concentrated solution): <2
Melting point	<-2°C
Pour Point	No information available.
Freezing Point	No information available.
Initial boiling point and range	>100°C @ 760 mm Hg
Flash point	No information available.
Evaporation rate	No information available.

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Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	No information available.
Vapour density	No information available.
Relative density	1.2-1.45
Bulk density	No information available.
Solubility(ies)	Soluble in water.
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Explosive properties	No information available.
Explosive under the influence of a flame	No information available.
Oxidising properties	No information available.

9.2. Other information

Other information	Not determined.
Refractive index	No information available.
Particle size	No information available.
Molecular weight	No information available.
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	The following materials may react with the product: Alkalies. Some metals.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures and when used as recommended.
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10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Not determined.
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10.4. Conditions to avoid

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Conditions to avoid Avoid excessive heat for prolonged periods of time. Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid Strong acids. Strong alkalis. Oxidising materials. Common metals.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Chlorides. Hydrogen chloride (HCl).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 1,000.0

Skin corrosion/irritation

Skin corrosion/irritation Causes skin irritation.

Animal data

Irritating to skin. OECD 404

Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

Inhalation

Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion

Harmful if swallowed. Nausea, vomiting.

Skin contact

Irritating to skin.

Eye contact

Causes serious eye damage.

Toxicological information on ingredients.

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Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 450.0

Species Rat

ATE oral (mg/kg) 450.0

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 2000 mg/kg, Dermal, Rat

Skin corrosion/irritation

Animal data Irritating to skin.

Serious eye damage/irritation

Serious eye damage/irritation Risk of serious damage to eyes.

SECTION 12: Ecological information

Ecotoxicity The product components are not classified as environmentally hazardous. The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

12.1. Toxicity

Toxicity No information available.

Ecological information on ingredients.

FERRIC CHLORIDE

Toxicity Not available.

12.2. Persistence and degradability

Persistence and degradability Substance is inorganic.

12.3. Bioaccumulative potential

Bioaccumulative potential Substance is inorganic.

Partition coefficient No information available.

Ecological information on ingredients.

FERRIC CHLORIDE

Bioaccumulative potential The product contains mainly inorganic substances which are not biodegradable.

Partition coefficient log Pow: -4

12.4. Mobility in soil

Mobility The product is soluble in water.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects Not determined.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information	Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty.
Disposal methods	Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General	Wear protective clothing as described in Section 8 of this safety data sheet.
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14.1. UN number

UN No. (ADR/RID)	2582
UN No. (IMDG)	2582
UN No. (ICAO)	2582
UN No. (ADN)	2582

14.2. UN proper shipping name

Proper shipping name (ADR/RID)	FERRIC CHLORIDE, SOLUTION
Proper shipping name (IMDG)	FERRIC CHLORIDE, SOLUTION
Proper shipping name (ICAO)	FERRIC CHLORIDE, SOLUTION
Proper shipping name (ADN)	FERRIC CHLORIDE, SOLUTION

14.3. Transport hazard class(es)

ADR/RID class	8
ADR/RID classification code	C1
ADR/RID label	8
IMDG class	8
ICAO class/division	8
ADN class	8

Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

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14.6. Special precautions for user

EmS	F-A, S-B
ADR transport category	3
Emergency Action Code	2X
Hazard Identification Number (ADR/RID)	80
Tunnel restriction code	(E)

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

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not determined.

SECTION 15: Regulatory information

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

EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015.
Restrictions (Annex XVII Regulation 1907/2006)	This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 3

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

08/09/2020

Version number

2.001

Supersedes date

13/07/2018

SDS number

11279

FERRIC CHLORIDE SOLUTION

SDS status	Approved.
Hazard statements in full	H290 May be corrosive to metals. H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage.
Signature	Jitendra Panchal



Exposure scenario Manufacture

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Manufacture
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products)

Environment

Environmental release category	ERC1 Manufacture of the substance
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Worker

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Product characteristics

Physical state	Solid , or: Solid in solution
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Amounts used

Daily amount per site: 485 tonnes
Annual site tonnage: 145000 tonnes

Frequency and duration of use

Emission days: 300 days/year

Manufacture

Other given operational conditions affecting environmental exposure

Emission factor - air	Emission factor to air: 0%
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.15%

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 40
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Risk management measures

STP type	Onsite STP.
STP details	Assumed onsite sewage treatment plant flow: 10000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Municipal waste assumed to be used as fertiliser.
Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Disposal method	Landfill. , or: Incineration

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Covers skin contact area up to 480 cm ² .
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Solids-based process. Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.
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Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Environment 1)

Environmental release	Water: 725 kg/day
	The use is assessed to be safe.

Manufacture

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.
The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Water treatment: treatment of raw and potable waters

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Water treatment: treatment of raw and potable waters
Product category	PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC37 Water treatment chemicals.
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual site tonnage: 210 tonnes
Daily amount per site: 1800 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Water treatment: treatment of raw and potable waters

Emission factor - air	Emission factor to air: 0%
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 100%

Environmental factors not influenced by risk management measures

Dilution	Local freshwater dilution factor: 10
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Risk management measures

STP type	Municipal STP.
STP details	Assumed onsite sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Municipal waste assumed to be used as fertiliser.
Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Disposal method	Landfill. , or: Incineration

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Covers skin contact area up to 480 cm ² . PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Covers skin contact area up to 960 cm ² .
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Provide extract ventilation to points where emissions occur. Solids-based process. Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.
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Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
Solids-based process.
Without local exhaust ventilation
Filtering half-face mask (DIN EN 149)
with filter for particulates: FFP2.

3. Exposure estimation (Environment 1)

Environmental release	Water: 4 kg/day
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Water treatment: treatment of raw and potable waters

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario
Formulation and repacking of substance and mixtures

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Formulation and repacking of substance and mixtures
Product category	PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC37 Water treatment chemicals.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging
<u>Environment</u>	
Environmental release category	ERC2 Formulation into mixture ERC5 Use at industrial site leading to inclusion into/onto article
<u>Worker</u>	

Formulation and repacking of substance and mixtures

Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation PROC15 Use as laboratory reagent.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual site tonnage: 50 tonnes

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Emission factor to air: 0%
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 2% Worst case assumption

Risk management measures

STP type	Municipal STP.
STP details	Assumed onsite sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Municipal waste assumed to be used as fertiliser.
Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Disposal method	Landfill. , or: Incineration

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Covers concentrations up to 100 %.

Amounts used

Solid
Daily amount per site: 170 kg
Solid in solution
Daily amount per site: 420 kg

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Formulation and repacking of substance and mixtures

Human factors not influenced by risk management

Potentially exposed body parts	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Covers skin contact area up to 240 cm ² . PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC14 Tableting, compression, extrusion, pelletisation, granulation Covers skin contact area up to 480 cm ² . PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Covers skin contact area up to 960 cm ² .
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Technical conditions and measures at process level (source) to prevent release

Technical protective measures	Formulation activity is assumed to be a predominantly enclosed process. Solids-based process. Handle substance within a closed system. Provide extract ventilation to points where emissions occur.
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Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures	Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.
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Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Environment 1)

Environmental release	Water: 3.3 kg/day
	The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method	Used ECETOC TRA model.
	The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Water treatment: treatment of waste waters and WWTP sludge

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Water treatment: treatment of waste waters and WWTP sludge
Product category	PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
Main sector	SU3 Industrial uses
<u>Environment</u>	
Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC5 Use at industrial site leading to inclusion into/onto article
<u>Worker</u>	
Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual site tonnage: 85 tonnes
Daily amount per site: 200 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Emission factor to air: 0%

Water treatment: treatment of waste waters and WWTP sludge

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 100%

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

STP type Onsite STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Municipal waste assumed to be used as fertiliser.

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

Disposal method Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Solid , or: Solid in solution

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Covers skin contact area up to 960 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Provide extract ventilation to points where emissions occur. Solids-based process. Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
Solids-based process.
Without local exhaust ventilation
Filtering half-face mask (DIN EN 149)
with filter for particulates: FFP2.

3. Exposure estimation (Environment 1)

Environmental release Water: 200 kg/day

The use is assessed to be safe.

Water treatment: treatment of waste waters and WWTP sludge

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.
The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Biogas treatment at waste treatment plant

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Biogas treatment at waste treatment plant
Product category	PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
Main sector	SU3 Industrial uses

Environment

Environmental release category	ERC2 Formulation into mixture ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual site tonnage: 0.95 tonnes
Daily amount per site: 2.6 kg

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Emission factor to air: 0%
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Biogas treatment at waste treatment plant

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 100%

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

STP type Municipal STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Municipal waste assumed to be used as fertiliser.

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

Disposal method Landfill, , or: Incineration

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Solid , or: Solid in solution

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
Covers skin contact area up to 960 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Solids-based process. Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide extract ventilation to points where emissions occur.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
Solids-based process.
Without local exhaust ventilation
Filtering half-face mask (DIN EN 149)
with filter for particulates: FFP2.

3. Exposure estimation (Environment 1)

Environmental release Water: 2.6 kg/day

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

Biogas treatment at waste treatment plant

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as intermediate or process chemical

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as intermediate or process chemical
Product category	PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC18 Ink and toners. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents
Main sector	SU3 Industrial uses
Sector of use	SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU14 Manufacture of basic metals, including alloys

Environment

Environmental release category	ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article) ERC5 Use at industrial site leading to inclusion into/onto article ERC6a Use of intermediate ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Use as intermediate or process chemical

Process category	PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC15 Use as laboratory reagent. PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature PROC26 Handling of solid inorganic substances at ambient temperature
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual site tonnage: 6000 tonnes
Daily amount per site: 20 tonnes

Frequency and duration of use

Emission days: 365 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air	Emission factor to air: 0%
Emission factor - water	Release fraction to wastewater from process (initial release prior to RMM): 0.5%

Risk management measures

STP type	Municipal STP.
STP details	Assumed onsite sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Municipal waste assumed to be used as fertiliser.
Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Disposal method	Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state	Solid , or: Solid in solution
Concentration details	Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Use as intermediate or process chemical

Potentially exposed body parts

PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition PROC15 Use as laboratory reagent. Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC4 Chemical production where opportunity for exposure arises PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) Covers skin contact area up to 480 cm². PROC22 Manufacturing and processing of minerals and/or metals at substantially elevated temperature PROC26 Handling of solid inorganic substances at ambient temperature Covers skin contact area up to 1980 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Environment 1)

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method

Used ECETOC TRA model.

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as a metal etchant and surface treatment agent

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a metal etchant and surface treatment agent
Product category	PC14 Metal surface treatment products PC15 Non-metal-surface treatment products.
Main sector	SU3 Industrial uses
Sector of use	SU10 Formulation [mixing] of preparations and/or re-packaging SU15 Manufacture of fabricated metal products, except machinery and equipment SU16 Manufacture of computer, electronic and optical products, electrical equipment

Environment

Environmental release category	ERC2 Formulation into mixture ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
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Worker

Process category	PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring.
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2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Use as a metal etchant and surface treatment agent

Annual site tonnage: 20 tonnes
Solid
Daily amount per site: 167 kg
Solid in solution
Daily amount per site: 420 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Emission factor to air: 0%
Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 2%

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

STP type Onsite STP.
STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Municipal waste assumed to be used as fertiliser.
Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Disposal method Incineration, disposal or recycling at specific offsite provider.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Solid , or: Solid in solution
Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC13 Treatment of articles by dipping and pouring. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Covers skin contact area up to 960 cm². PROC7 Industrial spraying Covers skin contact area up to 1500 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings. Provide extract ventilation to points where emissions occur. Ensure that a spraying booth is used.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.

Risk management measures

Use as a metal etchant and surface treatment agent

Wear suitable gloves (tested to EN374), coverall and eye protection.

3. Exposure estimation (Environment 1)

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method

Used ECETOC TRA model.

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Use as a laboratory chemical

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use as a laboratory chemical
Product category	PC21 Laboratory chemicals.
Main sector	SU3 Industrial uses SU22 Professional uses
Sector of use	SU24 Scientific research and development
<u>Worker</u>	
Process category	PROC15 Use as laboratory reagent.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Handling of product in small amounts or in situations where only low quantities of products are likely to be released

Risk management measures

STP type	Onsite STP.
STP details	Assumed onsite sewage treatment plant flow: 2000 m ³ /day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment	Municipal waste assumed to be used as fertiliser.
Waste treatment	All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.
Disposal method	Incineration, disposal or recycling at specific offsite provider.

Use as a laboratory chemical

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Solid , or: Solid in solution

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts Covers skin contact area up to 240 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures Handle in a fume cupboard or under extract ventilation.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
Without local exhaust ventilation
Filtering half-face mask (DIN EN 149)
with filter for particulates: FFP2.

3. Exposure estimation (Environment 1)

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario

Professional use in Agrochemicals

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Professional use in Agrochemicals
Product category	PC12 Lawn and garden preparations (- fertilizers). PC27 Plant protection products.
Main sector	SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery
<u>Environment</u>	
Environmental release category	ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
<u>Worker</u>	
Process category	PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC11 Non industrial spraying PROC13 Treatment of articles by dipping and pouring.

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Professional use in Agrochemicals

Daily amount per site: 330 kg
Regional use tonnage: 80 tonnes/year

Frequency and duration of use

Emission days: 120 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Emission factor to air: 0%

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 0.2%

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

STP type Municipal STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Municipal waste assumed to be used as fertiliser.

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

Disposal method Landfill, or: Incineration

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Solid, or: Solid in solution

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions Covers skin contact area up to 240 cm². PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities Covers skin contact area up to 960 cm². PROC11 Non industrial spraying Covers skin contact area up to 1500 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC11 Non industrial spraying Carry out in a vented booth or extracted enclosure, or: Ensure operation is undertaken outdoors.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day. PROC11 Non industrial spraying Avoid carrying out operation for more than 4 hours.

Professional use in Agrochemicals

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
PROC11 Non industrial spraying
Wear a respirator conforming to EN140 with Type A/P2 filter or better.

3. Exposure estimation (Environment 1)

Environmental release Water: 0.16 kg/day

3. Exposure estimation (Health 1)

Assessment method Used ECETOC TRA model.

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>



Exposure scenario Use in Adhesives and Coatings

Identification

Product name	Ferric Chloride
REACH registration number	01-2119497998-05-XXXX
CAS number	7705-08-0
EC number	231-729-4
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Use in Adhesives and Coatings
Article category	AC4 Stone, plaster, cement, glass and ceramic articles AC7 Metal articles AC8 Paper articles AC11 Wood articles AC13 Plastic articles
Main sector	SU3 Industrial uses SU22 Professional uses

Environment

Environmental release category	ERC5 Use at industrial site leading to inclusion into/onto article
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Worker

Process category	PROC5 Mixing or blending in batch processes PROC7 Industrial spraying PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC10 Roller application or brushing PROC11 Non industrial spraying PROC12 Use of blow agents in manufacture of foam. PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation
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Use in Adhesives and Coatings

2. Conditions of use affecting exposure (Industrial - Environment 1)

Amounts used

Annual site tonnage: 24 tonnes
Daily amount per site: 200 kg

Frequency and duration of use

Emission days: 300 days/year

Other given operational conditions affecting environmental exposure

Emission factor - air Emission factor to air: 0%

Emission factor - water Release fraction to wastewater from process (initial release prior to RMM): 2%

Environmental factors not influenced by risk management measures

Dilution Local freshwater dilution factor: 10

Risk management measures

STP type Municipal STP.

STP details Assumed onsite sewage treatment plant flow: 2000 m³/day

Conditions and measures related to external treatment of waste for disposal

Sludge treatment Municipal waste assumed to be used as fertiliser.

Waste treatment All contaminated waste water must be processed in an industrial or municipal wastewater treatment plant that incorporates both primary and secondary treatments.

Disposal method Landfill, , or: Incineration

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Solid , or: Solid in solution

Concentration details Covers concentrations up to 100 %.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Human factors not influenced by risk management

Potentially exposed body parts PROC12 Use of blow agents in manufacture of foam. Covers skin contact area up to 240 cm². PROC5 Mixing or blending in batch processes PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing) PROC13 Treatment of articles by dipping and pouring. PROC14 Tableting, compression, extrusion, pelletisation, granulation Covers skin contact area up to 480 cm². PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities PROC10 Roller application or brushing Covers skin contact area up to 960 cm². PROC7 Industrial spraying PROC11 Non industrial spraying Covers skin contact area up to 1500 cm².

Technical conditions and measures at process level (source) to prevent release

Technical protective measures PROC7 Industrial spraying Carry out in a vented booth or extracted enclosure. , or: Ensure operation is undertaken outdoors.

Organisational measures to prevent/limit releases, dispersion and exposure

Use in Adhesives and Coatings

Organisational measures

Assumes a good basic standard of occupational hygiene is implemented. Ensure operatives are trained to minimise exposures. Clean equipment and the work area every day. PROC7 Industrial spraying PROC11 Non industrial spraying Avoid carrying out operation for more than 4 hours.

Risk management measures

Wear suitable gloves (tested to EN374), coverall and eye protection.
PROC7 Industrial spraying
PROC11 Non industrial spraying
Outdoor.
Powered (fan-assisted) respirator with mask TM, filter type P2

3. Exposure estimation (Environment 1)

The use is assessed to be safe.

3. Exposure estimation (Health 1)

Assessment method

Used ECETOC TRA model.

The use is assessed to be safe.

4. Guidance to check compliance with the exposure scenario (Health 1)

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. For scaling see <http://www.ecetoc.org/tra>