

MATERIAL SAFETY DATA SHEET



BaySystems NorthAmerica

Baysystems North America
Product Safety & Regulatory Affairs
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TRANSPORTATION EMERGENCY

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

NON-TRANSPORTATION

Bayer Emergency Phone: (412) 923-1800
Bayer Information Phone: (800) 662-2927

1. Product and Company Identification

Product Name: BAYSEAL 2.0
Material Number: 6725023
Chemical Family: Polyol System

2. Hazards Identification

Emergency Overview

WARNING! Color: Amber, Brown **Form:** liquid **Odor:** slight, Ether, Amine.
May cause eye, skin, and respiratory tract irritation. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture. Vapor reduces oxygen available for breathing. May cause a temporary fogging of the eyes. May affect nervous system. May cause irregular heartbeat. May cause kidney damage. May cause liver damage.

Potential Health Effects

Primary Routes of Entry: Skin Contact, Eye Contact, Inhalation

Medical Conditions Aggravated by Exposure: Eye disorders, Respiratory disorders, Skin disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation

Acute Inhalation

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: Chlorinated Phosphate Ester

May cause respiratory tract irritation with symptoms of coughing, sore throat and runny nose.

For Component: Ethylene Glycol

Causes respiratory tract irritation with symptoms of coughing, sore throat and runny nose. Inhalation of the

Material Name: BAYSEAL 2.0

Article Number: 6725023

glycol component is unlikely due to the low vapor pressure. If misted or handled at elevated temperatures, high concentrations can produce irritation and/or difficulty breathing. May cause nervous system effects which can include symptoms of dizziness, incoordination, headache, numbness, and/or confusion. May induce cardiac arrhythmia (irregular heartbeat) in some individuals.

For Component: Tertiary Amine

May cause pulmonary edema with symptoms of breathing difficulty and tightness of chest.

Skin

Acute Skin

For Component: Hydrofluorocarbon

Slightly toxic by skin absorption. May cause slight irritation.

For Component: Chlorinated Phosphate Ester

May cause slight irritation.

For Component: Tertiary Amine

Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage.

For Component: Ethylene Glycol

If sufficient amounts are absorbed, systemic toxicity may occur with symptoms similar to those described in acute inhalation. May cause slight irritation.

For Component: Tertiary Amine

Toxic by skin absorption.

Chronic Skin

For Component: Tertiary Amine

Repeated and prolonged contact may cause an allergic skin reaction in sensitive individuals.

Eye

Acute Eye

For Component: Hydrofluorocarbon

May cause slight irritation.

For Component: Chlorinated Phosphate Ester

Not expected to be irritating.

For Component: Tertiary Amine

Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

For Component: Ethylene Glycol

May cause slight irritation.

For Component: Tertiary Amine

Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

Chronic Eye

For Component: Tertiary Amine

Prolonged vapor contact may cause conjunctivitis.

Ingestion

Acute Ingestion

For Component: Chlorinated Phosphate Ester

May be harmful if swallowed. Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea. Moderately toxic by ingestion.

For Component: Ethylene Glycol

May be fatal if swallowed. 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: Tertiary Amine

Corrosive to the digestive tract with symptoms of burning and ulceration.

Chronic Ingestion

For Component: Chlorinated Phosphate Ester

May cause liver damage. May cause kidney damage.

For Component: Ethylene Glycol

May cause blood disorders. May cause brain damage. May cause kidney damage. May cause liver damage. May cause lung damage.

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> |
|-----------------|-----------------------------|------------------------|
| 10 - 20% | Hydrofluorocarbon | 460-73-1 |
| 7 - 13% | Chlorinated Phosphate Ester | CAS# is a trade secret |
| 3 - 7% | Brominated Flame Retardant | CAS# is a trade secret |
| 3 - 7% | Tertiary Amine | CAS# is a trade secret |
| 1 - 5% | Ethylene Glycol | 107-21-1 |
| 1 - 5% | Tertiary Amine | CAS# is a trade secret |

4. First Aid Measures

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin Contact

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

Inhalation

If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration using a pocket mask type resuscitator. 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 risk of rupture.

6. Accidental release measures

Spill and Leak Procedures

Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal. Use appropriate personal protective equipment during clean up. Evacuate and keep unnecessary people out of spill area.

7. Handling and Storage

Storage Temperature:

minimum: 7 °C (44.6 °F)
maximum: 29 °C (84.2 °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. Avoid contact with eyes. Avoid contact with skin or clothing. Do not breathe vapours/dust.

8. Exposure Controls / Personal Protection

Ethylene Glycol (107-21-1)

US. ACGIH Threshold Limit Values

Ceiling Limit Value: 100 mg/m³ (Aerosol.)

US. ACGIH Threshold Limit Values

Hazard Designation: Group A4 Not classifiable as a human carcinogen.

Industrial Hygiene/Ventilation Measures

Use local and general exhaust ventilation to control levels of exposure.

Respiratory Protection

In case of insufficient ventilation wear suitable respiratory equipment.

Hand Protection

Permeation resistant gloves.

Eye Protection

Chemical safety goggles or safety glasses with side-shields.

Skin and body protection

Wear cloth work clothing including long pants and long-sleeved shirts.

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: | Amber, Brown |
| Odor: | slight, Ether, Amine |
| pH: | 9.6 |
| Freezing Point: | Not Established |
| Boiling Point/Range: | Not Established |
| Flash Point: | > 93.33 °C (> 200 °F) |
| Vapor Pressure: | Not Established |
| Specific Gravity: | Not Established |
| Solubility in Water: | Partially soluble |
| Bulk Density: | Not Established |

10. Stability and Reactivity

Hazardous Reactions

Hazardous polymerization does not occur.

Stability

Stable

Materials to avoid

oxidizing agents, Isocyanates

Hazardous decomposition products

By Fire: Carbon Dioxide; Carbon Monoxide; other aliphatic fragments which have not been determined

11. Toxicological Information

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 Chlorinated Phosphate Ester

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 Tertiary Amine

Acute Oral Toxicity

LD50: 2,000 - 5,000 mg/kg (rat)

Acute dermal toxicity

LD50: 1,000 - 2,000 mg/kg (rabbit)

Skin Irritation

rabbit, Corrosive

Eye Irritation

rabbit, Corrosive

Toxicity Data for Ethylene Glycol**Acute Oral Toxicity**

LD50: 4,700 mg/kg (Rat)

Acute Inhalation Toxicity

LC50: > 200 mg/m³, 2 hrs (rat)

Acute dermal toxicity

LD50: 10,600 mg/kg (rabbit)

Skin Irritation

rabbit, Draize Test, Slightly irritating

Eye Irritation

rabbit, Draize Test, Slightly irritating

Repeated Dose Toxicity

16 Weeks, Inhalation: NOAEL: 3.49 mg/l, (Rat, 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:

Dominant Lethal Assay: negative (rat, male, oral)

Drosophila SLRL test: positive (Drosophila melanogaster,)

Micronucleus Assay: negative (mouse,)

Carcinogenicity

rat, oral, 2 years, daily

Did not show carcinogenic effects in animal experiments.

mouse, dermal, lifetime, daily

negative

Toxicity to Reproduction/Fertility

Fertility Screening, oral, (mouse, Male/Female) NOAEL (parental): 2,500 mg/kg, NOAEL (F1): > 750 mg/kg,

No effects on Reproductive parameters observed at doses tested.

Three generation study, oral, daily, (rat) NOAEL (parental): > 1,000 mg/kg, NOAEL (F1): > 1,000 mg/kg,

NOAEL (F2): > 1,000 mg/kg,

Developmental Toxicity/Teratogenicity

rabbit, female, dermal, NOAEL (teratogenicity): approximately 2,000 mg/kg, NOAEL (maternal): > 1,000 mg/kg,

Fetotoxicity has been observed in animal studies. Teratogenic effects have been observed in animal studies.

Rat, female, oral, NOAEL (teratogenicity): < 500 mg/kg, NOAEL (maternal): 1,000 mg/kg,

Fetotoxicity has been observed in animal studies. Teratogenic effects have been observed in animal studies.

Toxicity Data for Tertiary Amine

Acute Oral Toxicity

LD50: 3,250 uL/kg (Rat)

LD50: 2,800 mg/kg (Rat)

Acute dermal toxicity

LD50: > 1,000 mg/kg (rabbit)

Skin Irritation

rabbit, Corrosive

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 Chlorinated Phosphate Ester

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 Ethylene Glycol

Biodegradation

Aerobic, > 40 %, Exposure time: 20 Days

Biological Oxygen Demand (BOD)

5 Days, 0.78 - 1.81 g/g

Chemical Oxygen Demand (COD)

1.19 - 1.29 g/g

Theoretical Biological Oxygen Demand (ThBOD)

1.26 - 1.29 g/g

Bioaccumulation

Golden orfe, Exposure time: 3 Days, 10 BCF

Acute and Prolonged Toxicity to Fish

41,000 mg/l (Coho salmon, silver salmon (*Oncorhynchus kisutch*), 96 hrs)

LC50: 49,000 - 57,000 mg/l (Fathead minnow (*Pimephales promelas*), 96 hrs)

LC50: 18,500 mg/l (Rainbow trout (*Salmo gairdneri*), 96 hrs)

Acute Toxicity to Aquatic Invertebrates

EC50: 46,300 - 57,600 mg/l (Water flea (*Daphnia magna*), 48 hrs)

EC50: 13,900 - 29,700 mg/l (*Ceriodaphnia* sp, 48 hrs)

Toxicity to Aquatic Plants

EC50: 6,500 - 13,000 mg/l, End Point: growth (Green algae (*Selenastrum capricornutum*), 96 hrs)

Toxicity to Microorganisms

EC50: 10,000 mg/l, (*Pseudomonas putida*, 16 hrs)

EC50: 621 mg/l, (*Photobacterium phosphoreum*, 30 min)

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

Ethylene Glycol Reportable quantity: 5,000 lbs

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

Ethylene Glycol

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% | Polyester Polyol | |
| 10 - 20% | Hydrofluorocarbon | 460-73-1 |
| 7 - 13% | Chlorinated Phosphate Ester | CAS# is a trade secret |
| 3 - 7% | Brominated Flame Retardant | CAS# is a trade secret |
| 3 - 7% | Tertiary Amine | CAS# is a trade secret |
| 1 - 5% | Ethylene Glycol | 107-21-1 |

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% | Ethylene Glycol | 107-21-1 |

Pennsylvania Right to Know Special Hazard Substance List:

| <u>Weight %</u> | <u>Components</u> | <u>CAS-No.</u> |
|-----------------|-------------------|----------------|
| <0.075% | 1,4-Dioxane | 123-91-1 |

MA Right to Know Extraordinarily Hazardous Substance List:

| <u>Weight %</u> | <u>Components</u> | <u>CAS-No.</u> |
|-----------------|-------------------|----------------|
| <0.075% | 1,4-Dioxane | 123-91-1 |

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> |
|-----------------|-------------------|----------------|
| <0.075% | 1,4-Dioxane | 123-91-1 |
| <15 ppb | Formaldehyde | 50-00-0 |

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 Baysystems North America is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Baysystems North America as a customer service.

Contact Person: Product Safety Department
Telephone: (412) 777-2835
MSDS Number: 00000006390
Version Date: 02/06/2007
Report Version: 1.7

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