

# MATERIAL SAFETY DATA SHEET



BaySystems NorthAmerica

**Baysystems North America**  
Product Safety & Regulatory Affairs  
100 Bayer Road  
Pittsburgh, PA 15205-9741  
USA

## 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:** PSI - RS245 - 30  
**Material Number:** 6664393  
**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 allergic respiratory reaction. May cause allergic skin reaction. May cause a temporary fogging of the eyes. May affect nervous system. May cause irregular heartbeat. May cause liver damage. May cause kidney 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: Aromatic Amino Polyol**

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

**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

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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: Dimethylethanolamine**

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: Dimethylethanolamine**

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

**Skin**

**Acute Skin**

**For Component: Aromatic Amino Polyol**

May cause irritation with symptoms of reddening and itching.

**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: Chlorinated Phosphate Ester**

Not expected to be irritating.

**For Component: Glycol**

Not expected to be irritating.

**For Component: Dimethylethanolamine**

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.

**Eye**

**Acute Eye**

**For Component: Aromatic Amino Polyol**

Causes irritation with symptoms of reddening, tearing, stinging, and swelling.

**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: Chlorinated Phosphate Ester**

Not expected to be irritating.

**For Component: Glycol**

May cause slight irritation.

**For Component: Dimethylethanolamine**

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: Chlorinated Phosphate Ester**

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

**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: Dimethylethanolamine**

May be harmful if swallowed. May cause digestive tract burns.

**Chronic Ingestion**

**For Component: Chlorinated Phosphate Ester**

May cause liver damage. May cause kidney damage.

**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.

**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**

<b><u>Weight %</u></b>	<b><u>Components</u></b>	<b><u>CAS-No.</u></b>
15 - 25%	Aromatic Amino Polyol	CAS# is a trade secret
15 - 25%	Polymer	CAS# is a trade secret
7 - 13%	Hydrofluorocarbon	460-73-1
5 - 10%	Chlorinated Phosphate Ester	CAS# is a trade secret
3 - 7%	Brominated Flame Retardant	CAS# is a trade secret
1 - 5%	Glycol	CAS# is a trade secret
<=2%	Dimethylethanolamine	108-01-0

**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 (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 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**

Country specific exposure limits have not been established or are not applicable

**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**

<b>Form:</b>	liquid
<b>Color:</b>	Amber, Brown
<b>Odor:</b>	slight, Ether, Amine
<b>Flash Point:</b>	> 93.33 °C (> 200 °F)
<b>Vapor Pressure:</b>	1,227 hPa
<b>Specific Gravity:</b>	1.14
<b>Solubility in Water:</b>	Partially soluble
<b>Bulk Density:</b>	approximately 9.5 lb/gal

**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 Aromatic Amino Polyol****Acute Oral Toxicity**

LD50: 2,120 mg/kg (rat)

**Acute dermal toxicity**

LD50: > 2,000 mg/kg (rabbit)  
Estimated Value

**Skin Irritation**

rabbit, Moderately irritating

**Eye Irritation**

rabbit, Severely irritating

**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)

**Toxicity Data for Polyether Polyol**

**Acute Oral Toxicity**

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

**Acute Inhalation Toxicity**

LC0: 2516 mg/m<sup>3</sup>, 6 hrs (Rat)

**Acute dermal toxicity**

LD50: > 5,000 mg/kg (rabbit)

**Eye Irritation**

rabbit, No eye irritation

**Mutagenicity**

Genetic Toxicity in Vitro:

Ames: negative

Genetic Toxicity in Vivo:

negative (Drosophila melanogaster, )

**Developmental Toxicity/Teratogenicity**

rat, female, oral, gestation, NOAEL (teratogenicity): 10,000 mg/kg,

No Teratogenic effects observed at doses tested.

**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 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 Dimethylethanolamine****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 Polyether Polyol****Biological Oxygen Demand (BOD)**

5 Days, 6 %  
20 Days, 77 %

**Chemical Oxygen Demand (COD)**

1.84 mg/g

**Acute and Prolonged Toxicity to Fish**

LC50: > 10,000 mg/l (Fathead minnow (*Pimephales promelas*), 96 hrs)

**Acute Toxicity to Aquatic Invertebrates**

EC50: > 10,000 mg/l (Water flea (*Daphnia magna*), 48 hrs)

**Toxicity to Microorganisms**

> 5,000 mg/l, (16 hrs)

**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 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 Dimethylethanolamine**

**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)**

**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**

None

**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**

None

**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>
15 - 25%	Aromatic Amino Polyol	CAS# is a trade secret
15 - 25%	Polymer	CAS# is a trade secret
>=1%	Polyester Polyol	CAS# is a trade secret
>=1%	Polyether Polyol	CAS# is a trade secret
7 - 13%	Hydrofluorocarbon	460-73-1
5 - 10%	Chlorinated Phosphate Ester	CAS# is a trade secret
1 - 5%	Glycol	CAS# is a trade secret
<=2%	Dimethylethanolamine	108-01-0

**MA Right to Know Extraordinarily Hazardous Substance List:**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
<20 ppm	Formaldehyde	50-00-0
<20 ppm	Ethylene Oxide	75-21-8

**California Prop. 65:**

**Warning! This product contains chemical(s) known to the State of California to be Carcinogenic. - Developmental toxin. - Female reproductive toxin.**

<u>Weight %</u>	<u>Components</u>	<u>CAS-No.</u>
<20 ppm	Formaldehyde	50-00-0
<75 ppm	Toluene	108-88-3
<20 ppm	Ethylene Oxide	75-21-8

**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 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: 000000005992  
Version Date: 02/02/2006  
Report Version: 1.3

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