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

GENERAL

MANUFACTUER/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:	10/13/11
DATE MSDS REVISED:	

1. PRODUCT IDENTIFICATION

PRODUCT NAME:	ZINC OXIDE LEAD
FORMULA:	ZnO/Pd
CAS #:	1314-13-2/ 7439-92-1

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
DENSITY AT 20°C:	N/A
% VOLATILES:	N/A
SOLUBILITY IN H_2O:	INSOLUBLE
APPEARANCE AND ODOR:	SPUTTERING TARGET, POWDER AND PIECES, ODORLESS

3. HAZARD IDENTIFICATION

HAZARDOUS COMPONENTS %	
ZINC OXIDE	0-100%
OSHA/PEL:	15 mg/m^3
ACGIH/TLV	10 mg/m^3
OTHER LIMITS	5 mg/m^3
SEC. 302	NO
SEC 304	NO
EC 313	NO
HAZARDOUS COMPONENTS %	
LEAD:	0-100%
OSHA/PEL:	05mg (Pb)/m^3
ACGIH/TLV:	15 mg (Pb)/m^3
OTHER LIMITS:	AL 30 ug/m^3
SEC. 302	NO
SEC. 304	YES
SEC. 313	YES

HAZARD DESCRIPTION:	N DANGEROUS FOR THE ENVIRONMENT T TOXIC Xn HARMFUL
RISK PHRASES:	R61 MAY CAUSE HARM TO THE UNBORN CHILD

R 62-20/22 POSSIBLE RISK OF IMPAIRED FERTILITY. HARMFUL BY INHALATION AND IF SWALLOED
R 50/53 VERY TOXIC TO THE AQUATIC ORGANISMS, MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT.
R 33 DANGER OF CUMULATIVE EFFECTS

HMIS RATING:
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 0

---

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
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. WHEN HEATED TO DECOMPOSITION, LEAD MAY EMIT TOXIC FUMES OF LEAD OXIDE.

---

5. HEALTH HAZARD INFORMATION

ZINC OXIDE
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 INHALLATION OF ZINC FUMES.
ACUTE CHRONIC EFFECTS:
INHALATION: MAY CAUSE IRRITATION OF RESPIRATORY TRACT, NASOPHARYNGITIS AND LARYNGITIS.
INGESTION: MODERATELY TOXIC.
.SKIN: MAY CAUSEIRRITATION.
EYE: MAY CAUSEIRRITATION
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

LEAD

EFFECTS OF OVER EXPOSURE:

SOME LEAD COMPOUNDS ARE EXPERIMENTAL NEOPLASTIGENS AND TUMORIGENS. LEAD POISONING IS ONE OF THE COMMONEST OF OCCUPATIONAL DISEASES. THE LEAD MUST BE IN SUCH FORM, AND SO DISTRIBUTED, AS TO GAIN ENTRANCE INTO THE BODY OR TISSUES OF THE WORKER IN MEASURABLE QUANTITY, OTHERWISE NO EXPOSURE CAN BE SAID TO EXIST. SOME LEAD COMPOUNDS ARE CARCINOGENS OF THE LUNGS AND KIDNEYS. LEAD IS A CUMULATIVE POISON. INCREASING AMOUNTS BUILD UP IN THE BODY AND EVENTUALLY REACH A POINT WHERE SYMPTOMS AND DISABILITY OCCUR. CHRONIC EXPOSURE MAY CAUSE DAMAGE TO NERVOUS, URINARY, BLOOD-FORMING AND REPRODUCTIVE SYSTEMS.

ACUTE EFFECTS:

LEAD AND LEAD COMPOUNDS MAY CAUSE ABDOMINAL PAIN, DIARRHEA, LOSS OF APPETITE, METALLIC TASTE, NAUSEA, VOMITING, LASSITUDE, INSOMNIA, MUSCLE WEAKNESS, JOIN AND MUSCLE PAIN, IRRIBILITY, HEADACHE AND DIZZINESS. RED BLOOD CELLS MAY BE DAMAGED RESULTING IN ANEMIA. GASTRITIS AND INFURY TO THE KEDNEYS, LIVER, MALE GONADS, AND CENTRAL NERVOUS SYSTEM MAY ALSO OCCUR.

INHALATION: MAY CAUSE IRRITATION TO THE UPPER RESPIRATORY SYSTEM, INSOMNIA, DRYNESS OF THE MOUTH AND A METALLIC TASTE.

INGESTION: MAY CAUSE CONSTIPATION AND ABDOMINAL PAIN, COLIC, TREMORS, NAUSEA, VOMITING, DIARRHEA, METALLIC TASTE, LOSS OF APPETITE, IRRITABILITY AND MUSCLE PAIN. MAY CAUSE ACUTE LEAD TOXICITY.

SKIN: MAY CAUSE IRRITATION.

EYE: MAY CAUSE IRRITATION.

CHRONIC EFFECTS:

INHALATION: MAY CAUSE CHRONIC LEAD TOXICITY. MAY BE TOXIC TO THE CENTRAL AND PERIPHERAL NERVOUS SYSTEM AFFECTING THE CEREBELLUM, SPINAL CORD, MOTOR AND SENSORY NERVES.

INGESTION: MAY CAUSE ANEMIA, GINGIVAL LEAD LINE, PARALYSIS IN THE WRIST AND PERMANENT NEUROLOGICAL INJURY. MAY CAUSE CHRONIC LEAD TOXICITY. MAY CAUSE NEPHRITIS, SCARRING AND SHRINKING OF THE KIDNEY TISSUE.

SKIN: NO CHRONIC HEALTH EFFECTS RECORDED.

EYE: NO CHRONIC HEALTH EFFECTS RECORDED.

ROUTES OF ENTRY: INHALATION, INGESTION.

TARGET ORGANS: MAY AFFECT THE GASTROINTESTINAL TRACT, CENTRAL NERVOUS SYSTEM, KIDNEYS, BLOOD, SKIN AND THE GINGIVAL TISSUE.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: PRE-EXISTING KIDNEY, CNS AND CIRCULATORY DISORDERS.

NTP:

CARCINOGENICITY: NO

IARC: NO

OSHA: YES

6. STABILITY

STABILITY:	STABLE
CONDITION TO AVOID:	POWDERED METAL IN CONTACT WITH HEAT
INCOMPATIBILITY (MATERIAL TO AVOID):	ALUMINUM, HEXACHLOROETHANE, CHLORINATED RUBBER, LINSEED OIL, MAGMESIUM, STRONG OXIDIZING AGENTS, HYDROGEN PEROXIDE, SODIUM ACETYLIDE AND NITRIC ACID AND RUBBER
HAZARDOUS DECOMPOSITION PRODUCTS:	ZINC OXIDE., LEAD OXIDE FUMES
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR.

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:	PROECTIVE GEAR SUITABLE TO PREVENT CONTAMINATION. BARRIER CREAM MAY HELP PREVENT IRRITATION IN HYPERSENSATIVE ONE.

10. TOXICITY DATA

ZINC OXIDE

TOXICITY:

ACUTE TOXICITY

ORAL (LD50):	7950 MG/KG FOR MOUSE >5000 MG/KG RAT
(LDLO) :	500 MG/KG HUMAN
INHALATIVE (LC50):	2500 MG/M^3 MOUSE
IRRITATION OF SKIN (MILD):	500 MG/24H RABBIT
IRRITATION OF EYES (MILD):	500 MG/24H RABBIT
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

LEAD

THE COMPONENTS OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY

INVESTIGATED AS A TUMORIGEN, MUTAGEN, REPRODUCTIVE EFFECTOR

LD50/LC50:	N/A
EPIDEMIOLOGY:	THERE ARE SEVERAL REPORTS THAT CERTAIN LEAD COMPOUNDS ADMINISTERED TO ANIMALS IN HIGH DOSES ARE CARCINOGENIC, PRIMARILY PRODUCING RENAL TUMORS. SALTS DEMONSTRATING CARCINOGENICITY IN ANIMALS ARE USUALLY SOLUBLE SALTS. EPIDEMIOLOGICAL STUDIES HAVE NOT SHOWN A RELATIONSHIP BETWEEN LEAD EXPOSURE AND THE INCIDENCE OF CANCER IN LEAD WORKERS. HOWEVER, ONE STUDY OF LEAD-EXPOSED WORKERS DEMONSTRATED A STATISTICALLY SIGNIFICANT ELEVATION IN THE STANDARDIZED MORTALITY RATIO FOR GASTRIC AND LUNG CANCER IN BATTERY PLANT WORKERS ONLY..
TERATOGENICITY:	YES .
REPRODUCTIVE EFFECTS:	YES.
NEUROTOXICITY:	YES.
MUTAGENICITY:	YES.
CARCINOGENICITY:	EPA / IRIS CLASSIFICATION: GROUP B2 - PROBABLE HUMAN CARCINOGEN, SUFFICIENT ANIMAL EVIDENCE
ADDITIONAL INFORMATION:	TO THE BEST OF OUR KNOWLEDGE THE ACUTE AND CHRONIC TOXICITY OF THIS SUBSTANCE IS NOT FULLY KNOWN.

11. TRANSPORTATION DATA

HAZARD CLASS:	9
ADR//RID CLASS:	9 (M7) MISCELLANEOUS DANGEROUS SUBSTANCES AND ARTICLES
IMDG CLASS:	9
AIR TRAN. ICAO/IATA CLASS:	9
UN NUMBER:	3077
PROPER SHIPPING NAME:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
PACKING GROUP:	III

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.