

LTS RESEARCH LABORATORIES, INC.  
MATERIAL SAFETY DATA SHEET  
ZINC OXIDE-CADMIUM OXIDE

GENERAL

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  
DATE MSDS PREPARED: 02/03/00  
DATE MSDS REVISED: 11/05/12

1. PRODUCT IDENTIFICATION

PRODUCT NAME: ZINC OXIDE-CADMIUM OXIDE  
CHEMICAL NATURE: METAL OXIDE  
FORMULA: ZnO-CdO  
CAS #: 1314-13-2/ 1306-19-0

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT: N/A  
MELTING POINT: N/A  
MOLECULAR WEIGHT: N/A  
VAPOR DENSITY: N/A  
VAPOR PRESSURE: N/A  
SPECIFIC GRAVITY (WATER=1): N/A  
% VOLATILES: N/A  
SOLUBILITY IN H<sub>2</sub>O: INSOLUBLE  
APPEARANCE AND ODOR: GRAY COLOUR , ODORLESS

3. HAZARD IDENTIFICATION

HAZARDOUS COMPONENTS %  
ZINC OXIDE 0-100%  
OSHA/PEL: 15 mg/m<sup>3</sup>  
ACGIH/TLV 10 mg/m<sup>3</sup>  
OTHER LIMITS 5 mg/m<sup>3</sup>  
HMIS RATING:  
HEALTH: 2  
FLAMMABILITY: 0  
REACTIVITY: 0  
PROTECTIVE EQUIPMENT: E: GLASSES, GLOVES, DUST RESP.  
HAZARDOUS COMPONENT:  
DESIGNATION: VERY TOXIC  
RISK PHRASES: R33 DANGER OC CUMULATIVE EFFECTS  
R40 POSSIBLE RISK OF IRREVERSIBLE EFFECTS

4. FIRE FIGHTING MEASURES

FLASH POINT: N/A  
AUTOIGNITION TEMPERATURE: N/A  
FLAMMABLE LIMITS:  
UPPER: N/A  
LOWER: N/A  
FLAMMABILITY: NON-FLAMMABLE SOLID

EXTINGUISHING MEDIA: USE SUITABLE MEDIA FOR SURROUNDING MATERIALS AND TYPE OF FIRE  
 USE FIRE FIGHTING MEASURES SUIT THE ENVIRONMENT AND TAKE INTO ACCOUNT OTHER MATERIALS WHICH MAY BE INVOLVED. IN GENERAL, WATER-BASED EXTINGUISHERS SHOULD NOT BE USED FOR FIRES INVOLVING ORGANIC MATERIALS. USE CARBON DIOXIDE OR DRY POWDER.

SPECIAL FIRE FIGHTING PROCEDURES: FIREFIGHTERS MUST WEAR FULL FACE, SELF-CONTAINED BREATHING APPARATUS WITH FULL PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES. FUMES FROM THE FIRE ARE HAZARDOUS. ISOLATE RUNOFF TO PREVENT ENVIRONMENTAL POLLUTION.

UNUSUAL FIRE AND EXPLOSION HAZARDS: WHEN HEATED TO DECOMPOSITION ZINC OXIDE MAY EMIT TOXIC FUMES OF ZnO. MAY EXPLODE WHEN MIXED WITH CHLORINATED RUBBER. VIOLENT REACTION WITH MAGNESIUM, LINSEED OIL.

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5. HEALTH HAZARD INFORMATION

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EFFECTS OF EXPOSURE: ZINC COMPOUNDS HAVE VARIABLE LOW TOXICITY. ZINC IS NOT INHERENTLY A TOXIC ELEMENT. HOWEVER, WHEN HEATED IT EVOLVES A FUME OF ZINC OXIDE WHICH, WHEN INHALED FRESH CAN CAUSE A DISEASE KNOWN AS "BRASS FOUNDERS" "AGUE", OR BRASS CHILLS". ZINC DUST WHICH IS NOT FRESHLY FORMED IS VIRTUALLY INNOCUOUS. THERE IS NO CUMULATIVE EFFECT FROM THE INHALATION OF ZINC FUMES. ACUTE CHRONIC EFFECTS:

INHALATION: MAY CAUSE IRRITATION OF RESPIRATORY TRACT, NASOPHARYNGITIS AND LARYNGITIS.

INGESTION: MODERATELY TOXIC.

.SKIN: MAY CAUSE IRRITATION.

EYE: MAY CAUSE IRRITATION

CHRONIC AFFECTS:

INHALATION: MAY CAUSE HUMAN SYSTEMIC EFFECTS.

INGESTION: NO CHRONIC EFFECTS RECORDED.

.SKIN: NO CHRONIC EFFECTS RECORDED..

EYE: NO CHRONIC EFFECTS RECORDED.

ROUTES OF EXPOSURE: INHALATION, INGESTION, SKIN, EYE.

TARGET ORGAN: NO TARGET ORGANS RECORDED.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: PREEXISTING RESPIRATORY DISORDERS

CARCINOGENITY:

NTP: NO

IARC: NO

OSHA: NO

RTECS NO: EV19225000

ACUTE TOXICITY: LD50: ORL-RAT 72MG/KG  
 DANGER OF CUMULATIVE EFFECTS. POSSIBLE RISK OF IRREVERSIBLE EFFECTS.

SPECIAL NOTE: SYMPTOMS OF EXPOSURE MAY INCLUDE HEADACHE, NAUSEA AND VOMITING.

CHRONIC TOXICITY: CARCINOGEN. MAY CAUSE DAMAGE TO THE LUNGS MAY CAUSE DAMAGE TO THE KIDNEYS

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6. STABILITY

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STABILITY: STABLE

CONDITION TO AVOID: NONE  
INCOMPATIBILITY (MATERIAL TO AVOID): ALUMINUM, HEXACHLOROETHANE, CHLORINATED  
SPECIFIC HAZARD: OXIDISING AGENTS. ACIDS.  
INCOMPATIBILITIES: RUBBER, LINSEED OIL, MAGMESIUM  
HAZARDOUS DECOMPOSITION PRODUCTS: ZINC OXIDE.  
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

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#### 7. EMERGENCY AND FIRST AID PROCEDURES:

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INHALATION: REMOVE TO FRESH AIR; KEEP WARM AND QUIET; GIVE OXYGEN IF BREATHING IS DIFFICULT. TREAT FOR PULMONARY EDEMA. AND SEEK MEDICAL ATTENTION.  
INGESTION: PROVIDE 1-2 GLASS OF MILK OR WATER AND INDUCE VOMITING IF CONSCIOUS, SEEK IMMEDIATE MEDICAL ATTENTION.  
SKIN: REMOVE CONTAMINATED CLOTHING, BRUSH MATERIAL OFF SKIN, WASH AFFECTED AREA WITH MILD SOAP AND WATER, MEDICAL HELP WILL BE NEEDED IF SYMPTOM PERSIST.  
EYE: RINSE EYE FOR SEVERAL MINUTES UNDER RUNNING WATER. THEN CONSULT A DOCTOR IF SYMPTOMS PERSISTS.

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#### 8. HANDLING AND STORAGE

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HANDLING AND STORAGE: KEEP CONTAINER TIGHTLY CLOSED. SUITABLE FOR ANY GENERAL CHEMICAL STORAGE AREA, BUT KEEP POWDERED ZINC DRY AND AWAY FROM STRONG OXIDIZING MATERIALS AND OTHER INCOMPATIBILITIES. CHEMICALS SHOULD BE USED ONLY BY THOSE TRAINED IN HANDLING POTENTIALLY HAZARDOUS MATERIALS. RUBBER GLOVES, EYE PROTECTION AND PROTECTIVE CLOTHING SHOULD BE WORN. OPERATIONS SHOULD BE CARRIED OUT IN AN EFFICIENT FUME HOOD OR EQUIVALENT SYSTEM. STORE IN TIGHTLY SEALED CONTAINERS IN A COOL PLACE. PROTECT FROM MOISURE.  
OTHER PRECAUTIONS: NORMAL LAB COAT.

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#### 9. SPILL OR LEAK PROCEDURES

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STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: WEAR APPROPRIATE RESPIRATORY AND PROTECTIVE EQUIPMENT. ISOLATE SPILLED AREA AND PROVIDE VENTILATION. VACUUM UP SPILL AREA WITH HIGH EFFICIENCY PARTICULATE ABSOLUTE AIR FILTER AND PROVIDE VENTILATION TAKE CARE NOT RAISE DUST.  
WASTE DISPOSAL METHOD: IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.  
SPECIAL PROTECTION INFORMATION:  
RESPIRATORY PROTECTION: NIOSH/MSHA APPROVED DUSR RESPIRATOR.  
VENTILATION: LOCAL EXHAUST VENTILATION MAY BE NECESSARY TO CONTROL ANY AIR CONTAMINANTS TO WITHIN THEIR PELS OR TLVs DURING THE USE OF THIS PRODUCT. GOOD GENERAL EXHAUST IS RECOMMENDED.  
PROTECTIVE GLOVES: RUBBER GLOVES

EYE PROTECTION:	SAFETY GLASSES
OTHER PROTECTIVE EQUIPMENT OR CLOTHING:	PROTECTIVE GEAR SUITABLE TO PREVENT CONTAMINATION. BARRIER CREAM MAY HELP PREVENT IRRITATION IN HYPERSENSATIVE ONE.

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#### 10. TOXICITY DATA

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TOXICITY:	
ACUTE ORAL TOXICITY (LD50):	7950 MG/KG FOR MOUSE
CHRONIC EFFECTS ON HUMAN:	NOT AVAILABLE
ACUTE EFFECTS ON HUMAN:	HAZARDOUS IN CASE EYE CONTACT. INFLAMMATION OF THE EYE IS CHARACTERIZED BY REDNESS, WATERING AND ITCHING. IRRITATION, SCALING, REDDENING LEADING TO BISTER FORMATION TO SKIN. INHALATION CAUSES LUNG IRRITATION.
SENSITIZATION:	N/A
CARCINOGENICITY:	NO
TERATOCITY:	N/A
RTECS NO:	EV19225000
ACUTE TOXICITY:	LD50: ORL-RAT 72MG/KG DANGER OF CUMULATIVE EFFECTS. POSSIBLE RISK OF IRREVERSIBLE EFFECTS.
SPECIAL NOTE:	SYMPTOMS OF EXPOSURE MAY INCLUDE HEADACHE, NAUSEA AND VOMITING.
CHRONIC TOXICITY:	CARCINOGEN. MAY CAUSE DAMAGE TO THE LUNGS MAY CAUSE DAMAGE TO THE KIDNEYS.

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#### 11. TRANSPORTATION DATA

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HAZARD CLASS:	N/D
ADR//RID CLASS:	N/D
IMDG CLASS:	N/D
AIR TRAN. ICAO/IATA CLASS:	N/D
MARITIME TRAN. IMDG CLASS:	N/D

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#### 12. OTHER INFORMATION

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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.