

**SAFETY DATA SHEET**  
**METAFIX® I-3, I-6A, I-7A Reagent**

**SDS # :** METAFIX3  
**Revision date:** 2016-12-05  
**Format:** NA  
**Version** 1



**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

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

**Synonyms** Reduced iron: Iron, Ferrum, Carbonyl iron, ferrous iron. Iron sesquioxide: Ferric(III) oxide, anhydrous iron oxide; indian red oxide. Activated carbon: Activated charcoal, Carbon black, Carbon soot, Charcoal, Lampblack. Calcium carbonate: Carbonic acid, calcium salt (1:1); Precipitated chalk. Iron sulfide: Pyrite, Marcasite, iron disulfide, iron (II) sulfide, ferric disulfide.

**Recommended use of the chemical and restrictions on use**

**Recommended Use:** Remediation of contaminated soil and groundwater

**Restrictions on Use** Not for direct treatment of potable drinking water.

**Manufacturer/Supplier**

PeroxyChem LLC  
2005 Market Street  
Suite 3200  
Philadelphia, PA 19103  
Phone: +1 267/ 422-2400 (General Information)  
E-Mail: sdsinfo@peroxychem.com

**Emergency telephone numbers**

For leak, fire, spill or accident emergencies, call:  
1 800 / 424 9300 (CHEMTREC - U.S.A.)  
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)  
1 303/ 389-1409 (Medical - U.S. - Call Collect)

**2. HAZARDS IDENTIFICATION**

**Classification**

**OSHA Regulatory Status**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200) and the 2015 Workplace Hazardous Materials Information System (WHMIS)

Combustible dust

**GHS Label elements, including precautionary statements**

**EMERGENCY OVERVIEW**

Warning

**Hazard Statements**

May form combustible dust concentrations in air

**Precautionary Statements - Prevention**

Keep away from all ignition sources including heat, sparks and flame.  
 Keep container closed and grounded.  
 Prevent dust accumulations to minimize explosion hazard.

**Hazards not otherwise classified (HNOC)**

May form combustible dust concentrations in air

**Other Information**

**Supplemental Information**

Use non-sparking tools and equipment. 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	CAS-No	Weight %
Reduced Iron	7439-89-6	25 - 35
Iron Sesquioxide	1309-37-1	25 - 35
Activated carbon	7440-44-0	< 25
Calcite	1317-65-3	< 25
Iron sulfide	1309-36-0	< 35

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

**4. FIRST AID MEASURES**

<b>Eye Contact</b>	Rinse thoroughly with plenty of water, also under the eyelids. If eye irritation persists, consult a specialist.
<b>Skin Contact</b>	Wash off with soap and water. If skin irritation persists, call a physician.
<b>Inhalation</b>	Remove person to fresh air. If signs/symptoms continue, get medical attention.
<b>Ingestion</b>	Rinse mouth with water and afterwards drink plenty of water or milk. Call a poison control center or doctor immediately for treatment advice.
<b>Most important symptoms and effects, both acute and delayed</b>	May cause skin and eye irritation. May cause respiratory tract irritation.
<b>Indication of immediate medical attention and special treatment needed, if necessary</b>	Treat symptomatically

**5. FIRE-FIGHTING MEASURES**

<b>Suitable Extinguishing Media</b>	Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Water spray. Foam.
<b>Specific Hazards Arising from the Chemical</b>	Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
<b>Flammable properties</b>	Combustible material
<b>Hazardous Combustion Products</b>	Carbon oxides (COx).
<b>Explosion data</b>	
<b>Sensitivity to Mechanical Impact</b>	Not sensitive.
<b>Sensitivity to Static Discharge</b>	Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
<b>Protective equipment and precautions for firefighters</b>	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal Precautions</b>	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.
<b>Other</b>	For further clean-up instructions, call PeroxyChem Emergency Hotline number listed in Section 1 "Product and Company Identification" above.
<b>Environmental Precautions</b>	Local authorities should be advised if significant spillages cannot be contained.
<b>Methods for Containment</b>	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.
<b>Methods for cleaning up</b>	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.

**7. HANDLING AND STORAGE**

<b>Handling</b>	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.
<b>Storage</b>	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.
<b>Incompatible products</b>	Oxidizing agents Strong acids Strong bases Oxidizing agents. Strong acids. Strong bases.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Control parameters**

**Exposure Guidelines**

Chemical name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Iron Sesquioxide 1309-37-1	TWA: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	IDLH: 2500 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	Mexico: TWA 5 mg/m <sup>3</sup> Mexico: STEL 10 mg/m <sup>3</sup>

Activated carbon 7440-44-0	-	-	-	Mexico: TWA 2 mg/m <sup>3</sup>
Calcite 1317-65-3	-	TWA: 15 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup>	Mexico: TWA 10 mg/m <sup>3</sup> Mexico: STEL 20 mg/m <sup>3</sup>
Iron sulfide 1309-36-0	TWA: 1 mg/m <sup>3</sup>	-	-	-
<b>Chemical name</b>	<b>British Columbia</b>	<b>Quebec</b>	<b>Ontario TWAEV</b>	<b>Alberta</b>
Iron Sesquioxide 1309-37-1	TWA: 10 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> TWA: 10 mg/m <sup>3</sup>	TWA: 5 mg/m <sup>3</sup> respirable	TWA: 5 mg/m <sup>3</sup>
Calcite 1317-65-3	TWA: 10 mg/m <sup>3</sup> TWA: 3 mg/m <sup>3</sup> STEL: 20 mg/m <sup>3</sup>	TWA: 10 mg/m <sup>3</sup>	-	TWA: 10 mg/m <sup>3</sup>
Iron sulfide 1309-36-0	TWA: 1 mg/m <sup>3</sup>	TWA: 1.0 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>

**Appropriate engineering controls**

**Engineering measures** Provide appropriate exhaust ventilation at places where dust is formed.

**Individual protection measures, such as personal protective equipment**

**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** Wear suitable protective clothing. Protective shoes or boots.

**Hand Protection** Protective gloves

**Respiratory Protection** Whenever dust in the worker's breathing zone cannot be controlled with ventilation or other engineering means, workers should wear respirators or dust masks approved by NIOSH/MSHA, EU CEN or comparable organization to protect against airborne dust.

**Hygiene measures** Clean water should be available for washing in case of eye or skin contamination. Remove and wash contaminated clothing before re-use. Do not eat, drink or smoke when using this product.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Information on basic physical and chemical properties**

<b>Appearance</b>	Powder, dark brown to black
<b>Physical State</b>	Solid
<b>Color</b>	dark brown to black
<b>Odor</b>	No information available
<b>Odor threshold</b>	No information available
<b>pH</b>	6 - 8 (as aqueous solution)
<b>Melting point/freezing point</b>	No information available
<b>Boiling Point/Range</b>	No information available
<b>Flash point</b>	No information available
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid, gas)</b>	Some of these materials will burn with intense heat
<b>Flammability Limit in Air</b>	
<b>Upper flammability limit:</b>	No information available
<b>Lower flammability limit:</b>	No information available
<b>Vapor pressure</b>	No information available
<b>Vapor density</b>	No information available
<b>Density</b>	No information available
<b>Specific gravity</b>	1.50 - 1.75 g/cm <sup>3</sup> @ 20°C
<b>Water solubility</b>	50 % w/w
<b>Solubility in other solvents</b>	No information available

<b>Partition coefficient</b>	No information available
<b>Autoignition temperature</b>	No information available
<b>Decomposition temperature</b>	No information available
<b>Viscosity, kinematic</b>	No information available
<b>Viscosity, dynamic</b>	No information available
<b>Explosive properties</b>	Low level dust explosion hazard
<b>Oxidizing properties</b>	No information available
<b>Molecular weight</b>	No information available
<b>Bulk density</b>	No information available

**10. STABILITY AND REACTIVITY**

<b>Reactivity</b>	None under normal use conditions.
<b>Chemical Stability</b>	Stable under recommended storage conditions.
<b>Possibility of Hazardous Reactions</b>	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.
<b>Hazardous polymerization</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Heat, flames and sparks.
<b>Incompatible materials</b>	Oxidizing agents. Strong acids. Strong bases.
<b>Hazardous Decomposition Products</b>	Reacts with acids to release carbon dioxide gas and heat

**11. TOXICOLOGICAL INFORMATION**

**Product Information**

No acute toxicity information is available for this product. Data is for major component in product.

<b>LD50 Oral</b>	Iron: 98.6 g/kg bw (rat)
<b>LD50 Dermal</b>	No information available
<b>LC50 Inhalation</b>	No information available

<b>Serious eye damage/eye irritation</b>	Irritating to eyes.
<b>Skin corrosion/irritation</b>	Minimally irritating.

**Sensitization** Not expected to be sensitizing based on the components.

**Component Information**

<b>Chemical name</b>	<b>LD50 Oral</b>	<b>LD50 Dermal</b>	<b>LC50 Inhalation</b>	<b>NOAEL Oral Value</b>
Reduced Iron (7439-89-6)	98.6 g/kg ( Rat )			
Iron Sesquioxide (1309-37-1)	> 10000 mg/kg ( Rat )			
Activated carbon (7440-44-0)	> 10000 mg/kg ( Rat )			

**Information on toxicological effects**

**Symptoms** Dust is irritating eyes, nose, throat, and lungs.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic toxicity** Chronic exposure to dust at concentrations exceeding occupational exposure limits may cause pneumoconosis (lung disease).

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

<b>Chemical name</b>	<b>ACGIH</b>	<b>IARC</b>	<b>NTP</b>	<b>OSHA</b>
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Iron Sesquioxide 1309-37-1		Group 3		
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IARC (International Agency for Research on Cancer)

Group 3 - Not classifiable as to its carcinogenicity to humans

**Mutagenicity** This product is not recognized as mutagenic by Research Agencies

**Reproductive toxicity** This product is not recognized as reprotox by Research Agencies.

**STOT - single exposure** No information available.  
**STOT - repeated exposure** No information available.

**Aspiration hazard** Not applicable.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**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
Reduced Iron		96 h LC50: = 13.6 mg/L (Morone saxatilis) static		

**Persistence and degradability** Biodegradability does not pertain to inorganic substances.

**Bioaccumulation** Bioaccumulation is unlikely.

**Mobility** No information available.

**Other Adverse Effects** None known.

**13. DISPOSAL CONSIDERATIONS**

**Waste disposal methods** Recovery/recycling recommended. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of in accordance with local regulations.

**14. TRANSPORT INFORMATION**

**DOT** NOT REGULATED

**TDG** NOT REGULATED

**15. REGULATORY INFORMATION**

**U.S. Federal Regulations**

**SARA 313**

## METAFIX® I-3, I-6A, I-7A Reagent

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Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

### SARA 311/312 Hazard Categories

This product is not subject to reporting under the Emergency Planning and Community Right-to-Know rule.

### Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

### CERCLA/EPCRA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

## US State Regulations

### U.S. State Right-to-Know Regulations

This product contains the following substances regulated under state Right-to-Know laws:

Chemical name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Iron Sesquioxide	X	X	X		
Calcite	X	X	X		

### California Proposition 65

This product does not contain any Proposition 65 chemicals

## CANADA

### Environmental Emergencies

This product contains no substances listed under Canada's Environmental Emergency regulations.

### Canadian National Pollutant Release Inventory

This product contains no substances reportable under Canada's National Pollutant Release Inventory regulations.

## International Inventories

Component	TSCA (United States)	DSL (Canada)	EINECS/EL INCS (Europe)	ENCS (Japan)	China (IECSC)	KECL (Korea)	PICCS (Philippines )	AICS (Australia)	NZIoC (New Zealand)
Iron Sesquioxide 1309-37-1 ( <50 )	X	X	X	X	X	X	X	X	X
Reduced Iron 7439-89-6 ( <50 )	X	X	X		X	X	X	X	X
Ferrous Sulfate Heptahydrate 7782-63-0 ( <50 )				X	X		X	X	X
Activated carbon 7440-44-0 ( < 25 )	X	X	X		X	X	X	X	X
Calcite 1317-65-3 ( < 25 )	X	X	X	X	X	X	X	X	X
Iron sulfide 1309-36-0 ( < 35 )	X	X	X		X	X	X	X	X

## Mexico

Mexico - Grade

Slight risk, Grade 1

**16. OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards</b> 0	<b>Flammability</b> 1	<b>Stability</b> 0	<b>Special Hazards</b> -
<b>HMIS</b>	<b>Health Hazards</b> 0	<b>Flammability</b> 1	<b>Physical hazard</b> 0	<b>Personal Protection</b> -

Revision date: 2016-12-05  
 Revision note: Initial Release  
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Prepared By:

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**End of Safety Data Sheet**