

# SAFETY DATA SHEET

Date Issued : 5/24/2012  
MSDS No : M-2200-335

## Zinc Oxide Pieces

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Zinc Oxide Pieces  
**GENERAL USE:** Physical vapor deposition of thin films

#### MANUFACTURER

Kurt J Lesker Company  
United States  
1925 Route 51  
Jefferson Hills, PA 15025  
**E-Mail:** msds@lesker.com  
**Service Number:** 412-387-9200  
Kurt J Lesker Company LTD  
United Kingdom  
15-16 Burgess Road  
Hastings, East Sussex, TN35 4NR  
England  
**Service Number:** +44 (0) 1424 458100

#### 24 HR. EMERGENCY TELEPHONE NUMBERS

24-Hour Emergency Response provided by  
3E Global Incident Response Hotline

When calling, refer to Kurt J Lesker Company  
Global Response Access Code: 333594

North America [USA, Canada, Mexico]: 1-866-519-4752  
Mainland China: (+86) 4001 2001 74  
Europe: {int'l call prefix}-1-760-476-3961  
Asia Pacific: {int'l call prefix}-1-760-476-3960  
Middle East & Africa: {int'l call prefix}-1-760-476-3959

### 2. HAZARDS IDENTIFICATION

#### GHS CLASSIFICATIONS

##### Environmental:

Acute Hazards to the Aquatic Environment, Category 1  
Chronic Hazards to the Aquatic Environment, Category 1

#### GHS LABEL



Environment

#### HAZARD STATEMENTS

H410: Very toxic to aquatic life with long lasting effects.

#### PRECAUTIONARY STATEMENT(S)

##### Prevention:

P273: Avoid release to the environment.

##### Response:

P391: Collect spillage.

#### EMERGENCY OVERVIEW

**PHYSICAL APPEARANCE:** White solid

**IMMEDIATE CONCERNS:** This product is not hazardous under conditions of normal use.

**POTENTIAL HEALTH EFFECTS**

**EYES:** Contact may cause eye irritation.

**SKIN:** May cause skin irritation.

**INGESTION:** May be harmful if swallowed.

**INHALATION:** May be harmful if inhaled. May cause respiratory irritation.

**REPRODUCTIVE TOXICITY**

**REPRODUCTIVE EFFECTS:** Not Available

**TERATOGENIC EFFECTS:** Not Available

**CARCINOGENICITY:** Not listed as a human carcinogen

**MUTAGENICITY:** Not Available

**ROUTES OF ENTRY:** Inhalation, ingestion, eye contact, or skin contact.

**IRRITANCY:** May cause irritation of skin, eyes, and respiratory tract.

**PHYSICAL HAZARDS:** This substance is not considered hazardous in the form supplied.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name	Wt.%	CAS
Zinc Oxide	100	1314-13-2

**4. FIRST AID MEASURES**

**EYES:** Immediately flush eyes with plenty of water. Get medical attention, if irritation persists.

**SKIN:** Wash with soap and water. Get medical attention if irritation develops or persists.

**INGESTION:** Rinse mouth. Get medical advice/attention.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

**SIGNS AND SYMPTOMS OF OVEREXPOSURE**

**INHALATION:** Inhaling fumes of heated material may cause metal fume fever.

**CHRONIC EFFECTS:** Not Available

**5. FIRE FIGHTING MEASURES**

**FLAMMABLE CLASS:** Not flammable.

**EXTINGUISHING MEDIA:** Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

**EXPLOSION HAZARDS:** Dusts at sufficient concentrations can form explosive mixtures with air.

**FIRE FIGHTING PROCEDURES:** As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Toxic metal fumes

**6. ACCIDENTAL RELEASE MEASURES**

**SMALL SPILL:** Clean up spills immediately, observing precautions in Protective Equipment section.

**LARGE SPILL:** Collect spilled material in appropriate container. Spill may be reportable . Consult section 15 for Reportable Quantities.

### **ENVIRONMENTAL PRECAUTIONS**

**WATER SPILL:** This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water.

**GENERAL PROCEDURES:** Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Eliminate all ignition sources if safe to do so. Avoid formation of dust. Provide appropriate exhaust ventilation where dust is formed. Avoid breathing (dust, vapor, mist, gas). Practice good chemical hygiene during and after use. Avoid release to the environment.

## **7. HANDLING AND STORAGE**

**GENERAL PROCEDURES:** To avoid risks to human health and the environment, comply with the instructions for use.

**HANDLING:** Keep away from heat and flame. Keep container closed when not in use. Remove contaminated clothing and wash before reuse. Wash hands before eating and wash before reuse. Wash thoroughly after handling.

**STORAGE:** Keep container closed when not in use. Store in a cool dry place.

## **8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

### **PERSONAL PROTECTIVE EQUIPMENT**

**EYES AND FACE:** Wear safety glasses.

**SKIN:** Wear protective gloves.

**RESPIRATORY:** Not normally needed. If ventilation is inadequate and this material is handled at elevated temperatures or dusts/fumes/mists are generated a NIOSH/MSHA approved air purifying respirator with a manufacturers approved cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

**WORK HYGIENIC PRACTICES:** Practice good chemical hygiene during and after use.

### **COMMENTS:**

COMPONENT EXPOSURE LIMITS

Component	Location, Type	Value (mg/m3)
Zinc oxide (dust)	ACGIH TLV TWA	2
	OSHA OEL TWA	5
	OSHA OEL STEL	10
	NIOSH REL TWA	5
	NIOSH REL STEL	10
	Canada - AB, BC, ON TWA	2
	Canada - AB, BC, ON STEL	10
	Canada - PQ TWA	10
	Europe TWA	10
	Germany TWA	4
	Germany STEL	8
	Sweden TWA	5
	Australia, NZ, Singapore TWA	10

Component	Location, Type	Value (mg/m3)
Zinc oxide (fume)	ACGIH TLV TWA	2
	OSHA OEL TWA	5
	NIOSH REL TWA	5
	Canada - PQ TWA	5
	Europe TWA	5
	Europe STEL	10
	Denmark TWA	4
	Denmark STEL	8
	Germany TWA/STEL	1
	Hungary STEL	20
	Spain TWA	2
	Switzerland TWA/STEL	3
	Australia, NZ, Singapore TWA	5
	Australia, New Zealand STEL	10
	UK WEL TWA	5
	UK WEL STEL	10

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** Solid

**ODOR:** None

**COLOR:** White

**pH:** NA = Not Applicable

**PERCENT VOLATILE:** NA = Not Applicable

**FLASH POINT AND METHOD:** NA = Not Applicable

**FLAMMABLE LIMITS:** NA = Not Applicable

**AUTOIGNITION TEMPERATURE:** NA = Not Applicable

**VAPOR PRESSURE:** NA = Not Applicable

**VAPOR DENSITY:** NA = Not Applicable

**BOILING POINT:** 2360°C

**MELTING POINT:** 1975°C

**SOLUBILITY IN WATER:** .00016 g/100mL at 30°C

**DENSITY:** 5.606 at 25°C

**MOLECULAR WEIGHT:** 81.408

## 10. STABILITY AND REACTIVITY

**STABLE:** Yes

**HAZARDOUS POLYMERIZATION:** No

**CONDITIONS TO AVOID:** Avoid high temperatures.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Toxic metal fumes

**INCOMPATIBLE MATERIALS:** Strong acids, Strong bases, Oxidizing materials, Magnesium powder.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE

**DERMAL LD<sub>50</sub>:** Not Available

**SKIN ABSORPTION:** Not Available

**ORAL LD<sub>50</sub>:** > 5000 mg/kg

**Notes:** Rat

**INHALATION LC<sub>50</sub>:** 5.7 mg/L

**Notes:** Mouse

### CARCINOGENICITY

**IARC:** Not listed

**NTP:** Not listed

**OSHA:** Not listed

**REPRODUCTIVE EFFECTS:** Not Available

**TERATOGENIC EFFECTS:** Not Available

**MUTAGENICITY:** Not Available

## 12. ECOLOGICAL INFORMATION

**BIOACCUMULATION/ACCUMULATION:** Not Available

### AQUATIC TOXICITY (ACUTE)

**96-HOUR LC<sub>50</sub>:** 1.1 mg/L (Oncorhynchus mykiss)

**48-HOUR EC<sub>50</sub>:** 1.0 mg/L (Daphnia magna)

**CHEMICAL FATE INFORMATION:** Not Available

### 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** Dispose of according to applicable federal, state, provincial, and local regulations.

**PRODUCT DISPOSAL:** Contact a licensed waste disposal company.

**EMPTY CONTAINER:** Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

### 14. TRANSPORT INFORMATION

#### DOT (DEPARTMENT OF TRANSPORTATION)

**PROPER SHIPPING NAME:** Environmentally hazardous substances, solid, n.o.s.

**TECHNICAL NAME:** Zinc oxide

**PRIMARY HAZARD CLASS/DIVISION:** 9

**UN/NA NUMBER:** 3077

**PACKING GROUP:** III

**MARINE POLLUTANT #1:** Yes

#### CANADA TRANSPORT OF DANGEROUS GOODS

**SHIPPING NAME:** Environmentally hazardous substances, solid, n.o.s.

**TECHNICAL NAME:** Zinc oxide

**UN/NA NUMBER:** 3077

**PRIMARY HAZARD CLASS/DIVISION:** 9

**PACKING GROUP:** III

### 15. REGULATORY INFORMATION

#### UNITED STATES

##### SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

**311/312 HAZARD CATEGORIES:** None

**313 REPORTABLE INGREDIENTS:** Yes

##### TSCA (TOXIC SUBSTANCE CONTROL ACT)

**TSCA STATUS:** All components of this product are included in inventory, exempt, or notified

#### REGULATIONS

##### STATE REGULATIONS:

The following components appear in one or more of the following state hazardous substances lists

Component	CAS	CA	MA	MN	NJ	PA	RI
Zinc oxide	1314-13-2	No	Yes	No	Yes	Yes	Yes

**CALIFORNIA PROPOSITION 65:** This product is not known to contain any components for which the State of

California has found to cause cancer, birth defects or other reproductive harm.

## CANADA

**WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):** Not Regulated

**DOMESTIC SUBSTANCE LIST (INVENTORY):** All components of this product are included in inventory, exempt, or notified

## 16. OTHER INFORMATION

**APPROVED BY:** EHS DEPT

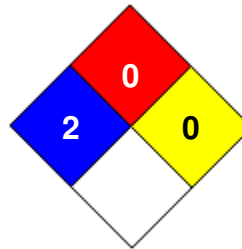
**PREPARED BY:** E Bolton

**INFORMATION CONTACT:** msds@lesker.com

### HMIS RATING

<b>HEALTH</b>		<b>1</b>
<b>FLAMMABILITY</b>		<b>0</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>
<b>PERSONAL PROTECTION</b>		<b>C</b>

### NFPA CODES



**GENERAL STATEMENTS:** The physical and toxicological properties of this material have not been thoroughly investigated.

### MANUFACTURER DISCLAIMER:

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