SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY

Product name: PARALOID™ B-1225 Resin **Issue Date:** 08/29/2018
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THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: PARALOID™ B-1225 Resin

Recommended use of the chemical and restrictions on use
Identified uses: Plastics Additive

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY
2030 DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: CHEMTREC +1 800-424-9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with 29 CFR 1910.1200
Flammable liquids - Category 3
Skin irritation - Category 2
Eye irritation - Category 2A
Skin sensitisation - Category 1
Reproductive toxicity - Category 2
Specific target organ toxicity - single exposure - Category 3
Specific target organ toxicity - repeated exposure - Category 2
Aspiration hazard - Category 1

Label elements
Hazard pictograms

Signal word: **DANGER!**

Hazards
Flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause respiratory irritation.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response
IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Acrylic copolymer
This product is a mixture.

Component	CASRN	Concentration
Acrylic polymer(s)	Not hazardous	>= 64.0 - 66.0 %
Residual monomers	Not required	<= 950.0 PPM
Ethylbenzene	100-41-4	>= 5.0 - 7.0 %
Xylene	1330-20-7	>= 27.0 - 31.0 %
Toluene	108-88-3	< 1.0 %
Isobornyl methacrylate	7534-94-3	<= 1.0 %
Butyl methacrylate	97-88-1	<= 1.0 %
Methyl methacrylate	80-62-6	<= 1.0 %

4. FIRST AID MEASURES

Description of first aid measures
Inhalation: Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician. Consult a physician after significant exposure.

Skin contact: Take off all contaminated clothing immediately. Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Ingestion: Never give anything by mouth to an unconscious person. If a person vomits when lying on his back, place him in the recovery position. Drink 1 or 2 glasses of water. Do not induce vomiting: contains petroleum distillates and/or aromatic solvents. Call a physician immediately.

Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: Risk of product entering the lungs on vomiting after ingestion. In case of ingestion, the stomach should be emptied by gastric lavage under qualified medical supervision. Exposure to xylene can affect the CNS, pulmonary, cardiovascular, and gastrointestinal systems. Liver enzymes, EKG, serum electrolytes, and a chest X-ray should be done in cases of massive exposure. Later control for pneumonia and lung oedema.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Foam Carbon dioxide (CO2) Dry powder Water spray

Unsuitable extinguishing media: No data available

Special hazards arising from the substance or mixture
Hazardous combustion products: No data available

Unusual Fire and Explosion Hazards: Vapors can travel to a source of ignition and flash back. Heated material can form flammable or explosive vapors with air. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.

Advice for firefighters
Fire Fighting Procedures: For safety reasons in case of fire, containers should be stored separately in closed containments. Cool closed containers exposed to fire with water spray.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Refer to protective measures listed in sections 7 and 8.

Environmental precautions: Do not flush into surface water or sanitary sewer system.

Methods and materials for containment and cleaning up: Evacuate personnel to safe areas. Remove all sources of ignition. Ensure adequate ventilation. Material can create slippery conditions. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling: Provide sufficient air exchange and/or exhaust in work rooms. Avoid exceeding the given occupational exposure limits (see section 8). In case of insufficient ventilation,

wear suitable respiratory equipment. Avoid contact with skin and eyes. Do not breathe vapours or spray mist. Wear personal protective equipment. For personal protection see section 8. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.

Conditions for safe storage: Material can burn; limit indoor storage to approved areas equipped with automatic sprinklers. Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Electrical installations / working materials must comply with the technological safety standards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Residual monomers	Dow IHG	TWA	4 ppm
	Dow IHG	TWA	SKIN
	Dow IHG	STEL	10 ppm
	Dow IHG	STEL	SKIN
	ACGIH	TWA	20 ppm
Ethylbenzene	ACGIH	TWA	20 ppm
	OSHA Z-1	TWA	435 mg/m3 100 ppm
Xylene	OSHA Z-1	TWA	435 mg/m3 100 ppm
	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
Toluene	ACGIH	TWA	20 ppm
	OSHA Z-2	TWA	200 ppm
	OSHA Z-2	CEIL	300 ppm
	OSHA Z-2	Peak	500 ppm
Isobornyl methacrylate	Dow IHG	TWA	50 ppm
	Dow IHG	STEL	75 ppm
Butyl methacrylate	Dow IHG	TWA	50 ppm
	Dow IHG	STEL	75 ppm
Methyl methacrylate	ACGIH	TWA	50 ppm
	ACGIH	TWA	Skin Sensitizer
	ACGIH	STEL	100 ppm
	OSHA Z-1	TWA	410 mg/m3 100 ppm
	ACGIH	STEL	Skin Sensitizer
	CAL PEL	PEL	205 mg/m3 50 ppm
	CAL PEL	STEL	410 mg/m3 100 ppm

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	End of shift (As soon as possible after exposure	0.15 g/g creatinine	ACGIH BEI

				ceases)		
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI

Exposure controls

Engineering controls: Use explosion-proof local exhaust ventilation with a minimum capture velocity of 100 ft/min (0.5 m/sec) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Hygiene measures: Wash hands before breaks and immediately after handling the product.

Individual protection measures

Eye/face protection: Tightly fitting safety goggles Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): 4H Glove (Trademark of Safety 4 A/S of Denmark) Norfoil (Trademark of Siebe North, Inc.) Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Before removing gloves clean them with soap and water.

Other protection: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact.

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure

limit listed in Exposure Limit Information. Up to 10 times the exposure limit: Wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Up to 1000 ppm organic vapor: Wear a properly fitted NIOSH approved (or equivalent) full-facepiece, air-purifying respirator, OR full-facepiece, airline respirator in the pressure demand mode. Above 1000 ppm organic vapor or Unknown: Wear a properly fitted NIOSH approved (or equivalent) self-contained breathing appartus in the pressure demand mode, OR full-facepiece, airline respirator in the pressure demand mode with emergency escape provision. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	liquid
Color	Pale yellow Clear to hazy
Odor	Aromatic odor
Odor Threshold	No data available
pH	Not Applicable
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	137.00 °C (278.60 °F)
Flash point	**closed cup** 29.00 °C (84.20 °F) *SETAFLASH CLOSED CUP*
Evaporation Rate (Butyl Acetate = 1)	<1.00
Flammability (solid, gas)	Not Applicable
Lower explosion limit	1.00 % vol estimated
Upper explosion limit	7.00 % vol estimated
Vapor Pressure	5.0000000 mmHg at 20.00 °C (68.00 °F)
Relative Vapor Density (air = 1)	>1.0000
Relative Density (water = 1)	1.0000
Water solubility	practically insoluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	466.00 °C (870.80 °F) estimated
Decomposition temperature	No data available
Dynamic Viscosity	4,000.000 - 8,000.000 mPa.s
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No data available
Percent volatility	34.00 - 36.00 %

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: No data available

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.
Product will not undergo polymerization.
Stable under recommended storage conditions.

Conditions to avoid: Heat, flames and sparks.

Incompatible materials: No data available

Hazardous decomposition products: No decomposition if stored and applied as directed. Heating or fire conditions liberates toxic gas. Decomposition products can include and are not limited to: Carbon oxides

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Product test data not available. Refer to component data.

Acute dermal toxicity
Product test data not available. Refer to component data.

Acute inhalation toxicity
Product test data not available. Refer to component data.

Skin corrosion/irritation
Product test data not available. Refer to component data.

Serious eye damage/eye irritation
Product test data not available. Refer to component data.

Sensitization
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Product test data not available. Refer to component data.

Carcinogenicity
Product test data not available. Refer to component data.

Teratogenicity
Product test data not available. Refer to component data.

Reproductive toxicity
Product test data not available. Refer to component data.

Mutagenicity
Product test data not available. Refer to component data.

Aspiration Hazard
Product test data not available. Refer to component data.

Additional information
No toxicity data are available for this material.

COMPONENTS INFLUENCING TOXICOLOGY:

Acrylic polymer(s)

Acute oral toxicity
Single dose oral LD50 has not been determined.

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity
The LC50 has not been determined.

Skin corrosion/irritation
Essentially nonirritating to skin.

Serious eye damage/eye irritation
Essentially nonirritating to eyes.

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
No relevant data found.

Carcinogenicity
No relevant data found.

Teratogenicity
No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity
No relevant data found.

Aspiration Hazard
No aspiration toxicity classification

Residual monomers

Acute oral toxicity
Single dose oral LD50 has not been determined.

LD50, Rat, male, 1,320 mg/kg OECD Test Guideline 401

Acute dermal toxicity
The dermal LD50 has not been determined.

LD50, Rabbit, 500 - 1,000 mg/kg

Acute inhalation toxicity
The LC50 has not been determined.

LC50, Rat, 4 Hour, dust/mist, > 1 mg/l OECD Test Guideline 403

Skin corrosion/irritation
Causes severe burns.
Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.
Classified as corrosive to the skin according to DOT guidelines.

Serious eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.
Vapor may cause severe eye irritation and corneal injury.

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Repeated excessive exposures may cause
Respiratory effects.

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity
Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity
In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Animal genetic toxicity studies were negative.

Aspiration Hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Ethylbenzene

Acute oral toxicity
LD50, Rat, 3,500 mg/kg

Acute dermal toxicity
LD50, Rabbit, 15,500 mg/kg

Acute inhalation toxicity
LC50, Rat, 4 Hour, vapour, 17.2 mg/l

Skin corrosion/irritation
Brief contact may cause moderate skin irritation with local redness.
Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause moderate eye irritation.
Vapor may cause lacrimation (tears).

Sensitization
For skin sensitization:
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
May cause hearing loss based on animal data.
Kidney.
Liver.
Lung.
Although one early inhalation study on ethylbenzene reported an adverse effect on the testes, recent, more comprehensive studies have not shown this effect.

Carcinogenicity
Ethylbenzene has been shown to cause cancer in laboratory animals. There is no evidence that these findings are relevant to humans.

Teratogenicity
Has caused birth defects in laboratory animals only at doses toxic to the mother. Has been toxic to the fetus in lab animals at doses nontoxic to the mother.

Reproductive toxicity
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. May be fatal if swallowed and enters airways.

Xylene

Acute oral toxicity
LD50, Rat, 4,300 mg/kg

Acute dermal toxicity
LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity
LC50, Rat, 4 Hour, vapour, 27.5 mg/l

Skin corrosion/irritation
Prolonged contact may cause skin irritation with local redness.
Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.
Vapor may cause skin irritation.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause moderate eye irritation.
May cause slight temporary corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory system

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
Liver
kidney
Blood
Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.

Carcinogenicity
Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

Teratogenicity
Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. Available data are inadequate for evaluation of maternal toxicity.

Reproductive toxicity
In animal studies, did not interfere with reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
May be fatal if swallowed and enters airways.

Toluene

Acute oral toxicity
LD50, Rat, 5,580 mg/kg

Acute dermal toxicity
LD50, Rabbit, 12,267 mg/kg

Acute inhalation toxicity
Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene. LC50, Rat, male, 4 Hour, vapour, 25.7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.
Prolonged contact may cause moderate skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation
May cause slight eye irritation.
May cause slight temporary corneal injury.
Vapor may cause eye irritation experienced as mild discomfort and redness.
Vapor may cause lacrimation (tears).

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Central nervous system

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
central nervous system (CNS) effects
Excessive exposure may cause neurologic signs and symptoms.
Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.
Intentional misuse by deliberately inhaling toluene may cause nervous system damage, hearing loss, liver and kidney effects and death.

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity
In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it has caused birth defects in mice when administered orally, but not by inhalation. Based on Structure-Activity Relationship (SAR), this material is predicted to interfere with fertility or cause birth defects.

Reproductive toxicity
In animal studies, did not interfere with reproduction.

Mutagenicity
The majority and most reliable of the many genetic toxicity studies on toluene, both in vitro and in animals, indicate that it is not genetically toxic.

Aspiration Hazard
May be fatal if swallowed and enters airways.

Isobornyl methacrylate

Acute oral toxicity
LD50, Rat, male, 3,381 mg/kg

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity
Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

The LC50 has not been determined.

Skin corrosion/irritation
Brief contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
Essentially nonirritating to eyes.

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Bone marrow.

Carcinogenicity
No relevant data found.

Teratogenicity
Screening studies in animals suggest that this material does not affect fetal development.

Reproductive toxicity
Screening studies suggest that this material does not affect reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Butyl methacrylate

Acute oral toxicity
LD50, Rat, > 2,000 mg/kg OECD Test Guideline 401 No deaths occurred at this concentration.

Acute dermal toxicity
LD50, Rabbit, > 2,000 mg/kg OECD Test Guideline 402

Acute inhalation toxicity
No adverse effects are anticipated from single exposure to mist.

LC50, Rat, 4 Hour, dust/mist, 29 mg/l OECD Test Guideline 403

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause skin irritation with local redness.
May cause more severe response if skin is abraded (scratched or cut).

Serious eye damage/eye irritation
May cause slight eye irritation.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization
Skin contact may cause an allergic skin reaction.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity
Animal testing did not show any carcinogenic effects.

Teratogenicity
Has caused birth defects in laboratory animals. Has been toxic to the fetus in laboratory animal tests.

Reproductive toxicity
In animal studies, a similar material has been shown not to interfere with reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Methyl methacrylate

Acute oral toxicity
Swallowing may result in gastrointestinal irritation. LD50, Rat, 7,900 mg/kg

Acute dermal toxicity
LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity
LC50, Rat, 4 Hour, vapour, 29.8 mg/l

Skin corrosion/irritation
Brief contact may cause moderate skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight eye irritation.
Corneal injury is unlikely.
Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization
Has caused allergic skin reactions in humans.
Has demonstrated the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In humans, effects have been reported on the following organs:
Respiratory tract.
In animals, effects have been reported on the following organs:
kidney
Liver
Gastrointestinal tract
nervous system
lung

Carcinogenicity
Did not cause cancer in laboratory animals. Workers exposed during 1933-1945 to very high vapor concentrations of ethyl acrylate and methyl methacrylate, and to volatile by-products of the ethyl acrylate/methyl methacrylate polymerization process, showed an increase in deaths due to colorectal cancer. Such increases were not observed in workers exposed after that time. Although suggestive, these findings do not establish a causal relationship between high level exposure to these acrylates and colorectal cancer.

Teratogenicity
MMA did not cause birth defects, malformations, or fetal toxicity in pregnant rats inhaling concentrations up to 2028 ppm. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. The weight of evidence indicates that methyl methacrylate does not cause birth defects in animals.

Reproductive toxicity
In animal studies, did not interfere with fertility.

Mutagenicity
In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard
May be harmful if swallowed and enters airways.

Carcinogenicity

Component	**List**	**Classification**
Ethylbenzene	IARC	Group 2B: Possibly carcinogenic to humans
	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

General Information
There is no data available for this product.

Toxicity

Acrylic polymer(s)

Acute toxicity to fish
No relevant data found.

Residual monomers

Acute toxicity to fish
No relevant data found.
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 85 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 130 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Scenedesmus capricornutum (fresh water algae), static test, 72 Hour, Growth rate, 45 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, Pseudomonas putida, static test, 17 Hour, Respiration rates., 100 mg/l

Chronic toxicity to fish
NOEC, Danio rerio (zebra fish), flow-through test, 35 d, number of offspring, 10 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), flow-through test, 21 d, number of offspring, 53 mg/l

Ethylbenzene

Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 4.2 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), Static, 48 Hour, 1.8 - 2.4 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth inhibition (cell density reduction), 3.6 - 4.6 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, Bacteria, 16 Hour, > 12 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, 0.96 mg/l

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 2 d, survival, 0.047 mg/cm2

Xylene

Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 2.6 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
IC50, Daphnia magna (Water flea), 24 Hour, 1 - 4.7 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (algae), Static, 73 Hour, Growth rate, 4.36 mg/l, OECD Test Guideline 201 or Equivalent
NOEC, Pseudokirchneriella subcapitata (green algae), 73 Hour, Growth rate, 0.44 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish
NOEC, Oncorhynchus mykiss (rainbow trout), flow-through, 56 d, mortality, > 1.3 mg/l

Toluene

Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 5.8 mg/l

Acute toxicity to aquatic invertebrates
LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3.78 mg/l

Acute toxicity to algae/aquatic plants
EbC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 12.5 mg/l, OECD Test Guideline 201

Toxicity to bacteria
IC50, Bacteria, 16 Hour, 29 mg/l

Chronic toxicity to fish
NOEC, Fish, flow-through test, 40 d, growth, 1.4 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0.74 mg/l

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 150 - 280 mg/kg

Isobornyl methacrylate

Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Danio rerio (zebra fish), semi-static test, 96 Hour, 1.79 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, > 2.57 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), static test, 96 Hour, 2.66 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 0.233 mg/l

Butyl methacrylate

Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).
LC50, Oryzias latipes (Orange-red killifish), semi-static test, 96 Hour, 5.57 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 25.4 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 31.2 mg/l

Toxicity to bacteria
EC10, Pseudomonas putida, 18 Hour, 253.6 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia (water flea), semi-static test, 21 d, 1.1 mg/l
LOEC, Daphnia (water flea), semi-static test, 21 d, 3.35 mg/l
NOEC, Daphnia (water flea), flow-through test, 21 d, 2.6 mg/l
LOEC, Daphnia (water flea), flow-through test, 21 d, 4.9 mg/l

Methyl methacrylate

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, > 79 mg/l, OECD Test Guideline 203 or Equivalent
LC50, Lepomis macrochirus (Bluegill sunfish), flow-through test, 96 Hour, 233 mg/l, EPA-660-75-009

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna, flow-through test, 48 Hour, 69 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate, > 110 mg/l, OECD Test Guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, 110 mg/l, OECD Test Guideline 201

Toxicity to bacteria
EC50, 14 d, > 100 mg/l

Chronic toxicity to fish
NOEC, Danio rerio (zebra fish), 35 d, 9.4 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 37 mg/l

Persistence and degradability

Acrylic polymer(s)
Biodegradability: No relevant data found.

Residual monomers
Biodegradability: No relevant data found.
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 86 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 6.884 Hour
Method: Estimated.
Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: Ozone.
Atmospheric half-life: 1.007 d
Method: Estimated.

Ethylbenzene
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 100 %
Exposure time: 6 d
Method: OECD Test Guideline 301E or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg Estimated.

Chemical Oxygen Demand: 2.62 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	31.5 %
10 d	38.5 %
20 d	45.4 %

Photodegradation
Sensitization: OH radicals

Atmospheric half-life: 55 Hour
Method: Estimated.

Xylene

Biodegradability: Material is expected to be readily biodegradable.
10-day Window: Pass
Biodegradation: > 60 %
Exposure time: 10 d
Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 19.7 Hour
Method: Estimated.

Toluene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 100 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.13 mg/mg Calculated.

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 2 d
Method: Estimated.

Isobornyl methacrylate

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 70 %
Exposure time: 28 d
Method: OECD Test Guideline 310 or Equivalent

Butyl methacrylate

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 88 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent

Methyl methacrylate

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
10-day Window: Not applicable
Biodegradation: 94 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent
10-day Window: Not applicable
Biodegradation: > 95 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 1.02 mg/mg

Physico-chemical removability
Rapidly hydrolyzed under alkaline conditions.

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 6.997 d
Method: Estimated.

Bioaccumulative potential

Acrylic polymer(s)

Bioaccumulation: No relevant data found.

Residual monomers

Bioaccumulation: No relevant data found. No bioconcentration is expected because of the relatively high water solubility.
Partition coefficient: n-octanol/water(log Pow): 0.93 Measured
Bioconcentration factor (BCF): 3.16 Fish Estimated.

Ethylbenzene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.15 Measured
Bioconcentration factor (BCF): 15 Fish Measured

Xylene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.12 Measured
Bioconcentration factor (BCF): 25.9 Rainbow trout (Salmo gairdneri) Measured

Toluene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.73 Measured
Bioconcentration factor (BCF): 13.2 - 90 Fish Measured

Isobornyl methacrylate

Bioaccumulation: Based on information for a similar material: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 5.09 OECD Test Guideline 117 or Equivalent
Bioconcentration factor (BCF): 37 Danio rerio (zebra fish) 56 d

Butyl methacrylate

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.88 Estimated.
Bioconcentration factor (BCF): 70 Fish Calculated.

Methyl methacrylate

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.38 Measured

Mobility in soil

Acrylic polymer(s)

No relevant data found.

Residual monomers

No relevant data found.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 15

Ethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient (Koc): 518 Estimated.

Xylene

Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient (Koc): 443 Estimated.

Toluene

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 37 - 178 Estimated.

Isobornyl methacrylate

No relevant data found.

Butyl methacrylate

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient (Koc): 878 Estimated.

Methyl methacrylate

Potential for mobility in soil is high (Koc between 50 and 150).
Partition coefficient (Koc): 87 Estimated.

13. DISPOSAL CONSIDERATIONS

Disposal methods: For disposal, incinerate this material at a facility that complies with local, state, and federal regulations.

Contaminated packaging: Do not re-use empty containers. Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Resin solution
UN number	UN 1866
Class	3
Packing group	III
Reportable Quantity	Xylene

Classification for SEA transport (IMO-IMDG):

Proper shipping name	RESIN SOLUTION
UN number	UN 1866
Class	3
Packing group	III
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Resin solution
UN number	UN 1866
Class	3
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Flammable (gases, aerosols, liquids, or solids)

Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This product contains a chemical which is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: (Quantity present is found elsewhere on this MSDS.)

Components	**CASRN**
Xylene	1330-20-7
Ethylbenzene	100-41-4

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Components	**CASRN**	**RQ (RCRA Code)**
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)
Ethylbenzene	100-41-4	1000 lbs RQ
Ethylbenzene	100-41-4	100 lbs RQ (F003)
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)
Toluene	108-88-3	1000 lbs RQ
Toluene	108-88-3	100 lbs RQ (F005)

Pennsylvania
Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California Prop. 65
WARNING: This product can expose you to chemicals including Ethylbenzene, Benzene, which is/are known to the State of California to cause cancer, and Benzene, Toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System
HMIS

Health	Flammability	Physical Hazard
2*	3	0

* = Chronic Effects (See Hazards Identification)

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
CAL PEL	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
CEIL	Acceptable ceiling concentration
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-2	USA. Occupational Exposure Limits (OSHA) - Table Z-2
Peak	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
PEL	Permissible exposure limit
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Time weighted average

Full text of other abbreviations
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations;

UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
US