

SAFETY DATA SHEET

Date Issued : 5/10/2012
MSDS No : M-2200-030

Nickel Oxide Pieces

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Nickel Oxide Pieces
GENERAL USE: Physical vapor deposition of thin films
GENERIC NAME: Nickel monoxide

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:

Target Organ Toxicity (Repeated exposure), Category 1
Skin Sensitization, Category 1
Carcinogenicity, Category 2

Environmental:

Chronic Hazards to the Aquatic Environment, Category 4

GHS LABEL



Health
hazard

HAZARD STATEMENTS

H350: May cause cancer .
H372: Causes damage to organs through prolonged or repeated exposure .
H317: May cause an allergic skin reaction.
H413: May cause long lasting harmful effects to aquatic life.

PRECAUTIONARY STATEMENT(S)

Prevention:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
 P280: Wear protective gloves/protective clothing/eye protection/face protection.
 P264: Wash ... thoroughly after handling.

Response:

P314: Get medical advice/attention if you feel unwell.

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: Green solid

IMMEDIATE CONCERNS: May cause cancer . May cause an allergic skin reaction.

POTENTIAL HEALTH EFFECTS

EYES: Contact may cause eye irritation.

SKIN: May cause skin irritation. Allergic reactions are possible.

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 1 - Carcinogenic to humans.

MUTAGENICITY: Not Available

ROUTES OF ENTRY: Ingestion, Inhalation

TARGET ORGAN STATEMENT: Lungs, Respiratory tract

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

SENSITIZATION: May cause skin sensitization, an allergic reaction, which becomes evident on re exposure to this material.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt. %	CAS
Nickel Oxide	100	1313-99-1

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

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 with side shields (or goggles) and a face shield.

SKIN: Wear protective gloves/protective clothing/eye protection/face protection. Wash contaminated clothing before reuse.

RESPIRATORY: 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)
Nickel	ACGIH TLV TWA	1.5
	OSHA OEL TWA	1
	NIOSH REL TWA	0.015
	Canada TWA	1
	Canada - British Columbia TWA	0.05
	Austria, Denmark, Norway TWA	0.05
	Germany, Sweden TWA	0.5
	Aus, Japan, NZ, Singapore TWA	1
	UK MEL	0.5

9. PHYSICAL AND CHEMICAL PROPERTIES**PHYSICAL STATE:** Solid**ODOR:** None**COLOR:** Green**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:** Extremely low at 25C**VAPOR DENSITY:** NA = Not Applicable**BOILING POINT:** Not Available**MELTING POINT:** 1955°C**SOLUBILITY IN WATER:** Insoluble**DENSITY:** 6.67 at 25°C**MOLECULAR WEIGHT:** 74.6928**10. STABILITY AND REACTIVITY****STABLE:** Yes**HAZARDOUS POLYMERIZATION:** No**HAZARDOUS DECOMPOSITION PRODUCTS:** Toxic metal fumes**INCOMPATIBLE MATERIALS:** Strong acids, Oxidizing materials, Aluminum, Methanol, Selenium, Ammonium Nitrate, Sulphur compounds.**11. TOXICOLOGICAL INFORMATION**

ACUTE

EYES: May cause mild transient irritation but there is no evidence of long term harmful effects from available information.

DERMAL LD₅₀: Not Available

SKIN ABSORPTION: Not Available

ORAL LD₅₀: Not Available

INHALATION LC₅₀: Not Available

SKIN EFFECTS: May cause an allergic skin reaction.

CARCINOGENICITY

IARC: Group 1 - Carcinogenic to humans.

NTP: Reasonably anticipated to be a human carcinogen.

OSHA: Listed

SENSITIZATION: May cause skin sensitization.

REPRODUCTIVE EFFECTS: Not Available

TARGET ORGANS: Lungs, Respiratory tract

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)**

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)

311/312 HAZARD CATEGORIES: Chronic health hazard.

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
Nickel compounds	N/A	Yes	Yes	No	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 Proposition 65 (CA Health and Safety Code section 25249.5) : Nickel

CANADA

WHMIS HAZARD SYMBOL AND CLASSIFICATION



Toxic

D2A

D2B

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

16. OTHER INFORMATION

APPROVED BY: EHS DEPT

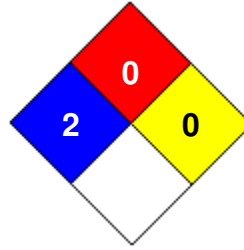
PREPARED BY: E Bolton

INFORMATION CONTACT: msds@lesker.com

HMIS RATING

HEALTH	*	2
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION		F

NFPA CODES



MANUFACTURER DISCLAIMER:

Kurt J. Lesker Company ("KJLC") believes the information contained in this Material Safety Data Sheet is accurate as of the "Date of Last Revision" specified. The information relates only to typical properties of the product. Do not use the information for product performance or specification purposes. The information is for use by technically skilled persons at their own risk. KJLC MAKES NO EXPRESS OR IMPLIED WARRANTY OF ANY KIND, INCLUDING WITHOUT LIMITATION WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, WITH RESPECT TO THE PRODUCT OR THE INFORMATION. The information may not be valid for product use in combination with any other product or material or in any process. KJLC expressly disclaims any liability arising from any use of the product or any reliance on the information. Do not treat the information (a) as assurance that use of the product will not infringe patent or other rights or (b) as a license or grant of patent or other property rights. "KJLC" means KJLC and each of its subsidiaries.