

SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION

Product identifier used on the label:

Product Name: MicroGuard I

Other means of identification:

Product Description: See list of approved applications EPA master label

Synonyms: MicroGuard

Recommended use of the chemical and restrictions on use:

Chemical manufacturer address and telephone number:

Manufacturer Name: PMX Industries, Inc.

Address: 5300 Willow Creek Drive SW
Cedar Rapids, Iowa 52404-4303
USA

General Phone Number: 319-368-7700

General Fax Number: 319-368-7701

Emergency phone number:

Emergency Phone Number: 319-368-7700

SECTION 2 : HAZARD(S) IDENTIFICATION

Classification of the chemical in accordance with CFR 1910.1200(d)(f):

Signal Word: Not applicable.

GHS Class: Not classified as hazardous according to OSHA Hazard Communication Standard, 29 CFR 1910.1200..

Hazards not otherwise classified that have been identified during the classification process:

Emergency Overview: Copper alloy products in the natural state do not present a hazard for emergency response personnel.

Route of Exposure: Inhalation, Eye Contact, Skin Contact

Potential Exposure Routes: For dust: ingestion, inhalation and eye contact. For fume: inhalation and eye contact. The finished alloy metal is not hazardous.

Potential Health Effects: Copper alloy products in the natural state do not present an inhalation, ingestion, or contact hazard. However, operations such as burning, welding, sawing, brazing, or grinding may release fumes and/or dusts which may present health hazards if occupational exposure limits are exceeded.

Eye: Short-term exposure to fumes/dust may produce irritation.

Inhalation: Short-term exposure to fumes/dust may produce irritation of the respiratory system.

Ingestion: Not a likely route of exposure for finished metal components.

Potential Environmental Effects: None known. Product has not been tested for environmental properties.

Signs/Symptoms: Metal fume fever - metallic taste in mouth, dryness, and irritation of the throat, and influenza-like symptoms. The effects may be delayed.

Target Organs: Upper respiratory tract, eyes, skin.

Aggravation of Pre-Existing Conditions: Exposure to fumes or dust may aggravate existing respiratory disease or dermatitis.

Copper

Skin: Repeated or prolonged exposure to copper dusts or mists may cause irritant or allergic contact dermatitis.

Inhalation: Exposure to high concentrations of oxide fumes of copper may cause metal fume fever.

Zinc

Inhalation: Exposure to high concentrations of oxide fumes of zinc may cause metal fume fever.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

Chemical Name	CAS#	Ingredient Percent	EC Num.
Magnesium	7439-95-4	0 - 1.0% %	231-104-6
Titanium	7440-32-6	0 - 3.4% %	231-142-3
Tin	7440-31-5	0 - 6.5% %	231-141-8
Nickel	7440-02-0	0 - 4.2% %	231-111-4
Silicon	7440-21-3	0 - 4% %	231-130-8
Iron	7439-89-6	0 - 2.6% %	231-096-4
Manganese	7439-96-5	0 - 1.5% %	231-105-1
Copper	7440-50-8	92.3 - 100% %	231-159-6
Zinc	7440-66-6	0 - 3.5% %	231-175-3
Aluminum	7429-90-5	0 - 4% %	231-072-3

SECTION 4 : FIRST AID MEASURES

Description of necessary measures:

Eye Contact: Flush with water for at least 15 minutes.
Skin Contact: Wash with soap and water.
Inhalation: If exposed to excessive levels of metal fumes, remove to fresh air. Seek medical attention.

SECTION 5 : FIRE FIGHTING MEASURES

Suitable and unsuitable extinguishing media:

Suitable Extinguishing Media: Use extinguishing media appropriate to the surrounding material.
Fire Fighting Instructions: Copper alloy products in the solid state present no fire or explosion hazard, but may react with strong acids, bases, or oxidizing agents.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Methods and materials for containment and cleaning up:

Spill Cleanup Measures: LEAKS, OR RELEASES: Not applicable

SECTION 7 : HANDLING and STORAGE

Precautions for safe handling:

Handling: In welding or melting, precautions should be taken for airborne contaminants that may originate from components of the welding rod.

Conditions for safe storage, including any incompatibilities:

Storage: No special requirements
Shelf Life Limitations: None known
Incompatible Materials for Packaging: None known.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Tin :

Guideline OSHA: PEL-TWA: 2 mg/m³

Nickel :

Guideline ACGIH: TLV-TWA: 1.5 mg/m³ Inhalable fraction (I)

Guideline OSHA: PEL-TWA: 1 mg/m³

PEL-TWA: 1 mg/m³

PEL-TWA: 1 mg/m³

Silicon :

Guideline OSHA: PEL-TWA: 15 mg/m³ Total particulate/dust (T)

PEL-TWA: 5 mg/m³ Respirable fraction (R)

Manganese :

Guideline ACGIH: TLV-TWA: 0.2 mg/m³

Guideline OSHA: PEL-Ceiling/Peak: 5 mg/m³

PEL-Ceiling/Peak: 5 mg/m³

Copper :

Guideline ACGIH: TLV-TWA: 1 mg/m³

TLV-TWA: 0.2 mg/m³

Guideline OSHA: PEL-TWA: 1 mg/m³

PEL-TWA: 0.1 mg/m³

Aluminum :

Guideline ACGIH: TLV-TWA: 1 mg/m³ Respirable fraction (R)

TLV-TWA: 1 mg/m³ Respirable fraction (R)

TLV-TWA: 1 mg/m³ (R)

Guideline OSHA: PEL-TWA: 15 mg/m³ Total particulate/dust (T)

PEL-TWA: 5 mg/m³ Respirable fraction (R)

Appropriate engineering controls:

Engineering Controls: Local exhaust ventilation should be utilized when welding, burning, sawing, brazing, grinding, or machining when exposure exceeds occupational exposure limits.

Individual protection measures:

Eye/Face Protection: Safety glasses or goggles should be utilized as required by exposure. Other protective equipment should be utilized as required by welding standards.

Skin Protection Description: Wear appropriate personal protective clothing to prevent skin contact with copper dust.

Respiratory Protection: NIOSH-approved dust or fume respirator should be used to avoid excessive inhalation of particulates when exposure exceeds occupational exposure limits.

Other Protective: Do not eat, drink, or smoke during work. Wash hands before eating or smoking.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	Solid
Physical State Appearance:	Red Metallic
Color:	Red
Odor:	None
Melting Point:	1050 - 1100 deg C
Density:	8.94 g/cc
Specific Gravity:	8.94
Vapor Density:	(Air = 1): Not applicable
Vapor Pressure:	Not Applicable
Percent Volatile:	Not Applicable
Evaporation Rate:	Not Applicable
pH:	Not Applicable
Flash Point:	Not Applicable
Lower Flammable/Explosive	(%): None

Limit:
Upper Flammable/Explosive Limit: (%) : None
Auto Ignition Temperature: Not Applicable

SECTION 10 : STABILITY and REACTIVITY

Reactivity:

Reactivity: POSSIBILITY OF HAZARDOUS REACTIONS: Will not occur.

Chemical Stability:

Chemical Stability: Stable.

Conditions To Avoid:

Conditions to Avoid: Avoid contact with carbon monoxide at temperatures between 50 and 300 deg C to prevent formation of nickel carbonyl which is toxic and a carcinogen.

Incompatible Materials:

Incompatible Materials: Mercury, ammonia, acetylene acids. Contact with strong acids, Bases, or oxidizing agents.
MATERIALS TO AVOID: Acetylene, Chlorine

Hazardous Decomposition Products:

Special Decomposition Products: Metallic dust or fumes may be produced during welding, burning, grinding, and machining.

SECTION 11 : TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Magnesium :

ACGIH: No
IARC: No
NTP: No

Titanium :

ACGIH: No
IARC: No
NTP: No

Tin :

ACGIH: No
IARC: No
NTP: No

Nickel :

ACGIH: No
IARC: Yes
NTP: Yes

Silicon :

ACGIH: No
IARC: No
NTP: No

Iron :

ACGIH: No
IARC: No
NTP: No

Manganese :

ACGIH: No

IARC: No

NTP: No

Copper :

ACGIH: No

IARC: No

NTP: No

Zinc :

ACGIH: No

IARC: No

NTP: No

Aluminum :

ACGIH: No

IARC: No

NTP: No

Skin: Dermal LD50: Believed to be > 2 g/kg

Inhalation: Inhalation LC50: Believed to be slightly to moderately toxic

Ingestion: Oral LD50: Believed to be > 5 g/kg

Magnesium :

Skin: Dermal LD50: No data

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: No data

Titanium :

Skin: Dermal LD50: No data

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: No data

Tin :

Skin: Dermal LD50: No data

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: No data

Nickel :

Skin: Dermal LD50: > 7.5 g/kg (rabbit subcutaneous)

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: > 5 g/kg (rat)

Silicon :

Skin: Dermal LD50: No data

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: 3.16 g/kg (rat)

Iron :

Skin: Dermal LD50: No data

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: No data

Manganese :

Skin: Dermal LD50: No data

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: 9 g/kg (rat)

Copper :

Skin: Dermal LD50: 375 mg/kg (rabbit subcutaneous)

Inhalation: Inhalation LC50: No data

Ingestion: Oral LD50: 413 mg/kg (mouse)
Chronic Effects: Repeated or prolonged overexposure to copper fume may cause the skin and hair to change color.

Zinc :

Skin: Dermal LD50: No data
Inhalation: Inhalation LC50: No data
Ingestion: Oral LD50: No data

Aluminum :

Skin: Dermal LD50: No data
Inhalation: Inhalation LC50: No data
Ingestion: Oral LD50: No data

SECTION 12 : ECOLOGICAL INFORMATION

Ecotoxicity:

Ecotoxicity: Not applicable.

SECTION 13 : DISPOSAL CONSIDERATIONS

Description of waste:

Waste Disposal: According to local, state, and federal regulations. This product may be a candidate for metal reclamation.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name: Not restricted as a dangerous good.
DOT UN Number: Not restricted as a dangerous good.

SECTION 15 : REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product:

Magnesium :

TSCA Inventory Status: Listed
Canada DSL: Listed
EC Number: 231-104-6

Titanium :

TSCA Inventory Status: Listed
Canada DSL: Listed
EC Number: 231-142-3

Tin :

TSCA Inventory Status: Listed
Canada DSL: Listed
EC Number: 231-141-8

Nickel :

TSCA Inventory Status: Listed
Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
California PROP 65: Listed: cancer.
Canada DSL: Listed
EC Number: 231-111-4

Silicon :

TSCA Inventory Status: Listed
Canada DSL: Listed
EC Number: 231-130-8

Iron :

TSCA Inventory Status: Listed
Canada DSL: Listed
EC Number: 231-096-4

Manganese :

TSCA Inventory Status: Listed
Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Canada DSL: Listed
EC Number: 231-105-1

Copper :

TSCA Inventory Status: Listed
Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Canada DSL: Listed
EC Number: 231-159-6

Zinc :

TSCA Inventory Status: Listed
Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Canada DSL: Listed
EC Number: 231-175-3

Aluminum :

TSCA Inventory Status: Listed
Section 313: EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Canada DSL: Listed
EC Number: 231-072-3

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:

SDS Creation Date: March 15, 2009
SDS Revision Date: September 09, 2015

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