

# MATERIAL SAFETY DATA SHEET

## SECTION 1 - PRODUCT INFORMATION

**Trade Name:** Aggregate Products (Greywacke, Metagreywacke, Sand, or Gravel)  
**Producer's Name:** Dutra Materials  
**Address:** 1000 Point San Pedro Road, San Rafael, CA 94901  
**Phone Number:** (415) 459-7740  
**Date Prepared:** February 2003  
**Prepared by:** James Rankin

## SECTION 2 - HAZARDOUS INGREDIENTS

CHEMICAL NAMES	CAS NUMBER	QUANTITY (PERCENT)	FORMULA	ACGIH TLV <sup>(1)</sup>	OSHA PEL <sup>(2)</sup>
CRYSTALLINE SILICA	14808-60-7	APPROX. 10%	SiO <sub>2</sub>	0.1 mg/m <sup>3</sup>	(10 mg/m <sup>3</sup> )/%SiO <sub>2</sub> +2

<sup>(1)</sup> ACGIH TLV: American Conference of Industrial Hygienists Threshold Limit Value (TLV) time-weighted average (TWA)

<sup>(2)</sup> OSHA PEL: Occupational Safety and Health Administration Permissible Exposure Limit (PEL) for an 8-hour time weighted average

## SECTION 3 - HAZARD IDENTIFICATION

### Overview:

**Warning!** Do not breathe dust containing crystalline silica. Chronic overexposure may cause lung damage and lead to lung cancer. When handling or cleaning, wear proper respiratory protection (Section 8) and use dustless procedures including vacuum and/or water (Section 7)

### Potential Health Effects

#### A. Inhalation

- **Silicosis:** Acute silicosis may occur under conditions of extremely high respirable crystalline silica (quartz) exposure. Silicosis is a fibrosis (scarring) of the lungs, and may be progressive.
- **Cancer:** Crystalline silica (quartz) inhaled from occupational sources is classified as carcinogenic to humans.
- **Autoimmune disorder:** There is evidence that exposure to respirable crystalline silica or silicosis is associated with the increased incidence of scleroderma, an autoimmune disorder.

- **Tuberculosis:** Several studies indicate that silicosis increases the risk of tuberculosis.
- B. **Eye contact:** Crystalline silica (quartz) may cause abrasion, irritation, redness and/or watering of the eyes.
- C. **Skin contact:** Not applicable.
- D. **Ingestion:** Not applicable.
- E. **Chronic:** The adverse health effects mentioned above (silicosis, cancer, scleroderma and tuberculosis) are considered chronic effects.
- F. **Reproductive:** Reproductive toxicity has not been demonstrated.

### **Medical Conditions Aggravated by Exposure**

Respiratory ailments (including bronchitis, emphysema, etc.) may be aggravated by exposure to respirable crystalline silica.

## **SECTION 4 - FIRST AID MEASURES**

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**Eye contact:** Gently flush any particles from the eye with clean water. Seek medical aid if irritation develops or persists.

**Skin Contact:** Wash with soap and water. Seek medical aid if irritation develops or persists.

**Inhalation:** Remove from exposure. Seek medical aid if respiratory difficulty develops or persists.

**Ingestion:** Seek medical aid if discomfort is experienced.

## **SECTION 5 - FIRE AND EXPLOSION**

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Will not burn or explode under any conditions. Non-flammable and non-explosive.

## **SECTION 6 - ACCIDENTAL RELEASE MEASURES**

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**Spill Response Procedures:** Use dustless methods (such as vacuum or water hose) for cleanup. Do not dry sweep. Wear protective equipment as described in Section 8.

**Preparing Waste for Disposal:** No special procedures required. Dispose of according to local, state, and federal regulations. Not classified as a hazardous waste by the Resource Conservation and Recovery Act (RCRA).

## SECTION 7 - HANDLING AND STORAGE

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**Ventilation and Engineering Controls:** Do not breath dust. Dust suppression controls such as water sprays or dust collection controls such as vents or baghouses should be used where dust generation results from handling. Practice good housekeeping-do not allow dust to collect on wall, floors, and ceilings.

## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Respiratory Protection:** NIOSH/MSHA approved dust respirators should be used where dust levels exceed or are likely to exceed exposure levels defined in Section 2. Respirator use must comply with applicable MSHA or OSHA standards which include a provision for fit-testing, cleaning, training in correct usage and a fitness test for respirator use.

**Eye Protection:** Safety glasses with side shields should be worn as minimum protection. Should excessively dusty conditions be present, use goggles or face shield. Gloves: Gloves of any material can be used.

**Other Clothing:** No special requirements.

**Work Practices:** Avoid generating dust; use water to wet surfaces.

**Hygiene Practices:** Wash dust-exposed skin with soap and water.

**Other Handling Requirements:** Contain material in discrete quantities to avoid particles posing slip/trip hazard.

**Protective Measures During Maintenance of Contaminated Equipment:** Use respiratory protection, eye protection and gloves if dust is likely to be generated.

## SECTION 9 - PHYSICAL PROPERTIES

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<b>VAPOR DENSITY (air=1):</b>	None.	<b>MELTING POINT:</b>	Approx. 3,000°F.
<b>SPECIFIC GRAVITY:</b>	2.60-2.70.	<b>BOILING POINT:</b>	Approx. 4,000°F.
<b>SOLUBILITY IN WATER:</b>	Insoluble.	<b>EVAPORATION RATE:</b>	None.
<b>VAPOR PRESSURE:</b>	None.		
<b>APPEARANCE AND ODOR:</b>	Grey, blue-grey, or black rock, no odor.		

**How to detect this substance:** X-ray diffraction

## SECTION 10 - STABILITY AND REACTIVITY

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**Stability:** Crystalline silica (quartz) is stable, will not polymerize, and is known to be compatible with all other substances except strong oxidizing agents such as fluorine, chlorine trifluoride, or oxygen difluoride.

**Hazardous Decomposition Products:** Silica-containing respirable dust particles may be generated by handling and transport.

## SECTION 11 - TOXICOLOGICAL INFORMATION

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Crystalline silica is a naturally occurring substance found in soil and rock formations. Crystalline silica is present in trace amounts in the atmosphere as particulate. Crystalline silica is one of several polymorphs (including trydimite and cristobalite) of silicon dioxide (SiO<sub>2</sub>). When heated to 870°C, crystalline silica transforms into trydimite, and when heated to 1,470°C it can transform into cristobalite. Chronic or ordinary silicosis is the most common form of silicosis which may occur after many years of exposure to relatively low levels of airborne respirable dust.

Crystalline silica is listed by the National Toxicology Program in a category of substances which may reasonably be anticipated to be a carcinogen, and by the International Agency for Research on Cancer (IARC) as a Group 1 carcinogen. After years of study, the non-governing IARC concluded in 1997 that there is “sufficient evidence in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources.” The IARC noted that the carcinogenicity was not detected in all industries, and that toxicity may depend on “external factors affecting its biological activity or distribution of its polymorphs.”

Crystalline silica is listed by the Governor of the State of California, under Proposition 65, as requiring the following warning:

***“Detectible amounts of chemicals known by the State of California to cause cancer, birth defects, or other reproductive harm may be found in this product.”***

## SECTION 12 - ECOLOGICAL INFORMATION

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There are no data that shows crystalline silica (quartz) is toxic to birds, fish, invertebrates, microorganisms, or plants.

## DUTRA MATERIALS DISCLAIMER

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The information contained in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. The information set forth herein is based on technical data that Dutra Materials believes to be accurate. It is intended for use by persons having technical skill and at their own discretion and risk. Since conditions of use are outside of Dutra Materials’ control, Dutra Materials makes no warranties, expressed or implied, and assumes no liability in connection with any use of this information.

# MATERIALS SAFETY DATA SHEET

## SECTION 1 - PRODUCT INFORMATION

Trade Name: Hot mix asphalt  
Producer's Name: Dutra Materials  
Address: 1000 Point San Pedro Road, San Rafael, CA 94901  
Phone Number: (415) 459-7740  
Date Prepared: March 2002  
Prepared by: James Rankin

## SECTION 2 - HAZARDOUS INGREDIENTS

Chemical Names	CAS Number	Quantity (Percent)	Formula	ACGIH TLV <sup>(1)</sup>	OSHA PEL <sup>(2)</sup>
Petroleum Distillate	88955-27-1	<5	various	100 ppm	none
Hydrogen Sulfide	7783-06-4	<1	H <sub>2</sub> S	10 ppm	20 ppm
Crystalline Silica (aggregate)	14808-60-7	Approx. 10	SiO <sub>2</sub>	0.1 mg/m <sup>3</sup>	10/(%SiO <sub>2</sub> +2)mg/m <sup>3</sup>

<sup>(1)</sup> ACGIH TLV: American Conference of Industrial Hygienists Threshold Limit Value (TLV) time-weighted average (TWA)

<sup>(2)</sup> OSHA PEL: Occupational Safety and Health Administration Permissible Exposure Limit (PEL) for an 8-hour time weighted average

## SECTION 3 - HAZARD IDENTIFICATION

### Overview:

Hot asphalt concrete contains aggregates bound by petroleum-hydrocarbon oil (asphalt). When hot, it may burn skin and emits fumes containing hydrogen sulfide (discussed below). This product may also contain crumb rubber (tires and natural rubber). For information on these products, contact Dutra Materials or the manufacturer.

### Potential Health Effects

#### Route of Entry

- Inhalation: Yes
- Skin: Yes
- Ingestion: Yes

**Acute and Chronic Effects:** Heated material may cause thermal burns or rash. When cold, no effects expected. Single short-term exposures can cause skin

irritation with prolonged or repeated exposure. Inhalation: Vapors containing hydrogen sulfide may accumulate during storage or transport.

**Signs/symptoms of Overexposure:** Irritation to eyes, skin and lungs after repeated exposure.

**Eyes/skin:** Permanent damage, rash, thermal burns.

## SECTION 4 - FIRST AID MEASURES

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**Eye contact:** Immediately flush with plenty of water for at least 15 minutes. Get immediate medical attention.

**Skin contact:** Immediately flush with cool water for at least 15 minutes. Clean skin with waterless hand cleaner. Seek medical aid if irritation develops or persists.

**Inhalation:** Remove from exposure. Seek medical aid if respiratory difficulty develops or persists.

**Ingestion:** Seek medical aid. Do not induce vomiting.

## SECTION 5 - FIRE AND EXPLOSION

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**Flash Point:** 500+ degrees F (closed cup method)

**Extinguishing Media:** Agents approved for Class B fires (e.g., CO<sub>2</sub>, dry chemical, foam, water fog).

**Special Fire Fighting Procedures:** Use NIOSH/MSHA approved SCBA and full protective equipment.

**Unusual Fire/Explosion Hazard:** Do not heat above flash point. Hot asphalt oil may ignite flammable mixtures on contact. Sulfur oxides and hydrogen sulfide, both of which are toxic, may be released upon combustion. Hydrogen sulfide vapors are heavier than air and may accumulate in low areas and travel along the ground to a remote ignition source; if ignited will flash back to original container.

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

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**Spill Response Procedures:** Recover spilled material and reuse.

**Preparing Waste for Disposal:** Disposal must be in accordance with applicable federal, state, and local regulations. Enclosed-controlled incineration is recommended, depending on jurisdiction.

## SECTION 7 - HANDLING AND STORAGE

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**Respiratory Protection:** None needed at ambient temperatures. If high vapor concentrations are experienced (TLV is exceeded), use NIOSH/MSHA approved supplied-air respirator.

**Eye Protection:** Safety glasses with side shields should worn at all times.

**Gloves:** Nitrobutyl rubber or neoprene.

**Other Clothing:** Long sleeves.

**Work Practices:** Do not smoke.

**Hygiene Practices:** Wash exposed skin with soap and water.

**Other Handling Requirements:** No special measures required.

**Protective Measures During Maintenance of Contaminated Equipment:** No special measures required.

**Storage:** Keep adequate ventilation in outside storage. Hydrogen sulfide gas may accumulate in storage tanks and bulk transport compartments containing asphalt oil.



## SECTION 8 - PHYSICAL PROPERTIES

<b>Vapor density (air=1):</b>	Negligible	<b>Melting Point:</b>	N/A
<b>Specific Gravity:</b>	2.00-2.55	<b>Boiling Point:</b>	N/A
<b>Solubility in water:</b>	Negligible < 0.1%	<b>Evaporation Rate:</b>	Negligible
<b>Vapor pressure:</b>	N/A		
<b>Appearance and Odor:</b>	Black semi-solid mixture, Asphalt odor		

## SECTION 9 - STABILITY AND REACTIVITY

**Reactivity:** Material is stable and will not polymerize. May react with strong oxidizing agents such as chlorates, nitrates, and peroxides. At room temperature, hydrogen sulfide may be given off.

**Materials/Conditions to Avoid:** High temperature heating.

**Hazardous Decomposition Products:** Heating this material may produce hydrogen sulfide.

## SECTION 10 - TOXICOLOGICAL INFORMATION

Hot mix asphalt (HMA) is a mixture of aggregates (sand and gravel) and liquid asphalt cement. The aggregates contain crystalline silica, which is a naturally occurring mineral found in soil and rock formations. Should the mixture release dust, it is possible that the dust may contain small amounts of crystalline silica. Chronic or ordinary silicosis is the most common form of silicosis, which may occur after many years of exposure to relatively low levels of airborne respirable dust.

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