

Safety Data Sheet
acc. to OSHA HCS

Print Date 03/10/2015

Revision Date 03/10/2015

· **Product Identifier**

- **Trade Name:** AR4305HP Cream A
- **Application of the Substance or Mixture:** Acrylic Resin

· **Details of the Supplier of the Safety Data Sheet (SDS)**

- **Manufacturer or Supplier:**
Resinlab, LLC
N109 W13300 Ellsworth Drive,
Germantown, WI 53022
1-800-388-8605
www.resinlab.com
- **Information Department:** Product Safety Department: msds@resinlab.com
- **Emergency Telephone Number:**
North America - Chemtrec: 1-800-424-9300 (24 hours)
International - Chemtrec: 01-703-527-3887 (24 hours)

2 Hazard(s) identification

· **Hazard Classification**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.

GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

H402 Harmful to aquatic life.

· **Label Elements**

- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Pictogram(s)**



GHS02 GHS07

- **Signal Word** Danger

· **Hazard statements**

Highly flammable liquid and vapor.
Causes serious eye irritation.
Harmful to aquatic life.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
Wear protective gloves / eye protection / face protection.
Wear eye protection / face protection.
Ground/bond container and receiving equipment.
Keep container tightly closed.
Use only non-sparking tools.
Avoid release to the environment.
Take precautionary measures against static discharge.
Wash thoroughly after handling.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use for extinction: CO2, powder or water spray.
Store in a well-ventilated place. Keep cool.

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Dispose of contents/container in accordance with local/regional/national/international regulations.

Prevention

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- Use explosion-proof electrical/ventilating/lighting/equipment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Ground/bond container and receiving equipment.
- Keep container tightly closed.
- Use only non-sparking tools.
- Take precautionary measures against static discharge.
- Wash thoroughly after handling.

- **Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard Rating System
NFPA System
NFPA Ratings (scale 0 - 4)


NFPA special hazards (water reactivity and oxidizing property): None

HMIS System
HMIS Ratings (scale 0 - 4)

| | | |
|------------|---|----------------|
| HEALTH | 2 | Health = 2 |
| FIRE | 3 | Fire = 3 |
| REACTIVITY | 2 | Reactivity = 2 |

Other hazards
Results of PBT and vPvB assessment

- **PBT**: Not applicable.
- **vPvB**: Not applicable.

3 Composition/information on ingredients

Chemical Characterization: Mixtures
Composition/Information on Ingredients

| | | |
|--|---|--------|
| CAS: 80-62-6 EINECS: 201-297-1 Index Number: 607-035-00-6 RTECS: OZ 5075000 | Methyl methacrylate ⚠ Flam. Liq. 2, H225 ⚠ Eye Irrit. 2A, H319 H402 | 50-60% |
| CAS: 79-41-4 EINECS: 201-204-4 Index Number: 607-088-00-5 RTECS: OZ 2975000 | Methacrylic acid ⚠ Acute Tox. 3, H311 ⚠ Acute Tox. 4, H302 H227; H402 | ≤10% |
| | Urethane methacrylate Oligomer-Proprietary ⚠ Skin Irrit. 2, H315; Eye Irrit. 2A, H319; STOT SE 3, H335 | ≤10% |
| CAS: 128-37-0 EINECS: 204-881-4 RTECS: GO 7875000 | 2,6-di-tert-butyl-p-cresol ⚠ Aquatic Acute 1, H400 ⚠ Acute Tox. 4, H302 | 2.5-5% |

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| | | |
|--|---|--------|
| CAS: 98-59-9 EINECS: 202-684-8 RTECS: DB8929000 | Tosyl chloride Eye Dam. 1, H318 Skin Irrit. 2, H315 | 1-2.5% |
| CAS: 80-15-9 EINECS: 201-254-7 Index Number: 617-002-00-8 RTECS: MX 2450000 | Cumene hydroperoxide Self-react. CD, H242 Acute Tox. 3, H331 STOT RE 2, H373 Skin Corr. 1A, H314 Aquatic Chronic 2, H411 Acute Tox. 4, H302; Acute Tox. 4, H312 H227; H401 | 1-2.5% |

Classification System:

The Classifications were based on the Toxicological and Ecological Data of the substances/mixtures in the Section 11 and 12.

4 First-aid measures

Description of First Aid Measures
General Information

Ensure medical personnel are aware of exposure and take precautions for their personal protection; see Section 8 for the information of personal protection.

After Inhalation

Remove victim from exposure to fresh air. Keep person at rest. Provide oxygen if person is not breathing.

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

Give artificial respiration if not breathing.

If breathing is difficult, administer oxygen.

Seek immediate medical advice.

After Skin Contact

Remove all contaminated clothing and wash before reuse.

Wash contaminated skin with water and soap and rinse thoroughly.

Seek medical treatment in case of complaints.

After Eye Contact

Immediately bathe eyes for 15 minutes under running water.

Immediately remove contact lenses if present. Continue rinsing.

Seek immediate medical advice.

After Swallowing

If victim is unconscious; never give anything by mouth.

If victim is conscious; rinse out mouth and give victim small amounts of water.

Give 1-2 glasses of milk or water to conscious person.

Seek immediate medical advice.

Do NOT induce vomiting.

After Exposure

Move to fresh air at once.

Get medical advice/attention.

Information for Doctor Have chemical containers, labels and/or (M)SDS ready when calling or visiting a medical center.

Indication of any Immediate Medical Attention and Special Treatment Needed

After frequent or high intense exposure, the following medical tests are recommended:

liver tests

lung tests

thyroid tests

Skin, Eye, and Respiratory system test

Check section 11 Toxicological Information for further relevant information.

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Additional Information

For additional information, please consult the corresponding first aid measures in the most current version of Emergency Response Guidebook which is produced by the US Department of Transportation.

5 Fire-fighting measures

Extinguishing Media**Suitable Extinguishing Agent(s)**

Use fire fighting measures and extinguishing agents that suit the environment.

In case of fire, suitable extinguishing agents are:

Alcohol resistant foam.

Dry chemical or fire-extinguishing powder.

Carbon dioxide (CO₂).

Unsuitable Extinguishing Agent(s) Water with full jet**Firefighting Procedures**

Isolate fire and deny unnecessary entry.

Eliminate all ignition sources if safe to do so.

Do not extinguish fire unless flow can be stopped.

Fight fire remotely due to the risk of explosion.

Burning liquids may be moved by flushing with water; protect personnel and minimize property damage.

Contain fire water runoff if possible to prevent environmental pollution.

Fight fire from protected location or safe distance.

Contain fire water runoff if possible to prevent environmental pollution.

Special Hazards Arising in Fire

Caution! Highly flammable liquid or vapor.

Caution! May self-polymerize exothermically, and/or may attack metals to generate flammable hydrogen, to potentially cause an explosion when heated or involved in a fire.

Fight fire remotely due to the risk of explosion.

In case of fire, following can be released:

Hydrogen cyanide (HCN)

Irritating isocyanate vapors may be released during a fire.

Nitrogen oxides

Irritating organic vapors.

Various hydrocarbons

Carbon dioxide (CO₂) and Carbon monoxide (CO)

Advice for Firefighters

If employees are expected to fight fires, they must be trained and equipped as stated in the OSHA fire brigades standard (29 CFR 1910.156).

As with any fire, wear positive-pressure self-contained breathing apparatus and full protective gear that are NIOSH approved.

Additional Information Ensure adequate and functional fire fighting facilities equipped in working area at all times.

6 Accidental release measures

Personal Precautions

Caution! Highly flammable liquid or vapor; wear fire resistant or retardant clothing during clean up.

Do not breathe gas, vapors, dusts or mists if their inhalable particles occur during use.

Ensure personnel take precautions for their personal protection during clean up; see Section 8 for the specific requirements.

Environmental Precautions

Keep away from sewage system or other water courses; do not penetrate ground/soil.

Inform respective authorities in case of any seepage to the environment.

Cleaning Up Methods

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Eliminate heat, sparks, open flame and other ignition sources before clean up.

A vapor suppressing foam should be used to reduce vapors at first.

All equipment used for clean up must be grounded.

Don't touch or walk through spilled chemicals unless trained and equipped as stated in the OSHA fire brigades standard (29 CFR 1910.156).

Ensure adequate ventilation.

Keep unauthorized personnel away.

For large spills:

Shut off source of leak if safe to do so.

Dike and contain.

Remove with vacuum trucks or pump to storage/salvage vessels.

Inert materials like sand or vermiculite can also be used to absorb spills.

Absorb residues with liquid-binding materials.

For small spills:

Ventilate and wash area after clean-up is complete.

Collect spills in suitable and properly labeled containers.

Do not use solvents unless following safe handling practices and within the recommended exposure guidelines.

Dispose contaminated chemicals as waste according to Section 13.

· **Additional Information** No further relevant information.

7 Handling and storage

· Handling

· **Precautions for Safe Handling**

Caution! Highly flammable liquid or vapor.

May polymerize exothermically when heated or contaminated to potentially cause an explosion.

Obtain special instruction before use; do not handle until all safety precautions have been read and understood.

Do not breathe gas, vapors, dusts or mists if their inhalable particles occur during handling.

Wear respiratory protection when handling.

Keep away from heat, sparks, open flame and other ignition sources during handling.

Ensure good ventilation and/or exhaustion at workplace.

Keep away from incompatible material(s).

Avoid any release into the environment.

Keep container tightly closed when not in use if product is volatile so as to generate hazardous atmosphere.

Avoid any release to the environment.

Observe all the personal protection requirements in Section 8.

· **Information about Protection Against Explosions and Fires**

Keep away from heat, sparks, open flame and other ignition sources.

Protect against electrostatic charges during handling.

Metal containers involved must be grounded and bonded.

Use only non-sparking tools and equipment, especially when opening or closing containers of combustible contents.

· Storage

· **Requirements to be Met by Storerooms and Receptacles**

Caution! Highly flammable liquid or vapor; keep away from heat, sparks, open flame and other ignition sources during storage.

Store in tightly closed containers in a cool, and well-ventilated area.

Keep stored in accordance with local, regional, national, and international regulations.

· **Information about Storage in One Common Storage Facility**

Do not store above 100 degrees F.

Store away from incompatible material(s).

Store away from foodstuffs.

Avoid release to the environment.

· **Additional Information** No further relevant information.

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8 Exposure controls/personal protection

· Engineering Measures or Controls

· Exposure Limit Values that Require Monitoring at the Workplace

80-62-6 Methyl methacrylate

| | |
|-----|--|
| PEL | Long-term value: 410 mg/m ³ , 100 ppm |
| REL | Long-term value: 410 mg/m ³ , 100 ppm |
| TLV | Short-term value: 410 mg/m ³ , 100 ppm Long-term value: 205 mg/m ³ , 50 ppm (SEN) NIC-DSEN |

79-41-4 Methacrylic acid

| | |
|-----|--|
| REL | Long-term value: 70 mg/m ³ , 20 ppm Skin |
| TLV | Long-term value: 70 mg/m ³ , 20 ppm |

128-37-0 2,6-di-tert-butyl-p-cresol

| | |
|-----|---|
| REL | Long-term value: 10 mg/m ³ |
| TLV | Long-term value: 2* mg/m ³ *as inhalable fraction and vapor |

98-59-9 Tosyl chloride

| | |
|------|--|
| WEEL | Ceiling limit value: 5 mg/m ³ |
|------|--|

80-15-9 Cumene hydroperoxide

| | |
|------|--|
| WEEL | Long-term value: 6 mg/m ³ , 1 ppm Skin |
|------|--|

· Other Engineering Measures or Controls

Ventilation rates should be matched to conditions.

If applicable, use process enclosure(s), local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits.

· Personal Protective

· General Protective and Hygienic Measures

Avoid any skin contact.

Do not eat, drink or smoke during work.

Avoid any contact with the eye.

Keep food, drink or feed away from working area.

Contaminated work clothing is not allowed out of workplace.

Clean hands and exposed skin thoroughly after work and before breaks.

· Personal Protective Equipment (PPE)

· Breathing Equipment

Caution! Improper use of respirators is dangerous.

In case of brief exposure or low pollution, use a respiratory filter device.

In case of intensive or longer exposure, use a positive-pressure respiratory protective device that is independent of circulating air.

· Hand Protection



Protective gloves

Selection of glove material should take into consideration the penetration times, rates of diffusion, and the degradation.

Suggested glove type(s):

Nitrile Gloves

Butyl Rubber Gloves

· Eye Protection



Tightly sealed goggles

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 · **Body Protection** No relevant information.

 · **Additional Information**

All protective clothing (suits, gloves, footwear, headgear) should be clean, available every day, and put on before work.
 The Engineering measures or controls, and PPE recommendations are only guidelines and may not apply to every situation. For additional information, please consult the corresponding requirements under OSHA 29 CFR 1910.94-95, and 29 CFR 1910.132-138.

9 Physical and chemical properties

 · **Information on Basic Physical and Chemical Properties**

 · **Appearance:**

- | | |
|--------------------------|-----------------------------|
| · Form: | Gel |
| · Color: | Cream to off white White |
| · Odor: | Pungent |
| · Odor Threshold: | 0.01-0.46 ppm (Estimated) |

 · **PH-Value:** Not determined.

 · **Change in Condition:**

- | | |
|-------------------------------------|-----------------|
| · Melting Point: | Not determined. |
| · Boiling Point: | 101 °C (214 °F) |
| · Flash Point: | 10.5 °C (51 °F) |
| · Decomposition Temperature: | Not determined. |
| · Auto-ignition Temperature: | Not determined. |
| · Flammability: | Not determined. |
| · Explosion: | Not determined. |
| · Explosion Limits: | |
| · Lower: | 2.1 Vol % |
| · Upper: | 12.5 Vol % |

- | | |
|--|--|
| · Vapor Pressure at 20 °C (68 °F): | 38.7 hPa (29 mm Hg) |
| · Density at 20 °C (68 °F): | 0.94-1.0 g/cm ³ (7.844-8.345 lbs/gal) |
| · Solubility in or Miscibility with | |
| · Water: | Insoluble. |
| · Viscosity: | |
| · Dynamic: | Not determined. |
| · Kinematic: | Not determined. |

 · **Additional Information** No further relevant information.

10 Stability and reactivity

 · **Physical Hazard(s)** Highly flammable liquid or vapor.

 · **Hazardous Reactivity and Chemical Stability**

May form explosive vapor-air mixtures when heated above the flash point.
 May polymerize explosively when heated or involved in a fire.

 · **Thermal Decomposition and Conditions to be Avoided**

Highly flammable liquid or vapor; keep away from direct sunlight, heat, sparks, open flame and other ignition sources at all times.
 May polymerize with considerable heat buildup to potentially cause an explosion when heated; keep away from heat, sparks, open flame and other ignition sources at all times.

 · **Possibility of Other Hazardous Reaction(s)**

May polymerize violently in presence of traces of hydrochloric acid.

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May react with water or moisture to generate acids.
 May react violently with bases.

- **Incompatible Material(s)** Oxidizing agents, acids, bases, amines, UV radiation, reducing agents and moisture.
- **Hazardous Decomposition Product(s)**
 Thermally decomposes during fire or very high heat. See Section 5 for fire hazards evolved during thermal decomposition.
- **Hazardous Polymerization Product(s)** Acrylate polymer
- **Additional Information** No further relevant information.

11 Toxicological information

· Acute Toxicity

· Oral

80-62-6 Methyl methacrylate

| | | |
|------|------|---|
| Oral | LD50 | >6000 mg/kg (rat) 5200 mg/kg (mice) 5800 - 6500 mg/kg (rabbits) Reference: ECHA (2011) and OECD SIDS (2001). |
|------|------|---|

79-41-4 Methacrylic acid

| | | |
|------|------|---|
| Oral | LD50 | 1320 mg/kg (rat) (male; OECD TG 401) Reference: ECHA (2011). |
|------|------|---|

128-37-0 2,6-di-tert-butyl-p-cresol

| | | |
|------|------|--|
| Oral | LD50 | > 2930 mg/kg (rat) (LD0; OECD TG 401) No mortality, and no effects were observed for clinical signs, body weight and gross examination. The substance was therefore not classified as an acute oral hazard. Reference: ECHA (2012) and OECD SIDS (2002). |
|------|------|--|

98-59-9 Tosyl chloride

| | | |
|------|------|---|
| Oral | LD50 | (rat) (LD0 ≥ 5000 mg/kg; OECD TG 423) No death was observed during the observation period. Reference: OECD SIDS (2004). |
|------|------|---|

80-15-9 Cumene hydroperoxide

| | | |
|------|------|---|
| Oral | LD50 | 382 mg/kg (rat) (Test guideline not available) Reference: Aldrich (M)SDS (2012). |
|------|------|---|

· Potential Health Effect(s):

May be harmful if swallowed.
 If swallowed, may cause:
 abnormal pain
 nausea
 shock or collapse
 vomiting
 weakness
 dizziness
 cramps
 See acute inhalative effect(s) for further information

· Dermal

80-62-6 Methyl methacrylate

| | | |
|--------|------|---|
| Dermal | LD50 | >7550 mg/kg (rabbit) > 5000 mg/kg (male rabbits; occlusive) There were no death, clinical signs, or gross pathology observed after a single dermal application with 5000 mg/kg of the substance to rabbits. Reference: OECD SIDS (2001) and ECHA (2011). |
|--------|------|---|

79-41-4 Methacrylic acid

| | | |
|--------|------|--|
| Dermal | LD50 | 500-1000 mg/kg (rabbit) At 500 mg/kg, no death occurred; at 1000 mg/kg, 2 out of 2 treated rabbits died. Reference: ECHA (2011). |
|--------|------|--|

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128-37-0 2,6-di-tert-butyl-p-cresol

| | | |
|--------|------|--|
| Dermal | LD50 | ≥ 2000 mg/kg (rat) (LD0; OECD TG 402; occlusive) No mortality, and no effects were observed with regard to clinical signs, body weight and gross examination. The substance was therefore not classified as an acute dermal hazard. Reference: OECD SIDS (2002). |
|--------|------|--|

98-59-9 Tosyl chloride

| | | |
|--------|------|---|
| Dermal | LD50 | > 5010 mg/kg (rabbit) (24 hrs; 40% solution-suspension) Reference: OECD SIDS (2004). |
|--------|------|---|

80-15-9 Cumene hydroperoxide

| | | |
|--------|------|---|
| Dermal | LD50 | (rat) 1190-1515 mg/kg (non-occluded; calculated from LD50 of 1.13-1.43 ml/kg) 530-1060 mg/kg (occluded; calculated from LD50 of 0.5-1.0 ml/kg) 500 mg/kg (From vendor's MSDS; test detail not available) The substance was classified as Category 4 for acute dermal toxicity by ECHA. Reference: Aldrich (M)SDS (2012), ECHA (2012) and NIOSH (2012). |
|--------|------|---|

Potential Health Effect(s):

May be harmful in contact with skin.
See acute inhalative effect(s) for further information.

Inhalative

80-62-6 Methyl methacrylate

| | | |
|------------|----------|---|
| Inhalative | LC50/4 h | 27.5 mg/l (rat) (Calculated from LC50/4hrs of 7093 ppm) 33 mg/l (mice) (LC50/3h) Reference: OECD SIDS (2001). |
|------------|----------|---|

79-41-4 Methacrylic acid

| | | |
|------------|----------|---|
| Inhalative | LC50/4 h | (rat) (7.1 mg/l; OECD TG 403) The saturated concentration in air was 3.0 mg/l at 20 °C; thus, the LC50 value (4 hours) of 7.1 mg/L was higher than the saturated vapor concentration, the substance was considered as "mist containing substantially no vapor". The substance was therefore out of the category criteria. Reference: ECHA (2011). |
|------------|----------|---|

128-37-0 2,6-di-tert-butyl-p-cresol

| | | |
|------------|----------|---------------------|
| Inhalative | LC50/4 h | (No data available) |
|------------|----------|---------------------|

98-59-9 Tosyl chloride

| | | |
|------------|----------|---------------------|
| Inhalative | LC50/4 h | (No data available) |
|------------|----------|---------------------|

80-15-9 Cumene hydroperoxide

| | | |
|------------|----------|--|
| Inhalative | LC50/4 h | 1.37 mg/l (rat) (mists; estimated from LC50/4h of 220ppm) 1.24 mg/l (mouse) (estimated from LC50/4hr of 200 ppm) The LC50 of 1.37 mg/L (220 ppm) was higher than the saturated vapor concentration (4 ppm) under a saturated vapour pressure of 4.36E-3 hPa (25 °C), the substance was therefore considered as "mist". The substance was therefore classified as an Category 4 (mist) for acute inhalation hazard. Reference: Aldrich (M)SDS (2012), ECHA (2011) and HDSB (2011). |
|------------|----------|--|

Potential Health Effect(s):

Harmful if inhaled.
In inhaled, may cause:
cough
dizziness or lightheadedness
headache
hoarseness
loss of consciousness
shortness of breath
sore throat
wheezing
irritability, difficulty with concentration and reduced memory
Intensive or long term exposure: lung edema

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· Skin Corrosion or Irritation

80-62-6 Methyl methacrylate

Corrosion/Irritation irritating (rabbit) (OECD TG 404)
Primary dermal irritation index (PDII): 0.167 (Max. scale was not available; observation period: 72 hrs; shaved skin; time point: 24+72 hrs; mean score of all treated animals); not fully reversible within 72 hrs. The substance was classified as irritating to rabbit skin (Category 2) for safety reasons.
Reference: ECHA (2011).

79-41-4 Methacrylic acid

Corrosion/Irritation corrosive (rabbit) (OECD TG 404; 3 min-contact; 0.5ml neat substance)
Primary dermal irritation index (PDII; evaluation of erythema and edema): 6.17/8 (Max. 8; intact skin; Time point: 24+48+72 hours); not reversible at the end of the study. The substance was therefore classified as highly corrosive (Category 1A) to rabbit skin based on the classification criteria.
Reference: ECHA (2011).

128-37-0 2,6-di-tert-butyl-p-cresol

Corrosion/Irritation slightly (rabbit) (Patch test; Semioclusive; neat substance)
Irritation score: 0.3 - 0.7 (Max. 8; Intact skin; time point: 24+72 hrs).
Irritation score: 0 - 0.3 (Max. 8; Abraded skin; time point: 24+72 hrs).
The substance was considered as slightly irritating (Category 3) to rabbit skin.
Reference: ECHA (2011).

98-59-9 Tosyl chloride

Corrosion/Irritation corrosive (rabbit) (OECD TG 404)
Erythema & Eschar: 22 (Max. scale was not available; Mean score of all treated rabbits; Intact and abraded skin; Time point: 1+24+48+72 hrs)
Edema: 15 (Max. scale was not available; Mean score of all treated rabbits; Intact and abraded skin; Time point: 1+24+48+72 hrs)
The substance was therefore classified as corrosive (Category 1) to rabbit skin based on the criteria.
Reference: OECD SIDS (2004).

80-15-9 Cumene hydroperoxide

Corrosion/Irritation corrosive (rabbit) (shaved skin)
Neat substance: marked necrosis was observed on 4 out of 6 rabbits;
10% solution: moderate erythema was observed on 3 out of 6 rabbits.
The substance was therefore classified as corrosive (Category 1B) to rabbit skin.
Reference: ECHA (2011).

· Potential Health Effect(s):

There was no test data available for the product itself. Although some literature evidence exhibited the components included as corrosive (Category 1) to animal skin, this classification was not adopted for the product without further information.
Causes skin irritation.
In contact with skin, may cause:
blister formation
redness and pain

· Eye Serious Damage or Irritation

80-62-6 Methyl methacrylate

Damage/Irritation irritating (rabbit)
The only effect observed was a Grade 2 reddening in cornea after 24 hours of exposure. The substance was therefore considered as mildly to moderately irritating to rabbit eyes, and placed in Category 2A from the viewpoint of safety.
Reference: GHS-J (2006).

79-41-4 Methacrylic acid

Damage/Irritation serious damage (rabbit) (Draize test; 0.1ml neat substance)
Primary irritation index: 102.8/110 (Max. 110; mean score of all treated animals); not reversible at the end of the study.
The substance was therefore classified as seriously damaging (Category 1) to rabbit eyes.
Reference: ECHA (2011).

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| Damage/Irritation | slightly (rabbit) Cornea: 0/4 (Max. score: 4; Time point: 24h+48h+72h; mean score of all treated animals) Iris: 0/2 (Max. score: 2; Time point: 24h+48h+72h; mean score of all treated animals) Conjunctivae: 0.5/3 (Max. score: 3; Time point: 24h+48h+72h; mean score of all treated animals) Chemosis: 0.1/4 (Max. score: 4; Time point: 24h+48h+72h; mean score of all treated animals) All the symptoms were fully reversible at the end of the test period. The substance was considered as slightly irritating (Category 2B) to rabbit eyes from the view point of safety. Reference: ECHA (2012). |
| 98-59-9 Tosyl chloride | |
| Damage/Irritation | serious damage (rabbit) (100 mg neat substance; 4 hr-exposure) At 10 min: moderate to severe erythema, copious discharge; at 1 hr: severe erythema, very slight to slight edema, copious discharge; at 24 hrs: slight to moderate corneal cloudiness, iris congestion, severe erythema, moderate edema, copious discharge; the substance was therefore classified as serious damaging (Category 1) to rabbit eyes. Reference: OECD SIDS (2004). |
| 80-15-9 Cumene hydroperoxide | |
| Damage/Irritation | serious (rabbit) 0.005 ml undiluted substance: severe corneal injury with iritis and necrosis of eyelids were observed. 0.005 ml 5% solution: moderate corneal injury with iritis was observed. Overall evaluation: Grade 9; the substance was therefore classified as a serious eye irritant (Category 1). Reference: ECHA (2011). |

· Potential Health Effect(s):

There was no test data available for the product itself. Although some literature evidence exhibited the components included as seriously damaging to animal eyes (Category 1), this classification was not adopted for the product without further information.

Causes serious eye irritation.

In contact with eye, may cause:

redness and pain

· Respiratory or Skin Sensitization

| | | |
|--|--------------------|--|
| 80-62-6 Methyl methacrylate | | |
| Sensitization | Skin | sensitizing (mouse) (OECD TG 429) EC3 values, the estimated concentrations required for chemical that can induce an SI of 3 (cut-off value of being sensitizing), were determined to be 60% in acetone, and 90% in acetone/olive oil respectively. The substance was therefore considered as sensitizing to mouse skin based on the criteria. Reference: ECHA (2011). |
| | Respiratory | (No data available) The substance was classified as a respiratory sensitizer by GHS-J, while there was no convincing evidence that this substance was a respiratory sensitizer to humans by OECD SIDS. Thus, classification was not possible without further information. Reference: OECD SIDS (2001) and GHS-J (2006). |
| 79-41-4 Methacrylic acid | | |
| Sensitization | Skin | not sensitizing (guinea pig) (OECD TG 406; epicutaneous and occlusive) There were no skin sensitizing effects observed; the substance was not classified as a dermal sensitizer. Reference: ECHA (2011). |
| | Respiratory | (No data available) |
| 128-37-0 2,6-di-tert-butyl-p-cresol | | |
| Sensitization | Skin | not sensitizing (Human) Despite of being in wide dispersive use as an ingredient of various products for many years, only very few cases of allergic reaction in humans after dermal exposure or oral intake have been described. Meanwhile, only negative results were observed from dermal sensitizing tests with animals. Thus, the substance was not classified as a dermal sensitizer when considering the weight of all evidence. Reference: GHS-J (2006). |
| | Respiratory | (No data available) |
| 98-59-9 Tosyl chloride | | |
| Sensitization | Skin | (No data available) |
| | Respiratory | (No data available) |
| 80-15-9 Cumene hydroperoxide | | |
| Sensitization | Skin | (No data available) |
| | Respiratory | (No data available) |

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· **Potential Health Effect(s):**

May cause an allergic skin reaction.

No further relevant information for respiratory sensitization; classification is not possible.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

· **Germ Cell Mutagenicity**

80-62-6 Methyl methacrylate

Mutagenicity negative (Test species listed below)
In Vitro (bacterial reverse mutation assay; OECD TG 471; *S. typhimurium* TA 1535, TA 98 and TA 100) – negative with and without metabolic activation.
In Vivo (chromosome aberration; OECD TG 478; mouse; inhalation with up to 36.45 mg/L, 6 hours/day for 5 days) - negative; no genotoxic effects were observed in the study.
 Reference: ECHA (2011).

79-41-4 Methacrylic acid

Mutagenicity negative (Test species listed below)
In Vitro (Bacterial reverse mutation assay; OECD TG 471; *S. typhimurium* TA 1535, TA 1537, TA 98 and TA 100) - negative with and without metabolic activation.
In Vivo (Dominant lethal assay; mice; OECD TG 478; inhalation with up to 36.45 mg/L) - negative; there were no genotoxicity effects observed.
 Reference: ECHA (2011).

128-37-0 2,6-di-tert-butyl-p-cresol

Mutagenicity negative (Test species listed below)
In Vitro (AME test; *Salmonella typhimurium* TA97, TA98, TA100, TA102, TA104, TA1535, TA1537, TA1538, TA2638) - negative with and without metabolic activation.
In Vitro (Mammalian chromosome aberration; Chinese hamster Ovary cells) - negative with and without metabolic activation.
In Vivo (Chromosome aberration assay; male rats; Oral with 750 mg/kg bw/day) - negative; no adverse effects on chromosomes of femur bone marrow cells of treated rats were observed.
In Vivo (Micronucleus assay; mouse; intraperitoneal with 75 mg/kg bw) - negative; incidence of micronuclei in polychromatic erythrocytes in test group was not statistically different from that in the control at all time points.
 Reference: ECHA (2012).

98-59-9 Tosyl chloride

Mutagenicity negative (Test species listed below)
In Vitro (Bacterial reverse mutation assay; *Salmonella typhimurium* (TA 98, TA 100, TA 1535, and TA 1537; *Escherichia coli* WP2 *uvrA*; OECD TG 471 and 472) - mutagenic effects observed in TA100 strain of *S. typhimurium* without metabolic activation; negative with and without metabolic activation in all other strains of *S. typhimurium* and *E. coli*.
In Vivo (Mice; Mammalian erythrocyte micronucleus test; OECD TG 474; i.p with up to 80 mg/kg bw) - negative; no increased frequency of micronucleated cells observed.
 When considering all of the evidence, the substance was not classified as mutagenic.
 Reference: OECD SIDS (2004).

80-15-9 Cumene hydroperoxide

Mutagenicity negative (Test species listed below)
In Vitro (Bacterial reverse mutation assay; OECD TG 471; *S. typhimurium* TA97, TA98, TA100, TA102, TA1537, TA1538) - positive without metabolic activation.
In Vivo (Micronucleus assay; Standard NTP toxicity studies; mouse; dermal with up to 12 mg/kg for 13 weeks) - negative; it did not induce micronuclei in peripheral blood of the test animals. Due to the negative results from *In Vivo* tests, the substance was not classified as a mutagen.
 Reference: ECHA (2011).

· **Potential Health Effect(s):** Not a known Germ Cell Mutagen.

· **Carcinogenicity**

80-62-6 Methyl methacrylate

Carcinogenicity negative (mouse)
 NOAEC (carcinogenicity; males and females; OECD TG 421; inhalation with up to 4.1 ml/L for 2 years) = 4.1 mg/L: no carcinogenic effects observed. Meanwhile, the substance was not listed as a carcinogen according to ACGIH, IARC, NTP, or OSHA.
 Reference: ECHA (2011).

79-41-4 Methacrylic acid

Carcinogenicity negative (mouse) (OECD TG 451)
 NOAEC (Carcinogenicity; inhalation with up 4.1mg/l; 2 years) ≥ 4.1 mg/l; there were no carcinogenic effects observed.
 Reference: ECHA (2011).

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128-37-0 2,6-di-tert-butyl-p-cresol

Carcinogenicity negative (Test species: n/a)
Not listed as a carcinogen by ACGIH, NTP, or OSHA; and listed as a Group 3 carcinogen by IARC, which was not classifiable as to its carcinogenicity to humans.

98-59-9 Tosyl chloride

Carcinogenicity negative (Test species: n/a)
Not listed as a carcinogen by IARC, NTP or ACGIH.

80-15-9 Cumene hydroperoxide

Carcinogenicity negative (Test species: n/a)
Not listed as a carcinogen by IARC, NTP or ACGIH.

Potential Health Effect(s): Not a known Carcinogen.

Reproductive Toxicity

80-62-6 Methyl methacrylate

Reproductive Toxi. N/a (rat) (OECD TG 416; oral with up to 450 mg/kg bw/day)
NOAEL (P and F1 parental animals; systemic toxicity) = 50 mg/kg bw/day: adverse effects on food consumption observed.
NOAEL (fertility and reproductive performance of P and F1 parental animals; and developmental toxicity in F1 and F2 progeny) = 450 mg/kg bw/day: No adverse effects observed.
(rabbit) (OECD TG 414; oral with up to 450 mg/kg bw/day)
NOAEL (maternal toxicity) = 50 mg/kg bw/d: reduced food consumption and lower body weight gain.
NOAEL (developmental toxicity) = 450 mg/kg bw/day (highest dose tested). No adverse fetal findings of toxicological relevance were evident at any doses.
(rat) (No test guideline available)
Embryotoxicity including early fetal death, and hematoma formation was observed at dose levels that were toxic to dams (death, body weight reduction, etc.) in teratogenicity studies with rats. However, ECHA concluded the data were conclusive but not sufficient for the classification.
Reference: ECHA (2011).

79-41-4 Methacrylic acid

Reproductive Toxi. negative (rat) (OECD TG 416; oral with up to 400 mg/kg/day)
NOAEL (fertility and reproductive performance; P and F1 parental animals) = 400 mg/kg/day
NOAEL (developmental toxicity; F1 and F2 progeny) = 400 mg/kg/day
negative (rabbit) (OECD TG 414; oral with up to 450 mg/kg/day)
NOAEL (maternal toxicity) = 50 mg/kg/day: Reduced food consumption and lower body weight gain.
NOAEL (developmental toxicity) = 450 mg/kg/day: No adverse fetal findings of toxicological relevance were evident at any doses.
The substance was therefore not expected to pose a reproductive or developmental toxicity.
Reference: ECHA (2011).

128-37-0 2,6-di-tert-butyl-p-cresol

Reproductive Toxi. negative (rat) (2-generation chronic feeding; up to 500 mg/kg bw/d)
NOAEL (Reproductive toxicity; Parental animals) = 500 mg/kg bw/day; no adverse effects on fertility were observed.
LOAEL (Developmental toxicity) = 500 mg/kg bw/day; reduced body weight of pups at weaning and retarded development were observed at the highest test level. However, the changes were considered to be of negligible toxicological significance; no reproductive/developmental classification can be assigned to the substance.
Reference: ECHA (2012).

98-59-9 Tosyl chloride

Reproductive Toxi. negative (rat) (OECD TG 422; oral with up to 750 mg/kg bw)
NOAEL (Reproductive and developmental toxicity) = 750 mg/kg/day; there were no significant treatment related changes in terms of pregnancy, fertility, examination of pups etc.
Reference: OECD SIDS (2004).

80-15-9 Cumene hydroperoxide

Reproductive Toxi. (No data available)

Potential Health Effect(s): No further relevant information; classification is not possible.

Specific Target Organ Toxicity - Single Exposure

80-62-6 Methyl methacrylate

STOT-Single (Human) (Respiratory irritant)
Based on the human epidemiological evidence including respiratory irritation, hyposthenia, fever, dizziness, nausea, headache, and sleepiness, the substance was therefore considered as a respiratory irritant (Category 3).
Reference: GHS-J (2006).

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79-41-4 Methacrylic acid

STOT-Single (rat) (Respiratory irritation)
Clinical observations including discharge, gasping, lethargy, lung noise, stained fur, weakness, sores and alopecia on the nose, hunched posture, and irregular respiration were apparent in rats after a single inhalative administration with 5.9 mg/l of a mixture of mist and vapor of the substance for 4 hours. The classification was therefore assigned by ECHA.
Reference: ECHA (2011).

128-37-0 2,6-di-tert-butyl-p-cresol

STOT-Single (Human) (human epidemiological reports)
Target organ: None.
Despite of being in wide dispersive use as an ingredient of various products for many years, two cases of acute intoxication were reported in which two adult women inadvertently ingested the substance (4g and 80g) on an empty stomach. After treatment, the symptoms (e.g. severe epigastric cramping, nausea, vomiting, neurological disorders) complete recovered within a few days. However, the case was considered to be stastically negligible and toxicologically insignificant; no classification can be assigned to the substance.
Reference: OECD SIDS (2002).

98-59-9 Tosyl chloride

STOT-Single (No data available)

80-15-9 Cumene hydroperoxide

STOT-Single Target: N/a (rat)
Porphyrin deposition in nostrils and irregular breathing exhibited in treated rats after a single 4hr inhalation with 1.37 mg/l concentrated mists of the substance; however, ECHA concluded it as conclusive but not sufficient for the classification.
Reference: ECHA (2011).

Potential Health Effect(s): May cause respiratory irritation.

Specific Target Organ Toxicity - Repeated Exposure

80-62-6 Methyl methacrylate

STOT-Repeated (rat) (Target organ: None)
NOAEL (Oral; 2 years) > 124 mg/kg bw/day (males) and 164 mg/kg bw/day (females) respectively. The only effects observed were changes in fluid consumption and body weight gain.
NOAEC (OECD TG 453; inhalation with up to 400 ppm; gross pathology histopathology and clinical effects) = 400 ppm (1640 mg/m³)
Reference: ECHA (2011).

79-41-4 Methacrylic acid

STOT-Repeated Target: None (rat)
NOAEL (OECD TG 413; 90 days; inhalation with up to 350ppm, systemic effects) = 350 ppm
NOAEC (OECD TG 453; inhalation with up to 1000 ppm for males; systemic effects) = 1000 ppm
NOAEC (OECD TG 453; inhalation with up to 500 ppm for females; systemic effects) = 500 ppm
Overall, ECHA concluded it was conclusive but not sufficient to make a classification.
Reference: ECHA (2012).

128-37-0 2,6-di-tert-butyl-p-cresol

STOT-Repeated (Rats and Mice)
Target organs: Category 2 (Lung, Liver, and Thyroid gland) via (Oral+Dermal)
(rat) (2-generation chronic feeding; up to 500 mg/kg bw/day)
NOAEL (F1 males) = 25 mg/kg bw/day; decreased body weight, increased incidence of hepatocellular foci and nodules, consistently increased liver enzymes, and hyperactive thyroid were observed in F1 males starting with dose level of 100 mg/kg bw/day.
(mouse) (Dermal; 145-867 (to males), 208-1245 (to females) mg/kg bw/day; four weeks)
NOAEL < 200 mg/kg bw/day; congestion and enlargement of lung; histologically, degeneration and necrosis of alveolar epithelial cells were observed.
Reference: ECHA (2012) and OECD SIDS (2002).

98-59-9 Tosyl chloride

STOT-Repeated Target: N/a (rat) (OECD TG 422)
LOAEL (oral with up to 750 mg/kg/day) = 150 mg/kg bw/day (lowest dose tested); no NOAEL can be established. Irregular respiration was observed in females. Irritation of digestive system and nongrandular stomach appeared in both males and females which were considered as irrelevant to target organ toxicity. Due to absence of fixed NOAEL value available, classification was not possible.
Reference: OECD SIDS (2004).

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80-15-9 Cumene hydroperoxide

STOT-Repeated Target: N/a (rat)

NOAEC (Inhalation with up to 124 mg/m³; aerosol; 3 months) = 31 mg/m³; target organ related toxicological effects following inhalation with 124 mg/m³ aerosol of the substance for 3 months included thymic atrophy, depletion of lymphoid tissue in germinal centers of some lymph nodes and spleen, decreased lipid content of liver, and decreased circulating white blood cells. However, our vendor or NIOSH didn't list it as a chronic target organ hazard.
 Reference: ECHA (2011) and Aldrich (M)SDS (2012).

· **Potential Health Effect(s):** No further relevant information; classification is not possible.

Aspiration Hazard
80-62-6 Methyl methacrylate

Aspiration Hazard (No data available)

79-41-4 Methacrylic acid

Aspiration Hazard (No data available)

128-37-0 2,6-di-tert-butyl-p-cresol

Aspiration Hazard (No data available)

98-59-9 Tosyl chloride

Aspiration Hazard (No data available)

80-15-9 Cumene hydroperoxide

Aspiration Hazard (No data available)

· **Potential Health Effect(s):** No relevant information; classification is not possible.

· **Additional Information** No further relevant information.

12 Ecological information

Aquatic Environmental Toxicity
80-62-6 Methyl methacrylate

Algae Toxicity 170 mg/l (Selenastrum capricornum) (EC50 (96 hr); OECD TG 201)

Crustacean Toxicity 69 mg/l (Daphnia magna (water flea)) (EC50 (48 hr); EPA OTS 797.1300)

NOEC (21 d; OECD TG 202) = 37 mg/l

Based on the acute EC50 < 100 mg/l, the substance is classified as an Acute-3 environmental hazard.

Fish Toxicity 40 mg/l (Oncorhynchus mykiss (Rainbow trout)) (NOEC (96 hrs); EPA OTS 797.1400)

LC50 (Lepomis macrochirus; 96 hr) = 191 mg/l

NOEC (Brachydanio rerio; OECD TG 210; 35 days) = 9.4 mg/l

Based on the chronic NOEC > 1 mg/l and the fast degradability, the substance is not classified as a chronic environmental hazard.

Reference: OECD SIDS (2001) and ECHA (2011).

79-41-4 Methacrylic acid

Algae Toxicity 45 mg/l (Selenastrum capricornum) (EC50 (72 hrs; growth rate); OECD TG 201)

Crustacean Toxicity > 130 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); EPA OTS 797.1300)

53 mg/l (Daphnia magna (water flea)) (NOEC (21 days); OECD TG 211)

Fish Toxicity 85 mg/l (Oncorhynchus mykiss (Rainbow trout)) (LC50 (96 hrs); EPA OTS 797.1400)

10 mg/l (Brachydanio rerio (Danio rerio)) (NOEC (35 days); OECD TG 210)

Based on the acute LC50 < 100 mg/l and the rapid degradability, the substance is classified as an Acute-3 environmental hazard.

Reference: ECHA (2011).

128-37-0 2,6-di-tert-butyl-p-cresol

Algae Toxicity > 0.4 mg/l (Scenedesmus subspicatus) (EC50 (72 hrs); EU Method C3)

EC8 (72h) = 0.4 mg/l

Crustacean Toxicity 0.61 mg/l (Daphnia magna (water flea)) (EC50 (48 hrs); OECD TG 202)

0.316 mg/l (NOEC (21 days); OECD TG 202)

Based on the non-rapid degradability and the acute LC50 < 1 mg/l; the substance is classified as a Chronic-1 aquatic hazard.

Fish Toxicity > 0.57 mg/l (Brachydanio rerio (Zebra fish)) (LC0 (96 hrs); Directive 84/449/EEC C1)

Reference: ECHA (2012).

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98-59-9 Tosyl chloride

| | |
|---------------------|--|
| Algae Toxicity | > 100 mg/l (<i>Selenastrum capricornum</i>) (EC50 (72 hrs; growth rate); OECD TG 201) |
| Crustacean Toxicity | 70 mg/l (<i>Daphnia magna</i> (water flea)) (EC50 (48 hrs); OECD TG 202) |
| Fish Toxicity | 55 mg/l (<i>Oryzias latipes</i> (Rice fish)) (LC50 (96 hrs); OECD TG 203) Based on the acute LC50 < 100 mg/l and the non-rapid degradability, the substance is classified as a chronic-3 environmental hazard. Reference: OECD SIDS (2004). |

80-15-9 Cumene hydroperoxide

| | |
|---------------------|---|
| Algae Toxicity | 1.2 mg/l (<i>Microcystis aeruginosa</i> (Blue-green algae)) (toxicity threshold corresponds to EC3; 7 days) |
| Crustacean Toxicity | 18.84 mg/l (<i>Daphnia magna</i> (water flea)) (EC50 (48 hrs); OECD TG 202) |
| Fish Toxicity | 3.9 mg/l (<i>Oncorhynchus mykiss</i> (Rainbow trout)) (LC50 (96 hrs); OECD TG 203) Based on the acute LC50 < 10 mg/l and the non-rapid degradability, the substance is classified as a chronic-2 environmental hazard. Reference: ECHA (2011). |

Aquatic Environmental Toxicity Assessment: Harmful to aquatic life with long lasting effects.

Degradability and Stability**80-62-6 Methyl methacrylate**

| | |
|--------------------|---|
| Biodegradation | readily biodeg. (Test species: n/a) (OECD TG 301C; Chemical conc. 100 mg/l; 2 weeks) Biodegradation (BOD) = (92-100)% Biodegradation (TOC removal) = (86-87)% The substance is readily biodegradable. Reference: ECHA (2011). |
| Persistence | (Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007). |
| Photodegradation | 2.41E-11 cm ³ /molecule-sec (OH radical) (Calculated by EPI AOP Program (v1.92)) Half-life (5E5 OH/cm ³) = 15.96 hrs Reference: ECHA (2011). |
| Stability in water | (Test species: n/a) (OECD TG 111) Half-life (pH = 7; 40 °C) = 34 days Half-life (pH=9; 40 °C) = 31.7 hrs Reference: ECHA (2011). |

79-41-4 Methacrylic acid

| | |
|--------------------|---|
| Biodegradation | readily (Test species: n/a) (OECD TG 301C; Chemical conc. 100 mg/l; 2 weeks) Biodegradation (Indirect analysis from BOD) = 91% Biodegradation (Direct analysis from TOC, HPLC) = 98%, 100% respectively. The substance is readily biodegradable. Reference: CHRIP (2011). |
| Persistence | (Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007). |
| Photodegradation | 1.86E-11 cm ³ /molecule-sec (OH radical) Half-life (1.5E6 OH/cm ³ ; 24hr-day) = 6.9 hrs Reference: ECHA (2011). |
| Stability in water | stable (Test species: n/a) (EPA OTS 796.3500) Rate constant (PH=3, 7, 11; 25°C; 10 mg/l) = 0 The substance is expected to be stable in water since there are no functional groups that would lead to further hydrolysis. Reference: ECHA (2011). |

128-37-0 2,6-di-tert-butyl-p-cresol

| | |
|----------------|--|
| Biodegradation | non-biodegrad. (Test species: n/a) (Standard test; Chemical conc. 50 ppm; 4 weeks) Biodegradation (Indirect analysis from BOD) = 4.5% Biodegradation (Direct analysis from GC) = 0.8% The substance is non-biodegradable. Reference: CHRIP (2011). |
|----------------|--|

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| | |
|--------------------|--|
| Persistence | (Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007). |
| Photodegradation | 1.83E-11 cm ³ /molecule-sec (OH radical) (Estimated from AOPWIN, v1.90) Half-life (1.5E6 OH/cm ³) = 7 hours Reference: ECHA (2012). |
| Stability in water | (Test species: n/a) Half-life (DT50; 20 °C) = 4 - 8 days Reference: ECHA (2012). |

98-59-9 Tosyl chloride

| | |
|--------------------|--|
| Biodegradation | (Test species: n/a) (OECD TG 301C; Chemical conc. 100 mg/l; 4 weeks) Biodegradation (Indirect analysis from BOD) = 15.4 % after 7 days, 17.7 % after 14 days and 17.7 % after 28 days. The substance is not readily biodegradable. Reference: OECD SIDS (2004). |
| Persistence | (Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007). |
| Photodegradation | 1.2E-12 cm ³ /molecule-sec (OH radical) (Estimated by AOPWIN) Half-life (12 hour day; 1.5E6OH/cm ³) = 8.7 days Reference: OECD SIDS (2004). |
| Stability in water | (Test species: n/a) (OECD TG 111) Half-life (pH 4.0 and 7.0) = 2.2 min Half-life (pH 9.0) = 2.6 min; the substance hydrolyzes rapidly to generate 4-methylbenzenesulfonic acid (CAS 104-15-4) in water. The substance is determined to be hygroscopic and highly reactive. Reference: OECD SIDS (2004). |

80-15-9 Cumene hydroperoxide

| | |
|--------------------|---|
| Biodegradation | non-biodegrad. (Test species: n/a) (OECD TG 301C; Chemical conc. 100 mg/l; 4 weeks) Biodegradation (Indirect analysis from BOD) = 0% Biodegradation (Direct analysis from TOC and GC) = 0% and 27% respectively. The substance is not biodegradable. Reference: CHRIP (2011). |
| Persistence | (Test species: n/a) The substance is not persistent. Reference: Canada DSL (2007). |
| Photodegradation | 8.63E-12 cm ³ /molecule-sec (OH radical) (25 °C; 24 hour day) Half-life (5E5 OH/cm ³) = 44.6 hours. Reference: ECHA (2011). |
| Stability in water | (No data available) |

Bioaccumulation and Distribution
80-62-6 Methyl methacrylate

| | |
|--------|---|
| BCF | 1.34-1.54 (Test species: n/a) (predicted from LogPow) The substance is not bioaccumulative. Reference: ECHA (2011) and Canada DSL (2007). |
| Koc | 42.7 L/kg (Test species: n/a) Due to the low Koc, no significant adsorption to soil is anticipated. Reference: OECD SIDS (2001). |
| LogPow | 1.38 (Test species: n/a) Reference: OECD SIDS (2001). |

79-41-4 Methacrylic acid

| | |
|--------|---|
| BCF | (No data available) The substance is not bioaccumulative. Reference: Canada DSL (2007). |
| Koc | 3.2 - 144 L/kg (Test species: n/a) The substance is high mobility in soil. The substance will predominantly remain in water (99.8 %) based on the calculation results from Mackay Level III model. Reference: ECHA (2011). |
| LogPow | 0.93 (Test species: n/a) (at 22 °C) Reference: OECD SIDS (2001). |

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128-37-0 2,6-di-tert-butyl-p-cresol

| | |
|--------|--|
| BCF | (Cyprinus carpio) BCF (8 weeks; 500 ppb) = 220 - 2800 BCF (8 weeks; 50 ppb) = 230 - 2500 BCF (8 weeks; 5 ppb) = 330 - 1800 The substance is moderately bioaccumulative. |
| Koc | (Test species: n/a) (Estimated by QSAR calculation) Koc = 8183 L/kg (log Kow based estimation), Koc = 14750 L/kg (MCI based estimation). Therefore, adsorption potential of the substance is not high. According to a Mackay Level I model calculation, the main target compartment for the substance is air (79-87 %), followed by soil (6.1-10.2 %) and sediment (5.7-9.5 %). |
| LogPow | 5.1 (Test species: n/a) (Shake-flask method) Reference: CHRIP (2011) and ECHA (2012). |

98-59-9 Tosyl chloride

| | |
|--------|--|
| BCF | 96.9 (Test species: n/a) (Estimated by BCFWIN) The substance is not bioaccumulative. Reference: OECD SIDS (2004) and Canada DSL (2007). |
| Koc | (No data available) Based on the Model Fugacity Level III, the substance mainly distributes to soil when released to environment. Reference: OECD SIDS (2004). |
| LogPow | 3.49 (Test species: n/a) (at 25 °C; calculated) Reference: OECD SIDS (2004). |

80-15-9 Cumene hydroperoxide

| | |
|--------|---|
| BCF | (Test species: n/a) The substance is not bioaccumulative. Reference: ECHA (2011) and Canada DSL (2007). |
| Koc | 2346 L/kg (Test species: n/a) (calculated from PCKOCWIN v1.66) A high sorption potential onto soil organic matter of the substance is expected. Reference: ECHA (2011). |
| LogPow | 1.82 (Test species: n/a) (OECD TG 107) Reference: ECHA (2011). |

· **Degradability and Bioaccumulation Assessment:** Rapidly degradable; but low-bioaccumulative.

· **Additional Information** No further relevant information.

13 Disposal considerations

· **Hazardous Waste List**

· **Description:** Regulated as a hazardous waste for disposal.

· **RCRA Waste:**

| | | | |
|---------|----------------------|------|---------|
| 80-62-6 | Methyl methacrylate | U162 | 50-60% |
| 80-15-9 | Cumene hydroperoxide | U096 | 1-<2.5% |

· **Additional Information of the Hazardous Waste List**

Classification was according to the U.S. Federal Regulation: 40 CFR 261.

· **Waste Treatment Recommendation:**

Generation of waste should be avoided or minimized wherever possible.

Chemical waste, even small quantities, is neither allowed to be poured down drains, sewage system or waterways; nor disposed with household garbage.

Dispose of contents/containers in accordance with local, regional, national, and international regulations.

· **Unused and Uncontaminated Packagings**

· **Recommendation** Dispose of according to your local waste regulations.

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14 Transport information

· UN-Number

 · DOT, ADR, IMDG, IATA UN1133
· UN Proper Shipping Name

 · DOT, ADR, IMDG, IATA Adhesives
· Transport hazard class(es)
· DOT

 · Class 3 Flammable liquids
 · Label 3
· ADR

 · Class 3 (F1) Flammable liquids
 · Label 3
· IMDG, IATA

 · Class 3 Flammable liquids
 · Label 3
· Packing group

 · DOT, ADR, IMDG, IATA II
· Environmental Hazards:
Not applicable.
· Special Precautions:
Warning: Flammable liquids

 · Danger Code (Kemler): 33

 · EMS Number: F-E,S-D
· Transport in Bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.
· Transport/Additional Information:
· DOT

 · Quantity limitations On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L
· ADR

 · Excepted quantities (EQ) Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

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· IMDG

- **Limited quantities (LQ)**
- **Excepted quantities (EQ)**

5L

Code: E2

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 500 ml

· UN "Model Regulation":

UN1133, Adhesives, 3, II

15 Regulatory information

· USA Regulation Lists
· SARA (Superfund Amendments and Reauthorization Act of 1986)
· Section 302 (Extremely Hazardous Substances)

None of the ingredients is listed.

· Section 313 (Toxics Release Inventory (TRI) reporting)

80-62-6 Methyl methacrylate

50-60%

80-15-9 Cumene hydroperoxide

1-<2.5%

· Section 311/312 (Hazardous Chemical Inventory Reporting)

80-15-9 Cumene hydroperoxide

A, C, F, R

1-<2.5%

· Hazard Abbreviations for SARA 311/312

A - Acute Health Hazard

C - Chronic Health Hazard

F - Fire Hazard

R - Reactive Hazard

S - Sudden Release of Pressure Hazard

· TSCA (Toxic Substances Control Act)

80-62-6 Methyl methacrylate

79-41-4 Methacrylic acid

128-37-0 2,6-di-tert-butyl-p-cresol

98-59-9 Tosyl chloride

80-15-9 Cumene hydroperoxide

· Proposition 65
· Chemicals Known to Cause Cancer

This product contains a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

None of the ingredients is listed.

· Chemicals Known to Cause Reproductive Toxicity for Females

None of the ingredients is listed.

· Chemicals Known to Cause Reproductive Toxicity for Males

None of the ingredients is listed.

· Chemicals Known to Cause Developmental Toxicity

None of the ingredients is listed.

· Carcinogenic Categories
· EPA (Environmental Protection Agency)

80-62-6 Methyl methacrylate

E, NL

· IARC (International Agency for Research on Cancer)

80-62-6 Methyl methacrylate

3

128-37-0 2,6-di-tert-butyl-p-cresol

3

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· NTP (National Toxicology Program)

None of the ingredients is listed.

· TLV (Threshold Limit Value Established by ACGIH)

| | | |
|----------|----------------------------|----|
| 80-62-6 | Methyl methacrylate | A4 |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol | A4 |

· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· International Regulation Lists
· Canadian Domestic Substance Listings:

| | |
|----------|----------------------------|
| 80-62-6 | Methyl methacrylate |
| 79-41-4 | Methacrylic acid |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol |
| 98-59-9 | Tosyl chloride |
| 80-15-9 | Cumene hydroperoxide |

· Canadian Ingredient Disclosure list (limit 0.1%)

None of the ingredients is listed.

· Canadian Ingredient Disclosure list (limit 1%)

| | |
|----------|----------------------------|
| 80-62-6 | Methyl methacrylate |
| 79-41-4 | Methacrylic acid |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol |
| 80-15-9 | Cumene hydroperoxide |

· Chinese Chemical Inventory of Existing Chemical Substances:

| | |
|----------|----------------------------|
| 80-62-6 | Methyl methacrylate |
| 79-41-4 | Methacrylic acid |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol |
| 98-59-9 | Tosyl chloride |
| 80-15-9 | Cumene hydroperoxide |

· Japanese Existing and New Chemical Substance List:

| | |
|----------|----------------------------|
| 80-62-6 | Methyl methacrylate |
| 79-41-4 | Methacrylic acid |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol |
| 98-59-9 | Tosyl chloride |
| 80-15-9 | Cumene hydroperoxide |

· Korean Existing Chemical Inventory:

| | |
|----------|----------------------------|
| 80-62-6 | Methyl methacrylate |
| 79-41-4 | Methacrylic acid |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol |
| 98-59-9 | Tosyl chloride |
| 80-15-9 | Cumene hydroperoxide |

· European Pre-registered substances:

| | |
|----------|----------------------------|
| 80-62-6 | Methyl methacrylate |
| 79-41-4 | Methacrylic acid |
| 128-37-0 | 2,6-di-tert-butyl-p-cresol |
| 98-59-9 | Tosyl chloride |
| 80-15-9 | Cumene hydroperoxide |

· REACh - Substances of Very High Concern (SVHC) List:

None of the ingredients is listed.

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Restriction of Hazardous Substances Directive (RoHS) list:

None of the ingredients is listed.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department Issuing (M)SDS:** Product Safety Department
- **Contact:** msds@resinlab.com

Abbreviations and acronyms:

ACGIH: American Conference of Governmental Industrial Hygienists
ADR: European Agreement Concerning the International Carriage of Dangerous Goods by Road
CAS: Chemical Abstracts Service (division of the American Chemical Society)
DOT: US Department of Transportation
HMIS: US National Paint & Coatings Association (NPCA) Hazardous Materials Identification System
IARC: International Agency for Research on Cancer developed by United Nations World Health Organisation (WHO)
ICAO-TI: Technical Instructions (TI) by the International Civil Aviation Organization (ICAO)
IMDG: International Maritime Dangerous Goods; the principal international rules for International Carriage of Dangerous Goods by SEA under the Recommendations on the Transport of Dangerous Goods by United Nations (RTDG)
LC50/LD50: Lethal Concentration/Dose, 50 percent
N/a: Not available or Not applicable
NFPA: US National Fire Protection Association
NIOSH: US National Institute of Occupational Safety and Health
OSHA: US Occupational Safety and Health Administration
P: Marine Pollutant
RCRA: Resource Conservation and Recovery Act (USA)
REACH: EU Registry, Evaluation and Authorisation of Chemicals
SARA: US Superfund Amendments and Reauthorization Act
TEEL: Temporary Emergency Exposure Limit developed by US Subcommittee on Consequence Assessment and Protective Actions (SCAPA) of US Department of Energy (DOE)
TSCA: US Toxic Substance Control Act
ACToR: US EPA Aggregated Computational Toxicology Resource
BCF: Bioconcentration Factor
CCRIS: US NLM TOXNET Chemical Carcinogenesis Research Information System
CHRIP: Japan NITE Information on Biodegradation and Bioconcentration of the Existing Chemical Substances in the Chemical Risk Information Platform
DSL: Canada Domestic Substance List
ECHA: European Chemicals Agency's Dissemination portal with information on chemical substances registered under REACH
ESIS: European Chemical Substances Information System
HSDB: US NLM TOXNET Hazardous Substances Databank
HSNO CCID: New Zealand Hazardous Substances and New Organisms Chemical Classification Information Database
IATA-DGR: Dangerous Goods Regulations (DGR) by the International Air Transport Association (IATA)
ICSC: International Chemical Safety Cards
IUCLID: EU REACH International Uniform Chemical Information Database
Koc: Partition coefficient, soil Organic Carbon to water
NITE: National Institute of Technology and Evaluation, Japan
NLM TOXNET: US National Library of Medicine Toxicology Data Network
OECD: Organisation for Economic Co-operation and Development
RID: the Regulations Concerning the International Carriage of Dangerous Goods by Rail; published by the Central Office for International Carriage by Rail (OTIF)
RTDG: the Recommendations on the Transport of Dangerous Goods by United Nations (UN)
RTECS: US Registry of Toxic Effects of Chemical Substances
SIDS: OECD existing chemicals Screening Information Data Sets
SVHC: EU ECHA Substance of Very High Concern
TOXLINE: US NLM bibliographic database search system

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