SAFETY DATA SHEET

Date Issued: 5/15/2012
MSDS No: M-2100-255

Silicon Nitride Pieces

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Silicon Nitride Pieces
GENERAL USE: Physical vapor deposition of thin films
GENERIC NAME: Trisilicon tetranitride

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: Grey 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. Dusts at sufficient concentrations can form explosive mixtures with air.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
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<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
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<tbody>
<tr>
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</table>

### 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**

- **ACUTE TOXICITY:** Poses little or no immediate hazard.
- **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:** Nitrogen oxides, Silicon oxides

### 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:** There are no established workplace exposure limits for components of this product.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL STATE:** Solid

**ODOR:** None

**COLOR:** Light grey

**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:** Not Available

**VAPOR DENSITY:** NA = Not Applicable

**BOILING POINT:** Not Available

**MELTING POINT:** 1900°C

**Notes:** Decomposes

**SOLUBILITY IN WATER:** Insoluble

**DENSITY:** 3.44 at 25°C

**MOLECULAR WEIGHT:** 140.28

### 10. STABILITY AND REACTIVITY

**STABLE:** Yes

**HAZARDOUS POLYMERIZATION:** No
HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen oxides, Silicon oxides
INCOMPATIBLE MATERIALS: Strong acids, Strong bases, Oxidizing materials.

11. TOXICOLOGICAL INFORMATION

ACUTE

DERMAL LD$_{50}$: Not Available
SKIN ABSORPTION: Not Available
ORAL LD$_{50}$: Not Available
INHALATION LC$_{50}$: Not Available

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): Not Available
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)
PRIMARY HAZARD CLASS/DIVISION: Not Regulated

ROAD AND RAIL (ADR/RID)
PROPER SHIPPING NAME: Not Regulated

AIR (ICAO/IATA)
PRIMARY HAZARD CLASS/DIVISION: Not Regulated

VESSEL (IMO/IMDG)
PRIMARY HAZARD CLASS/DIVISION: Not Regulated
15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: None

TSCA (TOXIC SUBSTANCE CONTROL ACT)

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

REGULATIONS

STATE REGULATIONS: Not listed

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

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NFPA CODES

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MANUFACTURER DISCLAIMER:

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