



MATERIAL SAFETY DATA SHEET

HMIS Label

HEALTH	2
FIRE	0
PHYSICAL HAZARD	1
PPE	X

SECTION 1 – IDENTITY

Distributed by: TXI Operations, LP
Address: 1341 W Mockingbird Lane
Dallas, TX 75247
Product Name: Portland Cement (TXI002)
Chemical Name: NA
Common Name: NA
Formula: a heterogeneous mixture of basic calcium silicates, aluminates and ferrites with small impurities of magnesia, chromium and complex alkali metal compounds.
Trade Name and Synonyms: Portland Cement, Hydraulic Cement Types I, II, I/II, III, ILA, Class A, Class C and Class H.
Special Certification: NSF/ANSI-61
MSDS prepared: November 1998 **Last revised:** September 2003

Emergency Phone (Chemtrec): 800-424-9300
Outside USA: 703-527-3887
Telephone for information: Nancy Garnett
972-647-3824
Chemical Family: NA

SECTION 2 – HAZARDOUS INGREDIENTS

<u>Hazardous Component</u>	<u>CAS#</u>	<u>%Typical</u>	<u>TLV (Units)</u>	<u>PEL (Units)</u>
Portland Cement	65997-15-1	90-96	10 mg/m ³	15 mg/m ³ ** 5 mg/m ³ *
Gypsum	13397-24-5	2-5	10 mg/m ³	15 mg/m ³ ** 5 mg/m ³ *
Anhydrite	14798-04-4	1.5-5	10 mg/m ³	15 mg/m ³ ** 5 mg/m ³ *

*Respirable Fraction **Total dust
PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration (OSHA).
TLV: Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists (ACGIH).
This material, if it becomes a waste, is not classified as a RCRA hazardous waste (40 CFR 261).

SECTION 3 – PHYSICAL DATA

Boiling Point NA	Specific Gravity (H₂O=1) 3.05-3.20	Vapor Pressure (mmHg) NA
Percent Volatile by Volume 0	Vapor Density (Air=1) NA	Evaporation Rate (n-Butyl Acetate) NA
Percent Soluble in Water Slight (0.1-1.0)	Reactivity in Water Will not evolve flammable or toxic gases	
Appearance and Odor Fine, gray powder, no odor.		

SECTION 4 – FIRE AND EXPLOSION DATA

Flash Point: Will not ignite
Extinguishing Media: NA
Unusual Fire and Explosion Hazards: None
Special Fire Fighting Procedures: None

Flammable Limits in Air (% by Volume):
Lower: NA **Upper:** NA
Auto Ignition Temperature: NA

SECTION 5 – HEALTH INFORMATION

Signs and Symptoms of Exposure

Acute Overexposure: Inhalation-Irritation of the nose, throat and respiratory tract. Skin-When wet, contact with the skin or eyes may result in irritation and/or alkali burns.

Chronic Overexposure: Cement dust can cause inflammation of the lining tissue of the interior of the nose and inflammation of the cornea. Hypersensitive individuals may develop allergic dermatitis.

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders or diseases, dermatitis, or other skin disorders may be aggravated by exposure.

Chemical/Component Listed as Carcinogen: None

Other Exposure Limits: None

Emergency & First Aid Procedures for Indicated Routes of Entry

Eyes: Rinse with copious amounts of water for 15 minutes. Seek medical assistance immediately.

Skin: Rinse with copious amounts of water for 15 minutes. If irritation develops seek medical assistance.

Ingestion: Seek medical assistance immediately.

Inhalation: Remove to fresh air. Seek medical assistance immediately.

SECTION 6 – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None known

Incompatibility (materials to avoid): Material is highly alkaline. Contact with acids will produce a violent, exothermic reaction and may evolve toxic gases or vapors, depending upon the acid involved.

Hazardous Polymerization: Will not occur

Hazardous Decomposition or Combustion Products: None known

SECTION 7 – SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Leaked or Spilled

Wear personal protective equipment to prevent skin and eye exposures. Use respiratory protection as necessary. Prevent product from entering sewer or waterways.

Waste Disposal Method

Consult federal, state and local regulations. As packaged, not classified as a hazardous waste under 40 CFR 261.

SECTION 8 – PERSONAL PROTECTION INFORMATION

Respiratory Protection

Not required under normal conditions. Select appropriate respirator based on the level of airborne contamination and presence of sufficient oxygen. Use only NIOSH/MSHA approved respirators. Follow OSHA respiratory regulations (29 CFR 1910.134) to ensure employee training and protection are adequate.

Ventilation: Use in well ventilated area.

Protective Gloves: Chemical resistant gloves.

Eye Protection: Goggles, or safety glasses with face shield.

Other Protective Clothing or Equipment: Avoid skin contact. Provide readily available eyewash stations.

SECTION 9 – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing

Store in a cool, dry, ventilated storage area in closed containers. Avoid freezing temperatures during storage. Avoid breathing vapors. Store away from acids. Store away from water to preserve product.

Other Precautions: None determined.

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer nor preparer of the MSDS makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

9/2003 revision prepared by: Michele Smith, CIH, Caldwell Engineering; PO Box 851325, Richardson, TX 75085; 972-889-7200. Some information used in the generation of this MSDS was obtained from existing TXI MSDSs.



MATERIAL SAFETY DATA SHEET

HMIS Label

HEALTH	2*
FIRE	0
PHYSICAL HAZARD	0
PPE	X

SECTION 1 – IDENTITY

Distributed by: TXI Operations, LP
Address: 1341 W Mockingbird Lane
Dallas, TX 75247
Product Name: All Purpose Sand (TXI009)
Chemical Name: Silica Sand
Common Name: All Purpose Sand
Formula: Predominantly SiO₂ which may be blended with up to 50% limestone
Trade Name and Synonyms: All Purpose Sand, Play Sand, Silica Sand, Quartz Sand, Concrete Sand, Blended Sand, Mason Sand, Asphalt Sand, Filter Media, Foundry Sand
MSDS prepared: August 1998 **Last revised:** March 2005

Emergency Phone (Chemtrec): 800-424-9300
Outside USA: 703-527-3887
Telephone for information: Nancy Garnett
972-647-3824
Chemical Family: Silicate

SECTION 2 – HAZARDOUS INGREDIENTS

<u>Hazardous Component</u>	<u>CAS#</u>	<u>%Typical</u>	<u>TLV (Units)</u>	<u>PEL (Units)</u>
Quartz	14808-60-7	50-100	0.05 mg/m ^{3*}	<u>10 mg/m^{3*}</u> %SiO ₂ + 2
Calcium carbonate	1317-65-3	0 - 50	10 mg/m ³	<u>30 mg/m^{3**}</u> %SiO ₂ + 2 5 mg/m ^{3*} 15 mg/m ^{3**}

*Respirable Fraction **Total dust
PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration (OSHA).
TLV: Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists (ACGIH).
This material, if it becomes a waste, is not classified as a RCRA hazardous waste (40 CFR 261).

SECTION 3 – PHYSICAL DATA

Boiling Point NA	Specific Gravity (H₂O=1) 2.6-2.7	Vapor Pressure (mmHg) NA
Percent Volatile by Volume 0	Vapor Density (Air=1) NA	Evaporation Rate (n-Butyl Acetate) NA
Percent Soluble in Water Negligible (<0.1%)	Reactivity in Water Will not evolve flammable or toxic gases	
Appearance and Odor Light colored, grainy sand, no odor.		

SECTION 4 – FIRE AND EXPLOSION DATA

Flash Point: Will not ignite **Flammable Limits in Air (% by Volume):**
Extinguishing Media: NA **Lower:** N/A **Upper:** N/A
Unusual Fire and Explosion Hazards: None **Auto Ignition Temperature:** NA
Special Fire Fighting Procedures: This material, sand, may be used to smother fires

SECTION 5 – HEALTH INFORMATION

Signs and Symptoms of Exposure

Acute Overexposure: Irritation or abrasion of skin, eyes, or nasal passages. Contact with the eyes may result in irritation or possible severe abrasion damage. Inhalation-Congestion of nasal passages and respiratory systems. Eye: Excessive dust may cause severe abrasion of the cornea.

Chronic Overexposure: Excessive exposure, by inhalation, to dusts of this material, over an extended period of time may result in the development of pulmonary diseases including pneumoconiosis, silicosis, or lung cancer. Dust can cause inflammation to the lining tissue of the interior of the nose and inflammation of the cornea.

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders or diseases may be aggravated by exposure

Chemical/Component Listed as Carcinogen:	<u>NTP</u>	<u>IARC</u>	<u>OSHA</u>
Quartz	YES	YES	NO

Other Exposure Limits: None

Emergency & First Aid Procedures for Indicated Routes of Entry

Eyes: Rinse with copious amounts of water for 15 minutes. Do not rub eyes. If irritation persists, seek medical assistance.

Ingestion: Seek medical assistance immediately.

Inhalation: Remove to fresh air. Seek medical assistance immediately.

SECTION 6 – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None known

Incompatibility (materials to avoid): None known

Hazardous Polymerization: Will not occur

Hazardous Decomposition or Combustion Products: None known

SECTION 7 – SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Leaked or Spilled

Wear personal protective equipment to prevent eye exposures. Use respiratory protection as necessary. Material not contaminated may be re-used. Avoid generation of excessive dusts.

Waste Disposal Method

Consult federal, state and local regulations. As packaged, not classified as a hazardous waste under 40 CFR 261.

SECTION 8 – PERSONAL PROTECTION INFORMATION

Respiratory Protection

Not required under normal conditions. Select appropriate respirator based on the level of airborne contamination and presence of sufficient oxygen. Use only NIOSH/MSHA approved respirators. Follow OSHA respiratory regulations (29 CFR 1910.134) to ensure employee training and protection are adequate.

Ventilation: Use in well ventilated area.

Protective Gloves: Gloves to protect against abrasion.

Eye Protection: Goggles, or safety glasses with face shield.

Other Protective Clothing or Equipment: Prevent exposure to the eyes.

SECTION 9 – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing

Store in a cool, dry, ventilated storage area in closed containers. Store in a manner to prevent accumulation of airborne dust.

Other Precautions: None determined.

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer nor preparer of the MSDS makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

3/2005 revision prepared by: Nancy Garnett. Some information used in the generation of this MSDS was obtained from existing TXI MSDSs.



MATERIAL SAFETY DATA SHEET

HMIS Label

HEALTH	1*
FIRE	0
PHYSICAL HAZARD	1
PPE	X

SECTION 1 – IDENTITY

Distributed by: TXI Operations, LP
Address: 1341 W Mockingbird Lane
Dallas, TX 75247

Product Name: TXI® Limestone (TXI005)

Chemical Name: Calcite or Dolomite

Formula: A sedimentary rock, primarily calcite.

Trade Name and Synonyms: Stone, Crushed Stone, Manufactured Sand, Sweet Rock

MSDS prepared: October 1997 **Last revised:** July 2004

Emergency Phone (Chemtrec): 800-424-9300

Outside USA: 703-527-3887

Telephone for information: Nancy Garnett
972-647-3824

Chemical Family: Carbonates

Common Name: Limestone

SECTION 2 – HAZARDOUS INGREDIENTS

<u>Hazardous Component</u>	<u>CAS#</u>	<u>%Typical</u>	<u>TLV (Units)</u>	<u>PEL (Units)</u>
Calcium carbonate	1317-65-3	90 - 100	10 mg/m ³	5 mg/m ^{3*} 15 mg/m ^{3**}
Quartz	14808-60-7	0 - 5	10 mg/m ³	10 mg of respirable dust/ % SiO ₂ + 2

PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration (OSHA).

TLV: Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists (ACGIH).

*This material, if it becomes a waste, it is not classified as a RCRA hazardous waste (40 CFR 261).

SECTION 3 – PHYSICAL DATA

Boiling Point

N/A

Specific Gravity (H₂O=1)

2.7

Vapor Pressure (mmHg)

N/A

Percent Volatile by Volume

N/A

Vapor Density (Air=1)

N/A

Evaporation Rate (n-Butyl Acetate=1)

N/A

Percent Soluble in Water

Slight (0.1 – 1.0 %)

Reactivity in Water

Will not evolve flammable
or toxic gases

Volatile Organic Content

N/A

Appearance and Odor

Fine to coarse, rock-like solid. Gray to
white in color. Musty odor

Freezing Point

N/A

SECTION 4 – FIRE AND EXPLOSION DATA

Flash Point: N/A

Auto Ignition Temperature: N/A

Extinguishing Media: None

Auto Ignition Temperature: N/A

Unusual Fire and Explosion Hazards: None

Special Fire Fighting Procedures: None

Flammable Limits in Air (% by Volume):

Lower: N/A **Upper:** N/A

SECTION 5 – HEALTH INFORMATION

Signs and Symptoms of Exposure

Acute Overexposure: Irritation or abrasion of skin, eyes, or nasal passages. Contact with the eyes may result in irritation or possible severe abrasion damage. Eye contact- May cause irritation or abrasion of the cornea, which may result in generally temporary damage to sight. Inhalation- May cause coughing, sneezing, or inflammation of respiratory passages. Dust may cause blockage of breathing passages. Skin Contact- Contact may cause abrasion. Ingestion- Stomach irritation and blockage.

Chronic Overexposure: Inhalation- Excessive exposure by inhalation over an extended period of time may result in the development of pulmonary diseases including pneumoconiosis, silicosis, and lung cancer. Dust can cause inflammation of the lining tissue of the interior of the nose. Eye contact- May cause irritation of the cornea. Skin Contact- Repeated overexposure may lead to irritation.

Medical Conditions Generally Aggravated by Exposure

Respiratory disorders or diseases, dermatitis, or other skin disorders may be aggravated by exposure.

Chemical/Component Listed as Carcinogen

Quartz

<u>NTP</u>	<u>IARC</u>	<u>OSHA</u>
YES	YES	NO

Other Exposure Limits

None

Emergency & First Aid Procedures for Indicated Routes of Entry

Eyes: Rinse with copious amounts of water for 15 minutes. If irritation persists, seek medical assistance.

Skin: Rinse with copious amounts of soapy water. If irritation persists, obtain medical assistance.

Ingestion: Do not induce vomiting. Seek medical assistance immediately.

Inhalation: Remove to fresh air. If breathing is difficult, seek medical assistance immediately.

SECTION 6 – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Handling procedures that may generate dust.

Incompatibility: Acids. May produce a violent, exothermic reaction. May evolve toxic gases or vapors depending on the acid involved.

Hazardous Polymerization: Will not occur

Hazardous Decomposition or Combustion Products: None Known

SECTION 7 – SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Leaked or Spilled

Wear personal protective equipment to prevent skin and eye exposures. Use PPE to protect against irritation. Use respiratory protection when necessary. Recover free product. Do not disperse dusts into the air. Prevent product from entering sewer or waterways. Product may be used if not contaminated.

Waste Disposal Method

Consult federal, state and local regulations. Not classified as a hazardous waste under 40 CFR 261.

SECTION 8 – PERSONAL PROTECTION INFORMATION

Respiratory Protection

Not required under normal conditions. Select appropriate respirator based on the level of airborne contamination and presence of sufficient oxygen. Use only NIOSH/MSHA approved respirators. Follow OSHA respiratory regulations (29 CFR 1910.134) to ensure employee training and protection are adequate.

Ventilation: Use in well ventilated area.

Protective Gloves: Abrasion resistant gloves

Eye Protection: Close fitting safety goggles

Other Protective Clothing or Equipment: Use protective clothing as needed to avoid skin contact such as long sleeve shirt, long pants extending over the tops of work shoes. Personal protective clothing and use of equipment must be in accordance with 29 CFR 1910.132.

SECTION 9 – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing: Store in a cool, dry, ventilated area in closed containers separate from acids. Avoid breathing dust. Removal of polyethylene pallet wrap may cause an electrostatic spark; therefore, avoid removing wrap in presence of flammable vapors.

Product not regulated by DOT

Other Precautions: Keep out of reach of children.

Other Information:

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MATERIAL SAFETY DATA SHEET

HMIS Label

HEALTH	2*
FIRE	0
PHYSICAL HAZARD	0
PPE	X

SECTION 1 – IDENTITY

Distributed by: TXI Operations, LP
Address: 1341 W Mockingbird Lane
Dallas, TX 75247
Product Name: Gravel (TXI008)
Chemical Name: Silica
Common Name: Gravel
Formula: Predominantly SiO₂
Trade Name and Synonyms: River Rock, Pea Gravel, Coarse Aggregate
MSDS prepared: September 1996

Emergency Phone (Chemtrec): 800-424-9300
Outside USA: 703-527-3887
Telephone for information: Nancy Garnett
972-647-3824
Chemical Family: Silicate

Last revised: January 2005

SECTION 2 – HAZARDOUS INGREDIENTS

<u>Hazardous Component</u>	<u>CAS#</u>	<u>%Typical</u>	<u>TLV (Units)</u>	<u>PEL (Units)</u>
Quartz	14808-60-7	50-100	0.05 mg/m ^{3*}	10 mg/m ^{3*} %SiO ₂ + 2 30 mg/m ^{3**} %SiO ₂ + 2

*Respirable Fraction **Total dust
PEL: Permissible Exposure Limit established by the Occupational Safety and Health Administration (OSHA).
TLV: Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists (ACGIH).
This material, if it becomes a waste, is not classified as a RCRA hazardous waste (40 CFR 261).

SECTION 3 – PHYSICAL DATA

Boiling Point NA	Specific Gravity (H₂O=1) 2.3-2.7	Vapor Pressure (mmHg) NA
Percent Volatile by Volume 0	Vapor Density (Air=1) NA	Evaporation Rate (n-Butyl Acetate) NA
Percent Soluble in Water Negligible (<0.1%)	Reactivity in Water Will not evolve flammable or toxic gases	
Appearance and Odor Light colored, rounded or broken, no odor.		

SECTION 4 – FIRE AND EXPLOSION DATA

Flash Point: Will not ignite
Extinguishing Media: NA
Unusual Fire and Explosion Hazards: None
Special Fire Fighting Procedures: None

Flammable Limits in Air (% by Volume):
Lower: N/A **Upper:** N/A
Auto Ignition Temperature: NA

SECTION 5 – HEALTH INFORMATION

Signs and Symptoms of Exposure

Acute Overexposure: Inhalation-Congestion of nasal passages and respiratory systems. Eye: Excessive dust may cause severe abrasion of the cornea.

Chronic Overexposure: Excessive exposure, by inhalation, to dusts of this material, over an extended period of time may result in the development of pulmonary diseases including pneumoconiosis, silicosis, or lung cancer. Dust can cause inflammation to the lining tissue of the interior of the nose and inflammation of the cornea.

Medical Conditions Generally Aggravated by Exposure: Respiratory disorders or diseases may be aggravated by exposure

Chemical/Component Listed as Carcinogen:

	<u>NTP</u>	<u>IARC</u>	<u>OSHA</u>
Quartz	YES	YES	NO

Other Exposure Limits: None

Emergency & First Aide Procedures for Indicated Routes of Entry

Eyes: Rinse with copious amounts of water for 15 minutes. Do not rub eyes. If irritation persists, seek medical assistance.

Ingestion: Seek medical assistance immediately.

Inhalation: Remove to fresh air. Seek medical assistance immediately.

SECTION 6 – REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None known

Incompatibility (materials to avoid): None known

Hazardous Polymerization: Will not occur

Hazardous Decomposition or Combustion Products: None known

SECTION 7 – SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Leaked or Spilled

Wear personal protective equipment to prevent eye exposures. Use respiratory protection as necessary. Material not contaminated may be re-used. Avoid generation of excessive dusts.

Waste Disposal Method

Consult federal, state and local regulations. As packaged, not classified as a hazardous waste under 40 CFR 261.

SECTION 8 – PERSONAL PROTECTION INFORMATION

Respiratory Protection

Not required under normal conditions. Select appropriate respirator based on the level of airborne contamination and presence of sufficient oxygen. Use only NIOSH/MSHA approved respirators. Follow OSHA respiratory regulations (29 CFR 1910.134) to ensure employee training and protection are adequate.

Ventilation: Use in well ventilated area.

Protective Gloves: Gloves to protect against abrasion.

Eye Protection: Goggles, or safety glasses with face shield.

Other Protective Clothing or Equipment: Prevent exposure to the eyes.

SECTION 9 – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling & Storing

Store in a cool, dry, ventilated storage area in closed containers. Store in a manner to prevent accumulation of airborne dust.

Other Precautions: None determined.

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer nor preparer of the MSDS makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

Some information used in the generation of this MSDS was obtained from existing TXI MSDSs.

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daravair® 1000**

MSDS ID Number: D-06074

MSDS Date: 03/02/2006

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Daravair® 1000
MSDS Number: D-06074
Cancelled MSDS Number: D-06063
MSDS Date: 03/02/2006
Chemical Family Name: Aqueous Solution of Neutralized Resin Acids and Rosin Acids
Product Use: Concrete Air Entraining Agent
Chemical Formula: Mixture-NA
CAS # (Chemical Abstracts Service Number): Mixture NA

Manufactured by:

W.R.Grace & Co.-Conn.
62 Whittemore Avenue
Cambridge, MA 02140

Grace Canada, Inc.
294 Clements Road West
Ajax, Ontario L1S 3C6

In Case of Emergency Call:

In USA: (617) 876-1400 In Canada: (905) 683-8561

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS#	Percent (max)
Resin acids and Rosin acids, potassium salts	061790-50-9	1-10

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:

Caution!

Causes eye burns.
Causes skin irritation.
May be harmful if ingested.
Causes digestive tract burns if ingested.

HMIS Rating:

Health: 2*
Flammability: 0
Reactivity: 0
Personal Protective Equipment: B (See Section 8)

Potential Health Effects:

Inhalation: Acute inhalation not expected to result in adverse effects.
If inhaled as a vapor or mist, causes irritation, sore throat, coughing and breathing difficulty.
Eye Contact: Eye contact causes burns.
Skin Contact: Skin contact causes irritation.
Prolonged skin contact can result in burns.
Skin Absorption:
Not expected to be harmful if absorbed through the skin.
Ingestion: Harmful if ingested.
If ingested, causes burns to the linings of the mouth, esophagus and stomach.

SECTION 4 - FIRST AID MEASURES:

Skin Contact: Wash with soap and water.
If discomfort or irritation persists, consult a physician.
Remove contaminated clothing and wash before reuse.
Eye Contact: Flush eyes with water for at least 15 minutes while holding eyelids open.
Get immediate medical attention.
Ingestion: Do not induce vomiting.
Never give anything by mouth to an unconscious person.

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daravair® 1000**

MSDS ID Number: D-06074

MSDS Date: 03/02/2006

If discomfort or irritation persists, consult a physician.

Inhalation: If symptoms develop, get fresh air. If symptoms persist, consult a physician.

If breathing has stopped, give artificial respiration then oxygen if needed.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable
Flash Point Method: Not Applicable
Lower Explosion Limit: Not Available
Upper Explosion Limit: Not Available
Auto-Ignition Temperature: Not Available

NFPA Rating:

Health:

Flammability:

Reactivity:

Extinguishing Media: In case of fire, use water spray, dry chemical, Carbon dioxide or foam.

Special Fire Fighting Procedures:

Wear self-contained breathing apparatus and complete personal protective equipment when potential for exposure to vapors or products of combustion exist. Water may be used to cool containers to prevent pressure build-up and possible auto-ignition or explosion. Avoid breathing hazardous vapors or products of combustion. Keep upwind. Isolate area and keep unnecessary people away. Prevent run-off from fire control or dilution from entering streams or drinking water supplies.

No special procedures specific to this product.

Unusual Fire and Explosion Hazards: None unless noted below.

SECTION 6 - ACCIDENTAL RELEASE MEASURES:

Spills/Leaks: Use proper personal protective equipment. Do not flush to sewer. Do not allow to enter waterways. Keep unnecessary people away.

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container. For large spills, dike area and pump waste material into closed containers for disposal or reclamation.

SECTION 7 - HANDLING AND STORAGE

Precautionary Measures: Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

EXPOSURE GUIDELINES (US)

Ingredient	ACGIH TLV			OSHA PEL			Other
	TWA	STEL	Ceiling	TWA	STEL	Ceiling	
Resin acids and Rosin acids, potassium salts	-	-	-	-	-	-	-

EXPOSURE GUIDELINES (CANADA)

Employers should consult local Provincial regulatory limits for exposure guidelines which may vary locally.

Engineering Controls: Not generally required.

Personal Protective Equipment:

Respiratory Protection: Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mists is required at or above the applicable exposure limits (Consult above Exposure Guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs.

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daravair® 1000**

MSDS ID Number: D-06074

MSDS Date: 03/02/2006

Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Skin Protection: Rubber or other impervious gloves should be worn to prevent skin contact.

Eye Protection: At minimum, safety glasses with side shields should be worn where exposure to excessive dust or spray is likely.

Work/Hygienic Practices: Use good personal hygiene practices.
None beyond those noted above.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance/Odor:	Dark brown liquid with sweet, pine-like odor.
Odor Threshold: (ppm)	Not Determined
pH:	9.0-11.0
Vapor Pressure: (Mm Hg)	Unknown
Vapor Density: (Air = 1)	Same as Water
Solubility In Water:	Complete
Specific Gravity: (Water = 1)	1.00-1.04
Evaporation Rate: (Butyl Acetate = 1)	~Equal to Water
Boiling Point:	>100°C/212°F
Viscosity:	Unknown
Bulk Density: (Pounds/Cubic Foot)(Pcf)	Not Applicable
% Volatiles (gr/L): (70°F) (21°C)	~90% Water

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions To Avoid:	None known for this product.
Hazardous Polymerization:	Will not polymerize.
Hazardous Decomposition Products:	None known for this product.

SECTION 11 - TOXICOLOGICAL INFORMATION

Ingredient(No data unless listed.)

CAS Number

LD50 and LC50

Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Resin acids and Rosin acids, potassium salts	No	No	No	No	No	No

Mutagenicity:	Not applicable.
Teratogenicity:	Not applicable.
Reproductive Toxicity:	Not applicable.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Fate:	No data available for product.
Ecotoxicity:	No data available for product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Procedures:
Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations.

SECTION 14 - TRANSPORTATION INFORMATION

Proper Shipping Name:	Not Applicable
UN/NA Number:	Not Applicable
Domestic Hazard Class:	Nonhazardous
Surface Freight Classification:	Not Applicable
Label/Placard Required:	Not Applicable

SECTION 15 - REGULATORY INFORMATION

W. R. GRACE

MATERIAL SAFETY DATA SHEET

Product Name: WRDA With Hycol (CR-671)

MSDS ID Number: D-05657

MSDS Date: 11/18/2003

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: WRDA With Hycol (CR-671)
MSDS Number: D-05657
Cancelled MSDS Number: D-05522
MSDS Date: 11/18/2003
Chemical Family Name: Aqueous solution of Lignosulfonate, Compound Carbohydrates and Amine Salts
Product Use: Concrete Water Reducer/Retarder
Chemical Formula: Mixture-NA
CAS # (Chemical Abstracts Service Number): Mixture-NA

Manufactured by:

W.R.Grace & Co.-Conn.
62 Whittemore Avenue
Cambridge, MA 02140

Grace Canada, Inc.
294 Clements Road West
Ajax, Ontario L1S 3C6

In Case of Emergency Call:

In USA: (617) 876-1400 In Canada: (905) 683-8561

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS#	Percent (max)
Diethanolamine	000111-42-2	< 1
Formic acid	000064-18-6	1-10
Sodium o-phenylphenol	000132-27-4	< 1
Triethanolamine	000102-71-6	1-10
Triethanolamine Acetate	014806-72-5	1-10

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:

Caution!

- Causes eye irritation.
- Causes respiratory tract irritation.
- May be harmful if ingested.
- May cause tumorigenic and reproductive effects.
- May cause liver and kidney damage.

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)
MSDS ID Number: D-05657

MSDS Date: 11/18/2003

HMIS Rating:

Health:	1
Flammability:	1
Reactivity:	0
Personal Protective Equipment:	B (See Section 8)

Potential Health Effects:

Inhalation:

Not expected to result in adverse effects. If inhaled as vapor or mist, causes irritation, sore throat, coughing and breathing difficulties.

Eye Contact:

Eye contact causes irritation.

Skin Contact:

Acute skin contact is not expected to result in adverse effects.

Prolonged skin contact can result in irritation causing redness and itching.

May cause sensitization.

Skin Absorption:

Not expected to be harmful if absorbed through the skin.

Ingestion:

Harmful if ingested.

Tumorigenic and reproductive effects have been reported for some amines based on animal studies. The following applies to Triethanolamine and associated materials:

Triethanolamine has caused blood effects and liver and kidney damage in laboratory animal studies.

SECTION 4 - FIRST AID MEASURES:

Skin Contact:

Wash with soap and water.

If discomfort or irritation persists, consult a physician.

Remove contaminated clothing and wash before reuse.

Eye Contact:

Flush eyes with water for at least 15 minutes while holding eyelids open.

If discomfort or irritation persists, consult a physician.

Ingestion:

Do not induce vomiting.

Never give anything by mouth to an unconscious person.

If discomfort or irritation persists, consult a physician.

Inhalation:

If symptoms develop, get fresh air. If symptoms persist, consult a physician.

If breathing has stopped, give artificial respiration then oxygen if needed.

W. R. GRACE

MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)

MSDS ID Number: D-05657

MSDS Date: 11/18/2003

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Flash Point:	>93°C/200°F
Flash Point Method:	Estimated
Lower Explosion Limit:	Not Available
Upper Explosion Limit:	Not Available
Auto-Ignition Temperature:	Not Available

NFPA Rating:

Health:	1
Flammability:	1
Reactivity:	0

Extinguishing Media: In case of fire, use water spray, dry chemical, Carbon dioxide or foam.

Special Fire Fighting Procedures:

Wear self-contained breathing apparatus and complete personal protective equipment when potential for exposure to vapors or products of combustion exist. Water may be used to cool containers to prevent pressure build-up and possible auto-ignition or explosion. Avoid breathing hazardous vapors or products of combustion, keep upwind. Isolate area and keep unnecessary people away. Prevent run-off from fire control or dilution from entering streams or drinking water supplies.

Do not scatter spilled material with high pressure water stream. Fog nozzles are preferred if water is used.

Unusual Fire and Explosion Hazards:

During fire, oxides of nitrogen may be evolved.

SECTION 6 - ACCIDENTAL RELEASE MEASURES:

Spills/Leaks:

Use proper personal protective equipment. Do not flush to sewer or allow to enter waterways. Keep unnecessary people away.

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container. For large spills, dike area and pump waste material into closed containers for disposal or reclamation.

W. R. GRACE

MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)

MSDS ID Number: D-05657

MSDS Date: 11/18/2003

SECTION 7 - HANDLING AND STORAGE

Precautionary Measures:

Keep away from heat, sparks and flame.

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

EXPOSURE GUIDELINES (US)

Ingredient	ACGIH TLV			OSHA PEL			Other
	TWA	STEL	Ceiling	TWA	STEL	Ceiling	
Diethanolamine	2 mg/m3 TWA	-	-	3 ppm TWA; 15 mg/m3 TWA	-	-	-
Triethanolamine	5 mg/m3 TWA	-	-	-	-	-	-

EXPOSURE GUIDELINES (CANADA)

Employers should consult local Provincial regulatory limits for exposure guidelines which may vary locally.

Engineering Controls:

Not generally required.

Personal Protective Equipment:

Respiratory Protection: Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mists is required at or above the applicable exposure limits (Consult above Exposure Guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs. Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Skin Protection: Rubber or other impervious gloves should be worn to prevent skin contact.

Eye Protection: At minimum, safety glasses with side shields should be worn where exposure to excessive dust or spray is likely.

Work/Hygienic Practices: Use good personal hygiene practices.

Do not add nitrites to this product. Cancer-causing nitrosamines may be formed.

W. R. GRACE

MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)

MSDS ID Number: D-05657

MSDS Date: 11/18/2003

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance/Odor:	Dark brown liquid with slight, non-distinct odor.
Odor Threshold: (ppm)	None Established
pH:	6-8
Vapor Pressure: (Mm Hg)	Not Applicable
Vapor Density: (Air = 1)	Not Applicable
Solubility In Water:	Complete
Specific Gravity: (Water = 1)	1.1 - 1.2
Evaporation Rate: (Butyl Acetate = 1)	~Equal to Water
Boiling Point:	>100°C/212°F
Viscosity:	Unknown
Bulk Density: (Pounds/Cubic Foot)(Pcf)	Not Applicable
% Volatiles (gr/L): (70°F) (21°C)	~55% (As Water)

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions To Avoid:	None known for this product.
Hazardous Polymerization:	Will not polymerize.
Hazardous Decomposition Products:	None known for this product.

SECTION 11 - TOXICOLOGICAL INFORMATION

<u>Ingredient(No data unless listed.)</u>	<u>CAS Number</u>	<u>LD50 and LC50</u>
Formic acid	000064-18-6	Inhalation LC50 Rat: 15 g/m ³ /15M; Inhalation LC50 Mouse: 6200 mg/m ³ /15M; Oral LD50 Rat: 1100 mg/kg;
Triethanolamine	000102-71-6	Oral LD50 Rat: 4920 µL/kg; Oral LD50 Mouse: 5846 mg/kg; Dermal LD50 Rabbit: >20 mL/kg

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)
MSDS ID Number: D-05657

MSDS Date: 11/18/2003

Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Formic acid	No	No	No	No	No	No
Sodium o-phenylphenol	No	No	Yes	No	No	No
Triethanolamine	No	No	No	No	No	No

This product may contain Sodium o-phenylphenate CAS# 132-27-4 as a preservative at a concentration of .25% or less. Sodium o-phenylphenate has been shown to cause bladder tumors when fed exaggerated doses to rats. The compound is classified as IARC Group 2B (possibly carcinogenic to humans). However, risks from handling this product are considered negligible.

Mutagenicity: Not applicable.

Teratogenicity: Amines contained in this product has been shown to produce teratogenic and developmental toxic effects in laboratory animals.

Reproductive Toxicity: Not applicable.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Fate: No data available for product.
Ecotoxicity: No data available for product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Procedures:
Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations.

SECTION 14 - TRANSPORTATION INFORMATION

Proper Shipping Name: Not Applicable
UN/NA Number: Not Applicable
Domestic Hazard Class: Nonhazardous
Surface Freight Classification: Concrete or Masonry Plasticizer & Water Reducing Compound
Label/Placard Required: Not Applicable

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)
MSDS ID Number: D-05657

MSDS Date: 11/18/2003

SECTION 15 - REGULATORY INFORMATION

REGULATORY CHEMICAL LISTS:

CERCLA (Comprehensive Response Compensation and Liability Act):
(None present unless listed below)

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>	<u>CERCLA RQ</u>
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SARA Title III (Superfund Amendments and Reauthorization Act)

SARA Section 312/Tier I & II Hazard Categories:

Health Immediate (acute)	Yes
Health Delayed (chronic)	No
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1%.):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>	<u>SARA 302 TPQ</u>
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313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
Diethanolamine	000111-42-2	.2886
Nitrate compounds	RR-01770-9	.00175
Sodium o-phenylphenol	000132-27-4	.18

National Volatile Organic Compound Emission Standards For Architectural Coatings:

Volatile Organic Content: (gr/L) Not Applicable

WHMIS Classification(s): D2 B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

State Regulatory Information:

California Proposition 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects or other reproductive harm.

Massachusetts Hazardous Substance List(Identification threshold 0.001%(1ppm)):

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **WRDA With Hycol** (CR-671)
MSDS ID Number: D-05657

MSDS Date: 11/18/2003

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
Sodium o-phenylphenol	000132-27-4	.18

New Jersey Hazardous Substance List(Identification threshold (0.1%)):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
Diethanolamine	000111-42-2	.2886
Sodium o-phenylphenol	000132-27-4	.18

Pennsylvania Hazardous Substance List(Identification threshold 0.01%):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
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CHEMICAL INVENTORY STATUS:

All chemicals in this product are listed or exempt from listing in the following countries:

US	CANADA		EUROPE	AUSTRALIA	JAPAN	KOREA	PHILIPPINES
TSCA	DSL	NDSL	EINECS/ELINCS	AICS	ENCS	ECL	PICCS
Yes	Yes	No	Not Determined	Not Determined	Not Determined	Not Determined	Not Determined

SECTION 16 - OTHER INFORMATION

Non-Hazardous Ingredient Disclosure:

<u>Chemical Name</u>	<u>CAS Number</u>
Water	007732-18-5
Calcium Lignosulfonate	008061-52-7
Corn Syrup	008029-43-4

Prepared by: EH&S Department
Approved by: EH&S Department
Approved Date: 11/18/2003

Disclaimer:

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Daratard 17
MSDS Number: D-05660
Cancelled MSDS Number: D-05518
MSDS Date: 10/27/2003
Chemical Family Name: Aqueous Solution of Lignosulfonate & Compound Carbohydrates
Product Use: Concrete Water Reducer/Retarder
Chemical Formula: Mixture-NA
CAS # (Chemical Abstracts Service Number): Mixture-NA

Manufactured by:

W.R.Grace & Co.-Conn.
62 Whittemore Avenue
Cambridge, MA 02140

Grace Canada, Inc.
294 Clements Road West
Ajax, Ontario L1S 3C6

In Case of Emergency Call:

In USA: (617) 876-1400 In Canada: (905) 683-8561

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS#	Percent (max)
See Section 16 for Non-Hazardous Ingredients		

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:

Caution!

May cause slight skin or eye irritation.

HMIS Rating:

Health: 1
Flammability: 1
Reactivity: 0
Personal Protective Equipment: B (See Section 8)

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

Potential Health Effects:

Inhalation:

Acute inhalation not expected to result in adverse effects.

Eye Contact:

Acute eye contact is not expected to result in adverse effects.

Skin Contact:

Acute skin contact is not expected to result in adverse effects.

Skin Absorption:

Not expected to be harmful if absorbed through the skin.

Ingestion:

Ingestion not expected to be harmful.

SECTION 4 - FIRST AID MEASURES:

Skin Contact:

Wash with soap and water.

If discomfort or irritation persists, consult a physician.

Remove contaminated clothing and wash before reuse.

Eye Contact:

Flush eyes with water for at least 15 minutes while holding eyelids open.

If discomfort or irritation persists, consult a physician.

Ingestion:

Do not induce vomiting.

Never give anything by mouth to an unconscious person.

If discomfort or irritation persists, consult a physician.

Inhalation:

If symptoms develop, get fresh air. If symptoms persist, consult a physician.

If breathing has stopped, give artificial respiration then oxygen if needed.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: >93°C/200°F

Flash Point Method: Estimated

Lower Explosion Limit: Not Available

Upper Explosion Limit: Not Available

Auto-Ignition Temperature: Not Available

NFPA Rating:

Health: 1

Flammability: 1

Reactivity: 0

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

Extinguishing Media: In case of fire, use water spray, dry chemical, Carbon dioxide or foam.

Special Fire Fighting Procedures:

Wear self-contained breathing apparatus and complete personal protective equipment when potential for exposure to vapors or products of combustion exist. Water may be used to cool containers to prevent pressure build-up and possible auto-ignition or explosion. Avoid breathing hazardous vapors or products of combustion, keep upwind. Isolate area and keep unnecessary people away. Prevent run-off from fire control or dilution from entering streams or drinking water supplies.

No special procedures specific to this product.

Unusual Fire and Explosion Hazards:

None unless noted below.

SECTION 6 - ACCIDENTAL RELEASE MEASURES:

Spills/Leaks:

Use proper personal protective equipment. Do not flush to sewer or allow to enter waterways. Keep unnecessary people away.

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container. For large spills, dike area and pump waste material into closed containers for disposal or reclamation.

SECTION 7 - HANDLING AND STORAGE

Precautionary Measures:

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

Keep away from heat, sparks and flame.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

EXPOSURE GUIDELINES (US)

Ingredient	ACGIH TLV			OSHA PEL			Other
	TWA	STEL	Ceiling	TWA	STEL	Ceiling	
Not Applicable-	-	-	-	-	-	-	-

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

EXPOSURE GUIDELINES (CANADA)

Employers should consult local Provincial regulatory limits for exposure guidelines which may vary locally.

Engineering Controls: Not generally required.

Personal Protective Equipment:

Respiratory Protection: Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mits is required at or above the applicable exposure limits (Consult above Exposure Guidelines).

Skin Protection: Rubber or other impervious gloves should be worn to prevent skin contact.

Eye Protection: At minimum, safety glasses with side shields should be worn where exposure to excessive dust or spray is likely.

Work/Hygienic Practices: Use good personal hygiene practices.
None beyond those noted above.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance/Odor:	Dark brown liquid with slight, non-distinct odor.
Odor Threshold: (ppm)	None Established
pH:	5-8
Vapor Pressure: (Mm Hg)	Not Applicable
Vapor Density: (Air = 1)	Not Applicable
Solubility In Water:	Complete
Specific Gravity: (Water = 1)	~1.2
Evaporation Rate: (Butyl Acetate = 1)	Not Applicable
Boiling Point:	>100°C/212°F
Viscosity:	Unknown
Bulk Density: (Pounds/Cubic Foot)(Pcf)	Not Applicable
% Volatiles (gr/L): (70°F) (21°C)	40 - 55% (As Water)

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability: Stable
Conditions To Avoid: None known for this product.
Hazardous Polymerization: Will not polymerize.
Hazardous Decomposition Products: None known for this product.

SECTION 11 - TOXICOLOGICAL INFORMATION

Ingredient(No data unless listed.) **CAS Number** **LD50 and LC50**

Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Sodium 0-phenylphenate			X			

Mutagenicity: Not applicable.
Teratogenicity: Not applicable.
Reproductive Toxicity: Not applicable.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Fate: No data available for product.
Ecotoxicity: No data available for product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Procedures:
Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations.

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

SECTION 14 - TRANSPORTATION INFORMATION

Proper Shipping Name:	Not Applicable
UN/NA Number:	Not Applicable
Domestic Hazard Class:	Nonhazardous
Surface Freight Classification:	Concrete or Masonry Plasticizer & Water Reducing Compound
Label/Placard Required:	Not Applicable

SECTION 15 - REGULATORY INFORMATION

REGULATORY CHEMICAL LISTS:

CERCLA (Comprehensive Response Compensation and Liability Act):
(None present unless listed below)

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>	<u>CERCLA RQ</u>
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SARA Title III (Superfund Amendments and Reauthorization Act)

SARA Section 312/Tier I & II Hazard Categories:

Health Immediate (acute)	Yes
Health Delayed (chronic)	No
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1%):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>	<u>SARA 302 TPQ</u>
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313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
Nitrate compounds	RR-01770-9	.00175
Sodium o-phenylphenate	132-27-4	0.25

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

National Volatile Organic Compound Emission Standards For Architectural Coatings:

Volatile Organic Content: (gr/L) Not Applicable

WHMIS Classification(s): D2 B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

State Regulatory Information:

California Proposition 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects or other reproductive harm.

Massachusetts Hazardous Substance List(Identification threshold 0.001%(1ppm)):

Chemical Name **CAS #** **Wt %**

New Jersey Hazardous Substance List(Identification threshold (0.1%)):

Chemical Name **CAS #** **Wt %**

Pennsylvania Hazardous Substance List(Identification threshold 0.01%):

Chemical Name **CAS #** **Wt %**

CHEMICAL INVENTORY STATUS:

All chemicals in this product are listed or exempt from listing in the following countries:

US	CANADA		EUROPE	AUSTRALIA	JAPAN	KOREA	PHILIPPINES
TSCA	DSL	NDSL	EINECS/ELINCS	AICS	ENCS	ECL	PICCS
Yes	Yes	No	Not Determined	Not Determined	Not Determined	Not Determined	Not Determined

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daratard 17**
MSDS ID Number: D-05660

MSDS Date: 10/27/2003

SECTION 16 - OTHER INFORMATION

Non-Hazardous Ingredient Disclosure:

<u>Chemical Name</u>	<u>CAS Number</u>
Corn Syrup	008029-43-4
Water	007732-18-5
Calcium Lignosulfonate	008061-52-7

Prepared by: EH&S Department
Approved by: EH&S Department
Approved Date: 10/27/2003

Disclaimer:

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daracem 65**
MSDS ID Number: D-05874

MSDS Date: 01/19/2006

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Daracem 65
MSDS Number: D-05874
Cancelled MSDS Number: D-05849
MSDS Date: 01/19/2006
Chemical Family Name: Aqueous Solution of Lignosulfonate, Melamine Polymer and Amine
Product Use: Concrete Water Reducer/Retarder
Chemical Formula: Mixture-NA
CAS # (Chemical Abstracts Service Number): Mixture-NA
Manufactured by:
W.R.Grace & Co.-Conn. Grace Canada, Inc.
62 Whittemore Avenue 294 Clements Road West
Cambridge, MA 02140 Ajax, Ontario L1S 3C6

In Case of Emergency Call:

In USA: (617) 876-1400 In Canada: (905) 683-8561

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS#	Percent (max)
Sodium o-phenylphenol	000132-27-4	< 1
Lignosulfonic Acid, Sodium Salt	068131-31-7	10-25
Sulfurous acid, monosodium salt, polymer	064787-97-9	10-25
Triethanolamine	000102-71-6	1-10

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:

Caution!
Causes eye irritation.
Causes respiratory tract irritation.
May be harmful if ingested.
May cause liver and kidney damage.

HMIS Rating:

Health: 2
Flammability: 1
Reactivity: 0
Personal Protective Equipment: B (See Section 8)

Potential Health Effects:

Inhalation: Causes respiratory tract irritation.
Prolonged inhalation may cause sensitization.
Effects include: If prolonged exposure to vapor or mist occurs, effects maybe more severe resulting in coughing and breathing difficulties.
Eye Contact: Eye contact causes irritation.
Prolonged eye contact can result in tissue damage.
Skin Contact: Acute skin contact is not expected to result in adverse effects.
Prolonged skin contact can result in irritation causing redness and itching.
May cause sensitization.
Skin Absorption: Not expected to be harmful if absorbed through the skin.
Ingestion: Harmful if ingested.
Effects include: Digestive tract irritation.

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daracem 65**
MSDS ID Number: D-05874

MSDS Date: 01/19/2006

Tumorigenic and reproductive effects have been reported for some amines based on animal studies. The following applies to Triethanolamine and associated materials: Triethanolamine has caused blood effects and liver and kidney damage in laboratory animal studies.

SECTION 4 - FIRST AID MEASURES:

Skin Contact: Wash with soap and water.

If discomfort or irritation persists, consult a physician.

Remove contaminated clothing and wash before reuse.

Eye Contact: Flush eyes with water for at least 15 minutes while holding eyelids open.

If discomfort or irritation persists, consult a physician.

Ingestion: Do not induce vomiting.

Never give anything by mouth to an unconscious person.

If discomfort or irritation persists, consult a physician.

Inhalation: If symptoms develop, get fresh air. If symptoms persist, consult a physician.

If breathing has stopped, give artificial respiration then oxygen if needed.

SECTION 5 - FIRE AND EXPLOSION HAZARD DATA

Flash Point: >93°C/200°F

Flash Point Method: Estimated

Lower Explosion Limit: Not Available

Upper Explosion Limit: Not Available

Auto-ignition Temperature: Not Available

NFPA Rating:

Health: 1

Flammability: 1

Reactivity: 0

Extinguishing Media: In case of fire, use water spray, dry chemical, Carbon dioxide or foam.

Special Fire Fighting Procedures: Wear self-contained breathing apparatus and complete personal protective equipment when potential for exposure to vapors or products of combustion exist. Water may be used to cool containers to prevent pressure build-up and possible auto-ignition or explosion. Avoid breathing hazardous vapors or products of combustion. Keep upwind. Isolate area and keep unnecessary people away. Prevent run-off from fire control or dilution from entering streams or drinking water supplies.

Do not scatter spilled material with high-pressure water stream. Fog nozzles are preferred if water is used.

Unusual Fire and Explosion Hazards: During fire, oxides of nitrogen may be evolved.

SECTION 6 - ACCIDENTAL RELEASE MEASURES:

Spills/Leaks: Use proper personal protective equipment. Do not flush to sewer or allow to enter waterways. Keep unnecessary people away.

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container. For large spills, dike area and pump waste material into closed containers for disposal or reclamation.

SECTION 7 - HANDLING AND STORAGE

Precautionary Measures: Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

EXPOSURE GUIDELINES (US)

Ingredient	ACGIH TLV	OSHA PEL	Other
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W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daracem 65**
 MSDS ID Number: D-05874

MSDS Date: 01/19/2006

	TWA	STEL	Ceiling	TWA	STEL	Ceiling	
Lignosulfonic Acid, Sodium Salt	-	-	-	-	-	-	-
Sulfurous acid, monosodium salt, polymer	-	-	-	-	-	-	-
Triethanolamine	5 mg/m3 TWA	-	-	-	-	-	-

EXPOSURE GUIDELINES (CANADA)

Employers should consult local Provincial regulatory limits for exposure guidelines which may vary locally.

Engineering Controls: Not generally required.

Personal Protective Equipment:

Respiratory Protection: Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mits is required at or above the applicable exposure limits (Consult above Exposure Guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs. Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Skin Protection: Rubber or other impervious gloves should be worn to prevent skin contact.

Eye Protection: At minimum, safety glasses with side shields should be worn where exposure to excessive dust or spray is likely.

Work/Hygiene Practices: Use good personal hygiene practices.

Do not add nitrites to this product. Cancer-causing nitrosamines may be formed.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance/Odor:	Dark brown liquid with slight, non-distinct odor.
Odor Threshold: (ppm)	None Established
pH:	7.5-10.5
Vapor Pressure: (Mm Hg)	Not Applicable
Vapor Density: (Air = 1)	Not Applicable
Solubility In Water:	Complete
Specific Gravity: (Water = 1)	1.1-1.2
Evaporation Rate: (Butyl Acetate = 1)	Not Applicable
Boiling Point:	>100°C/212°F
Viscosity:	Unknown
Bulk Density: (Pounds/Cubic Foot)(Pcf)	Not Applicable
% Volatiles (gr/L): (70°F) (21°C)	~60% Max (As Water)

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions To Avoid:	Oxidizing materials.
Hazardous Polymerization:	Will not polymerize.
Hazardous Decomposition Products:	Carbon dioxide, Carbon monoxide, Sulfur oxides.

SECTION 11 - TOXICOLOGICAL INFORMATION

Ingredient(No data unless listed.) **CAS Number** **LD50 and LC50**

Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Sodium o-phenylphenol	No	No	Yes	No	No	No
Lignosulfonic Acid, Sodium Salt	No	No	No	No	No	No
Sulfurous acid, monosodium salt, polymer with formaldehyde a	No	No	No	No	No	No
Triethanolamine	No	No	No	No	No	No

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daracem 65**

MSDS ID Number: D-05874

MSDS Date: 01/19/2006

This product may contain Sodium o-phenylphenate CAS# 132-27-4 as a preservative at a concentration of .25% or less. Sodium o-phenylphenate has been shown to cause bladder tumors when fed exaggerated doses to rats. The compound is classified as IARC Group 2B (possibly carcinogenic to humans). However, risks from handling this product are considered negligible.

Mutagenicity: Not applicable.
Teratogenicity: Not applicable.
Reproductive Toxicity: Not applicable.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Fate: No data available for product.
Ecotoxicity: No data available for product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Procedures:
Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing waste for disposal. According to EPA (40 CFR § 261), waste of this product is not defined as hazardous. Dispose of waste in accordance with all applicable regulations.

SECTION 14 - TRANSPORTATION INFORMATION

Proper Shipping Name: Not Applicable
UN/NA Number: Not Applicable
Domestic Hazard Class: Nonhazardous
Surface Freight Classification: Concrete or Masonry Plasticizer & Water Reducing Compound
Label/Placard Required: Not Applicable

SECTION 15 - REGULATORY INFORMATION

REGULATORY CHEMICAL LISTS:

CERCLA (Comprehensive Response Compensation and Liability Act):
(None present unless listed below)

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>	<u>CERCLA RQ</u>
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SARA Title III (Superfund Amendments and Reauthorization Act)

SARA Section 312/Tier I & II Hazard Categories:

Health Immediate (acute)	Yes
Health Delayed (chronic)	Yes
Flammable	No
Reactive	No
Pressure	No

302 Reportable Ingredients (Identification Threshold 1%):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>	<u>SARA 302 TPQ</u>
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313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
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W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: **Daracem 65**

MSDS ID Number: D-05874

MSDS Date: 01/19/2006

National Volatile Organic Compound Emission Standards For Architectural Coatings:

Volatile Organic Content: (gr/L) 0

WHMIS Classification(s): D2 B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR). This MSDS contains all the information required by the CPR.

State Regulatory Information:

California Proposition 65: WARNING! This product contains substances known to the state of California to cause cancer, birth defects or other reproductive harm.

Massachusetts Hazardous Substance List(Identification threshold 0.001%(1ppm)):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
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New Jersey Hazardous Substance List(Identification threshold (0.1%)):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
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Pennsylvania Hazardous Substance List(Identification threshold 0.01%):

<u>Chemical Name</u>	<u>CAS #</u>	<u>Wt %</u>
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CHEMICAL INVENTORY STATUS:

All chemicals in this product are listed or exempt from listing in the following countries:

US	CANADA		EUROPE	AUSTRALIA	JAPAN	KOREA	PHILIPPINES
TSCA	DSL	NDSL	EINECS/ELINCS	AICS	ENCS	ECL	PICCS
Yes	Yes	No	No	No	No	No	No

SECTION 16 - OTHER INFORMATION

Non-Hazardous Ingredient Disclosure:

<u>Chemical Name</u>	<u>CAS Number</u>
Water	007732-18-5

Prepared by: EH&S Department

Approved by: EH&S Department

Approved Date: 01/19/2006

Disclaimer:

"The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection."

FLY ASH

Material Safety Data Sheet

Hazardous Nature: This product is potentially classified as hazardous depending on jurisdiction and use.

Product Identification: Pozzolan, Fly Ash, Class F Fly Ash, Class C Fly Ash

Use: Supplementary cementitious material for concrete and concrete products. Also used in soil stabilization and as a fine filler in asphalt and other products.

Hazardous Chem Code: Not Applicable

Poisons Schedule: Not Scheduled

Dangerous Goods Class: Not Applicable

Physical Description/Properties:

- Appearance: Fine powder - light to dark grey or shades of brown or buff in color.
- Boiling/Melting Point: Melting point > 1400 o C
- Vapour Pressure: Not Applicable
- Percent Volatiles: Not Applicable
- Specific Gravity: 2.05 to 2.8
- Flash Point: Not Applicable
- Flammability Limits: Not Applicable
- Auto Ignition Temp: Not Applicable
- Solubility In Water: Essentially insoluble. Some Class C fly ashes may have soluble sodium sulfate (1-8%).
- Respirable Fraction: Approximately 20% - 40% of particles are below 7 micron in diameter (i.e. in the respirable range).
- Other Properties: Not Applicable

Ingredients: Chemical Entity Proportions

- Silica-Crystalline, as Quartz 1-5%
- Mullite 1 - 5%

Note: Fly ash is a byproduct of coal combustion. The material is composed primarily of complex aluminosilicate glass, mullite, hematite, magnetite spinel and quartz. The proportion of quartz (crystalline silica) in the fly ash varies depending on the quartz content of the coal. Class C fly ash may have 1-7% free CaO and calcium sulfate as well as calcium aluminosilicate glass.

Health Hazard Information: Short Term Exposure

- Swallowed: Unlikely under normal conditions of use. Swallowing fly ash may cause abdominal discomfort.
- Eyes: Irritating to eyes causing watering and redness.
- Skin: Irritating to skin - can cause irritant/contact dermatitis from mechanical abrasion or alkaline composition(Class C fly ash).
- Inhaled: Irritating to the nose, throat and respiratory tract causing coughing and sneezing.
- Long Term Exposure
- Swallowed: Not Applicable
- Eyes: Not Applicable
- Skin: Not Applicable
- Inhaled: Repeated inhalation of dust containing crystalline silica can cause bronchitis, silicosis (scarring of the lung) and lung cancer. It may also increase the risk of scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels and internal organs). Studies have shown that smoking increases the risk of bronchitis, silicosis and lung cancer in persons exposed to crystalline silica. It is recommended that all storage and work areas should be smoke free zones. Inhalation of high levels of fly ash dust may result in severe inflammation of the small airways of the lung and asthma-like symptoms.

First Aid:

- Swallowed: Give plenty of water to drink. If any acute gastrointestinal distress, seek medical attention.
- Eyes: Flush thoroughly with flowing water for 15 minutes. If symptoms or irritation persist, seek medical attention.
- Skin: Wash thoroughly with mild soap and water. Some Class C fly ashes are quite hydraulic and alkaline; contact with wet skin may result in burns.
- Inhaled: Remove to fresh air, away from dusty area. If symptoms persist, seek medical attention.

Exposure Limits

- Crystalline Silica (Quartz): 0.2 mg/m³ TWA (time-weighted average) as respirable dust.
- Dust (NOS - not otherwise specified): 10 mg/m³ TWA as inspirable dust. However, where a state, territory or local authority prescribes a lower exposure standard, the lower standard applies.
- Recommendations: Keep exposure to dust as low as practicable. Respirable crystalline silica levels should be kept below 0.1 mg/m³ TWA, and respirable dust below 5 mg/m³ TWA.

Engineering Controls: Avoid generating dust. When handling fly ash, use local mechanical ventilation or extraction in areas where dust could escape into the work environment. For bulk deliveries, closed pumping systems are recommended. For handling of individual bags, follow instructions below if no local exhaust ventilation is available. Work areas should be cleaned regularly by wet sweeping or vacuuming. If generating dust cannot be avoided, follow personal protection recommendations below.

Personal Protection:

- Skin: Wear loose comfortable clothing. Wash work clothes regularly. Apply barrier cream to hands or wear cotton or light duty leather gloves or equivalent.
- Eyes: Safety spectacles with side shields or safety goggles should be worn if dust likely to be generated.
- Respiratory: None required if engineering and handling controls are adequate. If dust is generated wear a suitable particulate respirator. Use only respirators which bear the standards mark and are fitted correctly. Note that persons with facial hair will have difficulty in obtaining a satisfactory face seal.

Ventilation: Refer to Engineering Controls

Flammability: Non-flammable

Storage and Transport: Keep in a dry place. When handled pneumatically use standard dust filters on vehicles and silos.

Spills and Disposal: Follow above safety requirements under "Precautions for Use" and wet sweep or vacuum dust with industrial vacuum cleaner. A fine water spray should be used to suppress dust when sweeping. Collect in containers and dispose of as trade waste in accordance with local authority guidelines. Keep out of stormwater and sewer drains.

Fire/Explosion Hazard: Not flammable. Does not decompose on heating.

Note: The provision of this information should not be construed as a recommendation to use this product in violation of any patent rights or in breach of any statute or regulation. Users are advised to make their own determination as to the suitability of this information in relation to their particular purposes and specific circumstances. Each user should read this MSDS and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products. Individual responsibility must be taken as to proper use and handling of product.