

W. R. GRACE
MATERIAL SAFETY DATA SHEET

Product Name: Polarset®
MSDS ID Number: D-05980

MSDS Date: 11/12/2004

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Polarset®
MSDS Number: D-05980
Cancelled MSDS Number: D-05574
MSDS Date: 11/12/2004
Chemical Family Name: Calcium Nitrate/Nitrite Based Solution
Product Use: Concrete Set and Strength Accelerator
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)
Calcium bromide	007789-41-5	1-10
Calcium nitrate	010124-37-5	10-25
Calcium nitrite	013780-06-8	10-25
Diethylene Glycol	000111-46-6	1-10
Methyldiethanolamine	000105-59-9	1-10

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:

Warning!

Causes severe eye irritation.
Causes skin irritation.
May be fatal if ingested.
May cause liver and kidney damage.
May cause sensitization.
Potential for hazardous gas to be formed.

HMIS Rating:

Health: 3
Flammability: 1
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.

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Effects include: Nausea, headache, dizziness, coughing and shortness of breath.

Eye Contact:

Eye contact can cause severe irritation.
Prolonged eye contact can result in tissue damage.

Skin Contact:

Skin contact causes irritation.
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 or fatal if ingested.
Effects include: Drowsiness, nausea, pain, vomiting, diarrhea, thirst, circulatory collapse and coma.
Diethylene & Ethylene glycol can cause liver and kidney damage. Large amounts of nitrates/nitrites may cause nausea, vomiting, cyanosis (due to methemoglobin formation), abnormally slow respiration, collapse, coma and death. Repeated small doses may cause a fall in blood pressure, rapid pulse, headache and visual disturbances.

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.
Call a physician or poison control center immediately.

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:	Aqueous/Inorganic
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

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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:

This material, if dried to a solid powder-like form, will become an oxidizer, which may provide oxygen to combustible materials.

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.

Do not dry this material. If dried to a solid powder-like form, this product would be an oxidizer, and classified as a reactive waste according to the EPA (40 CFR § 261.3) Liquid waste is not classified as hazardous by the EPA.

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:

Spray applications are not recommended. Wear approved respiratory protection if spray mist is created. Do not mix directly with acidic materials. Do not mix directly with other admixtures. Hazardous gas may form.

Avoid contact with eyes, skin and clothing.

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	
Calcium bromide	-	-	-	-	-	-	-
Calcium nitrate	-	-	-	-	-	-	-
Calcium nitrite	-	-	-	-	-	-	-
Diethylene Glycol	-	-	-	-	-	-	-
Methyldiethanolamine	-	-	-	-	-	-	-

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.

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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 amines to this product. Cancer-causing nitrosamines may be formed. Direct contact with other admixtures, washwater and any other material causing the pH to fall below specification can result in the formation of NO_x gas creating a hazardous situation. Nitric oxide (NO) is a colorless, odorless gas. Nitrogen dioxide (NO₂) is a reddish-brown gas with a highly pungent, bleach-like odor. Exposure can cause irritation to eyes and respiratory system and effect the central nervous and cardiovascular systems. Severe overexposure can be fatal. This hazard does not exist when mixed with other admixtures in concrete.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance/Odor:	Light green, clear liquid with no significant odor
Odor Threshold: (ppm)	Not Established
pH:	8.0 - 10.0
Vapor Pressure: (Mm Hg)	~15 @ 25°C Estimated
Vapor Density: (Air = 1)	1.0
Solubility In Water:	Complete
Specific Gravity: (Water = 1)	1.3 - 1.4
Evaporation Rate: (Butyl Acetate = 1)	Less Than 1
Boiling Point:	~225°F/108°C
Viscosity:	Unknown
Bulk Density: (Pounds/Cubic Foot)(Pcf)	Not Applicable
% Volatiles (gr/L): (70°F) (21°C)	~60% (As Water)

SECTION 10 - STABILITY AND REACTIVITY

Chemical Stability:	Stable
Conditions To Avoid:	Strong acids, Organic materials, Ammonium salts, Activated carbon, Reducing agents, Cyanides, Most metals, ammonia, hydrazine and Avoid direct contact with other admixtures and any other material which could cause the pH of this product to fall below 8.0. Those conditions can result in the formation of Nitrogen oxide (NO, NO ₂) gas, creating a hazardous situation..
Hazardous Polymerization:	Will not polymerize.
Hazardous Decomposition Products:	Oxides of nitrogen.

SECTION 11 - TOXICOLOGICAL INFORMATION

<u>Ingredient(No data unless listed.)</u>	<u>CAS Number</u>	<u>LD50 and LC50</u>
Calcium bromide	007789-41-5	Oral LD50 Rat : 4100 mg/kg
Calcium nitrate	010124-37-5	Oral LD50 Rat : 302 mg/kg
Diethylene Glycol	000111-46-6	Oral LD50 Rat : 12565 mg/kg; Oral LD50 Mouse : 23700 mg/kg
Methyldiethanolamine	000105-59-9	Oral LD50 Rat : 4780 mg/kg; Dermal LD50 Rabbit : 5990 uL/kg
Calcium Nitrite	013780-06-8	Oral Rat LD50: 283 mg/kg

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Carcinogenicity:

Ingredient	IARC Group 1	IARC Group 2A	IARC Group 2B	NTP Known	NTP Suspect	OSHA
Calcium bromide	No	No	No	No	No	No
Calcium nitrate	No	No	No	No	No	No
Calcium nitrite	No	No	No	No	No	No
Diethylene Glycol	No	No	No	No	No	No
Methyldiethanolamine	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.
 Do not dry this material. If dried to a solid powder-like form, this material would be an oxidizer and classified as a reactive waste #D001 according to the EPA (40 CFR § 261). Liquid waste is not defined as hazardous by EPA.

SECTION 14 - TRANSPORTATION INFORMATION

Proper Shipping Name: Not Applicable
UN/NA Number: Not Applicable
Domestic Hazard Class: Nonhazardous
Surface Freight Classification: Concrete Corrosion Inhibitor, Liquid 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>
Ethylene Glycol	000107-21-1	.037
Nitrate compounds	RR-01770-9	19.4321

National Volatile Organic Compound Emission Standards For Architectural Coatings:

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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: This product does not contain 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>
Nitrate compounds	RR-01770-9	19.4321

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
Nitrate compounds	RR-01770-9

Prepared by: EH&S Department
Approved by: EH&S Department
Approved Date: 11/12/2004

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."