

## 1. Identification

**Product identifier** Model PC-3

**Other means of identification**

**SDS number** WC046

**Recommended use** Brazing rod.

**Recommended restrictions** None known.

**Manufacturer/Importer/Supplier/Distributor information**

**Manufacturer/Supplier** Worthington Industries Incorporated

**Address** 200 Old Wilson Bridge Road  
Columbus, OH 43085  
United States

**Email:** cylinders@worthingtonindustries.com

**Telephone Number:** 866-928-2657

**CHEMTREC - 24 HOURS:**

**Within US and Canada** 800-424-9300

**Outside US and Canada** +1 703-741-5970 (collect calls accepted)

## 2. Hazard(s) identification

**Physical hazards** Not classified.

**Health hazards** Not classified.

**Environmental hazards** Not classified.

**Label elements**

**Hazard symbol** None.

**Signal word** None.

**Hazard statement** Very toxic to aquatic life. Harmful to aquatic life with long lasting effects.

**Precautionary statements**

**Prevention** Observe good industrial hygiene practices.

**Response** Wash thoroughly after handling.

**Storage** Store away from incompatible materials.

**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Other hazards** None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
COPPER, ELEMENTAL	7440-50-8	80-95
SILVER, ELEMENTAL	7440-22-4	0-15
Phosphorous	7723-14-0	5-7.5

**Composition comments** All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

## 4. First-aid measures

**Inhalation** Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

<b>Skin contact</b>	Contact with dust: Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. If skin rash or an allergic skin reaction develops, get medical attention.
<b>Eye contact</b>	Contact with dust: Rinse immediately with plenty of water for at least 15 minutes. Remove any contact lenses. Get medical attention if irritation develops or persists.
<b>Ingestion</b>	Immediately rinse mouth and drink a cupful of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. Only induce vomiting at the instruction of medical personnel. Get medical attention immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Symptoms may include redness, oedema, drying, defatting and cracking of the skin. Nausea, vomiting. Diarrhoea. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Symptoms may include coughing, difficulty breathing and shortness of breath. Overexposure to copper fumes may cause fever, chills, congestion and headaches.
<b>Indication of immediate medical attention and special treatment needed</b>	Treat symptomatically. Exposure may aggravate pre-existing respiratory disorders. Symptoms may be delayed.
<b>General information</b>	Show this safety data sheet to the doctor in attendance.

## 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Extinguish with foam, carbon dioxide or dry powder. Use fire-extinguishing media appropriate for surrounding materials.
<b>Unsuitable extinguishing media</b>	Do not use water or halogenated extinguishing media.
<b>Specific hazards arising from the chemical</b>	Fire or high temperatures create: Metal oxides.
<b>Special protective equipment and precautions for firefighters</b>	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire fighting equipment/instructions</b>	Move containers from fire area if you can do it without risk.
<b>General fire hazards</b>	Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air.

## 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Avoid inhalation of dust from the spilled material. Wear protective clothing as described in Section 8 of this SDS. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
<b>Methods and materials for containment and cleaning up</b>	Stop leak if you can do so without risk. Local authorities should be advised if significant spillages cannot be contained.  For a dry material spill, use a HEPA (high efficiency particle air) vacuum to collect material and place in a sealable container for disposal. Avoid dust formation. Recover and recycle, if practical. Keep out of water supplies and sewers.
<b>Environmental precautions</b>	Prevent further leakage or spillage if safe to do so. Do not contaminate water.

## 7. Handling and storage

<b>Precautions for safe handling</b>	Wear appropriate personal protective equipment (See Section 8). Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Avoid inhalation of dust and fumes. Avoid contact with skin and eyes. Do not get this material on clothing. Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Avoid release to the environment.  Any surface that comes in contact with molten metal must be preheated or specially coated and rust free. Inadvertent contaminants to product such as moisture, ice, snow, grease, or oil can cause an explosion when charged to a molten metal bath or metal furnace (preheating metal will remove moisture from product).
<b>Conditions for safe storage, including any incompatibilities</b>	Store in tightly closed original container in a dry, cool and well-ventilated place. Store in a closed container away from incompatible materials. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. ACGIH Threshold Limit Values

Components	Type	Value	Form
COPPER, ELEMENTAL (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.
Phosphorous (CAS 7723-14-0)	TWA	0.2 mg/m <sup>3</sup> 0.1 mg/m <sup>3</sup>	Fume.
SILVER, ELEMENTAL (CAS 7440-22-4)	TWA	0.1 mg/m <sup>3</sup>	Dust and fume.

#### Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value	Form
COPPER, ELEMENTAL (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.
Phosphorous (CAS 7723-14-0)	TWA	0.2 mg/m <sup>3</sup> 0.1 mg/m <sup>3</sup>	Fume.
SILVER, ELEMENTAL (CAS 7440-22-4)	TWA	0.1 mg/m <sup>3</sup>	

#### Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
COPPER, ELEMENTAL (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.
Phosphorous (CAS 7723-14-0)	TWA	0.2 mg/m <sup>3</sup> 0.1 mg/m <sup>3</sup>	Fume.
SILVER, ELEMENTAL (CAS 7440-22-4)	STEL	0.03 mg/m <sup>3</sup>	
	TWA	0.01 mg/m <sup>3</sup>	

#### Canada. Manitoba OELs (Reg. 217/2006, The Workplace Safety And Health Act)

Components	Type	Value	Form
Phosphorous (CAS 7723-14-0)	TWA	0.1 mg/m <sup>3</sup>	
SILVER, ELEMENTAL (CAS 7440-22-4)	TWA	0.1 mg/m <sup>3</sup>	Dust and fume.

#### Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
COPPER, ELEMENTAL (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and fume.
Phosphorous (CAS 7723-14-0)	TWA	0.2 mg/m <sup>3</sup> 0.1 mg/m <sup>3</sup>	Fume.
SILVER, ELEMENTAL (CAS 7440-22-4)	TWA	0.1 mg/m <sup>3</sup>	Dust and fume.

#### Canada. Quebec OELs. (Ministry of Labour - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
COPPER, ELEMENTAL (CAS 7440-50-8)	TWA	1 mg/m <sup>3</sup>	Dust and mist.
Phosphorous (CAS 7723-14-0)	TWA	0.2 mg/m <sup>3</sup> 0.1 mg/m <sup>3</sup>	Fume.
SILVER, ELEMENTAL (CAS 7440-22-4)	TWA	0.1 mg/m <sup>3</sup>	

#### Biological limit values

No biological exposure limits noted for the ingredient(s).

<b>Exposure guidelines</b>	No exposure standards allocated.
<b>Appropriate engineering controls</b>	Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of dust. Keep melting/soldering temperatures as low as possible to minimize the generation of fume. Shower, hand and eye washing facilities near the workplace are recommended.
<b>Individual protection measures, such as personal protective equipment</b>	
<b>Eye/face protection</b>	Wear safety glasses with side shields (or goggles). Wear a face shield when working with molten material.
<b>Skin protection</b>	
<b>Hand protection</b>	Wear protective gloves (i.e. latex, nitrile, neoprene).
<b>Other</b>	Chemical resistant clothing is recommended.
<b>Respiratory protection</b>	Use a respirator when local exhaust or ventilation is not adequate to keep exposures below the OEL. In a confined space a supplied respirator may be required. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
<b>Thermal hazards</b>	Heat resistant/insulated gloves and clothing are recommended when working with molten material.
<b>General hygiene considerations</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Solid.
<b>Form</b>	Rod. Strips.
<b>Colour</b>	Copper.
<b>Odour</b>	Odourless.
<b>Odour threshold</b>	Not applicable.
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	1083 °C (1981.4 °F) Copper
<b>Initial boiling point and boiling range</b>	2300 °C (4172 °F) Copper
<b>Flash point</b>	Not applicable.
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Fine particles may form explosive mixtures with air.

### Upper/lower flammability or explosive limits

<b>Flammability limit - lower (%)</b>	Not available.
<b>Flammability limit - upper (%)</b>	Not available.
<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - lower (%) temperature</b>	Not applicable.
<b>Explosive limit – upper (%)</b>	Not available.
<b>Explosive limit - upper (%) temperature</b>	Not applicable.

<b>Vapour pressure</b>	1 @1628°C Copper
<b>Vapour density</b>	Not applicable.
<b>Relative density</b>	8.9 (H <sub>2</sub> O=1) Copper
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Not soluble
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not applicable.

<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Specific gravity</b>	8.9

## 10. Stability and reactivity

<b>Reactivity</b>	The product is non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerisation does not occur.
<b>Conditions to avoid</b>	Contact with incompatible materials. Avoid molten metal contact with water.
<b>Incompatible materials</b>	Strong acids. Oxidizers. Halogens. Acid chlorides.
<b>Hazardous decomposition products</b>	Toxic metal oxides are emitted when heated above the melting point.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the mucous membranes and respiratory tract. Lung damage and possible pulmonary edema can result from dust exposure. Inhalation of fumes may cause a flu-like illness called metal fume fever.
<b>Skin contact</b>	Dust may irritate skin. Contact with molten material may cause thermal burns.
<b>Eye contact</b>	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.
<b>Ingestion</b>	Ingestion of dusts generated during working operations may cause nausea and vomiting. Copper poisoning can result in hemolytic anemia and kidney, liver and spleen damage.

<b>Symptoms related to the physical, chemical and toxicological characteristics</b>	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Contact with molten material may cause thermal burns.
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### Information on toxicological effects

<b>Acute toxicity</b>	High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. When heated, the vapours/fumes given off may cause respiratory tract irritation. Acute overexposure to Copper dust/fume can cause irritation of the eyes, nose, throat, and skin and under severe fume overexposure can cause metal fume fever with flu-like symptoms such as sweet metal taste, dry throat, coughing, fever and chills, tight chest, dyspnea, headache, blurred vision, back pain, nausea, vomiting, fatigue. Symptoms usually disappear within 24 hours. Copper may cause skin and hair discoloration. Inhalation of copper dusts may change the gums and mucous lining of the mouth which is generally attributable to localized tissue effect rather than general toxicity.
<b>Skin corrosion/irritation</b>	Dust may irritate skin.
<b>Serious eye damage/eye irritation</b>	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye.
<b>Respiratory or skin sensitisation</b>	
<b>Respiratory sensitisation</b>	No sensitising effects known.
<b>Skin sensitisation</b>	No sensitising effects known.
<b>Germ cell mutagenicity</b>	Not classified.
<b>Carcinogenicity</b>	Not classifiable as to carcinogenicity to humans.
<b>Reproductive toxicity</b>	Not classified.
<b>Specific target organ toxicity - single exposure</b>	Not classified.
<b>Specific target organ toxicity - repeated exposure</b>	Not classified.
<b>Aspiration hazard</b>	Not relevant, due to the form of the product.
<b>Chronic effects</b>	Ingestion of silver may cause a permanently benign bluish gray discoloration to the skin (argyria).
<b>Further information</b>	No other specific acute or chronic health impact noted.

## 12. Ecological information

<b>Ecotoxicity</b>	Alloys in massive forms present a limited hazard for the environment.
<b>Persistence and degradability</b>	The product is not biodegradable.
<b>Bioaccumulative potential</b>	No data available.
<b>Mobility in soil</b>	Alloys in massive forms are not mobile in the environment.
<b>Other adverse effects</b>	None known.

## 13. Disposal considerations

<b>Disposal instructions</b>	Dispose in accordance with all applicable regulations.
<b>Local disposal regulations</b>	Dispose of in accordance with local regulations.
<b>Hazardous waste code</b>	Waste codes should be assigned by the user based on the application for which the product was used.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Scrapped material should be sent for refining to recover precious metal content. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.
<b>Contaminated packaging</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

<b>TDG</b>	Not regulated as dangerous goods.
<b>IATA</b>	Not regulated as dangerous goods.
<b>IMDG</b>	Not regulated as dangerous goods.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.

## 15. Regulatory information

<b>Canadian regulations</b>	This product has been classified in accordance with the hazard criteria of the HPR and the SDS contains all the information required by the HPR.	
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### Controlled Drugs and Substances Act

Not regulated.

### Export Control List (CEPA 1999, Schedule 3)

Not listed.

### Greenhouse Gases

Not listed.

### Precursor Control Regulations

Phosphorous (CAS 7723-14-0) Class A

### International regulations

#### Stockholm Convention

Not applicable.

#### Rotterdam Convention

Not applicable.

#### Kyoto protocol

Not applicable.

#### Montreal Protocol

Not applicable.

#### Basel Convention

Not applicable.

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

<b>Issue date</b>	26-July-2016
<b>Revision date</b>	-
<b>Version No.</b>	01
<b>References</b>	EPA: AQUIRE database NLM: Hazardous Substances Data Base US. IARC Monographs on Occupational Exposures to Chemical Agents HSDB® - Hazardous Substances Data Bank JIS Z 7250: 2005 Safety data sheet for chemical products-Part 1:Content and order of sections JCIA GHS Guideline, October 2008 IARC Monographs. Overall Evaluation of Carcinogenicity National Toxicology Program (NTP) Report on Carcinogens ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices GOST 30333-2007 - Chemical production safety passport. General requirements
<b>Disclaimer</b>	All information in this Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.