

POLYONE CORPORATION**MATERIAL SAFETY DATA SHEET****X GRV-15569-01-1**Version Number 1.2
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Print Date 3/23/2014**1. PRODUCT AND COMPANY IDENTIFICATION****POLYONE CORPORATION**
33587 Walker Road, Avon Lake, OH 44012

Telephone : 1 (440) 930-1000 or 1 (866) POLYONE
Emergency telephone : CHEMTREC 1-800-424-9300 (24hrs for spill, leak, fire, exposure
number or accident).

Product name : X GRV-15569-01-1
Product code : EM10019718
Chemical Name : Mixture
CAS-No. : Mixture
Product Use : Industrial Applications

2. COMPOSITION/INFORMATION ON INGREDIENTS

| Components | CAS-No. | Weight percent |
|------------|-----------|----------------|
| Copper | 7440-50-8 | 30 - 60 |
| Tungsten | 7440-33-7 | 30 - 60 |

3. HAZARDS IDENTIFICATION**EMERGENCY OVERVIEW**

This mixture has not been evaluated as a whole. Information provided on the health effects of this product is based on individual components. All ingredients are bound and potential for hazardous exposure as shipped is minimal. However, some vapors may be released upon heating and the end-user (fabricator) must take the necessary precautions (mechanical ventilation, respiratory protection, etc.) to protect employees from exposure.

POTENTIAL HEALTH EFFECTS**Routes of Exposure:** : Inhalation, Ingestion, Skin contact**Acute exposure**

Inhalation : Particulates, like other inert materials can be mechanically irritating.
Ingestion : May be harmful if swallowed.
Eyes : Particulates, like other inert materials can be mechanically irritating.
Skin : Experience shows no unusual dermatitis hazard from routine handling.

Chronic exposure : Refer to Section 11 for Toxicological Information.

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Medical Conditions : None known.
Aggravated by Exposure:

4. FIRST AID MEASURES

Inhalation : Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion : Do not induce vomiting without medical advice. When symptoms persist or in all cases of doubt seek medical advice.

Eyes : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, seek medical attention.

Skin : Wash off with soap and plenty of water. If skin irritation persists seek medical attention.

5. FIREFIGHTING MEASURES

Flash point : not applicable

Flammable Limits
Upper explosion limit : not applicable
Lower explosion limit : not applicable
Auto-ignition temperature : not applicable
Suitable extinguishing media : Carbon dioxide blanket, Water spray, Dry powder, Foam.

Special Fire Fighting Procedures : Fullface self-contained breathing apparatus (SCBA) used in positive pressure mode should be worn to prevent inhalation of airborne contaminants.

Unusual Fire/Explosion Hazards : Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), other hazardous materials, and smoke are all possible.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Wear appropriate personal protection during cleanup, such as impervious gloves, boots and coveralls.

Environmental precautions : Should not be released into the environment. The product should not be allowed to enter drains, water courses or the soil.

Methods for cleaning up : Clean up promptly by sweeping or vacuum. Package all material in plastic, cardboard or metal containers for disposal.

7. HANDLING AND STORAGE

Handling : Take measures to prevent the build up of electrostatic charge. Heat only in areas with appropriate exhaust ventilation.

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Storage : Keep containers dry and tightly closed to avoid moisture absorption and contamination. Keep in a dry, cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Respiratory protection : No personal respiratory protective equipment normally required.
- Eye/Face Protection : Safety glasses with side-shields
- Hand protection : Protective gloves
- Skin and body protection : Long sleeved clothing
- Additional Protective Measures : Safety shoes
- General Hygiene Considerations : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
- Engineering measures : Heat only in areas with appropriate exhaust ventilation. Provide appropriate exhaust ventilation at machinery.

Exposure limit(s)

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| Components | Value | Exposure time | Exposure type | List: | |
|------------|-----------|-----------------------------------|-----------------------------------|----------|--------|
| Copper | 1 mg/m3 | Time Weighted Average (TWA): | Dust and mist. as Cu | ACGIH | |
| | 0.2 mg/m3 | Time Weighted Average (TWA): | Fume. | ACGIH | |
| | 1 mg/m3 | Recommended exposure limit (REL): | Dust and mist. as Cu | NIOSH | |
| | 1 mg/m3 | PEL: | Dust and mist. as Cu | OSHA Z1 | |
| | 0.1 mg/m3 | PEL: | Fume. as Cu | OSHA Z1 | |
| | 1 mg/m3 | Time Weighted Average (TWA): | Dust and mist. as Cu | OSHA Z1A | |
| | 0.1 mg/m3 | Time Weighted Average (TWA): | Fume. as Cu | OSHA Z1A | |
| | 1 mg/m3 | Time Weighted Average (TWA): | Dust and mist. as Cu | MX OEL | |
| | 0.2 mg/m3 | Time Weighted Average (TWA): | Fume. as Cu | MX OEL | |
| | 2 mg/m3 | Short Term Exposure Limit (STEL): | Dust and mist. as Cu | MX OEL | |
| | 2 mg/m3 | Short Term Exposure Limit (STEL): | Fume. as Cu | MX OEL | |
| | Tungsten | 5 mg/m3 | Time Weighted Average (TWA): | as W | ACGIH |
| | | 10 mg/m3 | Short Term Exposure Limit (STEL): | as W | ACGIH |
| | | 5 mg/m3 | Time Weighted Average (TWA): | as W | MX OEL |
| 10 mg/m3 | | Short Term Exposure Limit (STEL): | as W | MX OEL | |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|---------------------|------------------|------------------|-------------------|
| Form | : solid | Evaporation rate | : Not applicable |
| Appearance | : pellets, Slabs | Specific Gravity | : Not determined |
| Colour | : NO PIGMENT | Bulk density | : Not established |
| Odour | : very faint | Vapour pressure | : not applicable |
| Melting point/range | : Not determined | Vapour density | : not applicable |
| Boiling Point: | : not applicable | pH | : not applicable |
| Water solubility | : insoluble | | |

10. STABILITY AND REACTIVITY

| | |
|--------------------------|--|
| Stability | : The product is stable if stored and handled as prescribed. |
| Hazardous Polymerization | : Will not occur. |
| Conditions to avoid | : To avoid thermal decomposition, do not overheat. |
| Incompatible Materials | : Strong acids, oxidizing and reducing agents |

POLYONE CORPORATION**MATERIAL SAFETY DATA SHEET****X GRV-15569-01-1**Version Number 1.2
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Print Date 3/23/2014Hazardous decomposition products : Carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), other hazardous materials, and smoke are all possible.**11. TOXICOLOGICAL INFORMATION**

This mixture has not been evaluated as a whole for health effects. Exposure effects listed are based on existing health data for the individual components which comprise the mixture.

Toxicity Overview

This product contains the following components which in their pure form have the following characteristics:

| CAS-No. | Chemical Name | Effect | Target Organ |
|-----------|---------------|------------------|---|
| 7440-50-8 | Copper | Irritant | Respiratory system. |
| | | Systemic effects | Eyes, Skin, Respiratory system, Liver, Kidney. |
| 7440-33-7 | Tungsten | Systemic effects | Eyes, Skin, Respiratory system, blood and blood forming system. |

Additional Health Hazard Information:

Tungsten 7440-33-7 Prolonged or repeated breathing of this material may result in chronic bronchitis. Exposure to freshly formed fumes from heated metal may cause "metal fume fever".

12. ECOLOGICAL INFORMATION

Persistence and degradability : Not readily biodegradable.

Environmental Toxicity : Chemicals are not readily available as they are bound within the polymer matrix.

Bioaccumulation Potential : Chemicals are not readily available as they are bound within the polymer matrix.

Additional advice : not applicable

13. DISPOSAL CONSIDERATIONS

Product : Like most thermoplastic plastics the product can be recycled. Where possible recycling is preferred to disposal or incineration. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.

Contaminated packaging : Recycling is preferred when possible. The generator of waste material has the responsibility for proper waste classification, transportation and disposal in accordance with applicable federal, state/provincial and local regulations.

14. TRANSPORT INFORMATION

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U.S. DOT Classification : Not regulated for transportation.
ICAO/IATA : Refer to specific regulation.
IMO/IMDG (maritime) : Refer to specific regulation.

15. REGULATORY INFORMATION

US Regulations:

OSHA Status : Classified as hazardous based on components.
TSCA Status : All components of this product are listed on or exempt from the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302)
not applicable

California Proposition : Not applicable
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SARA Title III Section 302 Extremely Hazardous Substance

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

SARA Title III Section 313 Toxic Chemicals:

Unless specific chemicals are identified under this section, this product is Not Applicable under this regulation

| Chemical Name | CAS-No. | Weight percent |
|---------------|-----------|----------------|
| COPPER | 7440-50-8 | 30.00 - 60.00 |

Canadian Regulations:

National Pollutant Release Inventory (NPRI)

| Chemical Name | CAS-No. | Weight percent | NPRI ID# |
|---------------|-----------|----------------|----------|
| Copper | 7440-50-8 | 30.00 - 60.00 | |

WHMIS Classification : Not controlled.

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DSL : All components of this product are on the Canadian Domestic Substances List (DSL) or are exempt.

National Inventories:

Australia AICS : Listed
China IECS : Listed
Europe EINECS : Listed
Japan ENCS : Not determined
Korea KECI : Listed
Philippines PICCS : Listed

16. OTHER INFORMATION

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.