

Black Copper Oxide
MATERIAL SAFETY DATA SHEET
13600 SERIES CUPRIC OXIDE

NPCA - HMIS HAZARD RATING	
Health	1
Flammability	0
Reactivity	0
Maximum Personal Protection	E

SECTION I
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EMERGENCY TELEPHONE (406) 227-5302 ATTN: Dan Brimhall

CHEMICAL NAME	FORMULA	CAS NUMBER	APPROX. WT. %
CUPROUS OXIDE	Cu ₂ O	1317-39-1	1.5
CUPRIC OXIDE	CuO	1317-38-0	98
METALLIC COPPER	Cu	7440-50-8	0.5

SECTION II **HAZARDOUS INGREDIENTS**

	%	TLV & PEL
COPPER	78% (Min)	1 mg/m ³

There is no ACGIH TLV or OSHA PEL for either cuprous oxide or cupric oxide. Exposure is governed by the 8 hour TWA established for finely divided copper in dusts or mists. Cuprous oxide, cupric oxide and copper are not carcinogenic materials as listed by OSHA (29CFR1910) or ACGIH (Appendix A, Threshold Limit Values for Chemical Substances 1989-1990).

SECTION III **PHYSICAL DATA**

Boiling Point (f): NA	Specific Gravity: H ₂ O=1 6.0	Vapor Pressure: NA	Percent Volatile by volume: (%) 0%
Vapor Density: NA	Evaporation Rate: NA	Solubility in Water: Negligible	Melting Point: Cupric oxide decomposes at 1847°F to cuprous oxide and oxygen. Cuprous oxide melts at 2255°F
			Appearance and Odor: Black finely divided powder. No odor.

SECTION IV **FIRE & EXPLOSION HAZARD DATA**

Flash Point NA	Flammable Limits LEL NA	UEL NA
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Extinguishing Media: Will not burn.

Special Fire Fighting Procedures: None known.

Unusual Fire Fighting Procedures: See Section VI.

SECTION V **HEALTH HAZARD DATA**

Threshold Limit Value: See Section II

Signs, Symptoms, and Effects of Overexposure: Nausea, chills, diarrhea. May cause respiratory irritation; skin irritation (oxide pox); fever, eye irritation with redness, pain and conjunctivitis; preexisting lung diseases may be aggravated by exposure. Could result in respiratory disease if over exposed on a chronic basis.

Primary Routes of Entry: Inhalation and/or ingestion.

Emergency and First Aid Procedure: Remove to fresh air. Lay patient down. Cover with blanket. If irritated, flush eyes and skin with large volumes of fresh water for 15 minutes. Refer to physician.

SECTION VI **REACTIVITY DATA**

Stable Unstable

Conditions and Materials to Avoid: Cupric oxide may react violently with strong reductants, e.g., organic compounds, such as but not limited to hydrazine and acetylene carbide compounds, acids, bases, and metals such as but not limited to Al, Mg, B, K, Na, Ti, & Zr.

Hazardous Decomposition Products: Copper fumes will be released if cuprous oxide is heated above its melting point (2255°).

Hazardous Polymerization: Will not occur.

SECTION VII **SPILL OR LEAK PROCEDURES**

Steps to be taken in case material is released or spilled: Clean up with vacuum or conventional tools. Avoid dusting.

Waste Disposal: Approved land fill if allowed by local, state and federal authorities.

SECTION VIII **SPECIAL PROTECTION INFORMATION**

Respiratory Protection: Cartridge type filter or dust mask approved by MSHA or NOISH. Refer to Respiratory Protective Devices approved by Bureau of Mines Circular IC 8436.

Ventilation: To keep below listed TLV in Section II, use general dilution type ventilation.

Protective Gloves: Wear if skin contact is probable and skin is sensitive.

Eye Protection: Safety glasses or goggles.

Other Protective Equipment: Long sleeve shirts if contact is probable and skin is sensitive.

SECTION IX **SPECIAL PRECAUTIONS**

Precautions to be taken in handling and storing: Keep lids tightly sealed. Store in cool, dry place.

Other Precautions: Do not take internally. Avoid prolonged contact with skin. Wash with soap and water after contact.

SECTION X **SARA TITLE III**

This product contains copper compounds and is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

**13600
 CUPRIC OXIDE**

SPECIFICATIONS	MIN/MAX	TYPICAL
Cupric Oxide - CuO (13600 method)	98% MIN	98.5%
Total Copper	78.5% MIN	79.5%
Cuprous Oxide	3% MAX	2.49%
Metallic Copper	1.5% MAX	.75%
Metal Other Than Copper		.3%
Acetone Soluble		NIL
Chlorides		NIL
Sulfates		NIL
Moisture Content		NIL

PHYSICAL PROPERTIES

-325 Mesh(Tyler)	99.9%
Oil Demand per 100 pounds pigment	10.9 lbs.
Specific Gravity (g/cc)	6.9716
Pounds per U.S. Gallon	58.07
Bulking - U.S. Gallons per Pound	.01722
Bulking - Cubic Centimeters per Gram	.14343
Bulk Density	91.23

C.A.S. Number 1317-38-0

Available packaged in 50 lb. paper bags, bulk bags or steel pails.
 Also available in other sizes upon request.

This material meets the requirements of U.S. Military Specification MILC13600A

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