MATERIAL SAFETY DATA SHEET

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

Bayer Emergency Phone:	Call Chemtrec
Bayer Information Phone:	(800) 662-2927

1. Product and Company Identification

Product Name:	BAYSEAL PP
Material Number:	57142506
Chemical Family:	Polyol System

2. Hazards Identification

Emergency Overview

WARNING! Color: Dark, Amber **Form:** liquid **Odor:** Amine.
Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. May cause nausea or dizziness. Causes respiratory tract irritation. Causes skin irritation. Causes eye irritation. May cause a temporary fogging of the eyes. When this product is sprayed, a full-face or hood-type supplied air respirator is required.

Potential Health Effects

Primary Routes of Entry:	Inhalation, Eye Contact, Skin Contact
Medical Conditions Aggravated by Exposure:	Eye disorders, Respiratory disorders, Skin disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Component: Polymer
Inhalation is unlikely due to the low vapor pressure. If misted or handled at elevated temperatures, high concentrations may cause respiratory tract irritation.

For Component: Hydrofluorocarbon
May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May induce cardiac arrhythmia (irregular heartbeat) in some individuals. Vapor can reduce oxygen available for breathing.

For Component: Glycol

Inhalation is unlikely due to the low vapor pressure. If misted or handled at elevated temperatures, high concentrations may cause respiratory tract irritation.

For Component: Tris-(2-chloroisopropyl)-phosphate
May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

For Component: Aliphatic Ether
Expected to be toxic by inhalation. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion.

For Component: Morpholine derivative
Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May cause lung damage.

For Component: Glycerin
Inhalation is unlikely due to the low vapor pressure. If misted or handled at elevated temperatures, high concentrations may cause respiratory tract irritation.

For Component: Tertiary Amine
Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose. May cause allergic respiratory reaction with symptoms of coughing, wheezing, shortness of breath, bronchospasm, and reduced lung function.

Chronic Inhalation
For Component: Tertiary Amine
May cause pulmonary edema with symptoms of breathing difficulty and tightness of chest.

Skin
Acute Skin
For Component: Polymer
Causes irritation with symptoms of reddening, itching, and swelling.

For Component: Hydrofluorocarbon
Slightly toxic by skin absorption. May cause slight irritation.

For Component: Glycol
Not expected to be irritating.

For Component: Tris-(2-chloroisopropyl)-phosphate
May cause slight irritation.

For Component: Aliphatic Ether
Toxic by skin absorption. May cause irritation with symptoms of reddening and itching.

For Component: Morpholine derivative
Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage.

For Component: Glycerin
May cause slight irritation.

For Component: Tertiary Amine
May cause allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage. Moderately toxic by skin absorption.

Chronic Skin
For Component: Aliphatic Ether

May cause defatting of the skin with symptoms of dryness and cracking. Chronic exposure may cause symptoms similar to those described in chronic inhalation.

For Component: Glycerin
Prolonged or repeated skin contact may cause dermatitis with symptoms of red, itchy, dry skin.

Eye
Acute Eye
For Component: Polymer
Causes irritation with symptoms of reddening, tearing, stinging, and swelling. May cause corneal injury.

For Component: Hydrofluorocarbon
May cause slight irritation.

For Component: Glycol
May cause slight irritation.

For Component: Tris-(2-chloroisopropyl)-phosphate
Not expected to be irritating.

For Component: Aliphatic Ether
Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

For Component: Morpholine derivative
Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

For Component: Glycerin
May cause slight irritation.

For Component: Tertiary Amine
Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage. Vapors can cause temporary corneal edema with symptoms of blurred vision or the appearance of halos around bright objects.

Ingestion
Acute Ingestion
For Component: Polymer
Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. May be harmful if swallowed.

For Component: Glycol
May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. The oral toxicity is greater in humans than in laboratory animals.

For Component: Tris-(2-chloroisopropyl)-phosphate
May be harmful if swallowed. Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. Moderately toxic by ingestion.

For Component: Aliphatic Ether
Toxic by ingestion. Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion.

For Component: Morpholine derivative
Harmful if swallowed.

For Component: Glycerin

Not expected to be harmful if swallowed.

For Component: Tertiary Amine
May be harmful if swallowed. May cause digestive tract burns.

Chronic Ingestion
For Component: Glycol
May cause kidney damage. Repeated excessive exposures may cause liver or kidney effects Chronic overexposure to this product may cause effects as noted under acute overexposure. If ingested the individual should be observed for signs of numbness, incoordination, headache, and confusion.

For Component: Tris-(2-chloroisopropyl)-phosphate
May cause liver damage. May cause kidney damage.

For Component: Aliphatic Ether
May cause blood disorders. May cause kidney damage. May cause liver damage.

General Effects of Exposure
Acute Effects of Exposure
For Component: Polymer
Gases and fumes evolved during the thermal processing or decomposition of this material may irritate the eyes, skin or respiratory tract.

Carcinogenicity:
No Carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous Components

Weight %	Components	CAS-No.
15 - 25%	Polymer	CAS# is a trade secret
5 - 10%	Hydrofluorocarbon	460-73-1
5 - 10%	Glycol	CAS# is a trade secret
3 - 7%	Tris-(2-chloroisopropyl)-phosphate	13674-84-5
1 - 5%	Aliphatic Ether	CAS# is a trade secret
1 - 5%	Morpholine derivative	CAS# is a trade secret
1 - 5%	Glycerin	56-81-5
<1%	Tertiary Amine	CAS# is a trade secret

4. First Aid Measures

Eye Contact
In case of contact, flush eyes with plenty of water for at least 15 minutes. Call a physician immediately.

Skin Contact
In case of skin contact, wash affected areas with soap and water. Immediately remove contaminated clothing and shoes. Get medical attention.

Inhalation
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Ingestion

If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

5. Fire-Fighting Measures

Suitable Extinguishing Media: carbon dioxide (CO2), dry chemical, foam, water spray for large fires.

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

Unusual Fire/Explosion Hazards
The reaction of this product with polymeric MDI ("A" side) will release heat (e.g., it is an exothermic reaction). Thus, spraying foam too thickly in a single lift, or not allowing sufficient time between lifts, can result in excessive heat generation to the point where the foam may char, smolder or burn. Refer to the appropriate BaySystems technical datasheet for application instructions.

6. Accidental release measures

Spill and Leak Procedures
Evacuate and keep unnecessary people out of spill area. Remove ignition sources. Notify management. Put on protective equipment. Control source of the leak. Ventilate. Contain the spill. Cover spill with inert material (e.g., dry sand or earth) and collect for proper disposal.

7. Handling and Storage

Storage Temperature:
maximum: 50 °C (122 °F)

Storage Period
6 Months

Handling/Storage Precautions
Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Keep container closed when not in use. Material is hygroscopic and may absorb small amounts of atmospheric moisture. If contamination with isocyanates is suspected, do not reseal containers. Do not get on skin or clothing. Do not get in eyes. Do not breathe vapours or spray mist.

8. Exposure Controls / Personal Protection

When this product is heated or spray applied, amine vapors can be released.

Aliphatic Ether (CAS# is a trade secret)
US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 20 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 50 ppm, 240 mg/m3
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Skin designation: Can be absorbed through the skin.
US. ACGIH Threshold Limit Values
Hazard Designation: Group A3 Confirmed animal carcinogen with unknown relevance to humans.

Glycerin (56-81-5)
US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 10 mg/m3 (Mist.)
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 5 mg/m3 (Respirable fraction.)
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 15 mg/m3 (Total dust.)

Industrial Hygiene/Ventilation Measures
When handling this product, ventilation of the work area is recommended.

Respiratory Protection
When this product is sprayed in combination with polymeric MDI ("A" side), a full-face or hood-type supplied air respirator operated in the positive pressure or continuous flow mode is required. For exterior spray applications where the use of supplied air respiratory protection may create a safety hazard (e.g., roof applications), an air purifying respirator with combination organic vapor/particulate (P100) cartridges may be substituted for a supplied air respirator. When handling the liquid product, particularly if heated or in a confined area, an air purifying respirator with combination organic vapor/particulate (P100) cartridges is recommended. The respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134). When APRs are used, (a) the cartridges must be equipped with end-of-service life indicators (ESLI) certified by NIOSH, or (b) a change out schedule, based on objective information or data that will ensure that the cartridges are changed out before the end of their service life, must be developed and implemented. The basis for the change out schedule must be described in the written respirator program.

Hand Protection
When this product is sprayed in combination with polymeric MDI ("A" side), fabric gloves coated in nitrile, neoprene, butyl or PVC are recommended. When handling liquid product, nitrile, neoprene, butyl or PVC gloves are recommended.

Eye Protection
When this product is sprayed in combination with polymeric MDI ("A" side), eye protection will be provided by the full-face or hood-type air supplied respirator as mentioned above in the respiratory protection section. When handling liquid product, chemical safety goggles or safety glasses with side-shields are required.

Skin and body protection
When this product is sprayed in combination with polymeric MDI ("A" side), a disposable full body suit (e.g., Tyvek, Kleenguard, etc.) with attached hood and disposable over-boots are required. When handling liquid product, wear cloth work clothing including long pants and long-sleeved shirts. If the potential for splash to the body exists, impermeable protective clothing is recommended.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product.

9. Physical and chemical properties

Form:	liquid
Color:	Dark, Amber
Odor:	Amine
pH:	8.5 - 10.5
Freezing Point:	Not Established
Boiling Point/Range:	Not Established
Flash Point:	> 93.33 °C (> 200 °F)
Specific Gravity:	1.14 - 1.16
Solubility in Water:	Partially soluble
Viscosity, Dynamic:	450 - 500 cP @ 25 °C (77 °F)

10. Stability and Reactivity

Hazardous Reactions
Hazardous polymerization does not occur. The reaction of this product with polymeric MDI ("A" side) will release heat (e.g., it is an exothermic reaction). Thus, spraying foam too thickly in a single lift, or not allowing sufficient time between lifts, can result in excessive heat generation to the point where the foam may char, smolder or burn. Refer to the appropriate BaySystems technical datasheet for application instructions.

Stability
Stable

Materials to avoid
oxidizing agents, Isocyanates

Hazardous decomposition products
By Fire and Thermal Decomposition: Carbon Dioxide; Carbon Monoxide; Carbon dioxide (CO2), carbon monoxide (CO), oxides of nitrogen (NOx), dense black smoke, other potentially toxic fumes

11. Toxicological Information

Toxicity Data for Polymer
Acute Oral Toxicity
LD50: approximately 1,000 - 3,000 mg/kg (rat)

Acute Inhalation Toxicity
LC50: approximately > 200 mg/l, 1 hrs (rat)

Acute dermal toxicity
LD50: approximately > 2,000 mg/kg (rabbit)

Skin Irritation
Severely irritating

Eye Irritation
Risk of serious damage to eyes.

Toxicity Data for Hydrofluorocarbon
Acute Inhalation Toxicity
LC50: >200,000 ppm, 4 h (Rat)

Acute dermal toxicity
LD50: > 2,000 mg/kg (Rat)

Skin Irritation
rabbit, Non-irritating

Eye Irritation
rabbit, Mild eye irritation

Sensitization
non-sensitizer (Dog)

Repeated Dose Toxicity
28 d, inhalation: NOAEL: 50,000 ppm, (Rat)
90 d, Inhalation: NOAEL: 2000 ppm, (Rat)

Mutagenicity
Genetic Toxicity in Vitro:
Cytogenetic assay: ambiguous (human lymphocytes, Metabolic Activation: with/without)
Ames: negative (Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Micronucleus Assay: negative (mouse)

Developmental Toxicity/Teratogenicity
No Teratogenic effects observed at doses tested.

Toxicity Data for Glycol
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)
Lowest lethal dose: 1 ml/kg (Human)

Acute dermal toxicity
LD50: 11.2 l/kg (rabbit)

Skin Irritation
rabbit, Exposure Time: 4 hrs, Non-irritating
rabbit, Draize, Slightly irritating

Eye Irritation
rabbit, Draize, Slightly irritating

Repeated Dose Toxicity
90 Days, Oral: NOAEL: 200 mg/kg, (Rat,)
6 months, Inhalation: NOAEL: < 0.02 mg/l, (rat,)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: Negative results were reported in various in vitro studies. (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Cytogenetic assay: positive (hamster,)
Cytogenetic assay: negative (hamster,)

Toxicity to Reproduction/Fertility
One generation study, oral, (mouse) NOAEL (parental): 3.5%,
Fertility and mating indices were decreased. The survival and growth rates were reduced.

Developmental Toxicity/Teratogenicity
mouse, oral, NOAEL (maternal): 1,250 mg/kg,
Fetotoxicity seen only with maternal toxicity.

Toxicity Data for Tris-(2-chloroisopropyl)-phosphate
Acute Oral Toxicity
LD50: 632 mg/kg (Rat)

Acute Inhalation Toxicity
LC50: > 17,800 mg/l, aerosol, 1 hrs (rat, Male/Female)

Acute dermal toxicity
LD50: > 5,000 mg/kg (rabbit, Male/Female)

Skin Irritation
Human, Patch Test, No skin irritation
rabbit, No skin irritation

Eye Irritation
rabbit, Draize, Exposure Time: 24 hrs, Mild eye irritation
rabbit, No eye irritation

Sensitization
dermal: non-sensitizer (guinea pig, Maximisation Test (GPMT))
dermal: non-sensitizer (Human, Patch Test)

Repeated Dose Toxicity
90 Days, oral: NOAEL: 36 mg/kg, (Rat, male)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were reported.
Mammalian cell - gene mutation assay: positive (Mouse lymphoma cells (L5178Y/TK), Metabolic Activation: with)
Positive and negative results were reported.

Toxicity to Reproduction/Fertility
Other method, inhalation, daily, (rat, male)
Reproductive effects have been observed in animal studies.

Developmental Toxicity/Teratogenicity
rat, female, oral, gestation, daily, NOAEL (teratogenicity): > 1%, NOAEL (maternal): > 1%
No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

Toxicity Data for Aliphatic Ether
Acute Oral Toxicity
LD50: 470 mg/kg (rat)
LD50: 300 mg/kg (rabbit)

Acute Inhalation Toxicity
LC50: 2.21 - 2.39 mg/l, 4 hrs (Rat)

Acute dermal toxicity
LD50: 220 mg/kg (rabbit)

Skin Irritation
rabbit, Draize, Mild skin irritation

Eye Irritation
rabbit, Draize, Moderate eye irritation

Sensitization
dermal: non-sensitizer (Guinea pig, Maximisation Test (GPMT))
dermal: non-sensitizer (Human, Patch Test)

Repeated Dose Toxicity
90 Days, inhalation: NOAEL: 0.121 mg/kg, (Rat, Male/Female, daily)
30 Days, inhalation: NOAEL: < 0.27 mg/kg, (Rat, Male/Female, daily)
90 days, dermal: NOAEL: 150 mg/kg, (rabbit, Male/Female, daily)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: Negative results were reported in various in vitro studies. (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Micronucleus Assay: negative (mouse,)

Carcinogenicity
mouse, Male/Female, inhalation, 2 years, daily
Animal experiments showed a statistically significant number of tumours.

Toxicity to Reproduction/Fertility
Other method, oral, daily, (Rat, Male/Female) NOAEL (parental): 304 mg/kg,
Reproductive effects have been observed in animal studies.
Two generation study, oral, (mouse, Male/Female) NOAEL (parental): 720 mg/kg, NOAEL (F1): < 720 mg/kg,

Developmental Toxicity/Teratogenicity
Rat, female, inhalation, gestation, daily, NOAEL (teratogenicity): 0.97 mg/kg, NOAEL (maternal): 0.24 mg/kg,
Teratogenic effects seen only with maternal toxicity.
rabbit, female, gestation, daily, NOAEL (teratogenicity): 0.97 mg/kg, NOAEL (maternal): 0.48 mg/kg,

Rat, Female, dermal, gestation, daily, NOAEL (teratogenicity): 5,400 mg/kg, NOAEL (maternal): < 1,800 mg/kg,

Toxicity Data for Morpholine derivative
Acute Oral Toxicity
LD50: 1,440 mg/kg (rat)

Acute dermal toxicity
LD50: > 2,000 mg/kg (rabbit)

Skin Irritation
rabbit, Draize, Corrosive

Eye Irritation
rabbit, Draize, Corrosive

Toxicity Data for Glycerin

Toxicity Note
No data available for this component.

Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Skin Irritation
rabbit, Non-irritating

Eye Irritation
rabbit, Slightly irritating

Sensitization
dermal: non-sensitizer (Human, Patch Test)

Repeated Dose Toxicity
90 Days, inhalation: NOAEL: 0.167 mg/l, (Rat)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Toxicity Data for Dimethyl Glutarate
Acute Oral Toxicity
LD50: > 5,000 mg/kg (Rat)

Acute Inhalation Toxicity
LC50: 4.53 - 6.1 mg/l, 4 h (Rat)

Acute dermal toxicity
LD50: > 3,400 mg/kg (rabbit)

Skin Irritation
rabbit, Slightly irritating

Eye Irritation
rabbit, Slightly irritating

Sensitization
non-sensitizer (Guinea pig)

Repeated Dose Toxicity
Inhalation: NOAEL: < 0.16 mg/l, (Rat, Male/Female)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Micronucleus Assay: negative (mouse, Male/Female, inhalation)

Toxicity to Reproduction/Fertility
One generation study, inhalation, (rat, Male/Female) NOAEL (parental): 1 mg/l, NOAEL (F1): 0.4 mg/l,

Developmental Toxicity/Teratogenicity
rat, female, inhalation, NOAEL (teratogenicity): 1 mg/l, NOAEL (maternal): 0.16 mg/l,
No fetotoxicity observed at doses tested.

Toxicity Data for Tertiary Amine

Acute Oral Toxicity
LD50: 2,000 mg/kg (Rat)

Acute Inhalation Toxicity
LC50: 6.1 mg/l, (Rat)

Acute dermal toxicity
LD50: 1,220 - 3,135 mg/kg (rabbit)

Skin Irritation
rabbit, Draize, Mild skin irritation
rabbit, OECD Guideline for Testing of Chemicals, No. 404, Exposure Time: 1 hrs, Corrosive

Eye Irritation
rabbit, Draize, Corrosive

Sensitization
dermal: sensitizer (mouse, Mouse local lymphoma assay)

Repeated Dose Toxicity
90 Days, inhalation: NOAEL: 24 ppm, (Rat, Male/Female, 6 hrs/day 5 days/week)
Irritation to lungs and nasal cavity. Reduced body weight gain.

Mutagenicity
Genetic Toxicity in Vitro:
(Salmonella typhimurium, Metabolic Activation: with/without)
Genetic Toxicity in Vivo:
Micronucleus Assay: (mouse, Male/Female, intraperitoneal)

Carcinogenicity
mouse, females, oral, 123 weeks,
negative

Toxicity to Reproduction/Fertility
inhalation, daily, (Rat, Female) NOAEL (parental): 10 ppm, NOAEL (F2): 100 ppm
No effects on Reproductive parameters observed at doses tested.

Developmental Toxicity/Teratogenicity
rat, female, inhalation, gestation, NOAEL (teratogenicity): 100 ppm, NOAEL (maternal): 10 ppm
No Teratogenic effects observed at doses tested. No fetotoxicity observed at doses tested.

12. Ecological Information

Ecological Data for Hydrofluorocarbon

Acute and Prolonged Toxicity to Fish
LC50: > 97.9 mg/l (Rainbow trout (Salmo gairdneri), 48 h)

Acute Toxicity to Aquatic Invertebrates
EC50: 81.8 mg/l (Water flea (Daphnia magna), 96 h)

Ecological Data for Glycol

Biological Oxygen Demand (BOD)

5 Days, 4 %
20 Days, 53 %

Acute and Prolonged Toxicity to Fish
LC50: > 10,000 mg/l (Fathead minnow (Pimephales promelas), 48 hrs)
LC0: > 1,000 mg/l (Bluegill (Lepomis macrochirus), 96 h)

Acute Toxicity to Aquatic Invertebrates
EC50: > 10,000 mg/l (Water flea (Daphnia magna), 24 hrs)

Toxicity to Aquatic Plants
NOEC: 100 mg/l, End Point: growth (selenastrum capricornutum, 7 d)

Toxicity to Microorganisms
> 10,000 mg/l, (Other bacteria)

Ecological Data for Tris-(2-chloroisopropyl)-phosphate
Biodegradation
Aerobic, 0 %, Exposure time: 28 Days, Not readily biodegradable.

Bioaccumulation
Carp, Exposure time: 42 Days, approximately 0.8 - 2.8 BCF

Acute and Prolonged Toxicity to Fish
LC50: approximately 84 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)
LC50: 51 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)
LC50: 30 mg/l (Guppy (Poecilia reticulata), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: approximately 131 mg/l (Water flea (Daphnia magna), 48 hrs)

Toxicity to Aquatic Plants
EC50: 45 mg/l, End Point: biomass (Green algae (Scenedesmus subspicatus), 72 hrs)
EC50: 41 - 55 mg/l, End Point: biomass (Green algae (Selenastrum capricornutum), 96 h)

Toxicity to Microorganisms
EC50: 295 mg/l, (Photobacterium phosphoreum, 30 min)
EC50: 784 mg/l, (Activated sludge microorganisms, 3 hrs)

Ecological Data for Aliphatic Ether
Biodegradation
aerobic, 100 %, Exposure time: 28 Days

Biological Oxygen Demand (BOD)
5 Days, 1,300 mg/g
20 Days, 1,800 mg/g

Chemical Oxygen Demand (COD)
2,180 mg/g

Theoretical Biological Oxygen Demand (ThBOD)
2,300 mg/g

Bioaccumulation
approximately 2.5 BCF

Acute and Prolonged Toxicity to Fish

LC50: 1,490 mg/l (Bluegill (Lepomis macrochirus), 96 hrs)
1,250 mg/l (Silverside Minnow (Menidia peninsulae), 96 hrs)
LC50: 2,137 mg/l (Fathead minnow (Pimephales promelas), 96 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: 1,720 - 1,850 mg/l (Water flea (Daphnia magna), 24 hrs)
LC50: 800 mg/l (Common shrimp (Crangon crangon), 48 hrs)

Toxicity to Aquatic Plants
EC50: > 1,000 mg/l, (Green algae (Selenastrum capricornutum), 7 Days)

Toxicity to Microorganisms
IC50: > 1,000 mg/l, (Activated sludge microorganisms, 16 hrs)

Ecological Data for Glycerin
Biodegradation
Aerobic, 63 %, Exposure time: 14 Days
Readily biodegradable.

Biological Oxygen Demand (BOD)
5 Days, 700 mg/l

Chemical Oxygen Demand (COD)
1,150 mg/g

Acute and Prolonged Toxicity to Fish
LC0: > 10,000 mg/l (Golden orfe (Leuciscus idus), 48 hrs)

Acute Toxicity to Aquatic Invertebrates
EC50: > 10,000 mg/l (Water flea (Daphnia magna), 24 hrs)

Ecological Data for Dimethyl Glutarate
Biodegradation
aerobic, 75 %, Exposure time: 28 d, Readily biodegradable.

Acute and Prolonged Toxicity to Fish
LC50: 33.6 mg/l (Fathead minnow (Pimephales promelas), 96 h)

Acute Toxicity to Aquatic Invertebrates
EC50: 122.1 - 163.5 mg/l (Water flea (Daphnia magna), 48 h)

Toxicity to Microorganisms
EC10: 62.5 mg/l, (Pseudomonas putida, 18 h)

Ecological Data for Tertiary Amine
Biodegradation
aerobic, > 90 %, Exposure time: 13 Days, Readily biodegradable.

Biological Oxygen Demand (BOD)
285 O2/g

Chemical Oxygen Demand (COD)
485 O2/g

Acute and Prolonged Toxicity to Fish
LC50: 81 mg/l (Fathead minnow (Pimephales promelas), 96 h)
LC50: 100 - 220 mg/l (Golden orfe (Leuciscus idus), 96 h)

Acute Toxicity to Aquatic Invertebrates
EC50: 98 mg/l (Water flea (Daphnia magna), 48 h)

Toxicity to Aquatic Plants
EC50: 35 mg/l, (Green algae (Scenedesmus subspicatus), 72 h)

Toxicity to Microorganisms
EC50: > 8,000 mg/l, (Pseudomonas putida, 71 hrs)

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations.

14. Transportation information

Land transport (DOT)
Non-Regulated

Sea transport (IMDG)
Non-Regulated

Air transport (ICAO/IATA)

Proper Shipping Name:	Aviation regulated liquid, n.o.s. (contains Hydrofluorocarbon)
Hazard Class or Division:	9
UN-No:	UN3334
Packaging Group:	
Hazard Label(s):	Miscellaneous

15. Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):

Components	
Aliphatic Ether	Included in the regulation but with no data values. See regulation for further details

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):

Components

None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:

Components

Aliphatic Ether

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):

If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight %	Components	CAS-No.
1 - 40%	Polyester Polyol	CAS# is a trade secret
15 - 25%	Polymer	CAS# is a trade secret
5 - 10%	Hydrofluorocarbon	460-73-1
5 - 10%	Glycol	CAS# is a trade secret
1 - 10%	Polyether Polyol	CAS# is a trade secret
1 - 5%	Aliphatic Ether	CAS# is a trade secret
1 - 5%	Morpholine derivative	CAS# is a trade secret
1 - 5%	Glycerin	56-81-5
<1%	Tertiary Amine	CAS# is a trade secret

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

Weight %	Components	CAS-No.
1 - 5%	Aliphatic Ether	CAS# is a trade secret
1 - 5%	Morpholine derivative	CAS# is a trade secret

MA Right to Know Extraordinarily Hazardous Substance List:

Weight %	Components	CAS-No.
<10 ppm	Propylene Oxide	75-56-9

California Prop. 65:

Warning! This product contains chemical(s) known to the State of California to be Carcinogenic.

Weight %	Components	CAS-No.
<10 ppb	Formaldehyde	50-00-0
<65 ppm	2,2'-Dichlorodiisopropyl ether	108-60-1
<10 ppm	Propylene Oxide	75-56-9

16. Other Information

NFPA 704M Rating

Health	2
Flammability	1
Reactivity	0
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	2*
Flammability	1
Physical Hazard	0

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

The method of hazard communication for Bayer MaterialScience LLC is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Bayer MaterialScience LLC as a customer service.

Contact Person:	Product Safety Department
Telephone:	(412) 777-2835
MSDS Number:	000000009102
Version Date:	10/28/2008
Report Version:	5.2

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Changes since the last version will be highlighted in the margin. This version replaces all previous versions.