

LTS RESEARCH LABORATORIES, INC.
MATERIAL SAFETY DATA SHEET
ZINC OXIDE ALUMINIUM OXIDE (AZO)

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: 06/06/11

1. PRODUCT IDENTIFICATION

PRODUCT NAME: ZINC OXIDE ALUMINIUM OXIDE
SYNONYM: ZINC OXIDE DOPED WITH ALUMINA.
CHEMICAL NATURE: METAL OXIDE
FORMULA: $ZnO-AL_2O_3$
CAS #: 1314-13-2 /1344-28-1

2. PHYSICAL AND CHEMICAL CHARACTERISTICS

BOILING POINT: N/A
MELTING POINT: N/A
MOLECULAR WEIGHT: 81.37 G/MOLE / 101.96 G/MOLE
VAPOR DENSITY: N/A
VAPOR PRESSURE: N/A
SPECIFIC GRAVITY (WATER=1): N/A
% VOLATILES: N/A
DENSITY: N/A
SOLUBILITY IN H₂O: INSOLUBLE
APPEARANCE AND ODOR: WHITE TO YELLOWISH POWDER AND PIECES, ODORLESS

3. HAZARD IDENTIFICATION

HAZARDOUS COMPONENTS %

ZINC OXIDE 0-100%
OSHA/PEL: 15 mg/m³
ACGIH/TLV 10 mg/m³
OTHER LIMITS 5 mg/m³
SEC. 302 NO
SEC 304 NO
EC 313 NO
ALUMINUM OXIDE 0-100%
OSHA/PEL: 15 mg/m³
ACGIH/TLV 10 mg/m³

HMS RATING:

HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0
PROTECTIVE EQUIPMENT: E: GLASSES, GLOVES, DUST RESP.
HAZARD DESCRIPTION: XI IRRITANT
DANGER FOR MAN: IRRITATING TO RESPIRATORY SYSTEM

4. FIRE FIGHTING MEASURES

FLASH POINT:	NON COMBUSTIBLE
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
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. MAY POLYMERIZE VIOLENTLY (HEAT) WITH ETHYLENE OXIDE. REACTS VIOLENTLY (FLAMES) WITH CHLORINE TRIFLUORIDE.

5. HEALTH HAZARD INFORMATION

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. ALUMINUM MAY CAUSE LUNG DAMAGE IF INHALED IN SUFFICIENT QUANTITIES. MAY IRRITATE EYES. MODERATE HAZARD FROM INHALATION ALUMINUM MAY BE IMPLICATED IN ALZHEIMERS DISEASE. INHALATION OF ALUMINUM-CONTAINING DUSTS MAY CAUSE PULMONARY DISEASE. ALUMINUM OXIDE HAS CAUSED TUMORS AND NEOPLASMS IN EXPERIMENTAL ANIMALS VIA IMPLANT.
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.
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

LD50-LC-50 MIXTURE:	IPL-RAT TDLO=90MG/KG
ROUTES OF ENTRY:	
INHALATION:	YES
INGESTION:	YES
HEALTH HAZ, ACUTE AND CHRONIC:	MAY CAUSE LUNG DAMAGE IF INHALED IN SUFFICIENT QUANTITIES. MAY IRRITATE EYES. MODERATE HAZARD FROM INHALATION.
CARCINOGENICITY:	
NTP:	NO
IARC:	NO
OSHA:	NO
SYMPTOMS OF OVER EXPOSURE:	IRRITATE EYES, LUNG DAMAGE.
MED COND AGGRAVATED BY EXP:	RESPIRATORY CONDITIONS
FIRST AID PROCEDURES:	SEEK MEDICAL ASSISTANCE
IN CASE OF OVEREXPOSURE:	
SKIN:	WASH THOROUGHLY WITH SOAP & WATER
EYES:	FLUSH EYES WITH LUKEWARM WATER, LIFTING UPPER AND LOWER EYELIDS, FOR ATLEAST 20 MINS. SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.
INHALATION:	REMOVE PERSON TO FRESH AIR. PROVIDE ARTIFICIAL RESPIRATION IF BREATHING HAS STOPPED.
INGESTION:	SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.

6. STABILITY

STABILITY:	STABLE
CONDITION TO AVOID:	DECOMPOSITION WILL NOT OCCUR IF USED AND STORED ACCORDING TO SPECIFICATIONS.
INCOMPATIBILITY (MATERIAL TO AVOID):	ALUMINUM, HEXACHLOROETHANE, CHLORINATED RUBBER, LINSEED OIL, MAGNESIUM ACIDS, BASES, OXIDIZING AGENTS, INTERHALOGENS, HALOCARBONS
HAZARDOUS DECOMPOSITION PRODUCTS:	ZINC OXIDE, ALUMINUM OXIDE
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR.
DANGEROUS REACTIONS AL ₂ O ₃ :	EXOTHERMIC REACTION WITH WATER
DANGEROUS PRODUCTS OF DECOMPOSITION:	METAL OXIDE FUME

7. EMERGENCY AND FIRST AID PROCEDURES:

INHALATION:	REMOVE TO FRESH AIR; KEEP WARM AND QUIET; GIVE OXYGEN IF BREATHING IS DIFFICULT 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.

8. HANDLING AND STORAGE

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.

OTHER PRECAUTIONS:

NORMAL LAB COAT.

9. SPILL OR LEAK PROCEDURES

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 HYPERSENSITIVE ONE.

10. TOXICITY DATA

TOXICITY:

(ZnO) ACUTE ORAL TOXICITY (LD50): 7950 MG/KG FOR MOUSE
(Al2O3) LD50-LC50 MIXTURE: IPL-RAT TDLO=90MG/KG.

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

11. TRANSPORTATION DATA

HAZARD CLASS:

N/A

ADR/RID CLASS:

N/A

IMDG CLASS:

N/A

AIR TRAN. ICAO/IATA CLASS:

N/A

MARITIME TRAN. IMDG CLASS:

N/A

12. 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.