

SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION

Product identifier used on the label:

Product Name: MicroGuard V

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 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.

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

Inhalation: Short-term exposure to fumes/dust may produce irritation of the respiratory system. Exposure to high concentrations of oxide fumes of copper or zinc may cause metal fume fever.

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

Carcinogenicity: See Toxicological Information (Section #11).

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.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures:

Chemical Name	CAS#	Ingredient Percent	EC Num.
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Silicon	7440-21-3	0 - 0.25% by weight	231-130-8
Zinc	7440-66-6	0 - 24.4% by weight	231-175-3
Titanium	7440-32-6	0 - 0.35% by weight	231-142-3
Copper	7440-50-8	63.1 - 69.8% by weight	231-159-6
Tin	7440-31-5	0 - 5% by weight	231-141-8
Nickel	7440-02-0	0 - 33% by weight	231-111-4
Manganese	7439-96-5	0 - 2.5% by weight	231-105-1
Iron	7439-89-6	0 - 2.3% by weight	231-096-4

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:	SUITABLE: 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:	STEPS TO BE TAKEN IN THE EVENT OF SPILLS, LEAKS, OR RELEASES: Not applicable
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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.
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Conditions for safe storage, including any incompatibilities:

Storage:	No special requirements Shelf Life Limitations: None known Incompatible Materials for Packaging: None known. Incompatible Materials for Storage or Transportation: None known.
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SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Silicon :

Guideline OSHA:	PEL-TWA: 15 mg/m ³ Total particulate/dust (T) PEL-TWA: 5 mg/m ³ Respirable fraction (R)
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Copper :

Guideline ACGIH:	TLV-TWA: 1 mg/m ³ TLV-TWA: 0.2 mg/m ³
Guideline OSHA:	PEL-TWA: 1 mg/m ³ PEL-TWA: 0.1 mg/m ³

Tin :

Guideline OSHA:	PEL-TWA: 2 mg/m ³
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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

Manganese :

Guideline ACGIH: TLV-TWA: 0.2 mg/m3
Guideline OSHA: PEL-Ceiling/Peak: 5 mg/m3
PEL-Ceiling/Peak: 5 mg/m3

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
Color: Silver Metallic
Odor: None
Melting Point: 1000 - 1090 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 Limit: (%): None
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:

Acute Toxicity: ACUTE TOXICITY DATA FOR COMPONENTS:
Potential Exposure Routes: For dust: ingestion, inhalation and eye contact. For fume: inhalation and eye contact. The finished alloy metal is not hazardous.

Silicon :

ACGIH: No

IARC: No

NTP: No

Zinc :

ACGIH: No

IARC: No

NTP: No

Titanium :

ACGIH: No

IARC: No

NTP: No

Copper :

ACGIH: No

IARC: No

NTP: No

Tin :

ACGIH: No

IARC: No

NTP: No

Nickel :

ACGIH: No

IARC: Yes

NTP: Yes

Manganese :

ACGIH: No

IARC: No

NTP: No

Iron :

ACGIH: No

IARC: No

NTP: No

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

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

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

Chronic Effects: Repeated or prolonged overexposure to copper fume may cause the skin and hair to change color.

Silicon :

Skin: Dermal LD50: No data
Inhalation: Inhalation LC50: No data
Ingestion: Oral LD50: 3.16 g/kg (rat)

Zinc :

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

Copper :

Skin: Dermal LD50: 375 mg/kg (rabbit subcutaneous)
Inhalation: Inhalation LC50: No data
Ingestion: Oral LD50: 413 mg/kg (mouse)

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: > 12 mg/kg (rat intratracheal)
Ingestion: Oral LD50: > 5 g/kg (rat)

Manganese :

Skin: Dermal LD50: No data
Inhalation: Inhalation LC50: No data
Ingestion: Oral LD50: 9 g/kg (rat)

Iron :

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: WASTE DISPOSAL METHODS:
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:

Silicon :

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

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

Titanium :

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

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

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

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

Iron :

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

SECTION 16 : ADDITIONAL INFORMATION

HMIS Ratings:

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

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