

MATERIAL SAFETY DATA SHEET

Complies with ANSI Z400.1 format

HMIS Code

Health	1
Fire Hazard	0
Physical Hazard	0
Personal Protection (depends on usage)	X

PRODUCTS: Steel Scale (Mill Scale)
Cascade Steel Rolling Mills

Date of Preparation: 01/01
Revised: 04/03, 9/05, 1/08

Section 1 General Information

Chemical Name & Synonyms: Steel Scale (Mill Scale)

Chemical Family: Metal

Formula: Mixture

Manufacturers Name:

Cascade Steel Rolling Mills
 P.O. Box 687
 3200 North Highway 99W
 McMinnville, OR 97128-9399

Prepared by: DeEtta Burrows, MSPH, CIH
 Wise Steps, Inc. and Cascade Steel

Telephone Number: (503) 472-4181
Emergency same number

Section 2 Composition of Ingredients

Base Metal, Alloying Elements and Coatings	% Weight	OSHA PEL	ACGIH TLV
Iron (base metal)	70-80%	10 mg/m ³	5 mg/m ³ respirable
Manganese	0.1% - 2%	5 mg/m ³ ceiling limit	0.2 mg/m ³
Carbon	0.1% - 0.5%	As carbon black 3.5 mg/m ³	As carbon black 3.5 mg/m ³
Silicon Dioxide in steel it is a silicon	0.1%-0.5%	10 mg/m ³ – total (as silicons) 5 mg/m ³ – respirable	10 mg/m ³ as inhalable
Copper	0.1%-1%	0.1 mg/m ³ – fume 1 mg/m ³ - dust	0.2 mg/m ³ – fume 1 mg/m ³ dust

Notations:

OSHA PEL = Federal OSHA Permissible Exposure Limit (Note in some state programs the level may be lower)
 ACGIH TLV = American Conference of Governmental Industrial Hygienist Threshold Limit Values (recommended limits)

TWA = time weighted average

STEL = short term exposure limit

Ceiling Limit = at no time shall exposures exceed this limit.

Total = total dust

Respirable = collection of respirable sized particles

Section 3 Toxicology and Health Information

Effects of Overexposure: Steel scale under normal conditions does not present an inhalation, ingestion, or contact health hazard. When product is subjected to extreme heat, melting, burning, or other similar processes, potentially hazardous airborne particulate and fumes may be generated. Exposures to high concentrations of metallic fumes or dusts may result in irritation of the respiratory tract and/or sensitization of the lungs and other mucous membranes. Signs and symptoms of overexposure include redness, swelling, itching, and/or irritation of skin and eyes, respiratory difficulties such as coughing, wheezing, shortness of breath, central nervous system effects, flu-like symptoms, anorexia and weight loss.

Acute: Exposure to metal particulates or fumes can cause eye, skin, and respiratory tract irritation and/or sensitization. Excessive inhalation of fumes from many metals can produce an acute reaction known as “metal fume fever”. Ingestion of harmful amounts of product as distributed is unlikely due to its solid, insoluble form. Ingestion of dust may cause nausea and/or vomiting. Serious effects may occur if large amounts of dust are ingested. Skin contact with dust may cause irritation or sensitization, possibly leading to dermatitis.

Chronic: Excessive and repeated exposures to fume or dust generated during processing may cause:

- Allergic sensitization – dermatitis and asthma
- Lung inflammation and damage – pneumonitis, pneumonia, bronchitis, siderosis, diffuse pulmonary fibrosis
- Nasal perforation and nasal cavity damage
- Eye inflammation
- Central nervous system damage, possibly permanent
- Kidney damage
- Liver damage
- Gout – inflammation of the joints

Target Organs: Respiratory tract, skin, eyes

Route of Entry: Inhalation, ingestion

Carcinogenicity: The carcinogenicity of this solid product as a whole has not been tested. Individual components and some compounds of these elemental metals may have been associated with carcinogenicity by NTP and IARC. No component greater than 0.1% by weight with this solid product is regulated by OSHA within 29 CFR 1910 Subpart Z as a carcinogen.

Section 4 Emergency First Aid

Inhalation: Remove from area to fresh air. Seek medical attention if breathing becomes difficult.

Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing of the eyes by separating the eyelids with fingers. Seek emergency medical care if irritation persists.

Skin Contact: Wash with soap and rinse with copious amounts of water. Remove and wash contaminated clothing. If persistent rash or irritation occurs, seek medical attention.

Ingestion: Get medical attention immediately.

Section 5 Fire and Explosion Hazard

Flash point (Method Used)	Flammable limits	LEL	UEL
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Not Applicable

Not Applicable

Not Applicable

Steel mill scale in the solid state is not considered to be a fire or explosion hazard.

Extinguishing Media: A fire involving finely divided particles should be treated as a Class D combustible metal fire.

Special Fire Fighting Procedures

As with all fires, fire fighters should wear full protective gear including supplied air respirators.

Unusual Fire & Explosion: None

Section 6 Accidental Release Measures

Steps to be Taken in Case Material is Released or Spilled: Not applicable to steel scale in the solid state. Appropriate PPE should be worn if exposure limits are exceeded. Collect material in compatible and appropriately labeled containers. For small dry spills, place material into clean dry container with a clean shovel, and cover loosely.

Waste Disposal Method: Follow safe solid waste disposal guidelines in accordance with federal state and local regulations. National or regional provisions may also be in force.

Section 7 Storage and Handling

Storage Precautions: Keep away from incompatible materials.

Handling Precautions: Avoid breathing of and contact with fumes and dusts during processing. No specific requirements for solid formed steel product.

Section 8 Exposure Controls & Personal Protection

Required Ventilation: Local and/or general exhaust ventilation should be used to keep worker exposures below applicable exposure limits during uses which may generate airborne contaminants.

Respiratory Protection: Generally would not be needed for handling steel scale; however, if overexposures to metal dusts, use a NIOSH/MSHA approved dust/fume respirator if there is overexposure to fume or particulate.

Protective Gloves: Suitable for protection against physical injury and skin contact during handling.

Eye Protection: Safety glasses or goggles when there are flying particles or high levels of airborne dust or fume.

Section 9 Physical & Chemical Properties

Physical State: Solid

Specific Gravity (H₂O =1): varies, heavier water range 3.5-5

Color: Greyish black

Evaporation Rate: N/A

Odor: Odorless

Solubility in Water: Insoluble

Section 13 Waste Disposal

Product dusts from processing may be classified as a hazardous waste, depending on various properties of the dust. Follow safe solid waste disposal guidelines in accordance with federal, state and local regulations. For proper disposal, an assessment must be completed to determine the proper and permissible waste management options permissible under applicable rules, regulations, and/or laws governing your location.

Section 14 Transportation Information

Hazardous materials description/proper shipping name: Not a hazardous under DOT

Hazard Class: General not applicable

Product Identification Number.: Generally not applicable

Section 15 Regulatory Information

SARA Title III Section 302 Extremely hazardous substances: No components are listed as extremely hazardous substances.

SARA Title III Section 313 Reportable Substances: Manganese is subject to reporting requirements. All other components are below the de minimis levels.

CERCLA Hazardous Substances: Nickel (threshold quantity 100 lbs.), chromium (threshold 5000 lbs.), copper (threshold 5000 lbs.). CERCLA reporting only if diameter of particles released is less than 100 micrometers.

Pennsylvania R-T-K List: Listed components (greater than 0.1% by weight) – Aluminum (E), Manganese (E), Silicon, Chromium (E,S). E-environmental hazard, S-special hazardous substance.

New Jersey R-T-K Environmental Hazardous substance list: Listed components – aluminum (as dust and fume), chromium, copper, manganese, and nickel

California Proposition 65: Listed possible trace (much less than 0.1% by weight) elements known by the state to cause cancer – arsenic (inorganic), cadmium, lead, nickel; Listed possible trace elements known by the state to cause reproductive toxicity – lead.

Section 16 Other Information

HMIS Hazard Rating (for solid formed product) *Health – 1 Flammability – 0 Reactivity - 0 Personal Protective Equipment – X* (PPE is dependant upon use of product) (0- Insignificant, 1- Slight, 2- Moderate, 3- High, 4- Extreme)

NFPA Rating (for solid formed product): No specific NFPA signage required

References

- 1) TLV's Threshold Limit Values and Biological Exposure Indices for 2007. American Conference of Governmental Industrial Hygienists, 2007.
- 2) Air Contaminants, OSHA regulations CFR 29 1910.1000
- 3) Toxnet current on-line publication
- 4) Patty's Industrial Hygiene & Toxicology CD-ROM Version 2.0 1997
- 5) Material Safety Data Sheets and Cheminfo, Canadian Centre for Occupational Health & Safety
- 6) SAX'S Dangerous Properties of Industrial Materials, 12th Edition

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