



SAFETY DATA SHEET

Carbon Steel Weld Fittings & Flanges — Grade WPB.

1. IDENTIFICATION

Product Name / Identifier:

Weld Fittings & Flanges — Carbon Steel Grade WPB

Manufacturer / Supplier:

Weldbend Corporation 6600 South Harlem Avenue Argo, Illinois 60501-1930 United States

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Emergency Telephone (CHEMTREC): (800) 424-9300

Recommended Use:

Carbon steel weld fittings and flanges for piping systems.

Restrictions on Use:

Use only as intended. Processing operations (welding, grinding, cutting, burning) may generate hazardous fumes and dust.

Chemical Family / Formula:

Carbon Steel Grade WPB | Formula: Not Applicable (article / solid alloy)

2. HAZARD(S) IDENTIFICATION

NOTE: In its solid manufactured form, this product is considered an “article” under OSHA 29 CFR 1910.1200 and presents no health hazard during normal use, transportation, or storage. Hazards arise primarily from operations that generate dust, fumes, or particulates (welding, grinding, cutting, burning, machining).

GHS Classification (Solid Form):

Not classified as a hazardous chemical in solid form under GHS / OSHA HazCom 2012.

Signal Word:

None (solid article)

Hazard Statements (Processing / Fumes / Dust):

- Dust or fumes may cause irritation to eyes, nose, and throat.
- May produce metallic taste, metal fume fever, or flu-like symptoms upon acute inhalation of fumes.
- Prolonged or repeated exposure to certain alloying element fumes/dusts may cause chronic effects (see Section 11).
- Chromium and nickel compounds generated during welding may be carcinogenic (see Section 11).

Precautionary Statements:

- Avoid breathing dust/fume/gas/mist/vapors/spray generated during processing.
- Use only outdoors or in a well-ventilated area; provide local exhaust ventilation.
- Wear appropriate personal protective equipment (see Section 8).
- In case of inadequate ventilation, wear respiratory protection.

**Hazards Not Otherwise Classified (HNOC):**

None known for the solid article.

3. COMPOSITION / INFORMATION ON INGREDIENTS

This product is a carbon steel alloy. Exact composition varies by grade and heat. The following alloying elements may be present. Percentages are not specified in the source MSDS; typical carbon steel Grade WPB contains primarily iron with controlled amounts of carbon, manganese, phosphorus, sulfur, silicon, and trace residual elements.

Element	CAS No.	Notes
Iron (Fe)	7439-89-6	Base metal
Manganese (Mn)*	7439-96-5	Basic chemistry ASTM
Carbon (C)*	7440-44-0	Basic chemistry ASTM
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	Basic chemistry ASTM
Silicon (Si)*	7440-21-3	Basic chemistry ASTM
Sulfur (S)*	7704-34-9	Basic chemistry ASTM
Boron (B)	7440-42-8	
Bismuth (Bi)	7440-69-9	
Tellurium (Te)	13494-80-9	
Lead (Pb)	7439-92-1	Trace possible
Vanadium (V)	7440-62-2	
Titanium (Ti)	7440-32-6	
Zinc Coating (Zn)	1314-13-2	Light coating (as ZnO CAS)
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. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. The light coating applied to Weldbend products does not contain toxic materials such as mercury, arsenic, or lead.

4. FIRST-AID MEASURES**Inhalation (dust / fumes):**

Remove person to fresh air and keep comfortable for breathing. Administer oxygen if breathing is difficult. Seek immediate medical attention / physician's assistance in the event of acute exposure.

Skin Contact:

Wash with soap and water. Remove contaminated clothing. Seek medical attention if irritation persists. Cuts or abrasions from metal edges should be cleaned and treated promptly.

Eye Contact:

Flush eyes with plenty of water for at least 15 minutes, lifting upper and lower lids. Remove contact lenses if present and easy to do. Seek medical attention if irritation persists.

Ingestion:

Not a likely route of exposure for solid product. If dust is swallowed, rinse mouth; do not induce vomiting. Seek medical attention.

**Most Important Symptoms / Effects:**

Acute: irritation of eyes, nose, throat; metallic taste; metal fume fever; flu-like symptoms. Chronic: see Section 11 (element-specific effects including potential carcinogenicity of certain Cr and Ni compounds).

Indication of Immediate Medical Attention:

Treat symptomatically. Provide oxygen for fume exposure as needed.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Use extinguishing methods applicable to the surrounding fire / materials.

Unsuitable Extinguishing Media:

None known specific to this product.

Specific Hazards Arising from the Chemical:

Flash Point: Not applicable.

Flammable Limits: Not applicable.

Unusual Fire and Explosion Hazards: None. Product itself is not flammable. At elevated temperatures (e.g., fire conditions), metal fumes, metal oxides, or other oxides may be liberated.

Special Protective Equipment and Precautions for Fire-Fighters:

Use self-contained breathing apparatus (SCBA) for protection against degradation products. Use fire-fighting techniques and agents applicable to surrounding materials.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures:

Solid product – spills of dust or particulates generated by processing: avoid breathing dust; use appropriate PPE (see Section 8). Ensure adequate ventilation.

Methods and Materials for Containment and Cleaning Up:

Steps to be taken if material is released or spilled: Not applicable for solid fittings/flanges. Sweep or vacuum dust (use HEPA-filtered vacuum preferred). Avoid generating airborne dust.

Environmental Precautions:

Prevent large quantities of dust from entering drains or waterways.

7. HANDLING AND STORAGE

Precautions for Safe Handling:

Carbon steel forgings 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.

- Provide local exhaust ventilation and/or adequate respiratory protection when processing.
- Consult applicable OSHA standards: 29 CFR 1910.252 (Welding, Cutting, and Brazing), 1910.134 (Respiratory Protection), and 1910 Subpart Z (Toxic and Hazardous Substances).
- Pass this information along to all safety and health personnel and to all personnel who handle or use the products or are involved in the implementation or control of operations involving the products.

**Conditions for Safe Storage:**

Store in a dry location. Protect from excessive moisture if coated product is present. No special incompatibility concerns for the solid product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Control Parameters – Occupational Exposure Limits:**

No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for steel as a whole. See chart below for listing of individual constituents (values as reported in original MSDS; verify current ACGIH / OSHA values).

Material or Component	OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Iron (Fe) – Base Metal	10 (Fe ₂ O ₃ Fume)	5.0 (Fe ₂ O ₃ Fume)
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
Phosphorus (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

* Basic Chemistry carbon steel ASTM requirement. Values are those listed in the 2010 source MSDS; users should consult current OSHA PELs and ACGIH TLVs, which may have been updated.

Engineering Controls:

If operations are such that atmospheric levels of contaminants exceed prescribed limits, provide local exhaust ventilation and/or adequate respiratory protection.

Individual Protection Measures / PPE:

- Eye/Face Protection: Safety glasses or goggles; face shield for grinding/welding.
- Skin Protection: Gloves for handling; protective clothing as needed to prevent cuts/abrasions.
- Respiratory Protection: Dust filter masks for grinding; proper respirators for welding (consult OSHA 1910.134 and applicable welding standards).
- Other: Follow good industrial hygiene practices. Wash hands after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value / Description
Appearance	Solid metal (weld fittings and flanges)
Odor	Odorless (solid form)
Odor Threshold	Not applicable
pH	Not applicable
Melting Point / Freezing Point	Greater than 2800 °F (1540 °C)
Initial Boiling Point / Range	Not applicable
Flash Point	Not applicable
Evaporation Rate	Not applicable
Flammability (solid, gas)	Not flammable

Upper/Lower Flammability or Explosive Limits	Not applicable
Vapor Pressure	Not applicable
Vapor Density (Air = 1)	Not applicable
Relative Density / Specific Gravity (H ₂ O = 1)	Greater than 7
Solubility(ies)	Negligible in water
Partition Coefficient (n-octanol/water)	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	May liberate metal fumes/oxides at elevated temperatures
Viscosity	Not applicable
% Volatile by Volume	Not applicable

10. STABILITY AND REACTIVITY

Reactivity:

Not reactive under normal conditions of use, storage, and transport.

Chemical Stability:

Considered stable.

Possibility of Hazardous Reactions:

Hazardous polymerization: Not applicable.

Conditions to Avoid:

Exposure to elevated temperatures (e.g., welding, cutting, fire conditions) may liberate metal fumes, metal oxides, or other oxides.

Incompatible Materials:

Not incompatible with materials under normal conditions.

Hazardous Decomposition Products:

Not applicable under normal conditions. At elevated temperatures: metal fumes, metal oxides, or other oxides.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure:

Inhalation of dust/fumes (processing), skin/eye contact with dust or sharp edges, ingestion (unlikely).

Acute Effects of Overexposure:

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 Effects of Overexposure (element-specific, from source MSDS):

Element	Chronic Effects
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.
Phosphorus*	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.

* Basic Chemistry carbon steel ASTM requirement.

Carcinogenicity:

Certain chromium and nickel compounds are listed by NTP and/or IARC as potential carcinogens. Welding fumes from stainless or high-alloy steels are of particular concern; for carbon steel Grade WPB the levels of Cr and Ni are typically low residual amounts. Consult current IARC / NTP / OSHA listings.

Numerical Measures of Toxicity:

No specific LD50 / LC50 data provided in the source MSDS for the alloy as a whole.

12. ECOLOGICAL INFORMATION

No specific ecological data were provided in the source MSDS. In solid form the product is not expected to present a significant environmental hazard. Prevent large quantities of fine dust or grinding residues from entering waterways. Metal ions may have aquatic toxicity if solubilized; data not available for this alloy.

Persistence and Degradability: Not applicable (inorganic solid).

Bioaccumulative Potential: No data available.

Mobility in Soil: No data available.

Other Adverse Effects: No data available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method: This material may be reclaimed for reuse (scrap metal recycling is preferred). Dispose of unused product, dust, or residues in accordance with all applicable federal, state, and local environmental regulations. Do not dispose of large quantities of fine metallic dust in a manner that could generate airborne particles or contaminate water.

14. TRANSPORT INFORMATION

This product in solid manufactured form is not regulated as a hazardous material for transport under U.S. DOT, IATA, or IMDG regulations.

UN Number: Not applicable

UN Proper Shipping Name: Not applicable

Transport Hazard Class(es): Not applicable

Packing Group: Not applicable

Environmental Hazards: Not applicable



Special Precautions for User: None for solid product.

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard (29 CFR 1910.1200): Weldbend Corporation believes that the product described in this SDS would be considered an “article” within the meaning of Section 1910.1200. This SDS is intended to be used solely for the purpose of satisfying informational requests.

Relevant OSHA Standards for Processing:

- 29 CFR 1910.252 – Welding, Cutting, and Brazing
- 29 CFR 1910.134 – Respiratory Protection
- 29 CFR 1910 Subpart Z – Toxic and Hazardous Substances

Other Regulations: Users remain responsible for compliance with all applicable federal, state, and local laws and regulations. This document does not preempt, replace, or expand the terms contained in Weldbend Corporation Conditions of Sale.

16. OTHER INFORMATION

Date of SDS Preparation / Conversion: July 29, 2026

Source Document: Weldbend Corporation Material Safety Data Sheet, Copyright © 2010 (Technical Data pages 175–178).

Revision Note: This document is a reformatting and reorganization of the 2010 MSDS into the current 16-section GHS / OSHA HazCom Safety Data Sheet format. Content has been preserved as closely as possible. Exposure limit values, carcinogenicity listings, and regulatory references should be verified against current sources (ACGIH, OSHA, NTP, IARC) because they may have been updated since 2010.

Disclaimer: Weldbend Corporation believes that the product described in the SDS would be considered an “article” within the meaning of Section 1910.1200. This SDS 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. The information contained herein is believed to be accurate based on the source MSDS but is not warranted to be all-inclusive or complete. No warranty, express or implied, is made. Users should obtain the most current product information and SDS directly from Weldbend Corporation or an authorized distributor.