

# MATERIAL SAFETY DATA SHEET

## SECTION 1. PRODUCT INFORMATION

**PRODUCT:** *STEEL*

**USE:** Manufacture of steel products.

**MANUFACTURER/SUPPLIER:** IVACO ROLLING MILLS LP  
 A Heico Company  
 1040 County Road 17, P.O. Box 322  
 L'Orignal, Ontario, Canada, K0B 1K0

**EMERGENCY TELEPHONE NO.:** (613) 675-4671

## SECTION 2. PREPARATION INFORMATION

**PREPARED BY:** Health and Safety Department      **TELEPHONE NO.:** (613) 675-4671  
 ext. 6601

**DATE:** January 22, 2008

## SECTION 3. HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENT	CAS NUMBER	MAXIMUM CONCENTRATION % (weight/weight)	LD50/LC50 (Species and route)	EXPOSURE LIMITS TLV ACGIH (mg/m3)
Iron (Fe)	7439-89-6	91-99	LD50 rat-oral:30g/kg; guinea pig-oral: 20 g/kg LC50 n/av	TWA: 5 (iron oxide dust and fume as Fe) STEL: n/av
Manganese (Mn)	7439-96-5	1.0-5.0	LD50 rat-oral:9g/kg; LC50 n/av	TWA: 5 (dust and compounds) 1(fume) STEL: n/av (dust and compounds) 3(fume)
Chromium (Cr)	7440-47-3	1.0-5.0	n/av	TWA: 0.5 (metal and inorganic com- pounds, as Cr, metal and Cr III compounds) 0.05 (water- soluble Cr VI compounds, NOC 0.01 ) insoluble Cr VI com- pounds, NOC) STEL: n/av

n/ap = not applicable  
 n/av = not available

### SECTION 3. HAZARDOUS INGREDIENTS ( cont'd)

HAZARDOUS INGREDIENT	CAS NUMBER	MAXIMUM CONCENTRATION % (weight/weight)	LD50/LC50 (Species and route)	EXPOSURE LIMITS TLV ACGIH (mg/m <sup>3</sup> )
Silicon (Si)	7440-21-3	0.5-1.5	LD50 rat-oral: 3160 mg/kg LC50 n/av	TWA: 10 STEL: n/av
Carbon (C)	7440-44-0	0.1-1.0	LD50 mouse-iv: 440 mg/kg LC50 n/av	TWA: n/av STEL: n/av
Nickel (Ni)	7440-02-0	0.1-1.0	n/av	TWA: 1 (metal; insoluble compounds, as Ni) 0.1 (soluble compounds, as Ni) STEL: n/av
Molybdenum (Mo)	7439-98-7	0.1-1.0	n/av	TWA: 5 (soluble compounds) 10 (insoluble compounds) STEL: n/av
Sulphur (S)	7704-34-9	0.1-1.0	n/av	TWA: n/av STEL: n/av
Tin (Sn)	7440-31-5	0.1-1.0	n/av	TWA: 2 STEL: n/av
Phosphorus (P)	7723-14-0	0.1-1.0	n/av	TWA: 0.1 STEL: n/av
Copper (Cu)	7440-50-8	0.1-1.0	LD50 mouse-ip: 3500 ug/kg LC50 n/av	TWA: 0.2 (fume) 1 (dusts & mists, as Cu) STEL: n/av
Vanadium (V)	7440-62-2	0.1-1.0	LD50 rabbit-sub-cutaneous: 59 mg/kg LC50 n/av	TWA: 0.05 (respirable dust/fume, as V <sub>2</sub> O <sub>5</sub> ) STEL: n/av
Aluminum (Al)	7429-90-5	<0.10	n/av	TWA: 10 (metal dust) 5 (welding fume, as Al) STEL: n/av
Titanium (Ti)	7440-32-6	<0.10	n/av	TWA: n/av STEL: n/av
Boron (B)	7440-42-8	<0.10	LD50 rat-oral: 650 mg/kg; mouse-oral: 560 mg/kg; rabbit & guinea pig - oral: 310 mg/kg LC50 n/av	TWA: n/av STEL: n/av

## SECTION 4. PHYSICAL DATA

PHYSICAL STATE:.....	Solid	EVAPORATION RATE: .....	n/ap
ODOUR AND APPEARANCE:	No odour, metallic luster	BOILING POINT:.....	2750° (approx.)
ODOUR THRESHOLD:.....	n/ap	FREEZING POINT:.....	1530° (approx.)
SPECIFIC GRAVITY: .....	7.86	pH:.....	n/ap
VAPOUR PRESSURE:.....	n/ap	COEFFICIENT OF WATER/	
VAPOUR DENSITY: .....	n/ap	OIL DISTRIBUTION:.....	n/ap

## SECTION 5. FIRE OR EXPLOSION HAZARD

Not applicable

## SECTION 6. REACTIVITY DATA

**CONDITIONS UNDER WHICH THE  
PRODUCT IS CHEMICALLY UNSTABLE:** Stable

**NAME OF SUBSTANCE OR CLASS OF  
SUBSTANCES WITH WHICH THE PRODUCT  
IS INCOMPATIBLE:** Acids

**CONDITIONS OF REACTIVITY:** When in molten state, contact with water or ice  
can result in violent splashes (release of  
flammable hydrogen gas).

**HAZARDOUS DECOMPOSITION PRODUCTS:** Metal oxides of hazardous ingredients listed in  
Section 3, carbon monoxide

## SECTION 7. TOXICOLOGICAL PROPERTIES

### ROUTES OF ENTRY:

<i>Skin contact:</i>	Yes
<i>Skin absorption:</i>	No
<i>Eye contact:</i>	Yes
<i>Inhalation:</i>	Yes
<i>Ingestion:</i>	No

## SECTION 7. TOXICOLOGICAL PROPERTIES (cont'd)

Fumes and/or dusts may be generated from further processing of the product by the user, such as welding, burning, cutting, grinding, machining, melting, crushing, screening or handling activities.

### EFFECTS OF ACUTE EXPOSURE TO PRODUCT:

Overexposure to dust or fume formed when further processing the product may be an irritant to eyes, skin and respiratory tract. An overexposure by inhalation to decomposition products may cause metal fume fever characterized by fever and chills.

### EFFECTS OF CHRONIC EXPOSURE TO PRODUCT:

<b>Iron:</b>	Siderosis
<b>Manganese:</b>	May adversely affect central nervous system (CNS) and respiratory system (e.g., asthma)
<b>Chromium:</b>	Dermatitis, skin ulcerations, allergic reactions, respiratory symptoms (e.g., asthma), lung cancer
<b>Silicon:</b>	Considered a nuisance particulate
<b>Carbon:</b>	Eye and respiratory tract irritant
<b>Nickel:</b>	Allergic dermatitis ("nickel itch"), lung inflammation, asthma, cancer of the respiratory system
<b>Molybdenum:</b>	Weight loss, diarrhea, loss of coordination, pneumoconiosis, breathing difficulties
<b>Sulphur:</b>	Mucous membranes irritation
<b>Tin:</b>	Stannosis
<b>Phosphorus:</b>	Cough, bronchitis, pneumonia
<b>Copper:</b>	Skin and hair discoloration, metallic or sweet taste
<b>Vanadium:</b>	Inflammation of respiratory passages, asthma, cardiac palpitations, gastrointestinal discomfort, renal damage, nervous depression
<b>Aluminum:</b>	Shaver's disease (fibrotic lung)
<b>Titanium:</b>	Mucous membranes irritation
<b>Boron:</b>	Conjunctivitis

**EXPOSURE LIMITS:** Refer to Section 3.

**IRRITANCY OF PRODUCT:** n/ap

**SENSITIZATION TO PRODUCT:** n/ap

**CARCINOGENICITY:** The National Toxicology Program (NTP) and the International Agency of Research on Cancer (IARC) list certain chromium and nickel compounds under the category "confirmed human carcinogen".

**REPRODUCTIVE TOXICITY:** n/av

**TERATOGENICITY:** n/av

**MUTAGENICITY:** n/av

**NAME OF TOXICOLOGICALLY SYNERGISTIC PRODUCTS:** n/av

## SECTION 8. PREVENTATIVE MEASURES

### PERSONAL PROTECTIVE EQUIPMENT TO BE USED:

- Eye Protection:** Use safety glasses and/or other protective eyewear when exposure to eye or face hazards exists, such as flying objects, molten metal and injurious light radiation (e.g. welding and burning).
- Skin Protection:** Use protective gloves and/or other personal protective equipment when welding, burning or handling.
- Respiratory Protection:** When engineering controls are not feasible or sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH-approved respirator which protects against dusts and metal fume in accordance with manufacturers' instructions and use limitations.

### SPECIFIC ENGINEERING CONTROLS TO BE USED:

Avoid creating dust/fumes. General or local exhaust ventilation is recommended near source when fumes or dusts are emitted.

### PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL:

n/ap

### WASTE DISPOSAL:

Product can be recycled for further use, disposed in an appropriately permitted waste landfill or by other methods in accordance with local, state, provincial and federal regulations.

### HANDLING PROCEDURES AND EQUIPMENT:

Use lifting and work devices with rated capacities and in accordance with manufacturers' instructions.

### STORAGE REQUIREMENTS.

n/ap

### SPECIAL SHIPPING INFORMATION:

n/ap

## SECTION 9. FIRST AID MEASURES

### SPECIFIC FIRST AID MEASURES:

- Skin:** Wash with mild soap and maintain good personal hygiene. Seek medical attention if conditions persist.
- Eyes:** Treat for foreign body in the eye. Seek medical attention.
- Inhalation:** For overexposure to dust/fumes, remove to fresh air. Seek medical attention if necessary.

## SECTION 10. ADDITIONAL GENERAL INFORMATION

### Disclaimer

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