1. Identification

Product name/GHS identifier: ERW Steel Tube, Carbon or High Strength Low Alloy

Identification: Solid product is odorless, and silver-gray in color. In the finished state, steel products are not expected to present inhalation, ingestion, or contact health hazards. Hazards herein refer to dust or fumes produced from grinding, welding, cutting, machining, and otherwise generated particulates from mechanical action on steel tube.

Product use/description: All steel tubes are articles as shipped-nonhazardous and exempt from classification. Modifications for product's intended use as a steel tube, such as grinding, welding, cutting and other machining activities, may generate dust, classified below.

Manufacturer/supplier: Maruichi Oregon Steel Tube
8735 North Harborgate Street
Portland, OR 97203-6363

Emergency Telephone: 1-(503)-737-1200 [USA] M-F 8-5 PST

2. Hazards Identification

Classification	Category	Hazard Statements
Skin irritation	1	H317: May cause an allergic skin reaction
Eye irritation	2B	H320: Causes eye irritation
Respiratory sensitization	1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled
Carcinogen	1B	H350: May cause cancer
Acute oral toxicity	4	H302: Harmful if swallowed
Single Target Organ Toxicity (STOT) single exposure	3	H335: May cause respiratory irritation
STOT repeated exposure	1	H372: Causes damage to organs through prolonged or repeated exposure
Reproductive Toxicity	2	H361: Suspected of damaging fertility or the unborn child

Danger!	**Precautionary Statements**
	P201: Obtain special instructions before use.
	P202: Do not handle dust until all safety precautions have been read and understood.
	P260: Do not breathe dust/fumes/gas/mist/vapors/spray.
	P264: Wash exposed skin and eyes thoroughly after handling dust.
	P270: Do not eat, drink or smoke when using this product.
	P271: Use only outdoors or in a well-ventilated area.
	P272: Contaminated work clothing should not be allowed out of the workplace.
	P280: Use protective gloves and eye protection as required.

3. Composition/Information on Ingredients

Chemical Name	CAS No.	EC No.	Composition (Mass %)
Iron	7438-89-6	231-096-4	95 +
Manganese	7439-96-5	231-157-1	<3
Chromium	7440-47-3	231-157-5	< 2
Copper	7440-50-8	231-159-6	< 2
Nickel	7440-02-0	231-111-4	< 2

Coating (if applicable)[a]

Chemical Name	CAS No.	EC No.	Composition (Mass %)
Mineral Oil	Varies	Varies	Trace

[a] Product may contain trace amounts of oil-based rust preventative coating. Coating composition percentages are below GHS reporting requirements. Specific coating products may vary. Contact manufacturer for specific coating details. Contact information provided in section 1 this document.

4. First Aid Measures

Overview: In the finished state, steel products are not expected to present inhalation, ingestion, or contact health hazards. Hazards herein refer to dust or fumes produced from grinding, welding, cutting, machining, and otherwise generated particulates from mechanical action on steel tube.

If inhaled: If affected, remove to fresh air and keep comfortable for breathing. If difficulty breathing continues, seek medical attention immediately.

If in eyes: Flush eyes with plenty of water for at least 15 minutes. If eye irritation persists, seek medical attention immediately.

If ingested: Not a likely route of entry. If mouth irritation occurs, rinse with plenty of water. If dust is swallowed, call poison control center or medical professional.

If skin contact: Wash affected area with mild soap and water. Seek medical attention if skin irritation persists.

5. Fire Fighting Measures

Suitable extinguishing media: Solid/shipped product is non-flammable. Use extinguishers appropriate for surrounding materials.

Combustion products: When heated to temperatures above melting point; toxic smoke, fume, and vapor may be emitted. Metal oxides and other alloying elements may be liberated.

Special protective actions for firefighters Full firefighting protective clothing and respiratory protection (SCBA) should be worn when fumes and/or smoke from fire are present. Heat and flames cause emittance of acrid smoke and fumes.

6. Accidental Release Measures

Personal precautions: Not applicable in solid state. Where dust is generated, use water to wet and minimize dust inhalation exposure during cleanup. Cleanup personnel should be protected against contact with eyes and skin.

Environmental precautions: Prevent generated dust from entering sewers, storm drains, other unauthorized treatment drainage systems, and natural waterways.

Containment and cleanup: For spills involving generated dust, vacuum dust or use wet method cleanup to prevent spreading of dust. Collect material in appropriate labeled containers for recovery or disposal in accordance with federal, state, and local regulations.

7. Handling and Storage

Handling: No special requirement in solid state. If modifications generate dust, minimize airborne dust. Avoid breathing dust. Avoid dust contact with skin and eyes. Keep surfaces free of dust accumulations.

Storage: Store away from acids and incompatible materials.

8. Exposure Controls / Personal Protection

Occupational Exposure Limits			
Component	**OSHA PEL**	**ACGIH TLV**	**NIOSH REL**
Iron	10 mg/m^3	5 mg/m^3	5 mg/m^3
Manganese	5 mg/m^3 Ceiling	0.2 mg/m^3	1.0 mg/m^3 5.0 mg/m^3 Ceiling 3.0 mg/m^3 STEL
Chromium	1 mg/m^3 (as Cr, metal)	0.5 mg/m^3 (as Cr, metal)	0.5 mg/m^3 (as Cr, metal)
Copper	1 mg/m^3 (dust) 0.1 mg/m^3 (fume)	1 mg/m^3 (dust) 0.2 mg/m^3 (fume)	1 mg/m^3 (dust) 0.1 mg/m^3 (fume)
Nickel	1 mg/m^3	1.5 mg/m^3 (inhalable fraction)	0.015 mg/m^3

Engineering Controls: Controls may be necessary to reduce dust and fumes below its exposure limits during cutting, grinding, welding, and other machining operations. Use local exhaust ventilation near the source to minimize airborne concentrations.

Personal Protective Equipment (PPE): *Eye Protection:* Use safety glasses when handling or using product. Safety glasses or goggles are required during cutting, grinding, welding, and other machining operations; which meet or exceed ANSI Z.87.1.

Skin Protection: Avoid skin contact by wearing leather gloves and long sleeves where feasible.

Respiratory Protection: Avoid breathing dust or fumes generated from grinding, welding, cutting, or machining. Seek professional advice when evaluating air containments. If dust or fume concentration is greater than the PEL, but less than 10 times PEL, use a NIOSH approved half-mask respirator with N95 filter. For concentrations above 10 times PEL, but less than 50 times PEL, use a NIOSH approved full –face respirator with N95 filter. Where airborne concentrations may exceed 50 times PEL, use a supplied-air respirator. A respiratory protection programs that meets OSHA's *29 CFR 1910.134* and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

9. Physical and Chemical Properties

Appearance/odor:	Solid, odorless, silver-gray metallic appearance		
Odor threshold:	Not applicable	**Lower Flammability Limit:**	Not flammable
pH	Not applicable	**Upper Flammability Limit:**	Not flammable
Melting point:	1530 °C 2780 °F	**Auto-ignition temp:**	Not applicable
Initial boiling point/range:	Not applicable	**Vapor density:**	Not applicable
Flash point:	Not applicable	**Vapor pressure:**	Not applicable
Evaporation rate:	Not applicable	**Specific gravity:**	7.8
Molecular weight:	Varies	**Solubility:**	Insoluble
Flammability (solid/gas):	Not applicable	**Partition Coefficient:**	Not applicable
Viscosity:	Not applicable	**Decomposition temperature:**	Unknown

10. Stability and Reactivity

Reactivity: Not reactive

Chemical stability: Stable

Possibility of hazardous reaction: None

Conditions to avoid: Dust accumulation and storage with strong acids.

Incompatible materials: Strong acids

Hazardous decomposition products: Will not decompose. Heating greater than 1530 °C may produce metal fumes.

11. Toxicological Information

Likely routes of exposure: Inhalation of dust and fumes may cause upper respiratory tract irritation. Skin or eye contact with dust from this product may cause physical irritation. Components in dust are potential carcinogens via inhalation.

Acute toxicity: Inhalation exposure to copper and manganese may cause metal fume fever. Symptoms consist of chills and fever, metallic taste in mouth, irritation of the throat, followed by weakness and muscle pain.

Skin corrosion/irritation: Skin contact with metal dusts ay cause irritation or sensitization, possibly leading to dermatitis. Contact with metal dust may also cause skin abrasions.

Eye damage/irritation: Dust and fumes may cause eye irritation.

Germ cell mutagenicity: None

Carcinogenicity: Generated dust and fumes are potential carcinogens. See classifications in table below.

Reproductive toxicity: Nickel and manganese dust exposure may affect reproductive health based on animal studies.

Specific target organ (STOT): *Single exposure:* Iron dust can cause irritation of the respiratory tract. *Repeated exposure:* Iron oxide dust causes a pulmonary condition, siderosis. This is considered a benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis. Chronic overexposure to manganese has produced kidney damage, pneumonia, and a neurologic disorder similar to Parkinson's Disease. Symptoms include generalized muscle weakness, speech impairment, incoordination, and impotence. Advance manganese poisoning manifests a complete lack of facial expression, severe muscle rigidity, and gait disorders. Pulmonary disease has been reported in workers exposed to ferro chrome alloys; chromium metal, however, does not give rise to pulmonary fibrosis or pneumoconiosis. Chronic nickel exposure has produced allergic asthma and pneumonitis.

Aspiration hazard: None

Acute Toxicity Values				
Component	**Organism (Source)**	**Test Type**	**Route**	**Reported dose (normalized dose)**
Iron	Rat	LD50	Oral	>10,000 mg/kg
Manganese	Rat	LD50	Oral	>9,000 mg/kg
Chromium	Rat	LD50	Oral	>2,750 mg/kg
Nickel	Rat	LD50	Oral	>9,000 mg/kg

Carcinogenicity		
Component	**IARC**	Notes
Welding Fumes	2B	Possibly carcinogenic to humans
Chromium	3	Not classifiable as to carcinogenicity to humans
Nickel	2B	Possibly carcinogenic to humans

12. Ecological Information

General information: Solid steel products are not an ecological hazard. Released dust may be hazardous to fish, animals, plants, and environment based on components.

Toxicity: Not available

Persistence and degradability: Not rapidly degradable

Bio-accumulation potential: Not available

Mobility: Not available

13. Disposal Considerations

Disposal methods: Scrap metal should be recycled when possible. Waste generated from product processing should be classified by a competent environmental professional and disposed, processed, or recycled in accordance with federal, state, and local regulations.

RCRA Waste Code: Does not meet RCRA criteria for US hazardous waste. Not listed and does not contain any TCLP compounds.

14. Transport Information

UN Number: None. Also no CHRIS or DOT Hazard number.

Proper shipping name: ERW Steel Tube, Carbon or High Strength Alloy

Transport hazard classes: Not considered a hazardous classification

Packing group, if applicable: No specific hazardous material packing requirements

U.S. Department of Transportation (DOT): Not regulated

Transportation of Dangerous Goods (TDG): Not regulated

International Maritime Organization (IMDG): Not regulated

International Air Transport Association (IATA): Not regulated

15. Regulatory Information

US Federal Regulations Applicable to Ingredients	
Regulation	**Components**
Hazard Communication	Articles are not hazardous under the criteria of the US OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dust generated by cutting, welding, or machining products may be hazardous and is included.
SARA 313	This product contains the following toxic chemical subject to the reporting requirements of section 313 of the Emergency Planning Community Right-to –Know act of 1986: manganese, chromium, copper, and nickel.
TSCA Inventory List	All components are included in the EPA Toxic Substances Control Act Chemical Substance Inventory.
CERCLA	Reporting requirements (in pounds): copper 5,000; nickel 100; chromium 5,000
FDA	Not intended for use as a food additive or indirect food contact item.

US State Regulations Applicable to Ingredients	
Component	**US State Permissible Exposure Limits (PELs)**
Manganese	Pennsylvania Right to Know
	New Jersey Right to Know List
	Massachusetts Substance List
Chromium	Pennsylvania Right to Know
	New Jersey Right to know List
	Massachusetts Substance List

US State Regulations Applicable to Ingredients	
Component	**US State Permissible Exposure Limits (PELs)**
California Proposition 65: This product contains one or more chemicals known to the State of California to cause cancer when airborne unbound particles of respirable size are generated. This includes chromium compounds and nickel.	

16. Other Information

Revision Indicator: SDS, Version 1.3 (September 28, 2015)

Preparer: PCA Health and Safety Consultants, Inc. in Lake Oswego, OR 1-(503)-652-6040 [USA]

Abbreviations and acronyms:
HMIS – hazardous materials information system, NFPA – US National Fire Protection Agency, CAS – Chemical Abstracts Service Registry, EC – European Commission, NIOSH - National Institute of Occupational Safety and Health, SCBA – self-contained breathing apparatus, OSHA – US Occupational Safety and Health Act, PEL – Permissible Exposure Limit, ACGIH – American Conference of Governmental Industrial Hygienists, UK WEL – United Kingdom Health and Safety Executive Workplace Exposure Limit, GER MAK – Germany Maximum Workplace Concentration, TLV – Threshold Limit Value, PNOR - particulates not otherwise regulated (nuisance, or "inert" dust), PNOS - particulates not otherwise specified, ATSDR – Agency for Toxic Substances and Disease Registry, NTP – National Toxicology Program, IARC- International Agency for Research on Cancer, IUCLID - International Uniform Chemical Information Database

This Safety Data Sheet (SDS) meets the requirements of Global Harmonization System (GHS) Rev. 4, OSHA Hazard Communication Standard (29 CFR 1910.1200), and Health Canada's WHMIS. The Information presented herein has been compiled from sources considered to be reliable and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. No warranty of any kind, express or implied, is made concerning the safe use of this material in your process or in combination with other substances.

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