

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites

ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)

Creation Date 25-Sep-2009

Revision Date 18-Oct-2023

Revision Number 6

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

1.1. Product identifier

r

Iron (III) sulfate hydrate I/1160/53, I/1160/60 15244-10-7 Fe2 O12 S3 . x H2 O 01-2119513202-59 (for the anhydrous form)

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

Laboratory chemicals.

No Information available

PC21 - Laboratory chemicals

PROC15 - Use as a laboratory reagent

Recommended Use Sector of use Product category Process categories Environmental release category Uses advised against

1.3. Details of the supplier of the safety data sheet

UK entity/business name Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name

Thermo Fisher Scientific Janssen Pharmaceuticalaan 3a 2440 Geel, Belgium

E-mail address

1.4. Emergency telephone number

Tel: 01509 231166 Chemtrec US: (800) 424-9300 Chemtrec EU: 001-703-527-3887

begel.sdsdesk@thermofisher.com

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

Iron (III) sulfate hydrate

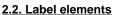
Health hazards

Acute oral toxicity Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation

Environmental hazards

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16





Signal Word

Danger

Hazard Statements

H302 - Harmful if swallowed

- H315 Causes skin irritation
- H318 Causes serious eye damage

Precautionary Statements

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water

P332 + P313 - If skin irritation occurs: Get medical advice/attention

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

- P310 Immediately call a POISON CENTER or doctor/physician
- P280 Wear protective gloves/protective clothing/eye protection/face protection

2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Sulfuric acid, iron(3+) salt (3:2), hydrate	15244-10-7		> 97	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)
Sulfuric acid	7664-93-9	231-639-5	1 - 3	Skin Corr. 1A (H314) Eye Dam. 1 (H318)
Ferric sulfate	10028-22-5	EEC No. 233-072-9	-	Acute Tox. 4 (H302)

Iron (III) sulfate hydrate

Revision Date 18-Oct-2023

		Skin Irrit. 2 (H315)
		Eye Dam. 1 (H318)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Sulfuric acid	Skin Corr. 1A :: C>=15%	-	-
	Eye Irrit. 2 :: 5%<=C<15%		
	Skin Irrit. 2 :: 5%<=C<15%		

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	If symptoms persist, call a physician.				
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.				
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.				
Ingestion	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.				
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.				
Self-Protection of the First Aider	No special precautions required.				
4.2. Most important symptoms and	effects, both acute and delayed				
	Causes eye burns. Causes severe eye damage.				
4.3. Indication of any immediate medical attention and special treatment needed					

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Sulfur oxides.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

Technical Rules for Hazardous Substances (TRGS) 510Class 13Storage Class (LGK) (Germany)Class 13

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): EU - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational

Iron (III) sulfate hydrate

exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Sulfuric acid, iron(3+) salt (3:2), hydrate	STEL: 2 mg/m ³ 15 min		
	TWA: 1 mg/m ³ 8 hr		
Sulfuric acid	STEL: 0.15 mg/m ³ 15 min	TWA: 0.05 mg/m ³ (8h)	TWA: 0.05 ppm 8 hr.
	TWA: 0.05 mg/m ³ 8 hr		STEL: 0.15 ppm 15 min
Ferric sulfate	STEL: 2 mg/m ³ 15 min		
	TWA: 1 mg/m ³ 8 hr		

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local	Acute effects	Chronic effects local	Chronic effects
	(Dermal)	systemic (Dermal)	(Dermal)	systemic (Dermal)
Ferric sulfate 10028-22-5 (-)				2 mg/kg (ECHA AF Method) 10 mg/kg (ECETOC AF method)

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Sulfuric acid 7664-93-9(1-3)	DNEL = 0.1mg/m ³		DNEL = 0.05mg/m ³	

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water	Microorganisms in	,
		sediment	sewage treatment	
Sulfuric acid	PNEC =	PNEC =	PNEC = 8.8mg/L	
7664-93-9(1-3)	0.0025mg/L	0.002mg/kg		
		sediment dw		

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Sulfuric acid	PNEC =	PNEC =			
7664-93-9 (1-3)	0.00025mg/L	0.002mg/kg			
	_	sediment dw			

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment Eye Protection	Goggles (European standard - EN 166)
Hand Protection	Protective gloves

Iron (III) sulfate hydrate

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	> 480 minutes	0.6 mm	EN 374	(minimum requirement)
Nitrile rubber				
Neoprene				
PVC Dutid with an				
Butyl rubber	taatian langala			
Skin and body pro	Long sie	eved clothing.		
Inspect gloves before us	20			
		ability and breakthr	ough time which are n	provided by the supplier of the gloves.
(Refer to manufacturer/s			ough and which are p	forded by the supplier of the gloves.
		al compatability. Dex	terity. Operational cor	nditions, User susceptibility, e.g.
				the product is used, such as the danger
of cuts, abrasion.				
Remove gloves with car	e avoiding skin contami	nation.		
Respiratory Protect		•		e exposure limit they must use
	appropri	ate certified respirate	ors.	
Large scale/emergenc	vuse – Use a N	IOSH/MSHA or Euro	nean Standard EN 13	36 approved respirator if exposure limits
Large Scale/entergenc			r other symptoms are	
				lates filter conforming to EN 143
Small scale/Laboratory	y use Maintain	adequate ventilation	n Use a NIOSH/MSHA	A or European Standard EN 149:2001
	approve	d respirator if exposu	ure limits are exceede	d or if irritation or other symptoms are
	experier			
	Recomr	nended half mask:-	Particle filtering: EN	149:2001

Environmental exposure controls Clean contaminated objects and areas thoroughly observing environmental regulations.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Solid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Beige Odorless No data available No data available No data available No information available Not applicable Not flammable No data available	Solid
Flash Point Autoignition Temperature Decomposition Temperature	Not applicable No data available 480 °C Strongly gaidin	Method - No information available
pH Viscosity Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wat Vapor Pressure Density / Specific Gravity Bulk Density	Strongly acidic Not applicable Soluble in water No information available er) No data available ~480 kg/m ³	Solid

Revision Date 18-Oct-2023

Vapor Density Particle characteristics	Not applicable Solid No data available
9.2. Other information	
Molecular Formula Molecular Weight Evaporation Rate	Fe2 O12 S3 . x H2 O 399.88 Not applicable - Solid
	SECTION 10: STABILITY AND REACTIVITY
10.1. Reactivity	None known, based on information available
10.2. Chemical stability	Stable under normal conditions.
10.3. Possibility of hazardous rea	ctions
Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.
10.4. Conditions to avoid	Avoid dust formation. Incompatible products. Excess heat. Exposure to moist air or water.
10.5. Incompatible materials	Strong oxidizing agents.

10.6. Hazardous decomposition products

Sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

Iron (III) sulfate hydrate

(a) acute toxicity;

Oral Dermal Inhalation Category 4 Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sulfuric acid	2140 mg/kg (Rat)	-	LC50 = 0.375 mg/L (Rat) 4 h
Ferric sulfate	500-2000 mg/kg (Rat)	-	-

(b) skin	corrosion/irritation;	Category 2

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;

RespiratoryBased on available data, the classification criteria are not metSkinBased on available data, the classification criteria are not met

Iron (III) sulfate hydrate

(e) germ cell mutagenicity;

(f) carcinogenicity;

Based on available data, the classification criteria are not met

Based on available data, the classification criteria are not met

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	EU	UK	Germany	IARC
Sulfuric acid				Group 1

(h) STOT-single exposure;	Based on available data, the classification criteria are not met
---------------------------	--

- (i) STOT-repeated exposure; Based on available data, the classification criteria are not met
- Target Organs None known.
- (j) aspiration hazard; Not applicable Solid

Symptoms / effects,both acute and No information available. delayed

11.2. Information on other hazards

```
Endocrine Disrupting Properties
```

Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity Ecotoxicity effects

Do not empty into drains. .

Component	Freshwater Fish	Water Flea	Freshwater Algae
Sulfuric acid	LC50: > 500 mg/L, 96h static (Brachydanio rerio)	EC50: 29 mg/L/24h	-

Component	Microtox	M-Factor
Sulfuric acid	-	

12.2. Persistence and degradability Persistence Degradability	Soluble in water, Persistence is unlikely, based on information available. Not relevant for inorganic substances.
12.3. Bioaccumulative potential	Bioaccumulation is unlikely
<u>12.4. Mobility in soil</u>	The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB assessment	No data available for assessment.
<u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors

<u>12.7. Other adverse effects</u> Persistent Organic Pollutant Ozone Depletion Potential

Iron (III) sulfate hydrate

This product does not contain any known or suspected substance This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Products	Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not flush to sewer.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

<u>14.1. UN number</u>	UN3260
<u>14.2. UN proper shipping name</u>	Corrosive solid, acidic, inorganic, n.o.s.
Technical Shipping Name	Iron (III) Sulfate
<u>14.3. Transport hazard class(es)</u>	8
<u>14.4. Packing group</u>	III
ADR	
<u>14.1. UN number</u>	UN3260
<u>14.2. UN proper shipping name</u>	Corrosive solid, acidic, inorganic, n.o.s.
Technical Shipping Name	Iron (III) Sulfate
<u>14.3. Transport hazard class(es)</u>	8
<u>14.4. Packing group</u>	III
IATA	
<u>14.1. UN number</u>	UN3260
<u>14.2. UN proper shipping name</u>	Corrosive solid, acidic, inorganic, n.o.s.
Technical Shipping Name	Iron (III) Sulfate
<u>14.3. Transport hazard class(es)</u>	8
<u>14.4. Packing group</u>	III

No hazards identified

FSUI1160

14.5. Environmental hazards

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Sulfuric acid, iron(3+) salt (3:2),	15244-10-7	-	-	-	Х	Х	-	-	-
hydrate									
Sulfuric acid	7664-93-9	231-639-5	-	-	Х	Х	KE-32570	Х	Х
Ferric sulfate	10028-22-5	233-072-9	-	-	Х	Х	KE-10900	Х	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Sulfuric acid, iron(3+) salt (3:2), hydrate	15244-10-7	-	-	-	-	Х	х	-
Sulfuric acid	7664-93-9	Х	ACTIVE	Х	-	Х	Х	Х
Ferric sulfate	10028-22-5	Х	ACTIVE	Х	-	Х	Х	Х

Legend: X - Listed '-' - Not Listed

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sulfuric acid, iron(3+) salt (3:2), hydrate	15244-10-7	-	-	-
Sulfuric acid	7664-93-9	-	Use restricted. See item 75. (see link for restriction details)	-
Ferric sulfate	10028-22-5	-	-	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Sulfuric acid, iron(3+) salt (3:2), hydrate	15244-10-7	Not applicable	Not applicable
Sulfuric acid	7664-93-9	Not applicable	Not applicable
Ferric sulfate	10028-22-5	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Sulfuric acid	WGK1	
Ferric sulfate	WGK1	

Component	Switzerland - Ordinance on the Reduction of Risk from handling of hazardous substances preparation (SR 814.81)	Switzerland - Ordinance on Incentive Taxes on Volatile Organic Compounds (OVOC)	Switzerland - Ordinance of the Rotterdam Convention on the Prior Informed Consent Procedure
Sulfuric acid 7664-93-9(1 - 3)	Prohibited and Restricted Substances		

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has been conducted by the manufacturer/importer

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H302 - Harmful if swallowed

H315 - Causes skin irritation

H318 - Causes serious eye damage

H314 - Causes severe skin burns and eye damage

Legend

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances PICCS - Philippines Inventory of Chemicals and Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances	
	TWA Time Weighted Average

WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment TWA - Time Weighted Average IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50%

Revision Date 18-Oct-2023

LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

Iron (III) sulfate hydrate

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code **OECD** - Organisation for Economic Co-operation and Development BCF - Bioconcentration factor Key literature references and sources for data https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date	25-Sep-2009
Revision Date	18-Oct-2023
Revision Summary	Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from Ships ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative