



## Carbon Monoxide (LK) Purifier Media

### CHEMICAL SAFETY DATA SHEET

Environmental, Health, & Safety

#### SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

##### Product Details

**Product:** Entegris Carbon Monoxide Gas Purifier media  
**Product Identifier:** Entegris (LK) Series Purifiers  
**Chemical name:** Chemical Mixture  
**Product use:** Entegris (LK) Series Purifiers remove moisture and metal carbonyls from Carbon Monoxide gas

**MSDS Number:** 8005623  
**Issue Date:** 22 July 2005  
**Rev. Date:** 6 May 2009  
**Revision:** C

##### Company Identification

##### **Entegris, Inc.**

Entegris Malaysia Sdn. Bhd  
Lot 17, Phase 1, Kulim High-Tech Industrial Park  
Kulim, Kedah Durul Aman 09000  
Malaysia  
Information: (60) 4-4031266 (Malaysia)  
(858) 452-0124 (USA)

##### CHEMTREC Emergency Telephone Numbers:

United States: 800-424-9300  
International: 703-527-3887 (collect)

#### SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components are a solid mixture inside the purifier stainless steel body.

<u>COMPONENT</u>	<u>CAS No.</u>	<u>Percent</u>
Inorganic Oxides	Proprietary	100

Note: See Section 9 for Exposure Limits and Section 11 for Toxicological Information.

#### SECTION 3 – PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Particulate Solid in Stainless Steel housing.  
**Odor:** Odorless  
**Specific Gravity (H<sub>2</sub>O=1):** Not available  
**Melting Point:** Not Determined  
**Vapor Pressure (mm Hg):** Not Applicable  
**Vapor Density (Air=1):** Not Applicable  
**Evaporation Rate:** Not Applicable  
**% Solubility in Water:** Insoluble  
**pH:** Not Determined  
**Flash Point:** Not Determined

**SECTION 4 – HAZARDS IDENTIFICATION**

**\*\*Note\*\*** In the unlikely event that the purifier media is liberated from the purifier housing (whether intentional or accidental), health hazards may arise from the inhalation, ingestion, and/or contact with the skin or eyes.

**Appearance:** Solid Mixture, light and dark particles. Odorless.

**Health Hazards:**

Causes eye, skin and respiratory tract irritation. May cause allergic skin and respiratory reaction. Harmful if swallowed. May cause gastrointestinal irritation, headache, nausea, vomiting and diarrhea.

This product will remain stable when housed in the purifier body.

**Routes of Entry:**

Eyes: YES      Skin: YES      Inhalation: YES      Ingestion: YES

**Potential Health Effects:**

Eye Contact: Causes irritation.

Skin Contact: Causes irritation, dermatitis and drying of skin.

Inhalation of dust may cause irritation of the respiratory tract and coughing

Ingestion causes gastrointestinal irritation with nausea, vomiting, diarrhea, and possible central nervous system depression.

**Carcinogenicity: Nickel**

Risk of cancer depends on route, duration and level of exposure

NTP: YES      IARC: YES      US OSHA: NO

Nickel has been classified by both the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) as having sufficient evidence of carcinogenicity in experimental animals. The American Conference of Governmental Industrial Hygienists (ACGIH) has categorized nickel as A1 (confirmed human carcinogen). In evaluating nickel compounds, the International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence of carcinogenicity to humans (Group Y1). The National Toxicology Program (NTP) lists only certain nickel compounds as substances which may reasonably be anticipated to be carcinogenic. This product contains one of those nickel compounds specifically identified by NTP.

**Carcinogenicity: Cobalt**

Risk of cancer depends on route, duration and level of exposure

NTP: NO      IARC: YES      US OSHA: NO

Cobalt has been classified by the International Agency for Research on Cancer (IARC) as a Y2B (Possibly carcinogenic to humans).

**Carcinogenicity: Silicon Dioxide**

Risk of cancer depends on route, duration and level of exposure.

NTP: NO

IARC: YES

US OSHA: NO

Silicon dioxide has been classified by the International Agency for Research on Cancer (IARC) as a Group 3 (Unclassified as to carcinogenicity in humans).

**Carcinogenicity: Quartz**

Risk of cancer depends on route, duration and level of exposure.

NTP: YES

IARC: YES

US OSHA: YES

Quartz has been classified by the International Agency for Research on Cancer (IARC) as a Group 1 (inhaled crystalline silica in the form of quartz from occupational sources is carcinogenic to humans). The National Toxicology Program has classified Quartz as "Known to be a human carcinogen". The US Occupational Safety and Health Administration has classified Quartz as a "Known Carcinogen".

**Chronic Health Hazards:**

Prolonged or repeated inhalation or ingestion may cause lung, thorax & respiratory system effects. May cause liver and kidney damage. May affect the blood and blood system. May affect the heart and cardiovascular system.

**Medical Conditions Generally Aggravated by Exposure:**

Pulmonary disorders. Skin ailments. Kidney and liver disorders.

NOTE: See Section 9 for Exposure Limits, Section 11 for Toxicological Information and Section 12 for Ecological Information.

**SECTION 5 – FIRST AID MEASURES**

**\*\*Note\*\*** In the unlikely event that the purifier media is liberated from the purifier housing (whether intentional or accidental), health hazards may arise from the inhalation, ingestion, and/or contact with the skin or eyes.

**Eye Contact:** Immediately flush eyes with plenty of water for at least 15 minutes, keeping eyelids open. Seek medical attention immediately.

**Skin Contact:** Remove contaminated clothing immediately. Wash with soap and plenty of water. If irritation persists, seek medical attention.

**Inhalation:** Remove exposed person to fresh air immediately. If breathing is difficult, oxygen should be administered by qualified personnel. Get medical attention immediately.

**Ingestion:** Procedures normally not needed. If large quantities are ingested, seek medical attention.

**SECTION 6 – FIRE-FIGHTING MEASURES**

**Flash Point:** Not Determined  
**Auto-Ignition:** Not Applicable  
**LEL:** Not Applicable  
**UEL:** Not Applicable

Negligible fire hazard. High temperature will cause increase in internal pressure.

**NFPA Hazard Classification:**

Health: 2      Flammable: 0      Reactivity: 0

**HMIS Hazard Classification:**

Health: 2\*      Flammable: 0      Reactivity: 0      Special: C

\* Indicates the possibility of chronic health effects. See Chronic Health Hazards in Section 3 for more information

**Extinguishing Media:** Use extinguishing agents appropriate for the surrounding fire.

**Special Fire-Fighting Procedures:** Wear NIOSH certified positive-pressure self-contained breathing apparatus and protective clothing as specified in country regulations (US OSHA 29 CFR 1910.156).

**Unusual Fire and Explosion Hazards:** This product will remain stable when housed in the purifier body. If possible to do so safely, move housings from fire area.

**SECTION 7 – ACCIDENTAL RELEASE MEASURES**

Use proper personal protective equipment as indicated in Section 9.

Sweep up using dry procedure; avoid creating dust. Place into a suitable container for disposal. Refer to applicable country, state and local regulations for current response information.

It is recommended that each user establish an emergency response plan in accordance with country regulations. Such plan should include procedures applicable to proper storage, control and clean up of spills, including reuse or disposal as appropriate (see Section 13: Disposal Consideration).

**\*\*Note\*\*** In the unlikely event that the purifier media is liberated from the purifier body the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used (see Section 9: Exposure Control/Personal Protection), and disposal of the material should be in accordance with Section 13: Disposal Considerations.

**SECTION 8 - HANDLING AND STORAGE**

Store in cool dry location, away from sources of heat to avoid increase in internal pressure.

**\*\*Note\*\*** In the unlikely event that the purifier media is liberated from the purifier body the following procedures should be observed.

Notify Safety personnel. Wash thoroughly after handling media. Keep container closed. Avoid breathing dust. Store in cool, dry location away.

<b>SECTION 9 – EXPOSURE CONTROLS / PERSONAL PROTECTION</b>
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<b>Exposure Limits Ingredients:</b>	<b>PEL- US OSHA</b>	<b>TLV-ACGIH</b>
Inorganic Oxides	15 mg/m <sup>3</sup> (Total Dust)	10 mg/m <sup>3</sup> (Respirable)
CAS NO.: Proprietary	5 mg/m <sup>3</sup> (Respirable Dust)	

Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only).

**Malaysia Permissible Exposure Limits:**

<b>Exposure Limits Ingredients:</b>	<b>8-Hour TWA Airborne Concentration mg/m<sup>3</sup></b>
Particulates	10 mg/m <sup>3</sup> (Inhalable)
CAS NO.: 1344-28-1	3 mg/m <sup>3</sup> (Respirable)

**Respiratory Protection:** A NIOSH-certified respirator is recommended for dust if media is liberated from purifier body.

**Ventilation:** Use general ventilation; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during exposure to media.

**Personal Protection:** Under conditions of normal use, personal exposure to contents of housing is unlikely. If planned procedure is likely to result in exposure, wear butyl gloves and full-face shield to protect skin and eyes.

<b>SECTION 10 – STABILITY AND REACTIVITY</b>
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**Stability:** Stable under normal conditions of temperature and pressure.

**Hazardous Polymerization:** None Expected.

**Incompatibility (Materials to Avoid):** Oxidizing agents, water and strong acids.

**Hazardous Decomposition or By-Products:** Metal oxide fumes. Oxides of nitrogen.

<b>SECTION 11- TOXICOLOGICAL INFORMATION</b>
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No data available.

<b>SECTION 12 – ECOLOGICAL INFORMATION</b>
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**Ecotoxicity:** No data available.

**Environmental Fate:** No data available.

**SECTION 13 – DISPOSAL CONSIDERATIONS**

Country, state and local disposal laws and regulations will determine the proper waste disposal/recycle/reclamation procedures. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary). Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.

**\*\*NOTE\*\*** Chemical additions, processing or otherwise altering this material may make the waste management information presented above incomplete, inaccurate or otherwise inappropriate.

As local regulations may vary; all waste must be disposed/recycled/reclaimed in accordance with country, state, and local environmental control regulations.

**SECTION 14 – TRANSPORT INFORMATION****INTERNATIONAL (IATA)**

<b>UN Number:</b>	Not Applicable
<b>Class/Division:</b>	Not Applicable
<b>Proper Shipping Name:</b>	Not Applicable
<b>Packing Group</b>	Not Applicable

**MALAYSIA**

<b>UN Number:</b>	Not Applicable
<b>Class/Division:</b>	Not Applicable
<b>Proper Shipping Name:</b>	Not Applicable
<b>Packing Group</b>	Not Applicable

**UNITED STATES**

<b>Identification Number:</b>	Not Applicable
<b>DOT Classification:</b>	Not Applicable
<b>DOT Proper Shipping Name:</b>	Not Applicable
<b>Packing Group:</b>	Not Applicable

**CANADA**

<b>PIN Number:</b>	Not Applicable
<b>TDG Class:</b>	Not Applicable
<b>EC DGL:</b>	Not Applicable

**SECTION 15 – REGULATORY INFORMATION****US FEDERAL REGULATIONS**

**TSCA:** All materials are TSCA listed.

**SARA 311 and 312 Hazard Categories**

<b>Immediate (Acute) Health Hazard:</b>	Yes
<b>Delayed (Chronic) Health Hazard:</b>	Yes
<b>Fire Hazard:</b>	No
<b>Reactivity Hazard:</b>	No
<b>Sudden Release of Pressure:</b>	No

<b>SARA Section 313 Notification:</b>	None
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**OZONE DEPLETING SUBSTANCES (ODS):** This product neither contains nor is manufactured with an ozone depleting substance subject to the labeling requirements of the Clean Air Act Amendments 1990 and 40 CFR Part 82.

**VOLATILE ORGANIC COMPOUNDS (VOC):** None

#### US STATE REGULATIONS

**California (Prop65):** The State of California has a regulation (Proposition 65) which identifies specific chemicals known to the State of California to cause cancer or birth defects. Proposition 65 requires a disclosure for products sold within the State of California containing identified chemicals. The following information is required by the state of California for this product:

**\*WARNING: This product contains chemicals known to the State of California to cause cancer.**

**Regulated Materials:** Nickel, Cobalt, Silica - Crystalline.

**VOLATILE ORGANIC COMPOUND (CARB):** Not determined

#### CANADIAN REGULATIONS

**WHMIS Classification:** This product, as a manufactured article, is exempt from WHMIS classification.

#### EUROPEAN REGULATIONS

**EINECS:** Yes

#### OTHER REGULATIONS

**MITI (Japan):** Yes

**AICS (AUSTRALIA):** Yes

### SECTION 16 – OTHER INFORMATION

The chemical, physical and toxicological properties of this material have not been thoroughly investigated. Exercise due care.

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