MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT INFORMATION

PRODUCT: HOT ROLLED CARBON COIL
CARBON STEEL HEAVY PLATE (0.47" - 2.125")
CARBON STEEL CUT-TO-LENGTH (0.097" -0.5")

WHMIS CLASS: D2B
TDGA CLASS: NOT APPLICABLE

MANUFACTURER: IPSCO INC.
P.O. BOX 1670 ARMOUR ROAD, REGINA, SASKATCHEWAN S4P 3C7

ISSUE DATE: FEBRUARY 12, 1996

REVISION DATE: NOT APPLICABLE

EMERGENCY CONTACT NUMBER: 306-924-7500

SECTION 2. HAZARDOUS INGREDIENTS

INGREDIENT	% WT.	CAS NO.	OCCUPATIONAL EXPOSURE LIMITS (mg/m³) OSHA (PEL)	OCCUPATIONAL EXPOSURE LIMITS (mg/m³) A.C.G.I.H (TLV)	TOXICITY (mg/kg)
IRON (Fe)	96 - 99	7439-89-6	10.0	5.0	30000 (orl-rat LD_{50})
CHROMIUM (Cr)	0.1 - 0.3	7440-47-3	1.0	0.50	71 (orl-hmn LDL_0)
MANGANESE (Mn)	0.2 - 1.64	7439-96-5	5.00	0.2	230 (orl-dog LDL_0)
NICKEL (Ni)	0.05 - 0.50	7440-02-0	1.00	1.00	5 (orl-gpg LDL_0)
SILICA (SiO_2)	0.01 - 0.35	14808-60-7	Variable	Variable	Unavailable

The list above identifies components which meet the regulated reporting criteria. Concentrations provided represent a maximum content only and should not be interpreted as a specification for a particular grade.

REGULATORY INFORMATION:

U.S. OSHA R-T-K - Contains regulated materials

SARA 313 Reporting Requirements: Chromium, Manganese, Nickel, & Silica present.

SECTION 3. PHYSICAL DATA

PHYSICAL STATE	COLOUR	ODOUR THRESHOLD	pH
SOLID	GREY/BLACK	NOT APPLICABLE	NOT APPLICABLE
SPECIFIC GRAVITY	**MELTING POINT**	**BOILING POINT**	**VAPOUR DENSITY**
7.6 - 7.8	1530°C	2900°C	NOT APPLICABLE

SECTION 4. FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY: NOT FLAMMABLE

FLASHPOINT (°C): NOT APPLICABLE

UPPER EXPLOSIVE LIMIT(% BY VOLUME): NOT APPLICABLE

COMBUSTION PRODUCTS: NOT APPLICABLE

LOWER EXPLOSIVE LIMIT (% BY VOLUME): NOT APPLICABLE

AUTO IGNITION TEMPERATURE: NOT APPLICABLE

SENSITIVITY TO MECHANICAL IMPACT: NONE

SENSITIVITY TO CHEMICAL IMPACT: NONE

SECTION 5. REACTIVITY DATA

CHEMICALLY STABLE: YES

INCOMPATIBILITY WITH OTHER SUBSTANCES: NONE

REACTIVITY (UNDER WHAT CONDITIONS): STEEL IS STABLE UNDER NORMAL CONDITIONS. CONTACT WITH ACIDS MAY RESULT IN A CHEMICAL REACTION AND THE RELEASE OF HYDROGEN GAS.

SECTION 6. TOXICOLOGICAL DATA

STEEL PRODUCTS IN THEIR USUAL FORM DO NOT POSE A HEALTH HAZARD.

EFFECTS OF EXPOSURE TO STEEL MATERIAL FUMES/DUST:

CAUTION: EXPOSURE TO HIGH CONCENTRATIONS OF DUST OR FUME DURING WELDING, BURNING, MELTING, CUTTING OR GRINDING, ETC., MAY IRRITATE THE EYES AND MAY RESULT IN DAMAGE TO LUNGS OR OTHER ORGANS.

ACUTE EXPOSURE

Inhalation overexposure to metal fumes may cause a flu-like condition called "metal fume fever" resulting in chills and nausea.

CHRONIC EXPOSURE

Prolonged inhalation overexposure to metal fumes may result in an accumulation of iron oxide in the lungs (siderosis) with few symptoms.

Teratogenicity:	None Known	**Sensitization to Product:**	None Known
Synergistic Materials:	None Known	**Mutagenicity:**	None Known
Reproductive Effects:	None Known		

ROUTE OF ENTRY

SKIN CONTACT	☐	SKIN ABSORPTION	☐	**EYE CONTACT**	☒
INHALATION	☒	**INGESTION**	☒		

THIS PRODUCT MAY CONTAIN THE FOLLOWING MATERIALS AT REPORTABLE (ℝ) OR TRACE (T) ELEMENT LEVELS:

ELEMENT		CAS NO.	HEALTH HAZARD
ALUMINUM	(T)	7429-90-5	Long-term inhalation exposure to dust or fumes may cause pulmonary fibrosis. Aluminum dust is extremely chemically reactive.
CADMIUM	(T)	7440-43-9	Cadmium is a CARCINOGEN and a human poison by inhalation.
CHROMIUM	(ℝ)	7440-47-3	Skin sensitized individuals may experience dermatitis; long-term inhalation exposure to chromium alloys may cause lung changes. Long-term exposure to the hexavalent form can produce acute and chronic effects leading to: ulcerations, irritative dermatitis, effects on the respiratory system (bronchitis, irritation, ulcerations and perforations of the nasal septum), coughing, and shortness of breath. Chromium Oxide (VI) is a CARCINOGEN.
COBALT	(T)	7440-48-4	Moderately toxic by ingestion; inhalation may cause pulmonary damage.
COPPER	(T)	7440-50-8	Prolonged inhalation exposure may cause irritation to eyes, nose and throat resulting in metal fume fever (fever, nausea, chills, cough and weakness). Systematic effects from ingestion include vomiting and nausea.
IRON	(ℝ)	7439-89-6	Excessive inhalation exposure can lead to iron pneumoconiosis.
LEAD	(T)	7439-92-1	Long-term exposure to lead compound fumes/dusts can effect the following systems: nervous, digestive, blood & blood-forming, and renal. Early effects include: fatigue, muscle aches/pains, decreased appetite. Later effects include: anaemia, pallor and reduced hand-grip strength, lead colic (abdominal cramping nausea and vomiting) and wrist drop indicating peripheral nervous system impairment. Chronic systems include: severe central nervous system effects,(headaches, dizziness, convulsions, death), and extensive kidney damage. Lead is a CARCINOGEN.

ELEMENT		CAS NO.	HEALTH HAZARD
MANGANESE	(R)	7439-96-5	Fumes and dust can produce minor eye and respiratory tract irritation. Excessive long-term inhalation may result in central nervous system impairment (weakness, impaired speech, spastic walking, uncontrolled laughter at times). Some symptoms may also resemble metal fume fever.
MOLYBDENUM	(T)	7439-98-7	Fumes and dust may produce irritation of the eyes, nose and throat. Soluble compounds may cause weight loss, diarrhea, loss of coordination, anaemia and colic. No physical impairment of lung function has been linked to this condition.
NICKEL	(R)	7440-02-0	Fumes and dust are respiratory irritants. Excessive exposure can cause severe inflammation of the lungs. Skin contact may also result in allergic dermatitis called Nickel itch. Nickel is a CARCINOGEN.
PHOSPHOROUS	(T)	7723-14-0	Fumes and dusts are a minor eye, throat and respiratory tract irritant. Long-term inhalation may lead to bronchitis and pneumonia and necrosis of the jaw. Human poison by ingestion.
SILICA	(R)	14808-60-7	Considered a nuisance dust/particulate. Prolonged exposure may cause silicosis. Silica is a CARCINOGEN.
TIN	(T)	7440-31-5	Tin has a low toxicity. Excessive inhalation exposure may lead to a benign pneumoconiosis condition called stannosis.
VANADIUM	(T)	7440-62-2	Dust and fume is an eye, respiratory and skin irritant. Excessive inhalation exposures may result in inflammation of the respiratory passages, sore throat, cough. Poison by subcutaneous route.
ZINC	(T)	7440-66-6	Excessive inhalation exposure can lead to metal fume fever with symptoms which will include: dizziness, chills, fever, headaches and respiratory tract irritation. Skin irritant.

SECTION 7: PREVENTATIVE MEASURES

Adequate ventilation is recommended to lower airborne emissions to allowable levels during operations which generate metal dust or fumes, or when product coatings are burned. When possible, coatings should be removed in the immediate region of welding. Impervious gloves should be worn when handling steel coated with thread compounds.

Face shields should be worn during grinding. Appropriate safety glasses should be worn when handling products.

)SH approved respiratory protection, and adherence to OSHA's CFR 1910.134 and ANSI Z88.2 program requirements, should be used when appropriate .

SPILL RESPONSE & DISPOSAL PROCEDURES: Not applicable. Dispose in accordance with local, provincial/state & federal regulations.

SECTION 8: FIRST AID MEASURES

SKIN CONTACT: Remove contaminated clothing. Wash effected area with soap and water.

EYE CONTACT: Flush eyes with lukewarm water while holding eye lids open. Treat for foreign body in eye and seek medical attention if required.

INHALATION: For inhalation of dust or fumes, remove to fresh air. Seek medical attention if required.

INGESTION: Not considered an ingestion hazard. Not applicable.

SECTION 9: OTHER INFORMATION CONCERNING THE PRODUCT

The product may be shipped with a rust-preventative coating. The coating is composed of a non-toxic lubricant/oil or lacquer material. Excessive skin contact with the coating may cause skin irritation.

SECTION 10: PREPARATION DATE OF MSDS

PREPARED BY: IPSCO INC. ENVIRONMENTAL AFFAIRS DEPARTMENT PHONE NO. 306-924-7483 (FAX: 306-924-7670)

This MSDS is based on data believed to be accurate and reliable. No warranty is made that the information included in absolutely complete or accurate. IPSCO INC. disclaims all liability from reliance thereon.