SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY*

Product name: PARALOID™ XR-34 Resin

Issue Date: 04/28/2015
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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™ XR-34 Resin

Recommended use of the chemical and restrictions on use
Identified uses: This product is used in coatings, textiles, binders and adhesives.

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY*
Agent for Rohm and Haas Chemicals LLC
400 ARCOLA ROAD
COLLEGEVILLE PA 19426-2914
UNITED STATES

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

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

2. HAZARDS IDENTIFICATION

Hazard classification
This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 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/ eye protection/ face protection.
Use personal protective equipment as required.

Response
IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician 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 for extinction.

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: Polymers, solvent based
This product is a mixture.

Component	CASRN	Concentration
Acrylic polymer(s)	Not hazardous	>= 49.0 - 51.0 %
Methyl methacrylate	80-62-6	<= 4.0 %
Butyl methacrylate	97-88-1	<= 1.8 %
Ethylbenzene	100-41-4	>= 8.0 - 9.0 %
Toluene	108-88-3	< 1.0 %
Xylene	1330-20-7	>= 40.0 - 41.0 %

4. FIRST AID MEASURES

Description of first aid measures
Inhalation: Move to fresh air. Give artificial respiration if breathing has stopped. Get prompt medical attention.

Skin contact: Wash off with soap and plenty of water. Consult a physician. Remove and wash contaminated clothing before re-use. Do not take clothing home to be laundered.

Eye contact: Rinse immediately with plenty of water for at least 15 minutes. Get prompt medical attention.

Ingestion: Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. IMMEDIATELY see a physician. Do not induce vomiting: contains petroleum distillates and/or aromatic solvents.

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: 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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use the following extinguishing media when fighting fires involving this material: Carbon dioxide (CO2) Dry chemical Water spray polar solvent (alcohol) foam

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. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.

Advice for firefighters
Fire Fighting Procedures: Use water spray to cool unopened containers. Remain upwind. Avoid breathing smoke.

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Appropriate protective equipment must be worn when handling a spill of this material. See SECTION 8, Exposure Controls/Personal Protection, for recommendations. If exposed to material during clean-up operations, see SECTION 4, First Aid Measures, for actions to follow.

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods and materials for containment and cleaning up: Floor may be slippery; use care to avoid falling. Eliminate all ignition sources. Ventilate the area. Transfer spilled material to suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Store in a cool, dry, well ventilated place. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed.

Conditions for safe storage: Material can burn; limit indoor storage to approved areas equipped with automatic sprinklers. Ground all metal containers during storage and handling. Store away from excessive heat (e.g. steampipes,radiators), from sources of ignition and from reactive materials.
Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Methyl methacrylate	ACGIH	TWA	50 ppm
	ACGIH	TWA	Skin Sensitizer
	ACGIH	STEL	100 ppm
	ACGIH	STEL	Skin Sensitizer
	OSHA Z-1	TWA	410 mg/m3 100 ppm
	OSHA P0	TWA	410 mg/m3 100 ppm
Butyl methacrylate	Rohm and Haas	TWA	50 ppm
	Rohm and Haas	STEL	75 ppm
Ethylbenzene	Rohm and Haas	TWA	25 ppm
	Rohm and Haas	STEL	75 ppm
	ACGIH	TWA	20 ppm
	ACGIH	TWA	BEI
	OSHA Z-1	TWA	435 mg/m3 100 ppm
Toluene	ACGIH	TWA	20 ppm
	OSHA Z-2	TWA	200 ppm
	ACGIH	TWA	BEI
	OSHA Z-2	CEIL	300 ppm
	OSHA Z-2	Peak	500 ppm
Xylene	ACGIH	TWA	BEI
	ACGIH	STEL	BEI
	OSHA Z-1	TWA	435 mg/m3 100 ppm
	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm

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.

Protective measures: Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Eye protection worn must be compatible with respiratory protection system employed. Use chemical splash goggles (ANSI Z87.1 or approved equivalent).

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): Polyvinyl alcohol Nitrile rubber. Gloves should be removed and replaced immediately if there is any indication of degradation or chemical breakthrough. Rinse and remove gloves immediately after use. Wash hands with soap and water.

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 clear
Color	colourless
Odor	Aromatic odor
Odor Threshold	no data available
pH	Not Applicable
Melting point/range	<25.00 °C (77.00 °F) Xylene
Freezing point	no data available
Boiling point (760 mmHg)	137.00 - 144.00 °C (278.60 - 291.20 °F) Xylene
Flash point	24.00 °C (75.20 °F) *PENSKY MARTENS CLOSED CUP*
Evaporation Rate (Butyl Acetate = 1)	<1.00 Xylene
Flammability (solid, gas)	Not Applicable
Lower explosion limit	1.00 % vol Xylene
Upper explosion limit	7.00 % vol Xylene
Vapor Pressure	9 mmHg at 20.00 °C (68.00 °F) estimated11.9990160 Pa at 20.00 °C (68.00 °F) estimated
Relative Vapor Density (air = 1)	3.6000 Xylene
Relative Density (water = 1)	1.0000
Water solubility	practically insoluble
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	466.00 - 530.00 °C (870.80 - 986.00 °F) Xylene
Decomposition temperature	no data available
Dynamic Viscosity	2,000.000 - 4,000.000 mPa.s 2,000.000 - 4,000.000 mPa.s
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Molecular weight	no data available
Percent volatility	49.000 - 51.000 %

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: None known.
Product will not undergo polymerization.
This material is considered stable.

Conditions to avoid: no data available

Incompatible materials: Oxidizing agents

Hazardous decomposition products: Thermal decomposition may yield acrylic monomers.

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity
Product test data not available.

Acute dermal toxicity
Product test data not available.

Acute inhalation toxicity
Product test data not available.

Skin corrosion/irritation
Product test data not available.

Serious eye damage/eye irritation
Product test data not available.

Sensitization
Product test data not available.

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

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

Carcinogenicity
Product test data not available.

Teratogenicity
Product test data not available.

Reproductive toxicity
Product test data not available.

Mutagenicity
Product test data not available.

Aspiration Hazard
Product test data not available.

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.

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.

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
Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

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.

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/l4000 ppm

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
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.

Toluene

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

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

Acute inhalation toxicity
LC50, Rat, male and female, 4 Hour, vapour, > 20 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.

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.

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 slight 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.

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 on this product or its components appear 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.

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, > 100 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, Method Not Specified.

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

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

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

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

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, 1 d, 2.2 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

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

Toluene

Acute toxicity to fish
Material is moderately toxic to fish on an acute basis (LC50 between 1 and 10 mg/L).
LC50, Rainbow trout (Oncorhynchus mykiss), semi-static test, 96 Hour, 5.8 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 24 Hour, 7 mg/l, OECD Test Guideline 202 or Equivalent

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

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

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

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 day, number of offspring, 2 mg/l
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

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

Persistence and degradability

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

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: Pass
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)
Sensitizer: OH radicals
Atmospheric half-life: 6.997 d

Method: Estimated.

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

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
Sensitizer: OH radicals
Atmospheric half-life: 55 Hour
Method: Estimated.

Toluene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation: 100 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.13 mg/mg Calculated.

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)
Sensitizer: OH radicals
Atmospheric half-life: 19.7 Hour
Method: Estimated.

Bioaccumulative potential

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

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

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 Calculated.

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

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 Freshwater 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

Mobility in soil

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

Butyl methacrylate
Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient(Koc): 878 Estimated.

Ethylbenzene

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

Toluene

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

Xylene

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

13. DISPOSAL CONSIDERATIONS

Disposal methods: For disposal, incinerate this material at a facility that complies with local, state, and federal regulations. (See 40 CFR 268)

14. TRANSPORT INFORMATION

DOT

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

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

OSHA Hazard Communication Standard
This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Chronic Health Hazard
Acute Health Hazard
Fire Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

Components	**CASRN**
Xylene	1330-20-7
Methyl methacrylate	80-62-6
Ethylbenzene	100-41-4

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 (Proposition 65)
This product contains trace levels of a component or components known to the state of California to cause birth defects or other reproductive harm:

Components	**CASRN**
Toluene	108-88-3

California (Proposition 65)
This product contains a component or components known to the state of California to cause cancer:

Components	**CASRN**
Ethylbenzene	100-41-4

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
3*	3	0

* = Chronic Effects (See Hazards Identification)

Revision
Identification Number: 101100897 / 1001 / Issue Date: 04/28/2015 / Version: 2.0
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)
BEI	Biological Exposure Indices
CEIL	Acceptable ceiling concentration
OSHA P0	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
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
Rohm and Haas	Rohm and Haas OEL's
STEL	Short term exposure limit
TWA	Time weighted average

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.