

SAFETY DATA SHEET

METAFIX® I-3, I-6A, I-7A Reagent

SDS # : METAFIX3
Revision date: 2021-12-16
Version 1.03



1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product Identifier

Product Name METAFIX® I-3, I-6A, I-7A Reagent

Pure substance/mixture Mixture

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

Recommended Use: Remediation of contaminated soil and groundwater.

Restrictions on Use Not for direct treatment of potable drinking water

1.3. Details of the supplier of the safety data sheet

Manufacturer

Evonik Active Oxygens, LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: Product-regulatory-services@evonik.com

Responsible Persons

Evonik Operations GmbH
Rellinghauser Str. 1-11
45128 Essen
Germany
Tel: +49 6181 59 4787
E-mail: sds-hu@evonik.com

1.4. Emergency telephone numbers

24-Hour Health Emergency: +49 2365 49 2232

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

The preparation is not classified in accordance with Directive 1272/2008.

2.2. Label Elements

Not classified as a dangerous substances or preparation according to Regulation (EC) 1272/2008.

2.3. OTHER INFORMATION

General Hazards

CONTAINMENT HAZARD: Any vessel that contains wet product must be vented due to potential pressure build up from gases.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	EC-No	CAS-No	Weight %	Classification according to Regulation (EC) No. 1272/2008 [CLP]	REACH registration number
Reduced Iron	231-096-4	7439-89-6	< 35		01-2119462838-24-0000
oxide	Listed	-	< 35		01-2119457614-35-0000
Activated carbon	231-153-3	7440-44-0	< 25		01-2119966900-32-0000
calcium salt	Listed	-	< 25		N/A
sulfide	Listed	-	< 35		-
Dicalcium phosphate dihydrate	-	7789-77-7	< 50		-

Occupational exposure limits, if available, are listed in section 8. Synonyms are provided in Section 1.

4. FIRST AID MEASURES

4.1. Description of first-aid measures

Skin Contact Wash off with soap and water. If skin irritation persists, call a physician.
Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If eye irritation persists, consult a specialist.
Inhalation Remove person to fresh air. If signs/symptoms continue, get medical attention.
Ingestion Rinse mouth with water and afterwards drink plenty of water or milk. Call a poison control center or doctor immediately for treatment advice.

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

May cause skin and eye irritation
 May cause respiratory tract irritation

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Indication of immediate medical attention and special treatment needed, if necessary Treat symptomatically.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media
 Carbon dioxide (CO₂), Dry chemical, Water spray, Foam

5.2. Special hazards arising from the substance or mixture

Special exposure hazards arising from the substance or preparation itself, combustion products, resulting gases

Combustible material. Dry or powdered ingredients are combustible. Dispersal of finely divided dust from products into air may form mixtures that are ignitable or explosive. Minimize airborne dust generation and eliminate sources of ignition.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Avoid contact with eyes. Use personal protective equipment. For personal protection see Section 8.

6.2. Environmental Precautions

Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and materials for containment and cleaning up

Maintain good housekeeping practices to avoid accumulation of settled dust, especially on overhead surfaces. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Pick up and transfer to properly labeled containers. Take precautionary measures against static discharges. Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. Keep in suitable and closed containers for disposal. The waste may be recovered and recycled.

6.4. Reference to other sections.

For personal protection see Section 8. See section 13 for disposal information.

7. HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Minimize dust generation and accumulation. Avoid contact with eyes. Avoid breathing dust. Keep away from open flames, hot surfaces and sources of ignition. Wear personal protective equipment. Refer to Section 8.

7.2. Conditions for safe storage, including any incompatibilities

Storage

Store in a well-ventilated place. Keep cool. Keep away from open flames, hot surfaces and sources of ignition. Any vessel that contains wet product must be vented due to potential pressure build up from gases.

Materials to avoid

Oxidizing agents. Strong acids. Strong bases.

7.3. Specific end uses

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure Limits

Ingredients with workplace control parameters

Chemical name	European Union	The United Kingdom	Ireland
oxide		STEL 10 mg/m ³ STEL 30 mg/m ³ STEL 12 mg/m ³ TWA 5 mg/m ³ TWA 10 mg/m ³ TWA 4 mg/m ³	TWA 5 mg/m ³ TWA 10 mg/m ³ TWA 4 mg/m ³ STEL 10 mg/m ³ STEL 12 mg/m ³ STEL 30 mg/m ³
calcium salt		STEL 30 mg/m ³ STEL 12 mg/m ³ TWA 10 mg/m ³ TWA 4 mg/m ³	TWA 10 mg/m ³ TWA 4 mg/m ³ STEL 30 mg/m ³ STEL 12 mg/m ³
Chemical name	France	Spain	Portugal
oxide	TWA 5 mg/m ³ TWA 10 mg/m ³	TWA 5 mg/m ³	TWA 5 mg/m ³ C(A4)
Chemical name	Denmark	Finland	Norway
oxide	TWA 3.5 mg/m ³	TWA 5 mg/m ³	TWA 3 mg/m ³ STEL 6 mg/m ³
Chemical name	Sweden	Austria	Slovenia
oxide	TLV 3.5 mg/m ³	STEL 10 mg/m ³ TWA 5 mg/m ³	
Activated carbon 7440-44-0		STEL 10 mg/m ³ TWA 5 mg/m ³	
Chemical name	Slovakia	Switzerland	Belgium
Reduced Iron 7439-89-6	TWA 6.0 mg/m ³		
oxide	TWA 1.5 mg/m ³	TWA 3 mg/m ³	TWA 5 mg/m ³
calcium salt			TWA 10 mg/m ³
Chemical name	Luxembourg	Poland	Estonia
oxide		TWA 2.5 mg/m ³ TWA 5 mg/m ³ STEL 10 mg/m ³ STEL 5 mg/m ³	TWA 3.5 mg/m ³
Activated carbon 7440-44-0		TWA 6 mg/m ³	
calcium salt			TWA 10 mg/m ³ TWA 5 mg/m ³
Chemical name	Latvia	Lithuania	Czech Republic
oxide		TWA 3.5 mg/m ³	
calcium salt			TWA 10.0 mg/m ³
Chemical name	Romania	Bulgaria	Russia
Reduced Iron 7439-89-6		TWA 6.0 mg/m ³	TWA 10 mg/m ³
oxide	STEL 10 mg/m ³ TWA 5 mg/m ³	TWA 5.0 mg/m ³	TWA 0.4 mg/m ³ TWA 6 mg/m ³
calcium salt	TWA 10 mg/m ³	TWA 1.0 fiber/cm ³ TWA 10 mg/m ³	
Chemical name	Greece	Hungary	Croatia
oxide	TWA 10 mg/m ³ STEL 10 mg/m ³	TWA 4mg/m ³	STEL 10 mg/m ³ TWA 4 mg/m ³ TWA 5 mg/m ³ TWA 10 mg/m ³
calcium salt	TWA 10 mg/m ³ TWA 5 mg/m ³	TWA 10mg/m ³	

8.2. Exposure Controls
Engineering measures

Provide appropriate exhaust ventilation at places where dust is formed.

Personal protective equipment

Respiratory Protection	If handling generates dust levels which causes irritation, or results in personal exposure exceeding the local occupational exposure standards (OES), then suitable approved dust respirator should be used. Personal exposure to dust should ideally be controlled to the lowest level possible below the OES.
Eye/Face Protection	Whenever airborne dust concentrations are high, appropriate protective eyewear, such as mono-goggles, should be worn to prevent eye contact.
Skin and Body Protection	Lightweight protective clothing.
Hand Protection	No special precautions required

Hygiene measures When using, do not eat, drink or smoke. Wear suitable gloves and eye/face protection. Wash hands before breaks and at the end of workday. Wash hands with water as a precaution. Regular cleaning of equipment, work area and clothing is recommended. Avoid breathing vapors, mist or gas.

Environmental exposure controls The product should not be allowed to enter drains, water courses or the soil.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Powder, dark brown to black
Color	dark brown to black
Physical State	Solid
Odor	No information available
Odor threshold	No information available
pH	6 - 8 (as aqueous solution)
Flash point	No information available
Melting Point/Range	No information available
Freezing Point	No information available
Boiling Point/Range	No information available
Autoignition temperature	No information available
Explosive properties	Low level dust explosion hazard
Vapor pressure	No information available
Vapor density	No information available
Relative Density	No information available No data available
Partition coefficient	No information available
Water solubility	50 % w/w
Viscosity	No information available
Evaporation Rate	No information available

9.2. OTHER INFORMATION

Bulk Density No information available

10. STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use conditions

10.2. Chemical Stability

Stable under recommended storage conditions.

10.3. Possibility of Hazardous Reactions

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

10.4. Conditions to avoid

Heat, flames and sparks.

10.5. incompatible materials

Oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous Decomposition Products

Reacts with acids to release carbon dioxide gas and heat

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

LD50 Dermal	No information available
LD50 Oral	Iron: 98.6 g/kg bw (rat)
LC50 Inhalation	No information available
Skin Contact	May cause irritation.
Eye Contact	May cause irritation.
Inhalation	May cause irritation of respiratory tract.
Ingestion	Ingestion may cause gastrointestinal discomfort including nausea, vomiting and diarrhea if large amounts are ingested.

Chronic toxicity

Sensitization	Not expected to be sensitizing based on the components.
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.
Mutagenicity	This product is not recognized as mutagenic by Research Agencies
Other Information	Chronic exposure to dust at concentrations exceeding occupational exposure limits may cause pneumoconosis (lung disease).

12. ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects

Ecotoxicity effects of component substances.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to Microorganisms	Toxicity to daphnia and other aquatic invertebrates
Iron Sesquioxide		96 h LC50: = 100000 mg/L (Danio rerio) static		

12.2. Persistence and degradability

Biodegradability does not pertain to inorganic substances.

12.3. Bioaccumulative potential

Bioaccumulation is unlikely.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

12.6. Other Adverse Effects

None known.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated Packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADR/RID NOT REGULATED

IMDG/IMO NOT REGULATED

ICAO/IATA NOT REGULATED

15. REGULATORY INFORMATION

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

International Inventories

Chemical name	TSCA (United States)	DSL (Canada)	EINECS/ELI NCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines)	AICS (Australia)	NZIoC (New Zealand)
Reduced Iron 7439-89-6	X	X	231-096-4	X	X	X	X	X	X
oxide	X	X	215-168-2	X	X	X	X	X	X
Activated carbon 7440-44-0	X	X	231-153-3	X	X	X	X	X	X
calcium salt	X	-	215-279-6	X	X	X	X	X	X
sulfide	X	-	215-167-7	-	X	X	X	X	X
Dicalcium phosphate dihydrate 7789-77-7	-	X	-	X	X	-	X	X	X

15.2. Chemical Safety Report

Not Applicable.

16. OTHER INFORMATION

Full text of H-phrases referred to in sections 2 and 3

None

Issuing Date: 2021-11-11

Restrictions on Use

This product's foreseen or recommended applications are: Remediation of contaminated soil and groundwater

Sources of key data used to compile the datasheet

Evonik

Revision date: 2021-12-16

Revision note Qualify trade name.

List of Abbreviations and Acronyms

- ATE Acute Toxicity Estimate
- ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
- AND European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- CE50 Concentración Efectiva Media
- CEN European Committee for Standardisation
- C&L Classification and Labelling
- CLP Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
- CLV Ceiling Limit Value Par CAS# Chemical Abstracts Service number
- CMR Carcinogen, Mutagen, or Reproductive Toxicant
- CSA Chemical Safety Assessment
- CSR Chemical Safety Report
- DNEL Derived No Effect Level
- DOT Department of Transportation
- DPD Dangerous Preparations Directive 1999/45/EC
- DSD Dangerous Substances Directive 67/548/EEC
- DU Downstream User
- EC European Community
- ECHA European Chemicals Agency
- EC-Number EINECS and ELINCS Number (see also EINECS and ELINCS)
- EEA European Economic Area (EU + Iceland, Liechtenstein and Norway)
- EEC European Economic Community
- EINECS European Inventory of Existing Commercial Substances
- ELINCS European List of notified Chemical Substances
- EN European Standard
- EQS Environmental Quality Standard
- EU European Union
- Euphrac European Phrase Catalogue EWC
- European Waste Catalogue (replaced by LoW –see below)
- FDS Ficha de Datos de Seguridad
- GES Generic Exposure Scenario
- GHS Globally Harmonized System
- IATA International Air Transport Association
- ICAO-TI Technical Instructions for the Safe Transport of Dangerous Goods by Air
- IMDG International Maritime Dangerous Goods
- IMO International Maritime Organization
- IMSBC International Maritime Solid Bulk Cargoes
- IT Information Technology
- IUCLID International Uniform Chemical Information Database
- IUPAC International Union for Pure Applied Chemistry

JRC Joint Research Centre
Kow octanol-water partition coefficient
LC50 Lethal Concentration to 50 % of a test population Lethal Dose to 50% of a test population (Median Lethal Dose)
LE Legal Entity
LLV Level Limit Value
LoW List of Wastes (see <http://ec.europa.eu/environment/waste/framework/list.htm>)
LR Lead RegistrantM/I Manufacturer / Importer MS Member States
MSDS Material Safety Data Sheet
NOEC No observed effect concentration
OC Operational Conditions
OECD Organization for Economic Co-operation and Development
OEL Occupational Exposure Limit
OJ Official Journal
OR Only Representative
OSHA European Agency for Safety and Health at work
PBT Persistent, Bioaccumulative and Toxic substance
PEC Predicted Effect Concentration
PNEC(s) Predicted No Effect Concentration(s)
PPE Personal Protection Equipment
(Q)SAR Qualitative Structure Activity Relationship
RCR Risk Characterization ratio
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID Regulations concerning the International Carriage of Dangerous Goods by Rail
RIP REACH Implementation Project
RMM Risk Management Measure
SADT Self-accelerating decomposition temperature
SCBA Self-Contained Breathing Apparatus
SDS Safety data sheet
SIEF Substance Information Exchange Forum
SME Small and Medium sized Enterprises
STEL Short-term exposure limit
STOT Specific Target Organ Toxicity (STOT)
RE Repeated Exposure(STOT)
SE Single Exposure Par SVHC Substances of Very High Concern
TSCA Toxic Substances Control Act
TWA Time Weighed Average
UN United Nations
vPvB Very Persistent and Very Bioaccumulative / mPmB Muy Persistente y Muy Bioacumulativo
WGK Wassergefährdungsklassen

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End of Safety Data Sheet