

# MATERIAL SAFETY DATA SHEET



Bayer MaterialScience

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## 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:** 81116904  
**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**

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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**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
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 (CO<sub>2</sub>), 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/m<sup>3</sup>
- 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/m<sup>3</sup> (Mist.)
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)  
PEL: 5 mg/m<sup>3</sup> (Respirable fraction.)
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)  
PEL: 15 mg/m<sup>3</sup> (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

<b>Form:</b>	liquid
<b>Color:</b>	Dark, Amber
<b>Odor:</b>	Amine
<b>pH:</b>	8.5 - 10.5
<b>Freezing Point:</b>	Not Established
<b>Boiling Point/Range:</b>	Not Established
<b>Flash Point:</b>	> 93.33 °C (> 200 °F)
<b>Specific Gravity:</b>	1.14 - 1.16
<b>Solubility in Water:</b>	Partially soluble
<b>Viscosity, Dynamic:</b>	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 (CO<sub>2</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), 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 O<sub>2</sub>/g

**Chemical Oxygen Demand (COD)**

485 O<sub>2</sub>/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)**

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

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
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:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
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:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
<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.**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
<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**

<b>Health</b>	2
<b>Flammability</b>	1
<b>Reactivity</b>	0
<b>Other</b>	

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

**HMIS Rating**

<b>Health</b>	2*
<b>Flammability</b>	1
<b>Physical Hazard</b>	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: 00000009102  
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.