

1. PRODUCT IDENTIFICATION:

Manufacturer's Name: Weldbend Corporation
Address: 6600 South Harlem Avenue
Argo, Illinois 60501-1930
Telephone Number: (708) 594-1700
Emergency Number: (800) 424-9300 CHEMTREC
Chemical Name & Synonyms: Weld Fittings & Flanges
Chemical Family: Carbon Steel Grade WPB
Formula: Not Applicable

2. PRODUCT DESCRIPTION & HAZARDOUS INGREDIENTS / IDENTITY INFORMATION:

ALLOYING ELEMENTS	CAS NO.
Iron (Fe)	7439-89-6
Manganese (Ma)*	7439-96-5
Carbon (C)*	7440-44-0
Aluminum (Al)	7429-90-5
Chromium (Cr)	7440-47-3
Copper (Cu)	7440-50-8
Molybdenum (Mo)	7439-98-7
Nickel (Ni)	7440-02-0
Phosphorus (P)*	7723-14-0
Silicon (Si)*	7440-21-3
Sulfur (S)*	7704-34-9
Boron (B)	7440-42-8
Bismuth (Bi)	7440-69-9
Tellurium (Te)	13494-80-9
Lead (Pb)	7439-92-1
Vanadium (V)	7440-62-2
Titanium (Ti)	7440-32-6
Zinc Coating (Zn)	1314-13-2
Zinc (Zn)	7440-66-6
Cobalt (Co)	7440-48-4
Tungsten (W)	7440-33-7
Tin (Sn)	7440-31-5

*Basic Chemistry carbon steel ASTM requirement

3. PHYSICAL DATA:

- Melting Point °F (°C): Greater than 2800 (1540)
- Vapor Pressure: Not Applicable
- Vapor Density (Air =1): Not Applicable
- Solubility in Water: Negligible
- Specific Gravity (H2O = 1): Greater than 7
- % Volatile by Volume (%): Not Applicable
- Evaporation Rate: Not Applicable

4. FIRE AND EXPLOSION HAZARD DATA:

- Flash Point F (C): Not applicable.
- Extinguishing Media: Use methods applicable to surrounding area.
- Flammable Limits: Not applicable.
- Unusual Fire and Explosion Hazards: None.
- Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against degradation products and fire fighting technique or agent(s) applicable to surrounding materials.

5. HEALTH HAZARD DATA:

Applicable Statutory or Recommended Occupational Exposure Limits: No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for steel. See chart for listing of individual constituents.

EXPOSURE LIMITS

MATERIAL OR COMPONENT:	OSHA PEL (mg/m3)	ACGIH TLV (mg/m3)
Base Metal		
Iron (Fe)	10 (Fe ₂ O ₃ Fume)	5.0 (Fe ₂ O ₃ Fume)
Alloying Elements		
Aluminum (Al)	None Listed	5.0 as welding fume
Carbon (C)*	None Listed	None Listed
Chromium (Cr)	1.0 as chrome	0.5 as chrome
Cobalt (Co)	0.1 as cobalt and fume	0.05 as fume
Columbium (Niobium)	5.0 as dust	10.0 as dust
Copper (Cu)	0.2 as copper; 1.0 as dust	0.2 as fume; 1.0 as dust
Lead (Pb)	0.05 as fume and dust	0.15 as dust and fume
Manganese (Mn)*	5 as manganese	5 as dust; 1 as fume
Molybdenum (Mo)	15 as insoluble compounds	10 as insoluble compounds
Nickel (Ni)	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)*	0.1 as Phosphorus	0.1 as Phosphorus
Silicon (Si)*	None Listed	10 total dust
Sulfur (S)*	13 sulfur dioxide	5 sulfur dioxide
Tungsten (W)	None Listed	5 insoluble compounds
Vanadium (V)	0.5 dust; 0.1 fume	0.05 dust and fume
Zinc (Zn)	coating 5.0 as fume	5.0 as fume
Boron (B)	15.0 as Oxide	10.0 as Oxide
Bismuth (Bi)	None Listed	None Listed
Tellurium (Te)	0.10 as Compound	0.10 as Compound
Titanium (Ti)	15.0 Dioxide	10.0 Dioxide
Zinc (Zn)	10.0 as Dust	5.0 Oxide; 5 fume
Tin (Sn)	None Listed	10.0 as Tin Oxide

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NOTE: The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

***Carbon Steel:** The light coating applied to our products does not contain toxic materials such as mercury, arsenic or lead.

6. EFFECTS OF OVEREXPOSURE:

ACUTE: Dust or fume may cause irritation to the eyes, nose, or throat; may leave metallic taste in mouth; result in metal fume fever; or produce flu-like symptoms.

CHRONIC:

Aluminum:	May initiate fibrotic changes to lung tissue.
Bismuth:	No chronic debilitating symptoms indicated from metal.
Boron:	No chronic debilitating symptoms indicated.
Chromium:	Skin ulceration, irritative dermatitis, allergic reaction, ulceration of the mucous membranes, perforation of the nasal septum, bronchial carcinoma, adenocarcinoma, mutagen (?) listed in the National Toxicology Program (NTP). Annual Report on Carcinogens and found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs.
Copper:	No chronic debilitating symptoms indicated.
Iron:	Siderosis.
Lead:	Anemia, urinary dysfunction, metallic taste in mouth, weakness, constipation, nausea, nervous disorder.
*Manganese:	Bronchitis, pneumonitis, lack of coordination.
Molybdenum:	Morphological changes in the liver, kidneys, and spleen, anemia, diarrhea, bone deformity and growth retardation.
Nickel:	Inflammation of respiratory tract, pneumoconiosis. Skin sensitizer. Certain nickel compounds can cause cancer. Listed in NTP Annual Report on Carcinogens and found to be a potential carcinogen in IARC Monographs.
*Phosphorous:	Necrosis of the mandible.
*Sulfur (as sulfur dioxide):	Edema of the lungs.
Tellurium:	Garlic odor of breath and perspiration, metallic taste in mouth, dryness of the mouth, inhibition of sweat function, anorexia, nausea.
Titanium:	No chronic debilitating symptoms indicated.
Vanadium:	Emphysema, pneumonia.
Zinc:	Chromosomal anomalies in leukocytes reported. Arthritis, lameness and inflammation of the gastrointestinal tract reported from animal studies.
Tin:	Inorganic tin dust/fumes can cause benign pneumoconiosis of the lungs.
*Carbon Steel	

7. EMERGENCY AND FIRST AID PROCEDURES:

In the event of acute exposure, remove to fresh air, administer oxygen, and seek a physician's assistance.

8. REACTIVITY DATA:

Stability: Considered stable.

Incompatibility: Not incompatible with materials.

Hazardous Polymerization: Not applicable.

Hazardous Decomposition Products: Not applicable.

Conditions to avoid: May liberate metal fumes, metal oxides, or other oxides if exposed to elevated temperatures.

9. SPILL OR LEAK PROCEDURES:

Steps To Be Take In Case Material is Released or Spilled: Not applicable.

Waste Disposal Method: This material may be reclaimed for reuse.

10. SPECIAL PROTECTION INFORMATION:

If operations are such that atmospheric levels of contaminants exceed prescribed limits, provide local exhaust ventilation and/or adequate respiratory protection. Consult your regional codes or code of Federal Regulations, Title 29, Part 1910.252, Welding, Cutting and Brazing, 1910.134, Respiratory Protection, and 1910 - Subpart Z. Toxic and Hazardous Substances. Personal protective equipment, such as gloves for handling, goggles and dust filter masks for grinding, proper respirators for welding, etc. should be provided and worn.

Please note that all carbon steel forgings that we manufacture present no health hazard in their natural state during use, transportation or storage. However, operations such as burning, welding or grinding may generate concentrations of dust particles or fumes of the alloying elements that may present hazards. For the information to be effective, it must be passed along to all safety and health personnel in your firm, as well as to all personnel who handle or use the products and/or are involved with the implementation or control of operations involving the products.

DISCLAIMER

Weldbend Corporation believes that the product described in the MSDS would be considered an "article" within the meaning of Section 1910.1200. This MSDS is intended to be used solely for the purpose of satisfying informational requests. It is not intended to preempt, replace or expand the terms contained in Weldbend Corporation Conditions of Sale. Compliance with all the applicable federal, state and local laws and regulations remains the responsibility of the user, and the user has the responsibility to provide a safe working place, to examine all aspects of its operation, and to determine if or where precautions, in addition to those described herein, are required.