

# SAFETY DATA SHEET

Date Issued : 5/3/2012  
MSDS No : M-2200-305

## Titanium Oxide (TiO<sub>2</sub>) Pieces

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Titanium Oxide (TiO<sub>2</sub>) Pieces  
**GENERAL USE:** Physical vapor deposition of thin films  
**GENERIC NAME:** Titanium(IV) oxide, Titanium dioxide

#### MANUFACTURER

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

##### Health:

This substance or mixture is not hazardous and is not classified under GHS.

#### 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:** IARC Group 2B - Possibly carcinogenic to humans.

**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
Titanium Dioxide	100	13463-67-7

### 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. Low ingestion hazard in normal use.

**INHALATION:** No specific treatment is necessary since this material is not likely to be hazardous by inhalation. If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.

#### SIGNS AND SYMPTOMS OF OVEREXPOSURE

**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.

### 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.

**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. Avoid formation of dust. Provide appropriate exhaust ventilation where dust is formed. Do not breath (dust, vapor, mist, gas). Avoid contact with eyes, skin, and clothing. 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)
Titanium dioxide	ACGIH TLV TWA	10
	OSHA OEL TWA	10
	NIOSH REL TWA	2.4
	Canada - AB, BC, ON, PQ TWA	10
	Europe TWA	10
	Denmark TWA	6
	Switzerland TWA	3
	Australia, NZ, Singapore TWA	10
	UK WEL TWA	4

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** Solid

**ODOR:** None

**COLOR:** White

**PERCENT VOLATILE:** NA = Not Applicable

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

**FLAMMABLE LIMITS:** NA = Not Applicable

**AUTOIGNITION TEMPERATURE:** NA = Not Applicable

**BOILING POINT:** ~ 2972°C

**MELTING POINT:** 1843°C

**SOLUBILITY IN WATER:** Insoluble

**DENSITY:** 4.23 at 25°C

**MOLECULAR WEIGHT:** 79.866

## 10. STABILITY AND REACTIVITY

**STABLE:** Yes

**HAZARDOUS POLYMERIZATION:** No

**HAZARDOUS DECOMPOSITION PRODUCTS:** Toxic metal fumes

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

## 11. TOXICOLOGICAL INFORMATION

### ACUTE

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

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

**INHALATION LC<sub>50</sub>:** Not Available

### CARCINOGENICITY

**IARC:** Group 2B - Possibly carcinogenic to humans.

**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>:** > 100 mg/L (Pimephales promelas)

**48-HOUR EC<sub>50</sub>:** > 100 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:** Not Regulated

### ROAD AND RAIL (ADR/RID)

**PROPER SHIPPING NAME:** Not Regulated

**AIR (ICAO/IATA)**

**SHIPPING NAME:** Not Regulated

**VESSEL (IMO/IMDG)**

**SHIPPING NAME:** Not Regulated

**CANADA TRANSPORT OF DANGEROUS GOODS**

**SHIPPING NAME:** Not Regulated

**15. REGULATORY INFORMATION**

**UNITED STATES**

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

**FIRE:** No **PRESSURE GENERATING:** No **REACTIVITY:** No **ACUTE:** No **CHRONIC:** No

**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
Titanium dioxide	13463-67-7	Yes	No	Yes	Yes	Yes	Yes

**CALIFORNIA PROPOSITION 65:** This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm and may be subject to the requirements of California Propostion 65 (CA Health and Safety Code section 25249.5) : Titanium dioxide

**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

**GENERAL COMMENTS:** All components of this product are included in inventory, exempt, or notified: USA TSCA, Philippines PICCS, Korean KECL, European EINECS, Canadian DSL

**16. OTHER INFORMATION**

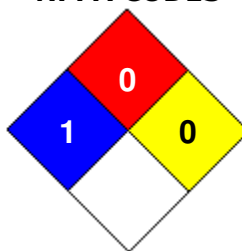
**APPROVED BY:** EHS DEPT

**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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