MIDWEST FASTENERS, INC.

Material Safety Data Sheet

Company	Issue Date	Identification
MIDWEST FASTENERS P.O. BOX 292 Dayton, OH 45449	1-1-93 Revised 1-5-99	Carbon & Alloy
Trade Name (Common Name of Synonym) Carbon, Alloy, Steels	**Phone Number** (937) 866-0463	
Chemical Name Steel	**From** Bar, Sheet, Plate, Tubing, Structurals	

I. INGREDIENTS

Material or Component	CAS Number	% Weight	Exposure Limits	
			OSHA PEL (mg/m^3)	ACGIH TLV (mg/m^3)
Base Metal				
Iron (Fe)	7439-89-6	Balance	10 (Fe_2O_3 Fume)	5.0 (Fe_2O_3 Fume)
Alloying Elements				
Carbon (C)	7440-44-0	0.01 - 1.5	None Listed	None Listed
Chromium (Cr)	7440-47-3	0.01 - 12	1.0 as chrome	0.5 as chrome
Copper (Cu)	7440-50-8	0.04 - 0.7	0.2 as copper; 1.0 as dust	0.2 as fume; 1.0 as dust
Lead (Pb)	7439-92-1	0.15 - 0.35	0.05 as fume & dust	0.15 as dust and fume
Manganese (Mn)	7439-96-5	0.05 - 2.0	5 as manganese	5 as dust; 1 as fume
Molybdenum (Mo)	7439-98-7	0.01 - 1.10	15 as insoluble compds	10 as insoluble compds
Nickel (Ni)	7440-02-0	0.01 - 10	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)	7723-14-0	0.15 Max	0.1 as Phosphorous	0.1 as Phosphorous
Silicon (Si)	7440-21-3	0.15 - 2.20	None Listed	10 total dust
Sulfur (S)	7704-34-9	0.001 - 0.35	13 sulfur dioxide	5 sulfur dioxide
Tungsten (W)	7440-33-7	0 - 18	None Listed	5 insoluble compds
Vanadium (V)	7440-62-2	0.01 - 1.0	0.5 dust; 0.1 fume	0.05 dust and fume
Zinc (Zn) coating	1314-13-2	10 Max	5.0 as fume	5.0 as fume

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.

II. PHYSICAL DATA

Material is (At Normal Conditions):				Appearance and Odor
☐ Liquid	☒ Solid	☐ Gas	☐ Other	Gray-Black With Metallic Lustre — Odorless

Acidity/Alkalinity			Vapor Pressure (mm Hg at 20°C)
ph = NA	Melting Point Approx 2750°F Boiling Point NA °F	Specific Gravity (H_2O = 1) — 7 Solubility in water (% by weight) — NA	N/A

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection	Hands, Arms, and Body
NIOSH approved dust/mist/fume respirator should be used during welding or burning if OSHA PEL or TLV is exceeded.	Use appropriate protective clothing such as welders aprons & gloves when welding or burning. Check local codes.
Eyes and Face	**Other Clothing and Equipment**
Safety glasses should always be worn when grinding or cutting; face shields should be worn when welding or burning.	As required

IV. EMERGENCY MEDICAL PROCEDURES

Inhalation:	Remove to fresh air; if condition continues, consult physician.
Eye Contact:	Immediately flush well with running water to remove particulate; get medical attention.
Skin Contact:	If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.
Ingestion:	If significant amounts of metal are ingested, seek medical attention.

V. HEALTH/SAFETY INFORMATION

HEALTH

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, sawing, brazing, grinding, and possibly machining, which results in elevating the temperature of the product to or above its melting point or results in the generation of airborne particulates may present hazards. The above operations should be performed in well ventilated areas. The major exposure hazard is inhalation.

Effects of overexposure are as follows:

Acute: Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose, and throat. Also high concentrations of fumes and dusts of iron-oxide, manganese, copper, zinc, & lead may result in metal fume fever. Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours.

Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:

Iron (iron-oxide) - Pulmonary effects, siderosis.

Manganese - Bronchitis, pneumonitis, lack of coordination.

Chromium - Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume induces human cancer.

Nickel - SAME AS CHROMIUM

Copper - Pulmonary effects.

Vanadium - No reported cases of exposure to vanadium.

Molybdenum - Pain in joints, hands, knees and feet.

Tungsten - Some evidence of pulmonary involvement such as cough.

Lead - Prolonged exposures can cause behavioral changes, kidney damage, periphery neuropathy characterized by decreased hand-grip strength and adverse reproductive effects.

Zinc - None reported.

Occupational Exposure Limits

See Section I.

FIRE AND EXPLOSION

Flash Point	Auto Ignition Temperature	Flammable Limits in Air	Extinguishing Media
NA °F	NA °F	Lower NA % Upper NA %	NA

Fire and Explosion Hazards

None

Extinguishing Media Not to be Used

NA

REACTIVITY

Stability

☒ Stable ☐ Unstable

Incompatibility (Materials to Avoid)

Reacts with strong acids to form hydrogen gas.

Conditions to Avoid

Keep Area Well Ventilated

Non-ventilated areas when cutting, welding, burning, or brazing; avoid generation of airborne dusts and fumes.

Hazardous Decomposition Products

Metallic oxides.

VI. ENVIRONMENTAL

Spill or leak procedures

NA

Special Precautions: Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust to a minimum.

Waste Disposal Method

Dust, etc. — follow federal, state, and local regulations regarding disposal.

VII. ADDITIONAL INFORMATION

Disclaimer

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any representation or 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 the product.

MATERIAL SAFETY DATA SHEET FOR LEGGETT & PLATT WIRE DIVISION PRODUCTS

Galvanize Wire

MIDWEST FASTENERS, INC
450 RICHARD STREET
MIAMISBURG, OH 45342

WELD PINS
STEP HEAD NAILS

DATE OF PREPARATION: May 1, 2010

SECTION I - COMPONENT DATA:

CHEMICAL COMPONENTS	C.A.S. NUMBER	% WT.
Primary Metals		
Iron	7439-89-6	75-99
Chromium	7440-47-3	<0.10
Nickel	7440-02-0	<0.10

SECTION I-A-COATINGS

CHEMICAL COMPONENTS	C.A.S NUMBER	% WT
Zinc	7440-66-6	1-25

SECTION II - PHYSICAL DATA

BOILING POINT (^{o}F): Not applicable (n/a)
VAPOR PRESSURE (mmHg @ $20^{o}C$): n/a
VAPOR DENSITY: (Air = 1): n/a
SOLUBILITY IN WATER: n/a
SPECIFIC GRAVITY (H_{20} = 1): Approx. 8
PERCENT VOLATILE BY VOLUME: n/a
EVAPORATIVE RATE (ETHYL ETHER = 1): n/a
pH INFORMATION: n/a

APPEARANCE AND ODOR: Silvery-grayish solid - no odor

Section III-FIRE & EXPLOSION HAZARD DATA:

FLASH POINT (*F): N/A METHOD USED: N/A

FLAMMABILITY LIMITS (%VOL);

LEL: N/A UEL: N/A

AUTO-IGNITION TEMPERATURE (*F): N/A

EXTINGUISHING MEDIA: water spray, carbon dioxide or foam

UNUSUAL FIRE AND EXPOLSION HAZARDS: May generate smoke if sustained fire in the vicinity of this product ignites the protective coating

SECTION IV-REACTIVITY DATA:

STABILITY: Stable

INCOMPATIBILITY: (materials to avoid): None

HAZARDOUS DECOMPOSITION PRODUCTS: Metal fumes and certain noxious gases such as CO may be produced during welding or burning operations

SECTION V- HEALTH HAZARD DATA:

PRIMARY ROUTE(S) OF ENTRY: Skin contact

EFFECTS OF EXPOSURE: No toxic effects would be expected from its inert solid form.

SECTION VI- SPECIAL HANDLING INFORMATION:

VENTILATION: Ventilation as needed should be provided when welding is taking place.

PROTECTIVE CLOTHING: Use appropriate clothing such as welder's aprons and gloves when welding or burning.

EYE PROTECTION: USE SHIELD AND OR GOGGLES WHEN WELDING, BURNING

OR GRINDING

SECTION VII SPECIAL PRECAUTIONS/ADDITIONAL INFORMATION:

SPILLS: N/A

WASTE DISPOSAL METHOD: N/A

SECTION IX – SPECIAL PRECAUTIONS/ADDITIONAL INFORMATION:

PRECAUTIONS FOR HANDLING AND STORAGE: None

DOT INFORMATION:

Hazardous Material Shipping Name: N/A

Hazard Class: N/A

Identification Number: N/A

WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH ON THIS DATA SHEET ARE BELIEVED TO BE ACCURATE AS OF THE PRESENT DATE, LEGGETT & PLATT WIRE DIVISION MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.