NOTE: The Gernatt Companies manufacture sand products from numerous sites throughout New York State. The composition of the sand from the sites varies somewhat but generally consists of grains of granitics, sandstones, limestones/dolostones, quartz, quartzite, feldspar, siltstone, mafics (dark colored granitics), chert and shale. Quartz is predominant in the finer grained sizes. Sand is a durable, inert material with dust contents that vary from approximately less than three percent for washed sands to greater than fifteen percent for unwashed sands.

MATERIAL SAFETY DATA SHEET

Identity: Sand Products

SECTION I

Manufacturer's Name: The Gernatt Companies Dan Gernatt Gravel Products, Inc. Gernatt Asphalt Products, Inc. Country Side Sand & Gravel, Inc.	**Emergency Phone Number:** (716) 532-3371
Address: P.O. Box 400 Collins, New York 14034	**Phone Number for Information:** (716) 532-3371

SECTION II – HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Hazardous Components (Specific Chemical Identity/Common Name(s)):	OSHA PEL	ACGIH TLV	Other Rec. Limits	% (Optional)
Dust in Sand	8-hr TWA (Total Dust): 15 mg/cu.m	(Nuisance Dust): 10 mg/cu.m (Respirable Dust): 5 mg/cu.m	-	*
Quartz mineral dust Quartz dust from sand products Silicon Dioxide (SiO_2), free silica, CAS No. 14808-60-7 RTECS No. VV7330000	(Crystalline Silica as respirable quartz) $\frac{10 \text{ mg/cu.m}}{\%SiO_2+2}$ (Crystalline Silica as total quartz) $\frac{30 \text{ mg/cu.m}}{\%SiO_2+2}$	(Respirable Dust): 0.1 mg/cu.m	-	*

* The quartz content varies naturally but is generally greater than 10%. The OSHA exposure limits are calculated using formulas given above. The formula's percentage of quartz is the amount determined from airborne samples by the use of size selective sampling devices, a fraction of dust is collected and the weight concentration of airborne quartz in the size fraction is correlated to the degree of health hazard. See NIOSH, RTECS (VV7330000) for additional data tumorigenic and toxicity effects.

Toxicity Data:
Human inhalation, TC_{20}:16 mppcf of air administered intermittently during 8-hr periods over 17.9 years produces pulmonary fibrosis, cough, and difficult breathing.
Human inhalation, TC_{20}:30 ug/cu.m administered intermittently over a 10-year period affects the liver.

SECTION III - - PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point (quartz):	4046°F	**Melting Point (quartz):**	3110°F
Vapor Pressure - quartz (mm Hg):	Omm	**Specific Gravity (H_20=1):**	2.59-2.85
Vapor Density (Air=1)	N/A	**Evaporation Rate (Butyl Acetate=1):**	N/A

Appearance and Odor: Rounded to angular, white to tan to gray to brown grains, ranging in size from dust to coarse sand less than ⅜" in size. Odorless. Quartz generally occurs as rounded to angular grains, generally in the finer grained sizes and is included as a mineral component of gravel products.

SECTION IV – FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): None reported	**Flammable Limits:** Not flammable	**LEL:** N/A	**UEL:** N/A

Extinguishing Media: Since this material is noncombustible, use extinguishing media appropriate for surrounding fire.

Special Fire Fighting Procedure: None required

Unusual Fire and Explosion Hazards: None

SECTION V - - REACTIVITY DATA

Stability	**Unstable**		**Conditions to avoid:**
	Stable	X	None

Incompatibility (Materials to Avoid): Powerful oxidizing agents such as flourine, chlorine, hydroflauric acid

Hazardous Decomposition or Byproducts: None Known

Hazardous Polymerization			**Conditions to Avoid:**
	May Occur		
	Will Not Occur	X	None

SECTION VI - - HEALTH HAZARD DATA

Summary of Risks: Prolonged exposure to respirable crystalline quartz may cause a delayed chronic lung injury (silicosis). Simple silicosis occurs after 20+ years exposure, accelerated silicosis after 5 to 15 years, and acute silicosis occurs after 1 to 3 years. Acute silicosis may occur among sandblasters and tunnel workers, who are exposed to heavy concentrations of respirable crystalline quartz. Silicosis symptoms include the formation of nodules of scar tissue in the lungs. This chronic scarring leads to a progressive massive fibrosis, often accompanied by increased susceptibility to pulmonary tuberculosis and other respiratory infections. Progressive massive fibrosis may be accompanied by right heart enlargement, heart failure, and pulmonary failure. Continued exposure to quantities of free-silica-containing dust, advancing age, and smoking increase the disease progression. If tuberculosis does not prove fatal, eventual cardiac failure or destruction of lung tissue with anoxemia will. **Target organs:** Respiratory System, Skin

Routes of Entry: **Inhalation?** Yes **Skin?** No **Ingestion?** No

Health Hazards: Crushing or handling may result in the release of dust particles which may cause:
(a) Acute - - exposure can cause irritation to eyes and nose. Inhalation can irritate nose, throat, lungs, cause soughing, shortness of breath.
(b) Chronic - - prolonged exposure to excessive amounts of silica may result in lung disease (silicosis).

Carcinogenic: NTP? No **IARC Monographs** See notes on page 3 **OSHA Regulated?** See notes on page 3

Signs and Symptoms of Exposure: Irritation of eyes and nose, shortness of breath, difficulty breathing with or without exertion coughing, diminished work capacity, diminished chest expansion, reduced lung volume, right heart enlargement/failure.
Acute Effects: Acute silicosis is manifested by dyspnea, fever, cough and weight loss. In cases of exposure to very high concentrations in short periods of time, severe respiratory symptoms may lead to death. Exposure to both crystalline and amorphous quartz dust has a drying effect on the skin and mucous membranes.
Chronic Effects: The chronic symptoms include cough, dyspnea, wheezing, increased susceptibility to tuberculosis, decreased chest expansion, and repeated nonspecific chest illnesses. Chronic exposure may also cause fissures, thickening, and general breakdown of the skin. Pulmonary function impairment may be progressive with pulmonary infections and cardiac decompensation. As the disease progresses, shortness of breath worsens, the cough more productive, extreme dyspnea and cyanosis, marked fatigue, loss of appetite, pleuritic pain, and total incapacity to work.

Medical Conditions Generally Aggravated by Exposure: Pre-existing lung diseases such as emphysema or asthma

Emergency and First Aid Procedures:
(a) Eye contact: rinse with water for 15 minutes, occasionally lifting upper and lower eyelids. Consult physician if irritation persists.
(b) Skin contact: people with skin conditions should remove dust promptly with soap and warm water. Consult physician if irritation persists.
(c) Inhalation: remove to fresh air; if breathing is difficult, administer oxygen. If breathing has stopped, give artificial respiration. Keep person warm and quiet. Obtain medical attention immediately.

SECTION VII - - PRECAUTIONS FOR SAFE HANDLING AND USE		
Steps to be Taken in Case Material is Released or Spilled: Sweep up and discard. Dust generation can be reduced by wetting down prior to sweeping up.		
Waste Disposal Method: Clean materials can be reused. Dispose waste materials in accordance with federal, state and local law and regulations.		
Precautions to be Taken in Handling and Storing: Avoid breathing dust. Use proper dust control measures such as ventilation, wetting and enclosure of materials. Respirable dust should be monitored regularly.		
Other Precautions: Wear NIOSH or MSHA approved respirator and tight fitting goggles when grinding or crushing stone.		
SECTION VIII - - CONTROL MEASURES		
Respiratory Protection (Specify Type): NIOSHA/MSHA approved dust mask.		
Ventilation	**Local Exhaust:** Provide ventilation to maintain below TLV.	**Special:** N/A
	Mechanical (General): Wet Suppression of dust.	**Other:** N/A
Protective gloves: Recommended		**Eye Protection:** Tight fitting goggles
Other Protective Clothing or Equipment: Coveralls recommended		
Work/Hygienic Practices: Remove dust from exposed skin with soap and warm water.		

NOTE: Sand is not on the NTP, IARC or ASHA list of carcinogens. Quartz (crystalline silica, SiO2) is listed by IARC as carcinogenic to certain experimental animals (rats, but not mice or hamsters). The findings of carcinogenity in experimental animals may in some cases be indicative of potential human effects but IARC determined that the carcinogenecity of crystalline silica to humans is neither certain nor proven. IARC also did not include that the available studies present sufficient evidence to consider silica to be carcinogenic to humans. However, it is recommended that precautions be taken against excessive exposure to silica dusts, especially because of the potential for development of silicosis.

Quartz is one of the most prevalent rock-forming minerals and occurs in almost all dust in almost all environments.

The information in this Material Safety Data Sheet concerning Health Hazard Data was obtained from sources believed to be reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding its accuracy or correctness. Once the products leave The Gernatt Companies site, the conditions or methods of handling, storage, use and disposal of the products are beyond The Gernatt Companies control and may be beyond their knowledge. For this and other reasons, The Gernatt Companies do not assume responsibility and expressly disclaims liability for loss, damage or expense.

Abbreviations Used in Material Safety Data Sheet

mg/cu.m	Milligrams of dust per cubic meter of air
mmHg	Millimeters of mercury (a measure of vapor pressure)
OSHA PEL	Occupational Safety and Health Administration Permissible Exposure Level
ACGIH TLV	American Conference of Governmental Industrial Hygienists Threshold Limit Value
LEL	Lower explosive limit of a vapor or a gas
UEL	Upper explosive limit of a vapor or gas
NTP	National Toxicology Program
IARC	International Agency for Research on Cancer of the World Health Organization
NIOSH	National Institute for Occupational Safety and Hazard
MSHA	Mine Safety and Health Administration

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