

Creation Date Oct-2013

Revision Date Oct-2018

Revision Number 2

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

### 1.1. Product identification

**Product Description:** Iron(III) oxide  
**Product Grade:** SQ  
**Cat No. :** Q23705, Q2370E  
**Synonyms** Ferric oxide red  
**CAS-No** 1309-37-1  
**EC-No.** 215-168-2  
**Molecular Formula** Fe<sub>2</sub>O<sub>3</sub>  
**Reach Registration Number** -

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

**Recommended Use** Laboratory chemicals.  
**Sector of use** SU3 - Industrial uses: Uses of substances as such or in preparations at industrial sites  
**Product category** PC21 - Laboratory chemicals  
**Process categories** PROC15 - Use as a laboratory reagent  
**Environmental release category** ERC6a - Industrial use resulting in manufacture of another substance (use of intermediates)  
**Uses advised against** No Information available

### 1.3. Details of the supplier of the safety data sheet

**Company** Thermo Fisher Scientific India Pvt. Ltd  
 403-404, B-wing, Delphi, Hiranandani Business Park,  
 Powai, Mumbai 400076, INDIA.  
**E-mail address** [laboratorysolutions@thermofisher.com](mailto:laboratorysolutions@thermofisher.com)

### 1.4. Emergency telephone number

India Toll Free: 18 00 22 22 30  
 Chemtrec US: (800)424-9300  
 Chemtrec EU: 001(202)483-7616

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - Regulation (EC) No 1272/2008

##### Physical hazards

Based on available data, the classification criteria are not met

##### Health hazards

Based on available data, the classification criteria are not met

##### Environmental hazards

Based on available data, the classification criteria are not met

#### Classification according to EU Directives 67/548/EEC or 1999/45/EC

**R-phrases(s)** None

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

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## 2.2. Label elements

Hazard Statements

Precautionary Statements

## 2.3. Other hazards

No information available

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1. Substances

Component	CAS-No	EC-No.	Weight %	CLP Classification - Regulation (EC) No 1272/2008	DSD Classification - 67/548/EEC
Iron oxide	1309-37-1	EEC No. 215-168-2	>95	-	-

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For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16.

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In the case of skin irritation or allergic reactions see a physician.
<b>Ingestion</b>	Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.
<b>Inhalation</b>	Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.
<b>Protection of First-aiders</b>	No special precautions required.

### 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

Notes to Physician	Treat symptomatically.
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## SECTION 5: FIREFIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

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## 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

None.

## 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.

### 6.2. Environmental precautions

See Section 12 for additional ecological information.

### 6.3. Methods and material for containment and cleaning up

Avoid dust formation. Wear self-contained breathing apparatus and protective suit. Sweep up or vacuum up spillage and collect in suitable container 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

Do not get in eyes, on skin, or on clothing. Remove and wash contaminated clothing before re-use. Avoid breathing vapors or mists. Do not ingest. Wash thoroughly after handling. Use only in well-ventilated areas. Minimize dust generation and accumulation. Keep containers dry and tightly closed to avoid moisture absorption and contamination.

### 7.2. Conditions for safe storage, including any incompatibilities

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

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### Exposure limits

List source(s): **UK** - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement. **IRE** - 2010 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001. Published by the Health and Safety Authority.

Component	European Union	The United Kingdom	France	Belgium	Spain
Iron oxide		STEL: 10 mg/m <sup>3</sup> 15 min	TWA / VME: 5 mg/m <sup>3</sup> (8)	TWA: 5 mg/m <sup>3</sup> 8 uren	TWA / VLA-ED: 5 mg/m <sup>3</sup>

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		STEL: 30 mg/m <sup>3</sup> 15 min STEL: 12 mg/m <sup>3</sup> 15 min TWA: 5 mg/m <sup>3</sup> 8 hr TWA: 10 mg/m <sup>3</sup> 8 hr TWA: 4 mg/m <sup>3</sup> 8 hr	heures).		(8 horas)
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Component	Italy	Germany	Portugal	The Netherlands	Finland
Iron oxide			TWA: 5 mg/m <sup>3</sup> 8 horas		TWA: 5 mg/m <sup>3</sup> 8 tunteina

Component	Austria	Denmark	Switzerland	Poland	Norway
Iron oxide	MAK-KZW: 10 mg/m <sup>3</sup> 15 Minuten MAK-TMW: 5 mg/m <sup>3</sup> 8 Stunden MAK-TMW: 10 mg/m <sup>3</sup> 8 Stunden	TWA: 3.5 mg/m <sup>3</sup> 8 timer	TWA: 3 mg/m <sup>3</sup> 8 Stunden	STEL: 10 mg/m <sup>3</sup> 15 minutach TWA: 5 mg/m <sup>3</sup> 8 godzinach	TWA: 3 mg/m <sup>3</sup> 8 timer STEL: 6 mg/m <sup>3</sup> 15 minutter. Fe

Component	Bulgaria	Croatia	Ireland	Cyprus	Czech Republic
Iron oxide	TWA: 5.0 mg/m <sup>3</sup>	TWA-GVI: 4 mg/m <sup>3</sup> 8 satima. respirable dust TWA-GVI: 10 mg/m <sup>3</sup> 8 satima. total dust TWA-GVI: 5 mg/m <sup>3</sup> 8 satima. Fe smoke STEL-KGVI: 10 mg/m <sup>3</sup> 15 minutama. fume Fe	TWA: 5 mg/m <sup>3</sup> 8 hr. Fe fume TWA: 10 mg/m <sup>3</sup> 8 hr. Rouge total inhalable dust TWA: 4 mg/m <sup>3</sup> 8 hr. Rouge respirable dust STEL: 10 mg/m <sup>3</sup> 15 min STEL: 12 mg/m <sup>3</sup> 15 min		

Component	Estonia	Gibraltar	Greece	Hungary	Iceland
Iron oxide	TWA: 3.5 mg/m <sup>3</sup> 8 tundides. respirable dust Fe		STEL: 10 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	TWA: 6 mg/m <sup>3</sup> 8 órában. AK	TWA: 3.5 mg/m <sup>3</sup> 8 klukkustundum. Fe respirable dust Ceiling: 7 mg/m <sup>3</sup> Fe respirable dust

Component	Latvia	Lithuania	Luxembourg	Malta	Romania
Iron oxide		TWA: 3.5 mg/m <sup>3</sup> inhalable fraction IPRD Fe			TWA: 5 mg/m <sup>3</sup> 8 ore STEL: 10 mg/m <sup>3</sup> 15 minute

Component	Russia	Slovak Republic	Slovenia	Sweden	Turkey
Iron oxide	TWA: 6 mg/m <sup>3</sup>	TWA: 1.5 mg/m <sup>3</sup>		LLV: 3.5 mg/m <sup>3</sup> 8 timmar. respirable dust	

## Biological limit values

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

## Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Derived No Effect Level (DNEL) See table for values

Route of exposure	Acute effects (local)	Acute effects (systemic)	Chronic effects (local)	Chronic effects (systemic)
Oral Dermal Inhalation			3 - 10 mg/m <sup>3</sup>	

Predicted No Effect Concentration No information available.

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(PNEC)

## 8.2. Exposure controls

### Engineering Measures

None under normal use conditions.

### Personal protective equipment

#### Eye Protection

Safety glasses with side-shields (European standard - EN 166)

#### Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves.  
(Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

### Respiratory Protection

No protective equipment is needed under normal use conditions.

### Large scale/emergency use

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

**Recommended Filter type:** Particle filter

### Small scale/Laboratory use

Maintain adequate ventilation

### Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

### Environmental exposure controls

No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

Appearance	Red	
Physical State	Powder Solid	
Odor	Odorless	
Odor Threshold	No data available	
pH	No information available	
Melting Point/Range	1538 °C / 2800.4 °F	
Softening Point	No data available	
Boiling Point/Range	No information available	
Flash Point	No information available	Method - No information available
Evaporation Rate	Not applicable	Solid
Flammability (solid,gas)	No information available	
Explosion Limits	No data available	
Vapor Pressure	No data available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	5.240	
Bulk Density	No data available	
Water Solubility	Insoluble	

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Solubility in other solvents	No information available	
Partition Coefficient (n-octanol/water)		
Autoignition Temperature	Not applicable	
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	No information available	

## 9.2. Other information

Molecular Formula	Fe <sub>2</sub> O <sub>3</sub>
Molecular Weight	159.69

## SECTION 10: STABILITY AND REACTIVITY

### 10.1. Reactivity

None known, based on information available

### 10.2. Chemical stability

Stable under recommended storage conditions

### 10.3. Possibility of hazardous reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	No information available.

### 10.4. Conditions to avoid

Avoid dust formation. Incompatible products.

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

None.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

#### Product Information

#### (a) acute toxicity;

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

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Iron oxide	> 10000 mg/kg (Rat)		

(b) skin corrosion/irritation; Based on available data, the classification criteria are not met

(c) serious eye damage/irritation; Based on available data, the classification criteria are not met

#### (d) respiratory or skin sensitization;

Respiratory	Based on available data, the classification criteria are not met
Skin	Based on available data, the classification criteria are not met

(e) germ cell mutagenicity; Based on available data, the classification criteria are not met

(f) carcinogenicity; Based on available data, the classification criteria are not met

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The table below indicates whether each agency has listed any ingredient as a carcinogen				
Component	EU	UK	Germany	IARC
Iron oxide			Cat. 3B	

(g) reproductive toxicity; Based on available data, the classification criteria are not met

(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 No information available.

(j) aspiration hazard; Not applicable  
Solid

Symptoms / effects, both acute and delayed No information available

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### Ecotoxicity effects

Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Iron oxide	LC0 > 50000 mg/l/96h (Danio rerio)	EC50 > 100 mg/l/48h		

### 12.2. Persistence and degradability

#### Persistence Degradability

Insoluble in water.  
Not relevant for inorganic substances.

### 12.3. Bioaccumulative potential

May have some potential to bioaccumulate

### 12.4. Mobility in soil

Spillage unlikely to penetrate soil Is not likely mobile in the environment due its low water solubility.

### 12.5. Results of PBT and vPvB assessment

No data available for assessment.

### 12.6. Other adverse effects

#### Endocrine Disruptor Information Persistent Organic Pollutant Ozone Depletion Potential

This product does not contain any known or suspected endocrine disruptors  
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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

#### Contaminated Packaging

Empty remaining contents. Dispose of in accordance with local regulations. Do not re-use empty containers.

#### European Waste Catalogue (EWC)

According to the European Waste Catalogue, 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.

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## SECTION 14: TRANSPORT INFORMATION

**IMDG/IMO** Not regulated

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

**ADR** Not regulated

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

**IATA** Not regulated

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

14.5. Environmental hazards No hazards identified

14.6. Special precautions for user No special precautions required

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	IECSC	AICS	KECL
Iron oxide	215-168-2	-		X	X	-	X	X	X	X	X

### National Regulations

Component	Germany - Water Classification (VwVwS)	Germany - TA-Luft Class
Iron oxide	nwg - nicht wassergefährdend (non-hazardous to waters)	

Component	France - INRS (Tables of occupational diseases)
Iron oxide	Tableaux des maladies professionnelles (TMP) - RG 44, RG 44bis, RG 94

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

Take note of Dir 94/33/EC on the protection of young people at work

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

### 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3



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Not applicable

## Legend

**CAS** - Chemical Abstracts Service

**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

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**DNEL** - Derived No Effect Level

**RPE** - Respiratory Protective Equipment

**LC50** - Lethal Concentration 50%

**NOEC** - No Observed Effect Concentration

**PBT** - Persistent, Bioaccumulative, Toxic

**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

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

**PNEC** - Predicted No Effect Concentration

**LD50** - Lethal Dose 50%

**EC50** - Effective Concentration 50%

**POW** - Partition coefficient Octanol:Water

**vPvB** - very Persistent, very Bioaccumulative

**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 Compounds

### Training Advice

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

**Creation Date** Oct-2013

**Next Revision Date** Oct-2023

**Revision Summary** SDS section 1 updated and update of Format

**This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006**

### Disclaimer

The information provided on 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 guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as 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 material or in any process, unless specified in the text.

**End of Safety Data Sheet**