

STEEL ACIER



RISKS

- May cause health effects during dust/fume generating activities.
- May cause respiratory system effects when dust/fumes are inhaled.
- May cause skin irritation when in prolonged contact with surface.

PRECAUTIONARY MEASURES

- Limit skin contact. Wear protective gloves.
- Avoid creating dust/fumes.
- During dust/fumes generating activities, provide mechanical ventilation or wear personal protective equipment (i.e., eye protection, protective clothing and appropriate NIOSH-approved respirator).

FIRST AID

Inhalation: For overexposure to dust/fumes, remove to fresh air.

Skin: Wash with mild soap and maintain good personal hygiene.

Eyes: Treat for foreign body in the eye.

In all cases, seek medical attention if necessary.

Refer to material safety data sheet for further information.

IVACO ROLLING MILLS LIMITED PARTNERSHIP

(Ivaco Rolling Mills Inc. – general partner and
Ivaco Inc. – limited partner)

P.O. BOX 322, L'ORIGINAL, ONTARIO, CANADA
K0B 1K0

RISQUES

- Peut causer des effets sur la santé pendant les activités produisant des poussières et des fumées.
- Peut causer des effets sur les voies respiratoires en cas d'inhalation des poussières et des fumées.
- Peut irriter la peau en cas de contact prolongé.

MESURES DE PRÉVENTION

- Restreindre le contact avec la peau. Porter des gants.
- Éviter de produire des poussières et des fumées.
- Pendant les activités produisant des poussières et des fumées, prévoir une ventilation mécanique ou porter de l'équipement de protection individuelle, c.à.d. un appareil de protection oculaire, des vêtements protecteurs et un respirateur approprié, homologué par le NIOSH.

PREMIERS SECOURS

Inhalation: En cas de surexposition aux poussières et aux fumées, amener la victime à l'air frais.

Peau: Savonner les parties du corps exposées et adopter une bonne hygiène personnelle.

Yeux: Donner le traitement approprié pour enlever les corps étrangers des yeux.

Dans tous les cas, obtenir des soins médicaux au besoin.

Pour plus de renseignements, consulter la fiche signalétique.

SOCIÉTÉ EN COMMANDITE LAMINOIRS IVACO

(Ivaco Rolling Mills Inc. – commandité et
Ivaco Inc. – commanditaire)

C.P. 322, L'ORIGINAL (ONTARIO) CANADA
K0B 1K0

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT INFORMATION

PRODUCT: STEEL

USE: Manufacture of steel products

MANUFACTURER/SUPPLIER: IVACO ROLLING MILLS LIMITED PARTNERSHIP
(Ivaco Rolling Mills Inc. – general partner and Ivaco Inc. – limited partner)
Highway No. 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. 601

DATE: July 23, 1999

SECTION 3. HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENT	CAS NUMBER	MAXIMUM CONCENTRATION % (weight/weight)	LD ₅₀ /LC ₅₀ (Species and route)	EXPOSURE LIMITS TLV ACGIH (mg/m ³)
Iron (Fe)	7439-89-6	91-99	LD ₅₀ rat-oral: 30 g/kg; guinea pig-oral: 20 g/kg LC ₅₀ n/av	TWA: 5 (iron oxide dust and fume, as Fe) STEL: n/av
Manganese (Mn)	7439-96-5	10-50	LD ₅₀ rat-oral: 9 g/kg LC ₅₀ n/av	TWA: 5 (dust and compounds) 1 (fume) STEL: n/av (dust and compounds) 3 (fume)

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

SECTION 3. HAZARDOUS INGREDIENTS (cont'd)

HAZARDOUS INGREDIENT	CAS NUMBER	MAXIMUM CONCENTRATION % (weight/weight)	LD ₅₀ /LC ₅₀ (Species and route)	EXPOSURE LIMITS TLV ACGIH (mg/m ³)
Chromium (Cr)	7440-47-3	1.0-5.0	n/av	TWA: 0.5 (metal and inorganic compounds, as Cr, metal and Cr III compounds) 0.05 (water-soluble Cr VI compounds, NOC) 0.01 (insoluble Cr VI compounds, NOC) STEL: n/av
Silicon (Si)	7440-21-3	0.5-1.5	LD ₅₀ rat-oral: 3160 mg/kg LC ₅₀ n/av	TWA: 10 STEL: n/av
Carbon (C)	7440-44-0	0.1-1.0	LD ₅₀ mouse-iv: 440 mg/kg LC ₅₀ 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	LD ₅₀ mouse-ip: 3500 µg/kg LC ₅₀ n/av	TWA: 0.2 (fume) 1 (dusts & mists, as Cu) STEL: n/av

SECTION 3. HAZARDOUS INGREDIENTS (cont'd)

HAZARDOUS INGREDIENT	CAS NUMBER	MAXIMUM CONCENTRATION % (weight/weight)	LD ₅₀ /LC ₅₀ (Species and route)	EXPOSURE LIMITS TLV ACGIH (mg/m ³)
Vanadium (V)	7440-62-2	0.1-1.0	LD ₅₀ rabbit-sub-cutaneous: 59 mg/kg LC ₅₀ n/av	TWA: 0.05 (respirable dust/fume as V ₂ O ₅) 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	LD ₅₀ rat-oral: 650 mg/kg; mouse-oral: 560 mg/kg; rabbit & guinea pig-oral: 310 mg/kg LC ₅₀ n/av	TWA: n/av STEL: n/av

SECTION 4. PHYSICAL DATA

PHYSICAL STATE: Solid
 ODOUR AND APPEARANCE: No odour,
 metallic luster
 ODOUR THRESHOLD: n/ap
 SPECIFIC GRAVITY: 7.86
 VAPOUR PRESSURE: n/ap
 VAPOUR DENSITY: n/ap

EVAPORATION RATE: n/ap
 BOILING POINT: 2750°C (approx.)
 FREEZING POINT: 1530°C (approx.)
 pH: n/ap
 COEFFICIENT OF WATER/
 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 ANY SUBSTANCE OR CLASS OF SUBSTANCE 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:

Skin contact Yes
Skin absorption: No
Eye contact: Yes
Inhalation Yes
Ingestion: No

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:

Iron: Siderosis
Manganese: May adversely affect central nervous system (CNS) and respiratory system (e.g., asthma)
Chromium: Dermatitis, skin ulcerations, allergic reactions, respiratory symptoms (e.g., asthma), lung cancer
Silicon: Considered a nuisance particulate

SECTION 7. TOXICOLOGICAL PROPERTIES (cont'd)

EFFECTS OF CHRONIC EXPOSURE TO PRODUCT (cont'd):

Carbon:	Eye and respiratory tract irritant
Nickel:	Allergic dermatitis ("nickel itch"), lung inflammation, asthma, cancer of the respiratory system
Molybdenum:	Weight loss, diarrhea, loss of coordination, pneumoconiosis, breathing difficulties
Sulphur:	Mucous membranes irritation
Tin:	Stannosis
Phosphorous:	Cough, bronchitis, pneumonia
Copper:	Skin and hair discoloration, metallic or sweet taste
Vanadium:	Inflammation of respiratory passages, asthma, cardiac palpitations, gastrointestinal discomfort, renal damage, nervous depression
Aluminum:	Shaver's disease (fibrotic lung)
Titanium:	Mucous membranes irritation
Boron:	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 for 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. PREVENTIVE 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.

SECTION 9. FIRST AID MEASURES (cont'd)

SPECIFIC FIRST AID MEASURES (cont'd):

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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