Tension Steel Industries Co., Ltd.

Safety Data Sheet

1. IDENTIFICATION

Manufacturer Information:
Tension Steel Co., Ltd.
No.18, Huanqiu Road, Luzhu Dist., Kaohsiung City, 821002, Taiwan
+886-7-2621968

Emergency Contact:
Larry Wang
export_sales@tensionx.com.tw
+886-7-2621968

Product Identification:
Product Name(s): Electric Resistance Welded Steel Pipe, Carbon Steel Pipe, Carbon Steel Tube.

Standard(s): ASTM A500, CSA G40.21.

Use/Description: General structural and engineering applications

2. HAZARD(S) IDENTIFICATION

Emergency Overview:
Steel products as sold are not hazardous. However, individual customer processes such as welding, sawing, brazing, grinding, abrasive blasting, and machining may result in the formation of fumes, dust (combustible or otherwise), and/or particulate that may present the following hazards:

OSHA Hazards:
Carcinogen; Skin Sensitizer; Target Organ Effect – Lungs

GHS Classification:
Carcinogenicity (Category 2); Skin Sensitization (Category 1); Specific Target Organ Toxicity-Repeated Exposure Category 1)

Pictogram(s):

Signal Word:
Danger

Hazard Statement(s):
Dust/fumes may cause an allergic skin reaction
Dust/fumes suspected of causing cancer via inhalation
Inhalation of dust/fumes causes damage to respiratory tract through prolonged or repeated exposure.

Precautionary Statement(s):
Do not handle until all safety precautions have been read and understood.
Avoid breathing dust/fumes.
Use personal protective equipment as required.
If exposed or concerned: Get medical advice/attention.

Potential Health Effects:

Eye Contact – Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating. 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 (see Section 16 for additional information). Some components in these products 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 cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, and influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 – 48 hours.

Ingestion – Not expected to be acutely toxic via ingestion based on the physical and chemical properties of these products. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

Potential Fire and Explosion Hazards – Under normal conditions, steel products do not present fire or explosion hazards, and dust generated by handling steel products is oxidized and no combustible. Processing of steel products by some individual customers may produce potentially combustible dust that may represent a fire or explosion hazard.

Chronic or Special Toxic Effects – Repeated exposure to fine 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 which 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, and beryllium.

Target Organs – Overexposure to specific components of these products that are generated in dusts or fumes may cause adverse effects to the following organs or 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 include asthma, bronchitis, and emphysema. Long-term inhalation exposure and agents that cause pneumoconiosis (e.g. dust) mat act synergistically with inhalation of oxide fumes or dusts of these products.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS#	Percentage
Base metal (Steel)		
Iron	7439-89-6	>96
Carbon and Alloy Steels		
Aluminum	7429-90-5	<1
Carbon	7440-44-0	<1
Chromium	7440-47-3	<1
Copper	7440-50-8	<1
Manganese	7439-96-5	<1.5
Molybdenum	7439-98-7	<1
Nickel	7440-02-0	<1
Silicon	7440-21-3	<1
Vanadium	7440-62-2	<1

The above listing is a summary of elements used in Electric Resistance Welded Steel Pipe, Carbon Steel Pipe, and Carbon Steel Tube. Various grades will contain different combinations of the elements. Other trace elements may also be present in minute amounts. These small quantities (less than 0.1%) are frequently referred to as “trace” or “residual” elements; generally they originate in the raw material used. Such elements would include arsenic (As), Beryllium (Be), Cadmium (C0d) cobalt (Co), lead (Pb) mercury (Hg), oil mist (the product may have a light coating of oil to prevent corrosion), oxygen (O), selenium (Se), tellurium (Te), and zirconium (Zr). Various byproducts of processing from these trace elements may include lead chromate, ozone, polybrominated biphenyls (PBB), and polybrominated diphenyl; ether (PBDE), and these byproducts may also be considered trace. If listed in the above table, the ingredient is considered to be a component rather than trace.

4. FIRST AID MEASURE

Eye Contact – In case of overexposure to dusts or fumes, immediately flush eyes with plenty of water for at least 15 minutes occasionally lifting the eye lids. Get medical attention if irritation persists. Thermal burns should be treated as medical emergencies.

Skin Contact – In case of overexposure to dusts or particulates, wash with soap and plenty of water. Get medical attention if irritation develops or persists. If thermal burn occurs. Flush area with cold water and get immediate medical attention.

Inhalation – In case of overexposure to dusts or fumes, remove to fresh air. Get immediate medical attention of symptoms described in the SDS develop.

Ingestion – Not considered an ingestion hazard. However, if excessive amounts of dust or particulates are swallowed, treat symptomatically and supportively. Get medical attention.

Notes to physician – Inhalation of metal fumes 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

Extinguishing Media – For molten metal, use dry powder or sand. For steel dust use dry sand, water, foam, argon or nitrogen.

Special Fire Fighting Procedures – Do not use water on molten metal. Do not use Carbon Dioxide.

Special protective equipment for firefighters – Firefighters should no enter confined spaces without wearing NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full 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

Spill/Leak Precautions – Steel products in the solid state present no release hazard. If large quantities of dust are spilled, remove by vacuuming or wet sweeping to prevent heavy concentrations of airborne dust.

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 of used and unused products in accordance with applicable Federal, State, and Local regulations. Please recycle.

7. HANDLING AND STORAGE

Handling Precautions – Dusts and/or powders, alone, or combined with process specific fluids, may form explosive mixtures in the 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.

Storage Conditions – Store away from strong oxidizers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls - Use controls as appropriate to minimize exposure to metal fumes and dusts during handling operations. When airborne emissions may occur due to further processing: (1) avoid breathing dust and fume, (2) evaluate potential employee exposure, (3) minimize generation of airborne emissions, (4) maintain surfaces free as practical of accumulated material, (5) use protective clothing as specified by an industrial hygienist or safety professional where exposure levels may be excessive, (6) do not smoke in work area, (7) wash hands before eating, drinking or smoking and after handling, (8) change contaminated clothing before leaving work premises. Removal of surface coatings should be considered prior to welding or other fume generating activities.

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 – NIOSH/MSHA approved dust/fume/mist respirator should be used to avoid excessive exposure. See Section 3 for component material information. 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 – Provide general and/or local exhaust ventilation to control airborne levels of dust or fumes below exposure 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 and Odor – Silver grey to grey black, Odorless

Odor Threshold – Not Applicable

Boiling Point –Not Applicable

Melting Point – Approximately 1535˚C

pH – Not applicable

Specific Gravity – Not applicable

Relative Density – 7.5 ~ 8.0

Vapor Pressure – Not applicable

Vapor Density (air=1) – Not applicable

Solubility in Water – Insoluble

Evaporation Rate – Not applicable

10. STABIITY AND REACTIVITY

Stability – Stable under normal storage and handling conditions.

Conditions to Avoid – Avoid storage with strong acids or calcium hypochlorite. Molten metal may react violently with water.

Hazardous Polymerization – Will not occur.

Incompatible Materials – Reacts with strong acids to form hydrogen gas. Iron oxide dusts in contact with calcium hypochlorite evolve oxygen and may cause an explosion.

Hazardous Decomposition Products – Metallic fumes may be produced during welding, burning, grindings, and possibly machining or any situation with the potential for thermal decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicity: N/A as mixture. Refer to NIOSH, RTECS (NO7400000) for additional toxicity data on components.

Eye Effects: Dusts or particulates may cause mechanical irritation including pain, tearing, and redness. Scratching of the cornea can occur if eye is rubbed. Fumes may be irritating.

Skin Effects: Dusts or particulates may cause mechanical irritation due to abrasion. Some components in these products are capable of causing an allergic reaction, possibly resulting in burning, itching and skin eruptions. Contact with heated material may cause thermal burns.

Chronic Effects: Repeated exposure to fine dusts may inflame the nasal mucosa and cause changes to the lung. Welding fumes have been associated with adverse health effects. Containing components 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, and beryllium.

Acute Inhalation Effects: Dusts may cause irritation of the nose, throat, and lungs. Excessive inhalation of metallic fumes and dusts may result in metal fume fever, and influenza-like illness. It is characterized by a sweet or metallic taste in the mouth, accompanied by dryness and irritation of the throat, cough, shortness of breath, pulmonary edema, general malaise, weakness, fatigue, muscle and joint pains, blurred vision, fever and chills. Typical symptoms last from 12 – 48 hours.

Acute Ingestion Effects: Not expected to be acutely toxic via ingestion based on the physical and chemical properties of these products. Swallowing of excessive amounts of the dust may cause irritation, nausea, and diarrhea.

Other: No LC50 or LD50 has been established for the mixture as a whole.
Iron LD50: 30 g/kg oral (rat), Aluminum LD50: NIF, Carbon LD50: NIF, Chromium LDLo: 71 mg/kg GIT orl (human), Copper LDLo: 120 µg/kg GIT ipl (rat), Manganese LD50: 9 g/kg oral (rat), Molybdenum LDLo: 114 mg/kg ipr (rat), Nickel LDLo: 5 mg/kg orl (guinea pig), Silicon LD50: NIF, Vanadium LD50: 59 mg/kg scu (rabbit)
Carcinogenicity: Chromium and Nickel, Refer to Section 2

Mutagenicity: N/A

Teratogenicity: N/A

12. ECOLOGICAL INFORMATION

Ecotoxicity: N/A. However, individual components of the products have been found to be toxic to the environment. Metal dusts may migrate into soil and groundwater and be ingested by wildlife.

Environmental Fate: N/A

Environmental Degradation: N/A

Soil Absorption/Mobility: N/A. However, individual components of the products have been found to be absorbed by plants from soil.

13. DISPOSAL CONSIDERATIONS

Disposal in accordance with federal, state, and local health and environmental regulations. Waste steel products can be recycled for further use. Prevent materials from entering drains, sewers, or waterways.

14. TRANSPORT INFORMATION

UN number: N/A
UN proper shipping name: N/A
Transport hazard class(es): N/A
Packing group, if applicable: N/A
Environmental hazards: N/A
Special precautions for user: N/A

15. REGULATORY INFORMATION

These products are 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.

16. OTHER INFORMATION

Prepared by: Tension Steel Co., Ltd.

DISCLAIMER: THE INFORMATION IN THE SDS WAS OBTAINED FROM SOURCES WHICH WE BELIEVE ARE RELIABLE; HOWEVER, THE INFORMATION IS PROVIDED WITHOUT AND REPRESENTATION OF WARRANTY, EXPRESSED OR IMPLIED, REGARDING THE ACCURACY OR CORRECTNESS. THE CONDITIONS OR METHODS OF HANDLING, STORAGE, USE AND DISPOSAL OF THE PRODUCT ARE BEYOND OUR CONTROL AND MAY BE BEYOND OUR KNOWLEDGE. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE, OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE, OR DISPOSAL OF THESE PRODUCTS. TENSION STEEL CO., LTD. ASSUMES NO LEGAL RESPONSIBILITY FOR USE OR RELIANCE UPON THIS DATA.

Consult SDS for more information

SDS revised: APR/9/2025