

**MIDWEST FASTENERS, INC.**  
450 RICHARD ST.  
MIAMISBURG, OH 45342

*M.S. Copper Coated  
Weld pins*

## MATERIAL SAFETY DATA SHEET

## SECTION 1 GENERAL INFORMATION

PRODUCT NAME: MILD STEEL WELD PINS/COPPER COATED  
TRADE NAME: LOW CARBON STEEL

SECTION 2 CHEMICAL COMPOSITION<sup>1</sup>

CHEMICAL COMPONENT	CAS NUMBER	WT. %	OSHA PEL <sup>a</sup>	ACGIH TLV <sup>b</sup>
<b>Base Metal</b>				
Iron	7439-89-6	Balance	10	5
Manganese	7439-96-5	.25-2.0	5	
Nickel	7740-02-0	.01-1.0	1	
Chromium	7740-47-3	.01-2.0	1	0.5
Copper	7740-58-0	.01-1.0	0.1	0.2
Trace Elements		< 2.0	n/a	n/a
<b>Metallic Coating</b>				
Copper	7740-58-0	99.0(min)	5.0	5.0
Trace Elements		<1.0	n/a	n/a

## SECTION 3 PHYSICAL DATA

Physical State	:	Solid
Boiling Point(° F)	:	Unknown
Specific Gravity	:	Unknown
Vapor Pressure	:	n/a
Percent Volatile by Wt.	:	n/a
Vapor Density(air=1)	:	n/a
Evaporation Rate	:	n/a
Solubility by Water	:	Insoluble
pH(Paint Coating)	:	n/a
Appearance and Odor	:	Iron nails with Copper coating: Odorless

<sup>1</sup> As defined by OSHA (29CFR1910.1200) or certain state regulations.

<sup>a</sup> Permissible Exposure Limit-(mg/m<sup>3</sup>)-OSHA (29CFR1910)

<sup>b</sup> Threshold Limit Value-(mg/m<sup>3</sup>)-American Conference of Governmental  
Industrial Hygienists

**SECTION 4 FIRE AND EXPLOSION HAZARD DATA**

Flash Point: 2500 ° F

Extinguishing Media: Extinguish fires with CO<sub>2</sub>, water(fog), steam, foam, or dry chemical

Special Fire Fighting Procedures: n/a

Unusual Fire and Explosive Hazards: When this material is involved in a fire, toxic degradation products can be produced, including CO<sub>2</sub>, CO, and oxides of nitrogen. Fire fighter should use self-contained breathing apparatus. Dense toxic smoke can be produced when this material burns.

**SECTION 5 REACTIVITY DATA**

Stability: Stable

Conditions to Avoid: Open Flame

Incompatibility: n/a

Hazardous Polymerization: Will Not Occur

**SECTION 6 HEALTH HAZARD DATA**

Principle Routes of Entry: Inhalation

Medical Conditions Possibly Aggravated: Chronic diseases or disorders of the respiratory system.

Carcinogen Information: NTP<sup>a</sup> and IARC<sup>b</sup> consider chromium and certain chromium compounds to be known human carcinogens, and nickel and certain nickel compounds to be probable human carcinogens.

**EFFECTS OF OVEREXPOSURE**

NOTE: Steel products in their usual physical state do not pose any health hazards. However, when subjected to welding, burning, grinding, cutting, abrasive blasting, heat treatment, pickling, or similar operations, potentially hazardous fumes or dusts may be emitted. Despite the fact that welding,

<sup>a</sup> National Toxicology Program

<sup>b</sup> International Agency for Research on Cancer

burning, etc. of steel products in this particular category may produce fumes containing manganese, chromium, nickel, and copper, the air concentrations generated of these components are expected to be extremely low. Special attention should be given to the metallic coating which could be a significant source of the fumes and dusts created during welding or similar activities. The following is a list of fumes or dusts which may be generated from this steel product category and health effects associated with overexposure to them.

#### Iron (Fe)

Subjecting iron and alloys containing iron to high temperatures (such as welding) will cause the formation of iron oxide. Long-term exposure to iron oxide fumes or dusts has been associated with a benign lung condition known as siderosis which is observable as an x-ray change. No physical impairment of lung function has been linked to siderosis.

#### Manganese (Mn)

Mn intoxication is usually due to the oxide or salts of Mn; elemental Mn exhibits very low toxicity. The dusts and fumes can act as minor irritants to the eyes and respiratory tract. Both acute and chronic exposures may adversely affect the central nervous system (CNS), but symptoms are more likely to occur after at least 1 or 2 years of prolonged or repeated exposures. Early symptoms may include weakness in lower extremities, sleepiness, salivation, nervousness, and apathy. In more advanced stages, severe muscular incoordination, impaired speech, spastic walking, mask-like facial expressions and uncontrollable laughing may occur. Manganese fumes have also been reported to result in metal fume fever, a flu-like syndrome with symptoms such as dizziness, chills, fever, headache, and nausea. An increased incidence of pneumonia, bronchitis, and pneumonitis has been reported in some worker populations exposed to manganese. Animal studies indicate that manganese exposure may increase susceptibility to bacterial and viral infections.

#### Chromium (Cr)

The toxicity of and health hazards of chromium are heavily dependent on upon its oxidation state. The elemental (as in the metals), divalent and trivalent forms are of very low toxicity. The hexavalent form (such as occurs in chromates and chronic acids) is very toxic and can produce both acute and chronic effects. Adverse effects on the skin may include ulcerations, irritative dermatitis, and allergic skin reactions. Adverse effects on the respiratory system may include bronchospasms, edema, hypersecretion, bronchitus, irritation, allergic asthmatic reactions, and ulceration and perforation of the nasal septum. Respiratory symptoms may include coughing and wheezing, shortness of breath and nasal itch. Eye irritation or inflammation can also be produced. Exposure to some hexavalent chromium compounds have also been shown to be associated with an increased risk of lung cancer.

**Nickel (Ni)**

Ni fumes and dusts are respiratory irritants and may cause severe pneumonitis. Skin contact with nickel and its compounds may cause an allergic dermatitis. The resulting skin rash is often referred to as "nickel itch". Ni and its compounds may also produce eye irritation. Particularly on the inner surfaces of the eyelids (i.e. the conjunctiva). Animal and/or epidemiology studies have linked nickel and certain nickel compounds to an increased incidence of cancer of the lungs and nasal passages.

**Copper (Cu)**

Inhalation of Cu fume may cause irritation of the eyes and throat and a flu-like illness called metal fume fever. Signs and symptoms of metal fume fever include fever, muscle aches, nausea, chills, dry throat, cough, and weakness. Cu fume may also produce a metallic or sweet taste. Repeated or prolonged exposure to Cu fume may cause discoloration of the skin or hair.

**SECTION 7 EMERGENCY AND FIRST AID PROCEDURES**

**Eye Contact:** Not anticipated to cause any significant eye hazard.

**Skin Contact:** Not anticipated to cause any significant skin hazard.

**EFFECTS OF OVEREXPOSURE**

**Inhalation:** High concentrations of fumes may cause respiratory irritation.

**SECTION 8 TOXICITY DATA**

n/a

**SECTION 9 SPECIAL PROTECTION INFORMATION**

**Protective Gloves:** As required for welding

**Eye Protection:** Safety glasses

**Other Protective Equipment:** As deemed necessary for welding

Respiratory Protection:	NIOSH/MSHA approved dust and fume respirator
Ventilation:	Local exhaust recommended when welding

SECTION 10 SPECIAL PRECAUTIONS AND SPILL-LEAK PROCEDURES
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Handling and Storage Precautions:	Nail points may be sharp
Other:	None
Steps To Be Taken In Case of Spill/Leak:	n/a
Waste Disposal Methods:	Dispose of by means as to comply with all local, state, and federal regulations
Reportable Quantity:	n/a

This document has been prepared solely for the intent of compliance with the provisions of Subpart Z of Part 1910 of Title 29 of the Code of Federal Regulations, Paragraph 1910.1200. WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH ON THIS DATA SHEET ARE BELIEVED TO BE ACCURATE AS OF THE PRESENT DATE, MIDWEST FASTENERS INC. MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

FOR ADDITIONAL INFORMATION REFER TO THE FOLLOWING:

ANSI Z49.1	OSHA (29CFR1910)
The American Welding Society	U.S. Department of Labor
P.O. Box 351040	Washington, D.C. 20210
Miami, Fl. 33135	

Prepared by Stephen B. Turner

April, 1989