Material Safety Data Sheet
For Sand and Gravel plants located at:
LaPlata, Accokeek, Kirby Road, King George, Rappahannock Farms.

March, 2005

Aggregate Industries, Inc. 6401 Golden Triangle Drive Suite 400 Greenbelt, MD 20770

1 -	- IDENTIFICATION	
CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
Natural Sand-or gravel	Sio <sub>2</sub> (Silicon Dioxide)	Not Applicable
TRADE NAME		
Send or gravel		
SYNONYMS  Construction Aggregate. bankrum. mason sand.  concrete sand		DOT IDENTIFICATION NO
		None

2 - PRODUC	T AND COMPONENT DA	ATA	
COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO	%(APPROX)	EXPOSURE
Natural sand* or gravel*	None	100	LIMITS
*Composition varies naturally - typically contains quartz (crystalline silica) >1	14808-60-7	>1	See Section 6

3 - PHYSICAL DATA		
APPEARANCE AND ODOR	SPECIFIC GRAVITY	
Angular gray, white and tan particles ranging in size from powder to boulders. No odor,	2 55 - 2 80	
BOILING POINT(AL1 Alm)	VAPOR DENSITY IN AIR (Air = 1)	
Not applicable	Not applicable	
VAPOR PRESSURE (mm Hg @ 20 °C)	VOLATILE BY VOLUME (@ 100°F)	
0	0%	
EVAPORATION RATE (at 1 Aim. and 25° C. n-buty1 acetate =1)	SOLUBILITY IN WATER	
0	Not Applicable	

	4 - REACTIVITY DATA	
STABILITY	CONDITIONS TO AVOID	
Stable	Avoid contact with incompatible materials (see below)	Į
INCOMPATABI	LITY (Materiats to avoid)	
Contact with pow oxygen difluorid gas - silicon tetr	werful oxidizing agents such as fluorine, boron trifluoride, chlorin trifluoride, manganese trifluoride, and e may cause fire and/or explosions. Silica dissolves readily in hydrofluone acid producing a corrosive afluoride.	
HAZARDOUS D	ECOMPOSITION PRODUCTS	
Silica-containing	breathable dust particles may be generated by handling	1
HAZARDOUS P	OLYMERIZATION	
Not known to po	lymerize	
	y a rear rear	

5 - FIRE AI	ND EXPLOSION HAZARD DATA
FLASHPOINT (Method used)	FLAMMABLE LIMITS IN AIR
Not flammable	Not flammable
EXTINGUISHING AGENTS	
Not required	
UNUSUAL FIRE AND EXPLOSION HAZARDS	
Contact with powerful oxidizing agents cause fire an	nd/or explosions (see Section 4 of this MSDS).
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### 6 - TOXICITY AND FIRST AID

EXPOSURE LIMITS (When exposure to this product and other chemicals is concurrent, the exposure limit must be defined in the workplace)

Unless specified otherwise, limits are expressed as eight-hour time-weighted average (TWA). Limits for cristobalite and tridymite (other forms of crystalline silica) are equal to one-half of the limits for quartz

ABBREVIATIONS: TLV = threshold limit value of the American Conference of Governmental Industrial Hygienists (ACGIH): MSHAPEL =

permissible exposure limit of the Mine Safety and Health Administration(MSHA):OSHAPEL=permissible exposure limit of the Occupational

Safety and Health Administration (OSHA): mg/m3 = milligrams of substance per cubic meter of air

Other Particulates: TLV=10 mg/m3 (Inhalable / total particulate, not otherwise classified), TLV=3 mg/m3 (breathable particulate. not otherwise classified), OSHA PEL = 15mg/m3 (total particulate, not otherwise regulated) OSHA PEL = 5mg/m3 (breathable particulate not otherwise regulated)

Breathable Crystalline Silica (quartz): TLV=0.05mg/m3; MSHA and OSHA PEL=10mg/m7+(%Sio2/2):MSHA-Proposed and OSHA-

Proposed PEL=0 1mg/m3

Breathable Dust: MSHA and OSHAPEL=10mg/m3/(%Sio2+2)

Total Dust: MSHAPEL=30mg/m3+(%Sio2+3):OSHAPEL=30mg/m3+(%Sio2+2)

AGGIH, MSHA. AND OSHA have determined the above effects are not likely to occur in the workplace provided exposure levels do not exceed the AGGIRI, MSHA. AND OSTA have determined the above energy in occur in the workplace provided exposure levels do not exceed the appropriate TLV and PELs. However because of the wide variations in individual susceptibility, lower exposure limits may be appropriate for some individuals including persons with pre-existing medical conditions such as those described below.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

inhaling breathable dust and or crystalline silica may aggravate existing respiratory system disease(s) and or dysfunctions. Exposure to dust may aggravate existing skin and or eye condition.

PRIMARY ROUTE(S) OF Inhalation Skin Indestion EXPOSURE:

**ACUTE TOXICITY** 

EYE CONTACT: Direct contact with dust may cause Imitation by mechanical abrasion

SKIN CONTACT: Direct contact may cause irritation by mechanical abrasion

SKIN ABSORPTION: Not expected to be a significant exposure route

INGESTION: Expected to be practically non-toxic Ingestion of large amounts may cause gastrointestinal irritation and blockage INHALATION: Dust may irritate the nose, throat, and respiratory tract by mechanical abrasion. Coughing, sneezing, and shortness of breath

may occur following exposure in excess of appropriate exposure limits.

FIRST AID

EYES: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, white holding the eye(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing Beyond flushing do not attempt to remove material from the eye(s) Contact a physician if irritation persists or later develops

SKIN: Wash with soap and water Contact a physician if irritation persists or later develops

INGESTION: If person is conscious, give large quantity of water and induce vomiting; however, never attempt to make an unconscious person drink or vomit Get immediate medical attention

INHALATION: Remove to fresh air Dust in throat and nasal passages should clear spontaneously Contact a physician if Inflation persists or later develops

For emergencies, contact:

Mr. Jim Veneskey (301) 982-1400

### CHRONIC TOXICITY

Prolonged and repeated Inhalation of breathable crystalline silica-containing dust in excess of appropriate exposure limits has caused silicosts symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to the following: shortness of breath: difficulty breathing with or without exertion: coughing: diminished work capacity: diminished chest expansion: reduction of lung volume: right heart enlargement and/or failure. Smoking may increase the risk of developing lung disorders, including emphysema and lug cancer. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Breathable dust containing newly broken sitics particles has been shown to be more hazardous to animal in laboratory tests than breathable dust containing older sitics particles of similar size. Breathable sitics particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of breathable dust containing newly broken particles of sitics.

There are reports in filerature suggesting that excessive crystalline silica exposure may be associated with adverse health effects involving the kidney, scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations.

or those who have already developed silicosis and therefore this evidence does not conclusively prove a causal relationship between silico or silicosis and these adverse health effects. Several studies of persons with silicosis also indicate an increased risk of developing lung cancer, a risk that increases with the duration of exposure. Many of these studies of silicosis do not account for lung cancer confounders, especially smoking.

Sand or gravel is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program

(NTP) Or the Occupational Safety and Health Administration (OSHA). In October 1996, an IARC Working Group re-assessing crystalline silica a component of this product designated breathable crystalline silica as carcinogenic (Group 1) The NTP's Report on Carcinogens 9th edition. Lists breathable crystalline silica as a "known human carcinogen". In year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed breathable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are

based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

# 7 - PERSONAL PROTECTION AND CONTROLS

#### RESPIRATORY PROTECTION

For breathable quartz levels that exceed or are likely to exceed a Shr-TWA of 0 1mg/m3 a NIOSH approved dust respirator must be worn. For breathable quartz levels that exceed or are likely to exceed an 8hr-TWA of 0.5mg/m3. a NIOSH approved HEPA litter respirator must be worn. If breathable quartz levels exceed or are likely to exceed a Shr-TWA of 5mg/m3 a NIOSH approved positive pressure full face respirator or equivalent is required. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements

### VENTILATION

Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits

#### SKIN PROTECTION

See "Hyglene" section below

### EYE PROTECTION

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

## HYGIENE

Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use

## OTHER CONTROL MEASURES

Breathable dust and quartz levels should be monitored regularly Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feesible engineering controls, including (but not limited to) wet suppression, vanitiation, process enclosure, and enclosed employee work station.

# 8 - STORAGE AND HANDLING PRECAUTIONS

This product is not intended or designed for use as an abrasive blasting medium or foundry applications and should not be used for these purposes

Follow the personal protection and controls set forth in Section 7 of this MSDS when handling this product Breathable crystalline silica-containing dust may be generated during handling of this product

Do not store near food and beverages or smoking meterials.

## 9 - SPILL, LEAK AND DISPOSAL PRACTICES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

The personal protection and controls identified in Section 7 of the MSDS should be used as appropriate. Spilled material, where dust can be generated, may overexpose-cleanup personnel to breathable crystalline silica-containing dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled materials. Prevent spilled materials from entering streams, drainages, or sewers.

For emergencies, contact: Mr. Jim Veneskey (301) 982-1400

WASTE DISPOSAL METHOD

Pickup and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state and local laws and regulations

# 10 - TRANSPORTATION

DOT HAZARD CLASSIFICATION

None

PLAÇARD REQUIRED

None

LABEL REQUIRED

Label as required by the OSHA Hazard Communication Standard (29 CFR 1910 1200 (f) and applicable state and local laws and regulations

For Further Information Contact:

Mr. Jim Veneskey

6401 Golden Triangle Drive

Suite 400

Greenbelt, Maryland 20770

DATE OF PREPARATION September 10, 2004

Emergency Information Mr. Jim Veneskey (301) 982-1400

NOTICE: Aggregate industries believes the information contained herein is accurate, however Aggregate industries makes no guarantees with respect to such accuracy and assumes no liability in connection with the use of the information contained herein by any party. The provision of the information contained herein is not intended to be and should not be construed as legal advice or as ensuring compliance with any federal, state or local laws and regulations. Any party using this product should review all such taws, rules or regulations prior to use

NO WARRANTY IS MADE. EXPRESS OR IMPLIED. OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE

MSDS 3239 - 003 - MS REV 5/2000

Material Safety Data Sheet Millville Quarry

March, 2005

Aggregate Industries, Inc. 6401 Golden Triangle Drive Suite 400 Greenbelt, MD 20770

	- IDENTIFICATION	
CHEMICAL NAME Limestone:	CHEMICAL FORMULA  Ca Co <sub>3</sub> Mg Co <sub>3</sub>	MOLECULAR WEIGHT
TRADE NAME		Not Applicable
Crushed Stone - Bluestone		
SYNONYMS Construction Aggregate. Aglime, Graded Aggregate Base.		DOT IDENTIFICATION NO
		None

2 - PRODUCT AND COMPONENT DATA			
	CAS REGISTRY NO.	%(APPROX)	EXPOSURE LIMITS
Dołomitic Limestone*	1317-65-3	100	See Section 6
*Composition varies naturally - typically contains quartz (crystalline silica)	14808-60-7	>1	

3 - PHYSIC	CAL DATA
APPEARANCE AND ODOR  Angular gray, white and tanor particles ranging in size from powder to boulders. No odor.	SPECIFIC GRAVITY 2 75 - 2 85
BOILING POINT (AL 1 Alm)	VAPOR DENSITY IN AIR (Air = 1)
Not applicable	Not applicable
VAPOR PRESSURE (mm Hg @ 20 'C) Not applicable	VOLATILE BY VOLUME (@ 100°F)
EVAPORATION RATE (at 1 Alm. and 25° C. n-buty1 acetate =1) Not Applicable	SOLUBILITY IN WATER

	4 - REACTIVITY DATA	
STABILITY	CONDITIONS TO AVOID	
Stable	Avoid contact with incompatible malerials (see below)	
COMPATABILI	TY (Materials to avoid)	
	orful oxidizing agents such as fluorine, burgo triffuoride, chloric triffuoride.	

as fluorine, boron trifluoride, chlorin trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosions. Silica dissolves readily in hydrofluone acid producing a corrosive gas - silicon tetrafluoride

HAZARDOUS DECOMPOSITION PR	RODL	ICTS
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Limestone lonites on contact with fluorine and is incompatible with acids, alum, ammonium salts, and magnesium. Sitica reacts violently with powerful oxidizing agents such as lluorine, boron trifluoride chlorine trifluoride, manganese trifluoride, and oxygen diffuoride yielding possible

fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride

### HAZARDOUS POLYMERIZATION

Not known to polymerize

5 - FIRE A	AND EXPLOSION HAZARD DATA	
FLASHPOINT (Method used)	FLAMMABLE LIMITS IN AIR	
Not flammable	Not flammable	
EXTINGUISHING AGENTS		
Not required —		
UNUSUAL FIRE AND EXPLOSION HAZARDS		
Contact with powerful oxidizing agents cause fire a	nd/or explosions (see Section 4 of this MSDS).	

# 6 - TOXICITY AND FIRST AID

EXPOSURE LIMITS (When exposure to this product and other chemicals is concurrent, the exposure limit must be defined in the workplace)

Unless specified otherwise, limits are expressed as eight-hour time-weighted average (TWA) Limits for cristobalite and tridymite (other

of crystalline silica) are equal to one-half of the limits for quartz

ABBREVIATIONS: TLV = threshold limit value of the American Conference of Governmental Industrial Hygienists (ACGIH): MSHAPEL = permissable exposure limit of the Mine Safety and Health Administration(MSHA):OSHAPEL=permissible exposure limit of the Occupational Safety and Health Administration (OSHA): mg/m, = milligrams of substance per cubic meter of air

Limestone(Calcium Carbonate):TLV=10 mg/m3, OSHA PEL = 15mg/m3 (total dust)OSHA PEL = 5mg/m3 (respirable fraction) Other Particulates: TLV=10 mg/m. (inhalable / total particulate, not otherwise classified). TLV= 3 mg/m. (respirable particulate, not otherwise

classified), OSHA PEL = 15mg/m. (total particulate, not otherwise regulated) OSHA PEL = 5mg/m. (respirable particulate not otherwise regulated

Respirable Crystalline Silica (quartz): TLV=0 05mg/m.; MSHA and OSHA PEL=10mg/m.+(%Sio./2):MSHA-Proposed and OSHA-Proposed PEL=0 1mg/m.

Respirable Dust: MSHA and OSHAPEL=10mg/m/(%Sio.+2)

Total Dust: MSHAPEL=30mg/m+(%Sio;+3):OSHAPEL=30mg/m+(%Sio;+2)
AGGH; MSHA, MHD OSHA have determined the above effects are not they to occur in the workplace provided exposure levels do not exceed the appropriate TLV and PELs. However because of the wide variations in full-valual susceptability lower exposure finits may be appropriate for some hubiducials including persons with pre-excisting medical conditions such as

# MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Inhaling respirable dust and or crystalline silica may aggravate existing respiratory system disease(s) and or dysfunctions. Exposure to dust may aggravate existing sidn and or eye condition.

PRIMARY ROUTE(S) OF EXPOSURE: Inhalation Skin Ingestion

# **ACUTE TOXICITY**

EYE CONTACT: Direct contact with dust may cause irritation by mechanical abrasion

SKIN CONTACT: Direct contact may cause imitation by mechanical abrasion

SKIN ABSORPTION: Not expected to be a significant exposure route

INGESTION: Expected to be practically non-loxic Ingestion of large amounts may cause gastrointestinal initiation and blockage INHALATION: Dust may irritate the nose, throat, and respiritory tract by mechanical abrasion. Coughing, sneezing, and shortness of breath may occur following exposure in excess of appropriate exposure limits.

#### FIRST AID

EYES: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eye(s) open. Occasionalty lift the eyelid(s) to ensure thorough rinsing. Beyond flushing do not attempt to remove material from the eye(s). Contact a physicion if irritation persists or later develops.

SKIN: Wash with soap and water Contact a physicion if irritation persists or later develops

INGESTION: If person is conscious, give large quantity of water and induce vomilling; however, never ettempt to make an unconscious person drink or vomit. Get immediate medical attention

INHALATION: Remove to fresh air Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops

For emergencies, contact:

Mr. Jim Veneskey (301) 982-1400

#### CHRONIC TOXICITY

Prolonged and repeated inhalation of respirable crystitine sitica-containing dust in excess of appropriate exposure timits has caused siticosis symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to the following: shortness of breath: difficulty breathing with or without exertion: coughing: diminished work capacity: diminished chest expansion: reduction of tung volume: right heart enlargement and/or failure. Smoking may increase the risk of developing lung desorders, including emphysema and tug cancer. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Respirable dust containing newly broken silica particles has been shown to be more hazardous to animal in laboratory tests than respitable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken particles of silica.

There are reports in the literature suggesting that excessive crystalline silical exposure may be associated with adverse health effects involving the kidney, scieroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations or those who have already developed sticosis and therefore this evidence does not conclusively prove a causal relationship between sitical or siticosis and these adverse health effects. Several studies of persons with siticosis also indicate an increased risk of developing lung cancer, a risk that increases with the duration of exposure. Many of these studies of siticosis do not account for lung cancer confounders, especially smoking.

Linestone is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP). Or the Occupational Safety and Health Administration (OSHA). In October 1996, an IARC Working Group re-assessing crystalline silica a component of this product, designated respirable crystalline silica as carcinogenic (Group 1). The NTP's Report on Carcinogens 9th edition. Lists respirable crystalline silica as a "known human carcinogen" in year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

# 7 - PERSONAL PROTECTION AND CONTROLS

#### RESPIRATORY PROTECTION

For respirable quartz levels that exceed or are likely to exceed an Shr-TWA of 0 1mg/m3 a NIOSH approved dust respirator must be worn for respirable quartz levels that exceed or are likely to exceed an Shr-TWA of 0.5mg/m3. a NIOSH approved HEPA filter respirator must be worn if respirable quartz levels exceed or are likely to exceed an Shr-TWA of 5mg/m3 a NIOSH approved positive pressure full face respirator or equivalent is required. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements.

#### VENTILATION

Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits

# SKIN PROTECTION

See "Hygiene" section below

## **EYE PROTECTION**

Salety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

### HYGIENE

Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using tollet facilities. Wash work clothes after each use

#### OTHER CONTROL MEASURES

Respirable dust and quartz levels should be monitored regularly. Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee work station.

# 8 - STORAGE AND HANDLING PRECAUTIONS

Respirable crystalline stiica-containing dust may be generated during processing, handling, and storage

The personal protection and controls identified in Section 7 of this MSDS should be used as appropriate

Do not store near food and beverages or smoking materials

### 9 - SPILL, LEAK AND DISPOSAL PRACTICES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

The personal protection and controls identified in Section 7 of the MSDS should be used as appropriate. Splited material, where dust can be generated, may overexpose-cleanup personnel to respirable crystalline stilca-containing dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled material Prevent spilled materials from entering streams, drainages, or sewers

For emergencies, contact

Mr. Jim Veneskey

WASTE DISPOSAL METHOD

Pickup and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state and local laws and regulations

### 10 - TRANSPORTATION

DOT HAZARD CLASSIFICATION

PLACARD REQUIRED

None

LABEL REQUIRED

Label as required by the OSHA Hazard Communication Standard (29 CFR 1910 1200 (f) and applicable state and local laws and regulations

For Further Information Contact:

Mr. Jim Veneskey

6401 Golden Triangle Drive

Suite 400

Greenbelt, Maryland 20770

DATE OF PREPARATION

September 10, 2004

**Emergency Information** 

Mr. Jim Veneskey

(301) 982-1400

NOTICE: Aggregate industries believes the information contained herein is accurate, however Aggregate industries makes no guarantees with respect to such accuracy and assumes no liability in connection with the use of the information contained herein by any party. The provision of the information contained herein is not intended to be and should not be construed as legal advice or as ensuring compliance with any federal. state or local laws and regulations. Any party using this product should review all such laws, rules or regulations prior to use

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