



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

1. PRODUCT AND COMPANY IDENTIFICATION

TRADE NAME: ZINC COBALT OXIDE
CHEMICAL FORMULA: ZnO-CoO

MANUFACTURER/SUPPLIER: LTS RESEARCH LABORATORIES, INC.
COMPANY'S STREET: 37 RAMLAND ROAD
COMPANY'S CITY: OANGEBURG
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: WARNING



HAZARD SYMBOLS: HARMFUL IF SWALLOWED
MAY CAUSE ALLERGIC SKIN REACTION
HIGHLY TOXIC TO AQUATIC ORGANISMS AND ENVIRONMENTS

HMIS HEALTH RATINGS (0-4):
HEALTH: 2
FLAMMABILITY: 0
REACTIVITY: 1

3. COMPOSITION

CHEMICAL FAMILY: METAL OXIDE
ADDITIONAL NAMES: COBALT OXIDE – ZINC OXIDE
ZINC OXIDE (ZnO):
PERCENTAGE: 0-100 wt%
CAS #: 1314-13-2
COBALT OXIDE (CoO):
PERCENTAGE: 0-100 wt%
CAS #: 1307-96-6

4. FIRST AID PROCEDURES

IMPORTANT SYMPTOMS: NONE
SPECIAL TREATMENT: NONE
GENERAL TREATMENT: SEEK MEDICAL ATTENTION IF SYMPTOMS PERSIST.
INHALATION: REMOVE VICTIM TO FRESH AIR GIVE OXYGEN IF BREATHING IS DIFFICULT.

INGESTION: GIVE 1-2 GLASSES OF MILK OR WATER AND INDUCE VOMITING. NEVER INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

SKIN: WASH AFFECTED AREA WITH MILD SOAP AND WATER. REMOVE CONTAMINATED CLOTHING.

EYES: FLUSH EYES WITH WATER, LIFTING UPPER AND LOWER EYELIDS, FOR 20 MINUTES.

5. FIRE AND EXPLOSION HAZARDS DATA

FLAMMABILITY: NON-FLAMMABLE

FLASH POINT: N/A

AUTOIGNITION TEMPERATURE: N/A

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.

6. ACCIDENTAL RELEASE MEASURES

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: ISOLATE RUNOFF TO PREVENT ENVIRONMENTAL POLLUTION.

7. HANDLING AND STORAGE

HANDLING CONDITIONS: WASH THOROUGHLY AFTER HANDLING.

HMS PROTECTIVE EQUIPMENT: GLASSES, GLOVES, APRON, DUST RESPIRATOR

STORAGE CONDITIONS: STORE IN A COOL DRY PLACE IN A TIGHTLY SEALED CONTAINER.

WORK/HYGIENIC MAINTENANCE: 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: PROVIDE SUFFICIENT VENTILATION TO MAINTAIN CONCENTRATION AT OR BELOW TLV.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA PEL: 0.1 mg/m³ AS COBALT METAL DUST OR FUME

ACGIH TLV: 0.02 mg/m³ AS COBALT METAL DUST OR FUME

SPECIAL EQUIPMENT: NONE

RESPIRATORY PROTECTION: NIOSH APPROVED DUST/MIST RESPIRATOR

PROTECTIVE GLOVES: RUBBER GLOVES

EYE PROTECTION: SAFETY GLASSES

BODY PROTECTION: PROTECTIVE WORK CLOTHING. WEAR CLOSE-TOED SHOES AND LONG SLEEVES/PANTS.

OTHER: N/A

9. PHYSICAL AND CHEMICAL CHARACTERISTICS

COLOR: N/A

FORM: POWDER, PIECES, PELLETS, GRANULES, SPUTTERING TARGET

ODOR:	ODORLESS
WATER SOLUBILITY:	INSOLUBLE
BOILING POINT:	N/A
MELTING POINT:	~1950 °C
DENSITY:	N/A
MOLECULAR WEIGHT:	N/A

10. REACTIVITY

STABILITY:	STABLE
INCOMPATIBILITY:	OXIDIZING AGENTS, AIR
HAZ. DECOMPOSITION PRODUCTS:	METAL OXIDE FUME
HAZARDOUS POLYMERIZATION:	WILL NOT OCCUR

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS:	
EYE:	MAY CAUSE ABRASIVE IRRITATION
SKIN:	POSSIBLE ALLERGIC REACTION
INGESTION:	HARMFUL IF SWALLOWED
INHALATION:	MAY CAUSE IRRITATION TO THE RESPIRATORY TRACT

ROUTES OF ENTRY:	INGESTION
TARGET ORGANS:	N/A
SIGNS & SYMPTOMS OF EXPOSURE:	N/A
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:	N/A

LD50:	202 mg/kg (RAT-ORAL)
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CARCINOGEN:	
NTP:	N/A
IARC MONOGRAPHS:	POSSIBLY
OSHA REGULATED:	N/A

12. ECOLOGICAL INFORMATION

ECOLOGICAL EFFECTS:	DO NOT ALLOW SUBSTANCE TO REACH GROUND WATER, EVEN IN SMALL QUANTITIES. SUBSTANCE IS HIGHLY TOXIC TO AQUATIC ORGANISMS.
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13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORTATION DATA



HAZARD CLASS:	6.1 TOXIC SUBSTANCES
PACKING GROUP:	III
UN NUMBER:	UN2811
UN PROPER SHIPPING NAME:	TOXIC SOLIDS, N.O.S.
ROAD ADR/RID CLASS:	6.1 (T2)
AIR IATA CLASS:	6.1
MARITIME IMDG CLASS:	6.1

15. REGULATORY INFORMATION

NO SPECIAL REGULATIONS ARE IMPOSED ON THIS MATERIAL.

SEC.302 (EHS): NO
SEC.304 RQ: NO
SEC.313: 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: xx/xx/14
DATE LAST REVISED: N/A

