

# Material Safety Data Sheet

IDENTITY: **ROYAL STEEL FIBERS**

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## SECTION I

Manufacturer's Name:  
Royal Environmental Systems, Inc.  
A Division of Royal Enterprises

Emergency Telephone No:  
(651) 462-2130

Address:  
30622 Forest Blvd.  
Stacy, MN 55079

Telephone No. for information:  
(651) 462-2130

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## SECTION II – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

<u>Hazardous Components:</u>	<u>C.A.S. Number</u>	<u>%</u>
Iron	7439-89-6	>99
Manganese	7439-96-5	<1
Zinc	7440-66-6	*
Lime		*

Percentages are representative of product and may vary depending on batch composition. Due to the variance in batch composition, trace quantities of antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and thallium may be present in amounts <1%.

\*A thin coating of oil, lime or zinc may be added to the surface as a corrosion inhibitor or preventative.

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## SECTION III – PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point:	N/A	Specific Gravity:	Approx. 8
Vapor Pressure (mm Hg):	N/A	Melting Point:	2800°F
Vapor Density (Air = 1):	N/A	Evap. Rate (Butyl Acetate = 1):	N/A
Solubility in Water:	Negligible.		
Appearance and Odor:	Odorless solid with metallic lustre.		

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## SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used):	N/A	Flammable Limits:	N/A
Extinguishing Media:	Dry Compound or Dry Powder.		
Special Fire Fighting Procedures:	NIOSH approved positive pressure, self-contained breathing apparatus.		

Unusual Fire and Explosion Hazards: Spraying water on molten metal may cause an explosion. Use a dry type extinguisher. Product is non-combustible.

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#### SECTION V – REACTIVITY DATA

Stability: Unstable \_\_\_\_\_ Conditions to Avoid: N/A  
Stable XX

Incompatibility (Materials to Avoid): Strong acids or bases.

Hazardous Decomposition By-Products: Metal fumes and certain noxious gases such as CO may be produced during welding or burning operations.

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#### SECTION VI – HEALTH HAZARD DATA ROUTE(S) OF ENTRY:

Inhalation? Skin? Ingestion?  
XX XX \_\_\_\_\_

Health Hazards (Acute and Chronic): No toxic effects are expected from its inert form. Prolonged, repeated exposure to fumes or dusts generated during heating, cutting, welding or brazing may cause the following health effects:

##### Inhalation:

Iron (Fe): Siderosis, no fibrosis.  
Manganese (Mn): Pneumonitis, CNS involvement, including irritability, difficulty in walking, speech disorders, compulsive behavior, masklike face and Parkinson like syndrome.  
Zinc (Zn): Zinc oxide fumes can cause metal fume fever with symptoms similar to Flu; chills, fever, headache, cough, nausea, diarrhea, vomiting, etc.  
Soluble Oil: Pulmonary effects.  
Lime (CaO): May cause irritation.

Skin Contact: May cause irritation. Soluble oil may cause dermatitis.

Eye Contact: May cause irritation.

Ingestion: May cause irritation to mouth and throat.

CARCINOGENICITY: NTP? LARC Monographs? OSHA Regulated?  
NO NO NO

Sign and Symptoms of Exposure:

Zinc (Zn): Metal Fume Fever.

Manganese (Mn): Irritability, difficulty in walking, speech disorders, compulsive behavior, masklike face and Parkinson like syndrome.

Medical Conditions Generally Aggravated by Exposure: None found.

Emergency First Aid Procedures:

Inhalation - If inhaled in large amounts, remove exposed person to fresh air. Get medical attention.

Ingestion - Call a physician. If swallowed, if conscious, induce vomiting immediately.

Exposure Limits:

<u>Ingredient:</u>	<u>OSHA PEL</u> (mg/M3)	<u>ACGIH TLV</u> (mg/M3)
Iron (Fe)	10 (as Fe <sub>2</sub> O <sub>3</sub> fume)	5 (as Fe <sub>2</sub> O <sub>3</sub> fume)
Manganese (Mn)	5	1.0 (as fume)
Zinc (Zn)	5- Fume or Respirable dust 10-Total dust	5-Fume 10-Dust
Lime (CaO)	5	5

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SECTION VII – PRECAUTIONS FOR SAFE HANDLING USE

Steps to be taken in case material is released or spilled:

Spilled: Sweep up spill and place in container.

Waste Disposal Method: Dispose in accordance with all applicable federal, state and local environmental regulations. Can often be sold for scrap metal.

Precautions To Be Taken In Handling And Storage: N/A

Other Precautions: Avoid breathing fumes or dust. Store away from strong acids and bases.

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SECTION VIII – CONTROL MEASURES

Respiratory Protection (Specific Type): NIOSH approved dust and fume cartridge respirator or supplied air if airborne dust or fume levels are or may be above the PEL. Consult respirator manufacturer for assistance in choosing appropriate respirator. If respirators are used, employees must have a respirator program which complies with OSHA 1910.134.

Ventilation: Local Exhaust – Use to maintain airborne levels below PEL.

Protective Gloves: Standard.

Eye Protection: As necessary to protect against particles or radiation from welding type operations.

Face Protection: When using under pressure.

Other Protective Clothing or Equipment: As needed to protect against skin abrasion.

Work/Hygienic Practices:

Use good personal hygiene to avoid ingestion or inhalation through food or smoking.

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#### SARA 313 INFORMATION

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

<u>CHEMICAL NAME</u>	<u>CONCENTRATION</u>
Combination of Zinc (CAS No. 7440-66-6) And Zinc Oxide (CAS No. 1314-13-2)	<2.4%
Manganese (CAS No. 7439-96-5)	<1%

Percentages are representative of product and may vary depending on batch composition.

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The information herein is provided in good faith and is believed to be correct and complete as of the date issued. This document is intended as a guide to appropriate handling precautions for the material. The user is responsible for determining the precautions and dangers of this material for his or her particular application.

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