

LTS RESEARCH LABORATORIES, INC.  
MATERIAL SAFETY DATA SHEET  
COPPER SELENIUM OXIDE

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: COPPER SELENIUM OXIDE  
CHEMICAL FORMULA:  $Cu_2SeO_5$

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.  
COMPANY'S STREET: 37 RAMLAND ROAD  
COMPANY'S CITY: ORANGEBURG  
COMPANY'S STATE: NEW YORK  
COMPANY'S ZIP CODE: 10962

EMERGENCY CHEMTREC #: 800-262-8200  
COMPANY'S EMERGENCY TEL. #: 800-424-9300 (LOCAL)  
703-527-3887 (INTERNATIONAL)  
COMPANY'S TEL #: 845-494-2940

RECOMMENDED USE: SCIENTIFIC RESEARCH AND DEVELOPMENT

2. HAZARDS IDENTIFICATION

SIGNAL WORD: DANGER



TOXIC IF SWALLOWED OR INHALED

HAZARD SYMBOLS:



CHRONIC HEALTH HAZARD



DANGEROUS FOR AQUATIC ENVIRONMENTS

HMS HEALTH RATINGS (0-4):  
HEALTH: 3  
FLAMMABILITY: 0  
REACTIVITY: 1  
CARCINOGEN: NOT CLASSIFIED

3. COMPOSITION

CHEMICAL FAMILY: METAL OXIDE  
ADDITIONAL NAMES: COPPER OXIDE SELENIUM OXIDE  
COMPOSITION: THIS SUBSTANCE IS EXPECTED TO BE A SINGLE PHASE MATERIAL NOT COMMONLY FOUND IN DATABASES. BELOW ARE MORE COMMON MATERIALS USED IN ITS FORMATION. MOST OF THE SAFETY DATA ON THIS SHEET IS BASED OFF THESE COMPONENTS.

COPPER OXIDE ( $Cu_2O$ ):  
PERCENTAGE: 56 wt%

CAS #: 1317-39-1  
SELENIUM OXIDE (SeO<sub>3</sub>):  
PERCENTAGE: 44 wt%  
CAS #: 13786-86-0

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#### 4. FIRST AID PROCEDURES

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IMPORTANT SYMPTOMS: INHALATION: MAY CAUSE A RED, DRY THROAT, COUGHING AND SHORTNESS OF BREATH  
SPECIAL TREATMENT: NONE  
INHALATION: REMOVE VICTIM TO FRESH AIR, KEEP WARM AND QUIET, GIVE OXYGEN IF BREATHING IS DIFFICULT AND SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.  
INGESTION: DO NOT INDUCE VOMITING; IMMEDIATELY CALL FOR MEDICAL HELP.  
SKIN: REMOVE CONTAMINATED CLOTHING, BRUSH MATERIAL OFF SKIN, WASH AFFECTED AREA WITH MILD SOAP AND WATER, AND SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.  
EYES: FLUSH EYES WITH LUKEWARM WATER, LIFTING UPPER AND LOWER EYELIDS, FOR AT LEAST 20 MINUTES. SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.

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#### 5. FIRE AND EXPLOSION HAZARDS DATA

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FLAMMABILITY: NON-FLAMMABLE  
EXTINGUISHING MEDIA: USE SUITABLE EXTINGUISHING AGENT FOR SURROUNDING MATERIAL AND TYPE OF FIRE.  
SPEC. FIRE FIGHTING PROCEDURE: USE FULL-FACE, SELF-CONTAINED BREATHING APPARATUS WITH FULL PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. FUMES FROM FIRE IS HAZARDOUS. ISOLATE RUNOFF TO PREVENT ENVIRONMENTAL POLLUTION.

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#### 6. ACCIDENTAL RELEASE MEASURES

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IF MATERIAL IS RELEASED/ SPILLED: WEAR APPROPRIATE RESPIRATORY AND PROTECTIVE EQUIPMENT SPECIFIED IN SPECIAL PROTECTION INFORMATION. ISOLATE SPILL AREA AND PROVIDE VENTILATION. VACUUM UP SPILL USING A HIGH EFFICIENCY PARTICULATE ABSOLUTE (HEPA) AIR FILTER AND PLACE IN A CLOSED CONTAINER FOR DISPOSAL. TAKE CARE NOT TO RAISE DUST.  
ENVIRONMENTAL PRECAUTIONS: DO NOT ALLOW MATERIAL TO BE RELEASED INTO THE ENVIRONMENT, WATER SOURCES, OR SOIL.

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#### 7. HANDLING AND STORAGE

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HANDLING CONDITIONS: WASH THOROUGHLY AFTER HANDLING. HANDLE UNDER DRY PROTECTIVE GAS.  
PROTECTIVE EQUIPMENT: GLASSES, GLOVES, DUST RESPIRATOR  
STORAGE CONDITIONS: STORE IN A COOL DRY PLACE IN A TIGHTLY SEALED CONTAINER. MATERIAL IS AIR AND MOISTURE SENSITIVE.  
WORK/HYGIENIC/MAINTENANCE: IMPLEMENT ENGINEERING AND WORK PRACTICE CONTROLS TO REDUCE AND MAINTAIN CONCENTRATION OF EXPOSURE AT LOW LEVELS. USE GOOD HOUSEKEEPING AND SANITATION PRACTICES. DO NOT USE TOBACCO OR FOOD IN WORK AREA. WASH THOROUGHLY BEFORE EATING AND SMOKING. DO NOT BLOW DUST OFF CLOTHING OR SKIN WITH COMPRESSED AIR.  
VENTILATION: TO MAINTAIN CONCENTRATION AT OR BELOW TLV.

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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SELENIUM (Se):	
OSHA PEL:	0.2 mg/m <sup>3</sup>
ACGIH TLV:	0.2 mg/m <sup>3</sup>
CARCINOGEN:	
NTP:	NO
IARC MONOGRAPHS:	NO
OSHA REGULATED:	NO
SPECIAL EQUIPMENT:	NONE
RESPIRATORY PROTECTION:	NIOSH APPROVED DUST, MIST RESPIRATOR
PROTECTIVE GLOVES:	RUBBER GLOVES
EYE PROTECTION:	SAFETY GLASSES
OTHER:	PROTECTIVE GEAR SUITABLE TO PREVENT CONTAMINATION.

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## 9. PHYSICAL AND CHEMICAL CHARACTERISTICS

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COLOR	DARK GREY TO BLACK
FORM:	SPUTTERING TARGET, PELLETS, GRANULES, POWDER
ODOR:	ODORLESS
SOLUBILITY IN H <sub>2</sub> O:	YES
BOILING POINT:	N/A
MELTING POINT:	118 °C
SPECIFIC GRAVITY (H <sub>2</sub> O=1):	3.72 g/cc
MOLECULAR WEIGHT:	N/A

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## 10. REACTIVITY

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STABILITY:	N/A
INCOMPATIBILITY:	OXIDIZING AGENTS, AIR, MOISTURE
HAZ. DECOMPOSITION PRODUCTS:	NONE
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR

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## 11. TOXICOLOGICAL INFORMATION

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EMERGENCY OVERVIEW:	TO THE BEST OF OUR KNOWLEDGE THE CHEMICAL, PHYSICAL & TOXICOLOGICAL PROPERTIES OF XXX HAVE NOT BEEN THOROUGHLY INVESTIGATED AND RECORDED.
ROUTES OF ENTRY:	INHALATION, SKIN, EYES, AND INGESTION.
POTENTIAL HEALTH EFFECTS:	
EYE:	MAY CAUSE ABRASIVE IRRITATION.
SKIN:	MAY CAUSE ABRASIVE IRRITATION
INGESTION:	MAY BE FATAL
INHALATION:	MAY BE FATAL
TARGET ORGANS:	MAY CAUSE DAMAGE TO THE KIDNEYS, LIVER, AND BLOOD TISSUE THROUGH REPEATED OR PROLONGED EXPOSURE.
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:	N/A
SIGNS & SYMPTOMS OF EXPOSURE:	N/A

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## 12. ECOLOGICAL INFORMATION

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ECOLOGICAL EFFECTS:	HIGHLY TOXIC TO AQUATIC ORGANISMS EVEN IN SMALL QUANTITIES. DANGER TO DRINKING WATER IF EXPOSED.
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### 13. DISPOSAL CONSIDERATIONS

DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

### 14. TRANSPORTATION DATA

UN NUMBER: UN3283  
UN PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID,  
N.O.S. (COPPER SELENIUM OXIDE)  
PACKING GROUP: II



HAZARD CLASS: 6 TOXIC SUBSTANCES

### 15. REGULATORY INFORMATION

SEC.302 (EHS): YES  
SEC.304 (RQ): N/A  
SEC.313 (SARA): YES

### 16. OTHER INFORMATION

THIS SAFETY DATA SHEET SHOULD BE USED IN CONJUNCTION WITH TECHNICAL SHEETS. IT DOES NOT REPLACE THEM. THE INFORMATION GIVEN IS BASED ON OUR KNOWLEDGE OF THIS PRODUCT, AT THE TIME OF PUBLICATION. IT IS GIVEN IN GOOD FAITH. THE ATTENTION OF THE USER IS DRAWN TO THE POSSIBLE RISKS INCURRED BY USING THE PRODUCT FOR ANY OTHER PURPOSE OTHER THAN THAT FOR WHICH IT WAS INTENDED. THIS DOES NOT IN ANY WAY EXCUSE THE USER FROM KNOWING AND APPLYING ALL THE REGULATIONS GOVERNING HIS ACTIVITY. IT IS THE SOLE RESPONSIBILITY OF THE USER TO TAKE ALL PRECAUTIONS REQUIRED IN HANDLING THE PRODUCT. THE AIM OF THE MANDATORY REGULATIONS MENTIONED IS TO HELP THE USER TO FULFILL HIS OBLIGATIONS REGARDING THE USE OF HAZARDOUS PRODUCTS.

DATE MSDS PREPARED: 6/16/14  
DATE LAST REVISED: N/A