MARUICHI LEAVITT
PIPE AND TUBE
INVESTMENT. INNOVATION. INTEGRITY.

RE: Safety Data Sheet (SDS)

Dear Valued Customer:

The following is the latest revision of our Safety Data Sheet for the pipe and tubing we manufacture. This information should be made available to your health and safety representatives as well as personnel coming into contact with our products.

The information contained within this Safety Data Sheet was obtained from Safety Data Sheets received from our suppliers who, we believe, are reliable authorities with respect to hazard determination. We are using their data since we do not modify the chemical composition of steel during the manufacturing of our tubing.

The pipe and tubing we produce presents no health hazards in its natural state. However, processing such as flame cutting, welding, grinding, etc., may generate concentrations of fume of dust particles that may present acute or chronic health hazards. All operations of this nature should be performed in well-ventilated areas with appropriate protective equipment.

The information contained in the Safety Data Sheet is intended to be used for employee health and safety education and not for specification purposes.

Sincerely,

Shunsaku Honda
Director of Quality Management

Safety Data Sheet
Revised
March 28, 2016

1. Identification

Product: Structural and Mechanical Steel Tubing, HI-Y 50 Pipe, A53 ERW Pipe, API 5L Pipe

Manufacturer: Maruichi Leavitt Pipe & Tube LLC
1717 West 115th Street
Chicago, Illinois 60643

Information Telephone: (773) 239-7700
Emergency Telephone: (773) 239-7700

Recommended use and restrictions on use:
These products are sold to all steel-consuming industries including automotive, heavy machinery, pipes and tubes, construction, packaging and appliances. The main markets for these products are construction and mechanical engineering, as well as energy and automotive applications.

2. Hazard(s) Identification

As supplied this product does not present a physical or health hazard. Processing of the product, particularly welding, burning, grinding, and machining activities, for some final uses can produce formations of dusts, particulates, or fumes which may present health hazards such as those described below. Operations having the potential to generate airborne particulates should be performed in well ventilated areas and, if appropriate, respiratory protection and other personal protective equipment should be used.

Hazard Symbol	Hazard Classification(s)	Signal Word	Hazard Statement(s)
	Carcinogenicity – 1B Reproductive Sensitizer – 1 STOT Repeat Exposure – 1	Danger	May cause cancer May cause allergy or asthma symptoms or breathing difficulties if inhaled Causes damage to organs through prolonged or repeated exposure
	Acute Oral Toxicity - 4 Skin Sensitizer - 1 STOT Single Exposure - 3		Harmful if swallowed May cause allergic skin reaction May cause respiratory irritations
NA	Eye Irritation - 2B		Causes eye irritations

Precautionary Statement(s):

Prevention	Response	Storage/Disposal
Avoid breathing dust / fume / gas / mist / vapor / spray	If inhaled: Remove person to fresh air and keep comfortable for breathing	Dispose of contents in accordance with Federal, State and Local regulations
Wear protective gloves / protective clothing / eye protection / face protection	If exposed, concerned or feel unwell: Get medical advice / attention	
Contaminated Work Clothing must not be allowed out of the workplace Use only outdoors in well ventilated areas	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.	
Do not handle until all safety precautions have been read and understood	If on skin: Wash with plenty of water. If irritation or rash occurs: Get medical advice / attention. Take off and wash contaminated clothing before reuse.	

2. Hazard(s) Identification (Cont.)

Potential Health Effects:

- **Eye Contact -** Dusts may cause mechanical irritation or scratching of the cornea. Fumes may irritate the eyes. Contact with the heated material may cause thermal burns.
- **Skin Contact -** Dusts or particulates may cause mechanical irritation due to abrasion. Coated steel may cause skin irritation in sensitive individuals. Some components in this product are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.
- **Inhalation -** Dusts may irritate the nose, throat and lungs. Excessive exposure to metal fumes can cause metal fume fever, an influenza-like illness. Symptoms typically subside within 12- 48 hours.
- **Ingestion -** Not expected to be acutely toxic via ingestion. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.
- **Chronic Effects -** Repeated exposure to dusts may inflame the nasal mucosa and cause changes to the lung. In addition, a red-brown pigmentation of the eye and/or skin may occur. Welding fumes have been associated with adverse health effects. Contains components that may cause cancer or reproductive effects. The following components are listed by NTP, OSHA, or IARC as carcinogens: Nickel, chromium (hexavalent), cobalt, lead, cadmium, antimony (trioxide), arsenic, beryllium. See Section 11, for additional, specific information on effects noted above.
- **Target Organs -** Overexposure to dusts and fumes may affect the following systems: eyes, skin, liver, kidney, central nervous system, cardiovascular system, respiratory system.
- **Medical Conditions Aggravated by Exposure -** Diseases of the skin such as eczema may be aggravated by exposure. Also, disorders of the respiratory system including asthma, bronchitis, and emphysema. Long-term inhalation exposure to agents that cause pneumoconiosis (e.g. dust) may act synergistically with inhalation of oxide fumes or dusts of this product

3. Composition Information on Ingredients

Component	Weight %	CAS No.	OSHA-PEL (mg/m³)	ACGIH-TLV (mg/m³)
Iron	Balance	7439-89-6	10 Oxide Dust/Fume	5 Oxide Dust/Fume
Aluminum (Al)	0.20 Max	7429-90-5	15 Dust 5 Respirable fraction	10 Dust 5 Fume
Carbon (C)	0.50 Max	7440-44-0	Not Established	Not Established
Chromium (Cr)	1.20 Max	7440-47-3	1 Metal	0.5 Metal
Copper (Cu)	0.50 Max	7440-50-8	1 Dust 0.1 Fume	1 Dust 0.2 Fume
Manganese (Mn)	2.00 Max	7439-96-5	5 Fume (Ceiling)	0.2 Elemental Mn and Inorg Compounds
Molybdenum (Mo)	1.00 Max	7439-98-7	15 Insoluble Compounds	10 Insoluble Compounds
Niobium (Nb)	0.90 Max	7440-03-1	Not Established	Not Established
Nickel (Ni)	1.50 Max	7440-02-0	1 Metal and Insoluble Compounds	1.5 Metal
Phosphorus (P)	0.20 Max	7723-14-0	0.1 Phosphorus	0.1 Phosphorus
Silicon (Si)	1.00 Max	7440-21-3	15 Dust	10 Dust
Sulfur (S)	0.10 Max	7704-34-9	13 Sulfur Dioxide	5.2 Sulfur Dioxide 13 Sulfur Dioxide (STEL)
Titanium (Ti)	0.90 Max	7440-31-5	2 Inorganic Compounds	2 Metal, Oxide, and Inorganic Compounds
Vanadium (V)	0.15 Max	7440-62-2	0.5 Oxide Dust (Ceiling) 0.1 Oxide Fume (Ceiling)	0.05 Oxide Dust/Fume

NOTE: No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel over all. The above listing is a summary of elements used various grades of steel for pipe and tubing. Small quantities (less than 0.1%) may exist as intentional additions, or as “trace” or “residual” elements that generally originate in the raw materials used. Exact specifications for specific products may be available upon request.

4. First Aid Measures

- **Eye Contact -** Treat for foreign body in the eye. Seek medical attention.
- **Skin Contact -** Cuts and abrasions should be treated promptly with thorough cleansing of the affected area. Dermatitis should be treated by washing with a mild soap and water.
- **Ingestion -** Not considered an ingestion hazard.
- **Inhalation -** Remove from excessive exposure levels. Seek medical attention. Give artificial respiration if breathing has stopped.
- **Notes to Physician -** Inhalation of metal fume or metal oxides may produce an acute febrile state, with cough, chills, weakness, and general malaise, nausea, vomiting, muscle cramps, and remarkable leukocytosis. Treatment is symptomatic, and condition is self-limited in 24-48 hours. Chronic exposure to dusts may result in pneumoconiosis of mixed type.

5. Fire Fighting Measures

This material will not burn. Fine dusts of this material mixed with oxygen and a suitable ignition source may pose an explosion hazard.

- **Flash Point (Method) -** Not applicable.
- **Flammable Limits (% volume in air) -** Not applicable.
- **Auto ignition Temperature -** Not applicable.
- **Extinguishing Media -** For molten metal, use dry powder or sand. For steel dust use or dry sand, water, foam, argon or nitrogen.
- **Special Fire Fighting Procedures -** Do not use water on molten metal. Do not use Carbon Dioxide (CO_2). Firefighters should not enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.
- **Unusual Fire or Explosion Hazards -** Steel products do not present fire or explosion hazards under normal conditions. Any non-oxidized fine metal particles/ dust generated by grinding, sawing, abrasive blasting, or individual customer processes may produce materials that the customer should test for combustibility and other hazards in accordance with applicable regulations. High concentrations of combustible metallic fines in the air may present an explosion hazard.

6. Accidental Release Measures

Any excess product can be recycled for further use, disposed in an appropriately permitted waste landfill, or disposed by other methods which are in accordance with local, state and federal regulations.

- **Precautions if Material is Spilled or Released -** Emergency response is unlikely unless in the form of combustible dust. Avoid inhalation, eye, or skin contact of dusts by using appropriate precautions outlined in this SDS (see section 8). Fine turnings and small chips should be swept or vacuumed and placed into appropriate disposable containers. Keep fine dust or powder away from sources of ignition. Scrap should be reclaimed for recycling. Prevent materials from entering drains, sewers, or waterways.
- **Fire and Explosion Hazards -** Some customer processes may generate combustible dust that may require specific precautions when cleaning spills or releases of dust.
- **Environmental Precautions -** Some grades of steel may contain reportable quantities of alloying elements. See Section 15 for additional information.
- **Waste Disposal Methods -** Dispose used or unused product in accordance with applicable Federal, State, and Local regulations. Please recycle.

7. Handling and Storage

Use lifting and work devices, e.g. crane, hoist, etc., within rated capacities and in accordance with manufacturers' instructions when handling these products.

- **Storage Temperatures -** Stable under normal temperatures and pressures.
- **Precautions in Handling and Storing -** Store away from acids, incompatible materials and strong oxidizers. Dusts and/or powders, alone, or combined with process specific fluids, may form explosive mixtures with air. Applicable Federal, state and local laws and regulations may require testing dust generated from processing of steel products to determine if it represents a fire or explosion hazard and to determine appropriate protection methods. Avoid breathing dusts or fumes.

8. Exposure Controls and Personal Protection

Operations with potential for generating high concentrations of airborne particulates or fumes should be evaluated and controlled as necessary.

- **Eye Protection -** Use safety glasses. Dust resistant safety goggles are recommended under circumstances where particles could cause mechanical injury such as grinding or cutting. Face shield should be used when welding or cutting.
- **Skin -** Appropriate protective gloves should be worn as necessary. Good personal hygiene practices should be followed including cleansing exposed skin several times daily with soap and water, and laundering or dry cleaning soiled work clothing.
- **Respiratory Protection -** Not normally needed. If permissible levels are exceeded, use NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 3 for component material information exposure limits. If such concentrations are sufficiently high that this respirator is inadequate, or high enough to cause oxygen deficiency, use a positive pressure self-contained breathing apparatus (SCBA). Follow all applicable respirator use, fitting, and training standards and regulations.
- **Ventilation -** Whenever dusts, particulates, or fumes are generated, use appropriate local exhaust ventilation to keep exposures below the regulated limits.
- **Exposure Guidelines** - No permissible exposure limits (PEL) or threshold limit values (TLV) exist for steel. See Section 3 for component materials. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts

9. Physical and Chemical Properties

Physical State	Solid		**Appearance**	Metallic Gray
Odor	Odorless		**Odor Threshold**	Not applicable
pH	Not applicable		**Melting Point**	2400-2800°F
Boiling Point	Not applicable		**Flash Point**	Not applicable
Evaporation Point	Not applicable		**Flammability**	Not applicable
Vapor Pressure	Not applicable		**Vapor Density**	Not applicable
Relative Density	7.85		**Specific Gravity**	Not Applicable
Solubility in Water	Insoluble		**Percent Volatile**	Not Applicable
Viscosity	Not Applicable			

Other Information: None

10. Stability and Reactivity

- **Reactivity -** Not determined for product in solid form.
- **Chemical Stability -** Stable.
- **Hazardous Polymerization -** Will not occur.
- **Conditions to Avoid -** Steel at temperatures above the melting point may liberate fumes containing oxides of iron and alloying elements.
- **Chemical Incompatibilities -** Will react with strong acids to form hydrogen. Iron oxide dusts in contact with calcium hypochlorite evolve oxygen and may cause an explosion. Do not store near strong oxidizers.
- **Hazardous Decomposition Products -** Metal oxides of listed ingredients and carbon monoxide from nonmetallic coatings.

11. Toxicological Information

No information is available for the product as a mixture. The possible presence of oil, coating, and mill coolant should be considered when evaluating potential employee health hazards and exposures during handling and welding or other fume generating activities. See Section 2 for Hazard Symbols, Hazard Classifications, Signal Words, Hazard Statements, and Precautionary Statements.

- The primary component of this product is iron. Long-term exposure to iron dusts or fumes can result in a condition called siderosis which is considered to be a benign pneumoconiosis. Symptoms may include chronic bronchitis, emphysema, and shortness of breath upon exertion. Penetration of iron particles in the skin or eye may cause an exogenous or ocular siderosis which may be characterized by a red-brown pigmentation of the affected area. Ingestion overexposures to iron may affect the gastrointestinal, nervous, and hematopoietic system and the liver. Iron and steel founding, but not iron or iron oxide, has been listed as carcinogenic (Group 1) by IARC.
- When this product is welded, fumes are generated. Welding fumes may be different in composition from the original welding product, with the chief component being ordinary oxides of the metal being welded. Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals (see above), and welding fumes as a general category have been listed by IARC as a carcinogen (Group 2B). There is also limited evidence that welding fumes may cause adverse reproductive and fetal effects. Evidence is stronger where welding materials contain known reproductive toxins, e.g., lead which may be present in the coating material of this product.
- Breathing fumes or dusts of this product may result in metal fume fever, which is an illness produced by inhaling metal oxides. These oxides are produced by heating various metals including cadmium, zinc, magnesium, copper, antimony, nickel, cobalt, manganese, tin, lead, beryllium, silver, chromium, aluminum, selenium, iron, and arsenic. The most common agents involved are zinc and copper.
- This product may contain small amounts of manganese. Prolonged exposure to manganese dusts or fumes is associated with "manganism", a Parkinson-like syndrome characterized by a variety of neurological symptoms including muscle spasms, gait disturbances, tremors, and psychoses.
- This product may contain small amounts of cadmium. Primary target organs for cadmium overexposure are the lung and the kidney. Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called “Itai-Itai” in postmenopausal women, and has caused developmental effects and/or reproductive effects in male and female animals. Cadmium is a listed carcinogen by NTP, OSHA, and IARC (Group 1).
- This product may contain small amounts of chromium. Prolonged and repeated overexposure to chromium dusts or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Chromium is skin sensitizer. Cancer is generally attributed to the hexavalent (+6) form of chromium which is listed as a carcinogen by NTP and IARC (Group 1).
- This product may contain small amounts of nickel. Prolonged and repeated contact with nickel may cause sensitization dermatitis. Inhalation of nickel compounds has caused lung damage as well as sinus, nasal and lung cancer in laboratory animals. Nickel is a listed carcinogen by NTP and IARC (Group 1).
- This product may contain small amounts of vanadium. Adverse effects from dermal, inhalation or parenteral exposure to various vanadium compounds have been reported. The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation, and systemic effects. Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, and tightness of the chest have been reported following overexposure. Allergic reactions resulting from skin and inhalation exposures have also been reported. A statistical association between vanadium air levels and lung cancer has been suggested, but vanadium currently is not regarded as a human carcinogen.

11. Toxicological Information (Cont.)

- This product may contain small amounts of lead. Lead can accumulate in the body. Consequently, exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin. It is also associated with central nervous system disorders, anemia, kidney dysfunction, and neurobehavioral abnormalities. The brain is a major target organ for lead exposure. Elemental lead is listed as an IARC 2B carcinogen.
- The product may contain small amounts of copper. Copper dust and fumes can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation of copper fumes include a metallic or sweet taste, and discoloration of skin, teeth or hair. Copper also may cause an allergic skin reaction. Overexposure to copper can affect the liver.

12. Ecological Information

- **Ecotoxicity -** No data available for the product as a whole. However, individual components of the product have been found to be toxic to the environment. Metal dusts may migrate into soil and groundwater and be ingested by wildlife.
- **Environmental Fate -** No data available.
- **Environmental Degradation -** No data available.
- **Soil Absorption/Mobility -** No data available for the product as a whole. However, individual components of the product have been found to be absorbed by plants from soil.
- **Hazard Category -** Not Reported
- **Hazard Symbol -** No Symbol
- **Hazard Statement -** No Statement
- **Signal Word -** No Signal Word

13. Disposal Considerations

- **Disposal -** Steel scrap should be recycled whenever possible. Product dusts and fumes from processing operations should also be recycled, or classified by a competent environmental professional and disposed of in accordance with applicable federal, state or local regulations.
- **Container Cleaning and Disposal -** Follow applicable federal, state and local regulations. Observe safe handling precautions.

14. Transportation Information

DOT Transportation Data (49 CFR 172.101) Carbon and Alloy Steels are not listed as hazardous substances under 49 CFR 172.101

<table>
<tr><td>Shipping Name</td><td>Not applicable</td><td colspan="2">Packaging Authorizations</td><td colspan="2">Quantity Limitations</td></tr>
<tr><td>Shipping Symbols</td><td>Not applicable</td><td rowspan="2">Exceptions</td><td rowspan="2">Not applicable</td><td rowspan="2">Passenger, Aircraft or Railcar</td><td rowspan="2">Not applicable</td></tr>
<tr><td>Hazard Classes</td><td>Not applicable</td></tr>
<tr><td>UN Number</td><td>Not applicable</td><td rowspan="2">Non-bulk Packaging</td><td rowspan="2">Not applicable</td><td>Cargo Aircraft</td><td>Not applicable</td></tr>
<tr><td>Packing Group</td><td>Not applicable</td><td colspan="2">Vessel Stowage Requirements</td></tr>
<tr><td>DOT/IMO Label</td><td>Not applicable</td><td rowspan="2">Bulk Packaging</td><td rowspan="2">Not applicable</td><td>Vessel Stowage</td><td>Not applicable</td></tr>
<tr><td>Special Provisions</td><td>Not applicable</td><td>Other</td><td>Not applicable</td></tr>
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15. Regulatory Information

This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. However, dusts and fumes from this product may be combustible or hazardous and require protection to comply with applicable Federal, state and local laws and regulations. This product and/or its constituents are subject to the following regulations:

OSHA Regulations

- Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-2 & Z-3): Steel products as a whole are not listed; however, individual components of the product are listed.

EPA Regulations

- **RCRA:** Chromium and Nickel are regulated under this act.
- **CERCLA Hazardous Substance (40 CFR 302.4):** The product as a whole is not listed; however, individual components of the product are listed: Chromium, Copper, Manganese compounds, and Nickel are listed under SARA 302.
- **SARA 311/312 Codes:** Delayed (chronic) health hazard.
- **SARA 313:** Aluminum (fume or dust), Chromium, Copper, Manganese, and Nickel are subject to SARA 313 reporting requirements. Please also note that if you prepackage or otherwise redistribute this product to industrial customers, SARA 313 requires that a notice be sent to those customers.
- **Clean Water Act:** Chromium, Copper and Nickel are Section 307 Priority Pollutants.
- **Safe Drinking Water Act:** Aluminum, Chromium, Copper, Molybdenum, Nickel and Vanadium are regulated under this act.

State Regulations

- **Pennsylvania Right to Know:** Contains regulated material in the following categories:
  - Hazardous Substances: Calcium, Molybdenum, Silicon, and Sulfur.
  - Environmental Hazards: Aluminum, Chromium, Copper, Manganese, Nickel, and Vanadium.
  - Special Hazard Substances: Chromium and Nickel
- **New Jersey Right to Know:** Contains regulated material in the following categories:
  - Environmental Hazardous Substance: Aluminum (fume or dust), Chromium, Copper, Manganese, Nickel, and Vanadium (fume or dust)
  - Special Health Hazard Substances: Not regulated.
- **California Prop. 65:** The product may possible contain trace quantities (generally much less than 0.1%) of metallic elements known to the State of California to cause cancer or reproductive toxicity. These include arsenic (inorganic), cadmium, lead and nickel.

Other Regulations

The product as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations.

Toxic Substances Control Act (TSCA)

Components of this product are listed on the TSCA Inventory.

WHMIS Classification (Canadian)

D2B Product Classification.

16. Other Information

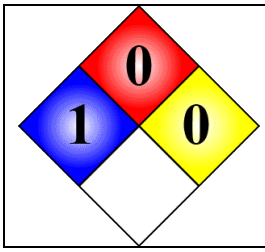
Prepared By Maruichi Leavitt Pipe & Tube LLC
Original Issue Date 01/01/2002
Revised Date 03/28/2016

Chemical Surface Treatments/Coatings:
The possible presence of oil coatings or mill coolant should be considered when evaluating potential employee health hazards and exposures during handling and welding or other fume generating activities. Removal of surface coatings should be considered prior to such activities. Repeated or prolonged contact with oil residue or mill coolant may cause skin irritation, dermatitis or allergic reactions in sensitized individuals. Torching or burning operations on steel products with oil coatings or mill coolant may produce emissions that can be irritating to the eyes and respiratory tract.

Additional Information
Hazardous Material Identification System (HMIS)

Health Hazard	**1**	Denotes possible chronic hazard if airborne dusts or fumes are generated Irritation or minor reversible injury possible
Fire Hazard	**0**	Materials that will not burn.
Physical Hazard	**0**	Materials that are normally stable, even under fire conditions, and will not react with water, polymerize, decompose, condense, or self-react. Non-explosives.

Classification National Fire Protection Association (NFPA)



HEALTH = 1, Exposure could cause irritation but only minor residual injury even if no treatment is given.
FLAMMABILITY = 0, Materials that will not burn.
INSTABILITY = 0, Normally stable, even under fire exposure conditions, and are not reactive with water.

DISCLAIMER
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