

**MATERIAL SAFETY DATA SHEET**

FORMAT COMPATIBLE WITH OSHA (1910.1200), ANSI (Z400.1-1993) AND PROPOSED ISO 14000 STANDARDS

**KLINGERSIL<sup>®</sup> C-4401**

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**SECTION 1: COMPANY INFORMATION**

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**SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS**

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Hazardous Component	% by Weight	CAS #	OSHA PEL	ACGIH TLV
Amorphous Silica	1-10%	112926-00-8	6 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Aluminum Silicate	1-10%	1332-58-7	15 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
Calcium Metasilicate	30-60%	13983-17-0	5 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>
Mica	<1%	12001-26-2	3 mg/m <sup>3b</sup>	3 mg/m <sup>3b</sup>
Zinc Oxide	1-10%	1314-13-2	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Carbon Black (black only)	<1%	1333-86-4	3.5 mg/m <sup>3</sup>	3.5 mg/m <sup>3</sup>

Other hazardous ingredients may be used in product formulations but are below OSHA reportable values.

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**SECTION 3: HAZARDS IDENTIFICATION**

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**Emergency Overview:** Releases of large amounts of dust may cause upper respiratory tract irritation and dust-related lung diseases. Dermal irritation and allergic skin reactions may occur if dust contacts skin for prolonged or repeated periods. Burning of nitrile-based rubber products produce toxic gases such as hydrogen cyanide.  
**WARNING:** Contains fibers and particulates. Avoid creating dust. Breathing gasket dust may cause permanent lung damage.

**Potential Health Effects:**

**EYE:** Eye contact may cause slight chemical and mechanical irritation.

**SKIN:** Dermal irritation and allergic skin reactions may occur if dust contacts skin for prolonged or repeated contact. May cause abrasion with resulting irritation and rash.

**INHALATION:** Releases of large amounts of dust may cause upper respiratory tract irritation and dust-related lung diseases (fibrosis).

**INGESTION:** Low toxicity if ingested.

**Carcinogenicity:** Carbon black (black only) is listed by IARC as a Group 2B or a *possible* human carcinogen. Neither NTP nor OSHA list carbon black as a human carcinogen whereas NIOSH recommends that only carbon blacks with PAH levels greater than 0.1% be considered suspect carcinogens. Gasket materials are not believed to be a cancer risk to humans when handled as recommended.

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**Medical Conditions Aggravated:** Respiratory conditions such as asthma, COPD, and chronic bronchitis may be exacerbated by inhalation of free synthetic vitreous fibers and fillers.

**Chronic Effects:** Overexposure to large amounts of gasket dusts is not expected during routine gasket handling and processing. Thus potential health effects under these conditions are considered minimal. Residual dusts generated during cutting activities may cause dermal irritation, rashes, or sensitization if left in contact with exposed skin. Overexposure to gasket filler components is possible but limited to the following conditions: abrasive activities such as sanding, grinding, abrading, drilling and wire brushing, and pile driving. Chronic lung diseases (industrial bronchitis, fibrosis) are possible under high dust conditions.

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#### SECTION 4: FIRST AID MEASURES

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**EYES:** Immediately wash eyes with water for at least 5 minutes. Seek medical attention if discomfort persists.

**SKIN:** Frequent washing will deter transitory chemical and mechanical dermatitis. If rash develops consult a physician.

**INHALATION:** Remove to fresh air, and seek medical attention.

**INGESTION:** Induce vomiting, and seek medical attention.

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#### SECTION 5: FIRE-FIGHTING MEASURES

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**Flash Point:** Does not flash

**Flammable Limits:** LEL: NA UEL: NA

**Extinguishing Media:** Water, carbon dioxide, dry powder, or foam

**Fire-Fighting Procedures:** Fire fighters should wear SCBA for protection against hazardous thermal decomposition products. They include carbon monoxide, hydrogen cyanide, ammonia, aldehydes, aliphatic hydrocarbons, nitrogen dioxides, and carbon dioxide.

**Unusual Fire or Explosion Hazards:** When ground to a fine powder, clouds of rubber particles finer than 840 µm may produce a weak explosion. Organic fibers may become electrostatically charged when ground. Discharge may cause ignition of nearby flammable vapors. Provide extra water cooling to prevent spontaneous reignition once rubber fires are extinguished.

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#### SECTION 6: ACCIDENTAL RELEASE MEASURES

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As sheet gasketing, product does not spill or create a release. Accumulated dusts may be vacuumed using a vacuum cleaner fitted with a HEPA filter or wet mopped for cleanup.

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#### SECTION 7: HANDLING

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**Handling:** In the normal handling of sheet and cut gaskets, no significant release of dust occurs. Where dust-producing activities occur, local ventilation and respirators should be used to reduce gasket dust exposures. Good ventilation and dust extraction should always be employed even when the dust is considered to be non-hazardous.

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#### SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Respiratory Protection:** Respiratory protection is not required under normal processing of sheet gaskets. Respiratory protection is required when dust-emitting activities (grinding, pile driving, sanding, etc.) are performed. Use only NIOSH/MSHA approved air-purifying respirators or positive pressure, self-contained breathing apparatus when exposure guidelines are greatly exceeded. In confined or poorly ventilated areas, use an approved SCBA device.

**Skin Protection:** For brief contact, no precautions other than clean body-covering clothing should be needed. When prolonged or frequent repeated contact could occur, use protective clothing such as butyl rubber to prevent skin irritation and dermatitis.

**Eye Protection:** Safety glasses are recommended when dust-emitting activities occur.

**Engineering Controls:** Ventilation needed only for dust-producing activities. Maintain airborne levels below exposure guidelines. Local exhaust may be necessary for some applications.

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#### SECTION 9: PHYSICAL & CHEMICAL PROPERTIES

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Appearance:	Rubber-like consistency	Odor:	Slight aromatic odor
Color:	White, green, or black	Vapor Pressure:	NA
Boiling Point:	NA	Solubility in Water:	Insoluble
Vapor Density:	NA	Freezing Point:	NA
Specific Gravity:	1.8 g/cc	% Volatile:	<0.1%
PH:	Not Relevant		

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#### SECTION 10: STABILITY & REACTIVITY

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**Stability:** (Conditions to avoid) Avoid open flames, welding arcs, or other high temperature sources which induce thermal decomposition.

**Incompatibility:** (Specific materials to avoid) Avoid strong oxidizers, strong acids and bases. Exposure to these chemicals may cause premature product degradation.

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**Hazardous Decomposition Products:** Carbon monoxide, carbon dioxide, and small amounts of nitrogen oxides, aromatic and aliphatic hydrocarbons are emitted when material is combusted.

Pyrolytic products from nitrile butadiene rubber must be considered toxic. They include hydrogen cyanide and 1,3-butadiene.

**Hazardous Polymerization:** Will not occur.

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**SECTION 11: TOXICOLOGICAL INFORMATION**

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For detailed toxicological information on individual ingredients, write to or call the company listed in Section 1 of this MSDS.

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**SECTION 12: ECOLOGICAL INFORMATION**

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Components of sheet gasketing are essentially nonbiodegradable in the environment. No studies have been performed on the end gasket product, however.

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**SECTION 13: DISPOSAL CONSIDERATIONS**

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Magnesium oxide (D003 – reactivity) is listed as an EPA Hazardous Waste. It is used, however in very small amounts (<1%). Sheet gasket materials are generally *not* considered hazardous waste as defined under RCRA. However, since waste disposal laws vary within states and municipalities, disposal of these products should be in accordance with local, state, and federal laws and regulations (contact local or state environmental agencies for specific rules).

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**SECTION 14: TRANSPORT INFORMATION**

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No special precautions necessary. DOT Hazard Class: Not regulated.

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**SECTION 15: REGULATORY INFORMATION**

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**OSHA:** This MSDS is provided to comply with provisions of the Hazard Communication Standard (29 CFR 1910.1200).

	HMIS Ratings	NFPA Ratings
Health	1	1
Flammability	0	0
Reactivity	0	0

**SARA Title III:**

302/304	Zinc oxide (<1%), a component of this product, is listed.
311/312	Acute, delayed health hazard.
313/372	Contains no Section 313 notification chemicals at or above the <i>de minimus</i> concentration

**TSCA:** Components of this product are listed under TSCA Chemical Substances Inventory.

**Exposure Limits:** The aramid fiber manufacturer recommends that airborne fibril levels should not exceed 2 fibrils/cc (8-hour TWA, respirable) or 5 mg/m<sup>3</sup> (total dust).

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**SECTION 16: OTHER INFORMATION**

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**MSDS STATUS:** Reviewed October 7, 2009 and reissued with no changes.

**DISCLAIMER:** To the best of our knowledge, the information contained herein is accurate. However, Thermoseal Inc. assumes no liability whatsoever for the accuracy or completeness of the information. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist.