

Carbon, Alloy, and Stainless Forgings and Pipe Fittings Safety Data Sheet (SDS)

Section 1 – Identification

1(a) Product Identifier Used on Label: Carbon, Alloy and Stainless Forgings and Pipe Fittings

1(b) Other Means of Identification: Machined and Unmachined Forgings and Pipe Fittings

1(c) Recommended Use of the Chemical and Restrictions on Use: None

1(d) Name, Address, and Telephone Number:

Westbrook Manufacturing Phone number: 713-675-6438
1111 Lockwood Dr.
Houston TX 77020



1(e) Emergency Phone Number: 713-675-6438

Section 2 – Hazard(s) Identification

2(a) Classification of the chemical: Carbon, Alloy and Stainless Forgings and Pipe Fittings are considered an article under Reach regulation (REACH REGULATION (EC) No 1907/2006) and is not subject to classification under CLP regulation (REGULATION (EC) No 1272/2008). However, Carbon, Alloy and Stainless Forgings and Pipe Fittings are not exempt as an article under OSHA's Hazard Communication Standard (29 CFR 1910.1200) due to its downstream use, thus this product is considered a mixture and a hazardous material. Therefore, the categories of Health Hazards as defined in the "GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS), Third revised edition ST/SG/AC.10/30/Rev. 3" United Nations, New York and Geneva, 2009 have been evaluated.

Note: Carbon, Alloy and Stainless Forgings and Pipe Fittings in the natural state do not present air inhalation, ingestion, or contact health hazards. However, operations such as welding, burning, sawing, brazing, grinding, and other processes which elevate the temperature of the product to or above its melting point or result in the generation of airborne particles may present hazards. These operations should be performed in well-ventilated areas.

2(b) Signal word, hazard statement(s), symbols and precautionary statement(s):

Hazard Symbol	Hazard Classification	Signal Word	Hazard Statement(s)
	Carcinogenicity - 2 Reproductive Toxicity - 2 Single Target Organ Toxicity (STOT) Repeat Exposure - 1	Danger	Suspected of causing cancer. Suspected of damaging fertility or the unborn child. Causes damage to lungs and central nervous system through prolonged or repeated inhalation exposure. Harmful if swallowed. May cause an allergic skin reaction. Harmful in contact with skin. May cause respiratory irritation. Causes eye irritation.
	Acute Toxicity-Oral - 4 Skin Sensitization - 1 STOT Single Exposure - 3		
NA	Eye Irritation - 2B		

Precautionary Statement(s):

Prevention	Response	Storage/Disposal
Do not breathe dusts / fume / gas / mist / vapor / spray. Wear protective gloves / protective clothing / eye protection / face protection. Contaminated work clothing must not be allowed out of the workplace. Use only outdoors or in well ventilated areas. Wash thoroughly after handling. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not eat, drink or smoke when using this product.	If inhaled: Remove person to fresh air and keep comfortable for breathing. If exposed, concerned or feel unwell: Get medical advice/attention. If in eyes: Rinse with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue Rinsing. 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. Call a poison center/doctor if you feel unwell.	Dispose of contents in accordance with federal, state and local regulations.

2(c) Hazards not otherwise classified: None Known

2(d) Unknown acute toxicity statement (mixture): None Known

Section 3 – Composition/Information on Ingredients

3(a-c) Chemical name, common name (synonyms), CAS number and other identifiers, and concentration:

Chemical Name	CAS Number	% weight
Iron	7439-89-6	>50 - 99.9
Aluminum	7429-90-5	0.10-100
Carbon	7440-44-0	0.01-1.5
Chromium	7440-47-3	0.01-27
Cobalt	744-48-4	8 max
Copper	7440-50-8	0.04-100
Lead	7439-92-1	0.15-0.35
Manganese	7439-96-5	0.05-2
Molybdenum	7439-98-7	0.01-1.10
Nickel	7440-02-0	0.01-22
Phosphorous	7723-14-0	0.16 max
Silicon	7440-21-3	0.15-2.20
Sulfur	7704-34-9	0.001-0.35
Tungsten	7440-33-7	0-18
Vanadium	7440-62-2	0.01-1.0
Zinc coating	1314-13-2	10.002 max

Note: Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. Forgings may have phosphate conversion coating, the elements of which are included in the ingredients, and rust protection oil. Fittings may also contain plastic or rubber components. Product surfaces may be treated with small amounts of corrosion-inhibiting oil that may contain mineral oil or petroleum distillates, or paints, epoxies, laminates, etc., generally applied at the customer's request. Refer to the coating manufacturer's SDS for hazards associated with coatings. Refer to Mill Report for specific element composition.

Section 4 – First-aid Measures

4(a) Description of necessary measures:

- **Inhalation: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not a likely form of exposure. However during further processing (welding, grinding, burning, etc.), if inhaled: Remove person to fresh air, if condition continues: Get medical advice/attention.
- **Eye Contact: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not a likely form of exposure. However during further processing (welding, grinding, burning, etc.), if in eyes: Rinse with water or eyewash solution for 15 minutes. If eye irritation persists: Get medical advice attention.
- **Skin Contact:** If on skin: Wash thoroughly after handling. Wash with plenty of water. If irritation or rash occurs: Get medical advice/attention. Take off and wash contaminated clothing before reuse.
- **Ingestion: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not a likely form of exposure. However during further processing (welding, grinding, burning, etc.), if swallowed: Get medical advice/attention.

4(b) Most important symptoms/effects, acute and delayed (chronic):

- **Inhalation: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not likely to present an acute or chronic health effect.
- **Eye: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not likely to present an acute or chronic health effect.
- **Skin: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not likely to present an acute or chronic health effect.
- **Ingestion: Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not likely to present an acute or chronic health effect.

However during further processing (welding, grinding, burning, etc.) individual components may illicit an acute or chronic health effect. Refer to Section 11-Toxicological Information.

4(c) Immediate Medical Attention and Special Treatment: None Known

Section 5 – Fire-fighting Measures

5(a) Suitable (and unsuitable) Extinguishing Media: Not Applicable for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped. Use extinguishers appropriate for surrounding materials.

5(b) Specific Hazards arising from the chemical: Not Applicable for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped. When burned, toxic smoke, fume and vapor may be emitted.

Section 6 – Accidental Release Measures

6(a) Personal Precautions, Protective Equipment and Emergency Procedures: Not Applicable for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped. For spills involving finely divided particles, clean up personnel should be protected against contact with eyes and skin. If material is in a dry state, avoid inhalation of dust.

6(b) Methods and materials for containment and clean up: Not Applicable for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations.

Section 7 – Handling and Storage

7(a) Precautions for safe handling: Not Applicable for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped, however further processing (welding, burning, grinding, etc.) with potential for generating high concentrations of airborne particles should be evaluated and controlled as necessary. Do not handle until all safety precautions have been read and understood. Use only outdoors or in well ventilated areas. Practice good housekeeping. Avoid breathing metal fumes and/or dust. Do not eat, drink, or smoke when using this product. Cut resistant gloves and sleeves should be worn when working with steel products. Use lifting, and work devices, e.g., crane, hoist, etc., within rated capacities and in accordance with manufacturers' instructions when handling these products.

7(b) Conditions for safe storage, including any incompatibilities: Store away from acids and incompatible materials.

Section 8 – Exposure Controls/Personal Protection

8(a) Occupational Exposure Limits (OEL): **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped in its physical form does not present an inhalation, ingestion, or contact hazard, nor would any of the following exposure data apply. However, operations such as burning, welding (high temperature), sawing, brazing, machining, grinding, etc. may produce fumes and/or particulates. The following exposure limits are offered for reference for an experienced industrial hygienist to review.

Chemical Name	CAS Number	OSHA PEL (mm/m ³) TABLE Z-1
Iron	7439-89-6	
Aluminum	7429-90-5	Total Dust 15; Respirable Fraction 5
Carbon	7440-44-0	None Listed
Chromium	7440-47-3	0.5
Cobalt	744-48-4	Dust and Fumes 0.1
Copper	7440-50-8	Dusts and Mists 1; Fumes 0.1
Lead	7439-92-1	Dust and Fume: 0.05
Manganese	7439-96-5	Dust and Fumes 5
Molybdenum	7439-98-7	Soluble Compounds 5; Insoluble Compounds Total Dust 15
Nickel	7440-02-0	1
Phosphorous	7723-14-0	0.1
Silicon	7440-21-3	Total Dust 15; Respirable Fraction 5
Sulfur	7704-34-9	As Sulfur Dioxide 13
Tungsten	7440-33-7	None Listed
Vanadium	7440-62-2	Dust 0.5; Fumes 0.1
Zinc coating	1314-13-2	Total Dust 15; Respirable Fraction 5; Fumes 5

8(b) Appropriate Engineering Controls: Use controls as appropriate to minimize exposure to metal fumes and dusts during handling operations. Provide general or local exhaust ventilation systems to minimize airborne concentrations. Local exhaust is necessary for use in enclosed or confined spaces. Provide sufficient general/local exhaust ventilation to control inhalation exposure below current exposure limits.

8(c) Individual Protection Measures:

- **Respiratory Protection:** Seek professional advice prior to respirator selection and use. Follow OSHA Respirator Regulations (29 CFR 1910.134) and if necessary use only a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given work conditions, level of airborne contamination, and presence of sufficient oxygen.
- **Eyes:** Wear appropriate eye protection to prevent eye contact. Use safety glasses or goggles as required for welding, burning, sawing, brazing, grinding, or machining operations.
- **Skin:** Wear appropriate personal protective clothing to prevent skin contact. Cut resistant gloves and sleeves should be worn when working with steel products. For operations which result in elevating the temperature of the product to or above its melting point or result in the generation of airborne particles, use protective clothing and gloves to prevent skin contact. Contaminated work clothing must be removed prior to leaving the workplace and laundered appropriately.

Section 9 – Physical and Chemical Properties

9(a) Appearance: Solid Gray/Black with Metallic Luster	9(j) Upper/lower Flammability or Explosive Limits: NA
9(b) Odor: Odorless	9(k) Vapor Pressure: NA
9(c) Odor Threshold: NA	9(l) Vapor Density (Air-1): NA
9(d) pH: NA	9(m) Relative Density: Not Determined
9(e) Melting Point: 2750 F (steel); 1220 F (Al); 1981 F (Cu); 1823 F (Brass)	9(n) Solubility: Insoluble
9(f) Initial Boiling Point and Boiling Range: Not Determined	9(o) Partition Coefficient n-octanol/water: Not Determined
9(g) Flash Point: NA	9(p) Auto-ignition Temperature: NA
9(h) Evaporation Rate: NA	9(q) Decomposition Temperature: Not Determined
9(i) Flammability (solid,gas): Non-flammable, Non-combustible	9(r) Viscosity: NA

Section 10 – Stability and Reactivity

10(a) Reactivity: Not determined for product in a solid form. Do not use water on molten metal.

10(b) Chemical Stability: Steel products are stable under normal storage and handling conditions.

10(c) Possibility of Hazardous Reaction: Not Known

10(d) Conditions to Avoid: Storage with strong acids or calcium hypochlorite.

10(e) Incompatible Materials: Will react with strong acids to form hydrogen.

10(f) Hazardous Decomposition Products: Thermal oxidative decomposition of steel products can produce fumes containing oxides of iron and manganese as well as other alloying elements.

Section 11 – Toxicological Information

11(a-e) Information on Toxicological Effects: The following toxicity data has been determined for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** when further processed by methods including welding, burning, grinding, etc. with potential for generating high concentrations of airborne particles and fumes. The toxicity data includes information about the various ingredients that make up the product. Note: **Carbon, Alloy and Stainless Forgings and Pipe Fittings in the natural state do not present air inhalation, ingestion, or contact health hazards and therefore the following toxicological information would not apply to the product as shipped/sold.**

Acute Effects:

- **Inhalation:** Excessive exposure to high concentrations of metal dust may cause irritation to the eyes, skin, and mucous membranes of the upper respiratory tract. Excessive inhalation of fumes of freshly formed metal oxide particles sized below 1.5 micrometer from many metals can produce an acute reaction known as “metal fume fever”. Symptoms consist of chills and fever, metallic taste in the mouth, dryness and irritation of the throat followed by weakness and muscle pain. The symptoms come in a few hours after excessive exposures and usually last from 12-48 hours. Long term effects from metal fume fever have not been noted.
- **Eye:** Excessive exposure to high concentrations of metal dust and fumes may cause irritation to the eyes.
- **Skin:** Skin contact with metal dusts may cause irritation or sensitization, possibly leading to dermatitis. Skin contact with metallic fumes and dusts may cause physical abrasion.
- **Ingestion:** Ingestion of harmful amounts of this product as shipped/sold is unlikely due to its solid insoluble form. Ingestion of metal dust may cause nausea or vomiting.

Acute Effects by Component:

- **Iron and Iron Oxides:** Iron is harmful if swallowed, causes skin and eye irritation. Contact with iron oxide has been reported to cause skin irritation and serious eye damage.
- **Chromium, Chromium Oxides, and Hexavalent Chrome:** Hexavalent chrome causes damage to the gastrointestinal tract, lung, severe skin burns, and serious eye damage. Skin contact may cause an allergic reaction. Inhalation may cause allergic or asthmatic symptoms or breathing difficulties.
- **Manganese and Manganese Oxides:** Manganese and Manganese Oxide are harmful if swallowed.
- **Molybdenum and Molybdenum Oxides:** Molybdenum causes skin and eye irritation. Molybdenum oxide is toxic if swallowed.
- **Nickel and Nickel Oxides:** Nickel and Nickel Oxides may cause allergic skin sensitization.

Delayed (chronic) Effects by Component:

- **Iron and Iron Oxides:** Inhalation of excessive concentrations of ferric oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.
- **Chromium, Chromium Oxides, and Hexavalent Chrome:** The metal form (chromium as it exists in this product) is of low toxicity. The hexavalent form is very toxic. Industrial exposure to certain forms of hexavalent chromium has been related to an increased incidence of cancer. Hexavalent chromium may cause genetic defects and is suspected of damaging the unborn child. Developmental toxicity in the mouse and is suspected of damaging fertility.
- **Manganese and Manganese Oxides:** Chronic exposure to high concentrations of manganese fumes and dusts may adversely affect the central nervous system with symptoms including sleepiness, weakness, emotional disturbances, mask like facial expression, and paralysis. Occupational overexposure is progressive. May cause damage to lungs with repeated or prolonged exposure. Coordination of motor functions may become impaired.
- **Molybdenum and Molybdenum Oxides:** Some reports indicate that the dust of molybdenum metal, molybdenum dioxide, and molybdenum trioxide may cause eye, skin, nose, and throat irritation in animals. Molybdenum oxide is suspected of causing cancer in humans.
- **Nickel and Nickel Oxides:** Exposure to nickel dusts and fumes can cause sensitization dermatitis, respiratory irritation, asthma, pulmonary fibrosis, edema, and may cause nasal or lung cancer in humans. Nickel causes damage to lungs through prolonged or repeated inhalation exposure. Nickel is suspected of damaging the unborn child.

Section 12 – Ecological Information

12(a) Ecotoxicity (Aquatic & Terrestrial): No data available for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped.

12(b) Persistence & Degradability: No data available for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped.

12(c) Bioaccumulative Potential: No data available for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped.

12(d) Mobility (in soil): No data available for **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped. Individual components of the product have been found to be absorbed by plants from soil.

12(e) Other Adverse Effects: None known

Section 13 – Disposal Considerations

Note: The following information is for Carbon, Alloy and Stainless Forgings and Pipe Fittings sold in its original form. Any alterations can void this information.

Disposal: Steel scrap should be recycled whenever possible. Product dust 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, and/or local regulations.

Section 14 – Transport Information

14(a-g) Suitable (and unsuitable) Transportation Information:

- **US Department of Transportation (DOT):** under 49 CFR 172.101 does not regulate **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as a hazardous material. All federal, state, and local laws and regulations that apply to the transport of this type of material must be adhered to.
- **International Maritime Dangerous Goods (IMDG) and Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID):** classification, packaging, and shipping requirements follow the US DOT Hazardous Materials Regulation.
- **Regulations Concerning the International Carriage of Dangerous Goods by Road (ADR):** does not regulate **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as a hazardous material.
- **International Air Transport Association (IATA):** does not regulate **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as a hazardous material.
- **Transport Dangerous Goods (TDG) Classifications:** **Carbon, Alloy and Stainless Forgings and Pipe Fittings** does not have a TDG classification.

Section 15 – Regulatory Information

Regulatory Information: **Carbon, Alloy and Stainless Forgings and Pipe Fittings** as sold/shipped is not a regulated product by OSHA or EPA. However, individual components of the product are listed in various state regulations:

California Prop 65:

WARNING: This product contains a chemical known to the state of California to cause cancer and/or reproductive toxicity. For more information go to www.P65Warnings.ca.gov.

Note: Carbon, Alloy and Stainless Forgings and Pipe Fittings in the natural state do not present air inhalation, ingestion, or contact health hazards. However, operations such as welding, burning, sawing, brazing, grinding, and other processes which elevate the temperature of the product to or above its melting point or result in the generation of airborne particles may present hazards.

Note: Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts. Forgings may have phosphate conversion coating, the elements of which are included in the ingredients, and rust protection oil. Refer to Mill Test Report for specific element composition.

California Prop 65 -CRT: Carcinogenic Substance/Listed Date:

CARBON BLACK (CAS 1333-86-4)	Listed: February 21, 2003
CHROMIUM (CAS 7440-47-3)	Listed: February 27, 1987
COBALT (CAS 744-48-4)	Listed: July 01, 1992
LEAD (CAS 7439-92-1)	Listed: October 01, 1992
NICKEL (CAS 7440-02-0)	Listed: October 01, 1989

Section 16 – Other Information

SDS Revision: 8/22/2018

Additional Information:

Hazardous Material Identification System (HMIS) Classification

Health Hazard	1
Fire Hazard	0
Physical Hazard	0

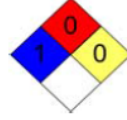
HEALTH= 1, Denotes possible chronic hazard if airborne dusts or fumes are generated. Irritation or minor reversible injury possible.

FIRE= 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.

Disclaimer: The information in this SDS was obtained from sources that we believe are reliable. However, the information is provided without any representation or warranty, express 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 any responsibility and expressly disclaim liability for loss, damage, and expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.

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.