



SAFETY DATA SHEET

1. Identification

Product identifier Fedolram 90
Recommended use For Industrial Use Only
Recommended restrictions Ramming for basic ladles around well blocks, porous plugs and ladle bottoms
Tundish nozzles.

Manufacturer/Supplier information

Company name: FRC Global
Address: 1000 N. West St.
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Wilmington, DE 19801
Product Support/Technical Services
Phone: (514) 931-5711
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2. Hazard(s) identification

Physical hazards	Not classified	
Health hazards	Carcinogenicity	Category 1A
Environmental hazards	Not classified	
OSHA defined hazards	Not classified	

Label elements



Signal word	Danger
Hazard Statement	May cause cancer.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection.
Response	If concerned: Get medical advice/attention.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations
Hazard(s) not otherwise Classified (HNOC)	None Known.

3. Composition/information on ingredients

Chemical Name	Common Name/Synonyms	CAS Number	%
Magnesium Oxide		1309-48-4	*
Silicon Dioxide		7631-86-9	
Calcium Oxide		1305-78-8	
Iron Oxide		1309-37-1	*
Aluminum Oxide		1344-28-1	

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Do not induce vomiting. Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Irritation, Nausea, Headache, Shortness of Breath.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically.
General information	If concerned: Get medical advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	Not available.
Specific hazards arising from the chemical	Combustion products may include carbon oxides or other toxic vapors. Thermal decomposition can lead to release of irritating gases and vapors which may include Magnesium Oxide.
Special precautions for firefighters	Use water spray or fog for cooling exposed containers. Remove containers from fire area if this can be done safely. Do not breathe fumes from fires or vapors. from decomposition.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. For personal protection, see section 8 of the SDS. Ensure that air-handling systems are operational. Ensure adequate ventilation.

Methods and materials for containment and cleaning up

Stop the flow of material, if this is without risk. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Avoid dispersal of dust in the air (i.e. clearing dust surfaces with compressed air). Collect solids in powder form using vacuum with HEPA filter. Evacuate personnel to safe area Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Avoid prolonged exposure. Minimize dust generation and accumulation. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Do not eat, drink, smoke, or use personal products when handling chemical substances. Avoid contact with eyes, skin, and clothing.

Conditions for safe storage, including any incompatibilities

Store away from incompatible materials. Protect from freezing and physical damage. Keep away from food and beverages. Provide ventilation for containers. Avoid storage near extreme heat, ignition sources or open flame. Store in cool, dry conditions in well-sealed containers. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limit

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

<i>Components</i>	<i>Type</i>	<i>Value</i>	<i>Form</i>
Magnesium Oxide (CAS 1309-48-4)	PEL	15 mg/m ³	Total particulate
Silicon Dioxide (CAS 14808-60-7)	PEL	6mg/m ³	
Calcium Oxide (CAS 1305-78-8)	TWA	5mg/m ³	
Iron Oxide (CAS 1309-37-1)	TWA	10mg/m ³	Respirable fraction
Aluminum Oxide (CAS 1344-28-1)	PEL	15 mg/m ³	Respirable fraction.

US. ACGIH Threshold Limit Values

<i>Components</i>	<i>Type</i>	<i>Value</i>	<i>Form</i>
Magnesium Oxide (CAS 1309-48-4)	TWA	10 mg/m ³	Inhalable fraction.
Iron Oxide (CAS 1309-37-1)	TWA	5mg/m ³	Respirable fraction
Aluminum Oxide (CAS 1344-28-1)	TWA	1 mg/m ³	Respirable fraction.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or dusts (total/respirable) below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. Ensure that

dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner. To prevent the escape of dust into the work area.

Individual protection measures, such as personal protective equipment

Eye/face protection If contact is likely, wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear suitable protective clothing.

Respiratory protection

Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. When necessary use NIOSH approved breathing equipment.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.



General Hygiene Considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Solid.

Form Solid.

Color Brown

Odor Not available.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 2570°C

Initial boiling point and boiling range 2850°C

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure Not available.

Vapor density Not available.

Relative density	2.4 – 3.2.
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Strong acids, Inerhalogens (i.e. Bromine Pentafluoride, Chlorine Tri-fluoride, Phosphorous Pentachloride).
Hazardous decomposition products	Magnesium fume may be generated if heated to volatilization, heat and steam may be generated upon contact with water.

11. Toxicological information

Information on likely routes of exposure	
Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics:	Coughing.
Information on toxicological effects	
Acute toxicity	Not available.
Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity

This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard
Chronic effects

Not an aspiration hazard.
Prolonged inhalation may be harmful.

12. Ecological information

Eco toxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

Bio accumulative potential

No data available.

Mobility in soil

No data available.

Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions

This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Hazardous waste code

Not applicable.

Waste from residues / unused products

Not available.

Contaminated packaging

Not available.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

15. Regulatory information

US federal regulations

This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200. All chemical substances in this product are listed on the TSCA chemical substance inventory where required.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard – No

SARA 302 Extremely hazardous substance Not listed.

SARA 311/312 Hazardous Chemical Not listed.

SARA 313 (TRI reporting) Not listed.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not Regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Not regulated.

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. Massachusetts RTK - Substance List

Magnesium Oxide (CAS 1309-48-4)

US. New Jersey Worker and Community Right-to-Know Act

Magnesium Oxide (CAS 1309-48-4)

US. Pennsylvania Worker and Community Right-to-Know Law

Magnesium Oxide (CAS 1309-48-4)

US. Rhode Island RTK

Not Regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

16. Other information, including date of preparation or last revision

This information is supplied to be informative and to alert the user of the material. The ultimate compliance with federal, state, and/or local regulations concerning the use of this material, or compliance with respects to products liability, rest solely upon the purchaser thereof.

Prepared by: FRC Global
Date: October 2020

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End of Safety Data Sheet