1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PARALOID™ B-84 45% Resin

Product description: Polymers, solvent based

Supplier: ROHM AND HAAS AUSTRALIA PTY. LTD.
A Subsidiary of The Dow Chemical Company
PO box 115
969 BURKE ROAD
CAMBERWELL, VIC 3124  Australia

For non-emergency information contact: 61-03-9272-4222
Fax: 61-03-9272-4254

Emergency telephone number
+800 2537 8747
Local emergency telephone number
1800-033-882

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2. HAZARDS IDENTIFICATION

Highly flammable.
Irritating to skin.
Harmful: danger of serious damage to health by prolonged exposure through inhalation.
Possible risk of harm to the unborn child.
Harmful: may cause lung damage if swallowed.
Vapours may cause drowsiness and dizziness.

Classified as hazardous according to criteria of NOHSC.
May produce an allergic reaction.

Poison Schedule
S5

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.
### Component Specifications

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>EINECS-No.</th>
<th>Concentration</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>toluene</td>
<td>108-88-3</td>
<td>203-625-9</td>
<td>40.0 - &lt; 60.0%</td>
<td>F, Xn R11, R38, R48/20, R63, R65, R67</td>
</tr>
<tr>
<td>butan-2-ol</td>
<td>78-92-2</td>
<td>201-158-5</td>
<td>7.0 - &lt; 10.0%</td>
<td>Xi R10, R36/37, R67</td>
</tr>
<tr>
<td>methyl 2-methylprop-2-enoate</td>
<td>80-62-6</td>
<td>201-297-1</td>
<td>0.6 - &lt; 1.0%</td>
<td>F, Xi R11, R37/38, R43</td>
</tr>
<tr>
<td>n-Butyl acrylate</td>
<td>141-32-2</td>
<td>205-480-7</td>
<td>0.6 - &lt; 1.0%</td>
<td>Xi R10, R36/37/38, R43</td>
</tr>
<tr>
<td>n-butyl methacrylate</td>
<td>97-88-1</td>
<td>202-615-1</td>
<td>0.25 - &lt; 0.5%</td>
<td>Xi R10, R36/37/38, R43</td>
</tr>
</tbody>
</table>

The full text of each R phrase is listed in section 16.

---

### 4. FIRST AID MEASURES

**Inhalation:** Move to fresh air. Give artificial respiration if breathing has stopped. In case of shortness of breath, give oxygen. Call a physician immediately.

**Skin contact:** Wash off with soap and plenty of water. If symptoms persist, call a physician. Remove contaminated clothing. 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:** Do NOT induce vomiting. Drink 1 or 2 glasses of water. Get prompt medical attention. If vomiting occurs spontaneously, keep airway clear. Never give anything by mouth to an unconscious person.

---

### 5. FIREFIGHTING MEASURES

**Hazchem Code:**
3[Y]E

**Suitable extinguishing media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Specific hazards during firefighting:** Vapors can travel to a source of ignition and flash back. Heated material can form flammable or explosive vapors with air. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat. During a fire, irritating and highly toxic gases and/or fumes may be generated during combustion or decomposition.

**Special protective equipment for firefighters:** In the event of fire, wear self-contained breathing apparatus.

**Further information:** EXPLOSION HAZARD. Fight advanced fires from a protected location. Cool closed containers exposed to fire with water spray. Remain upwind. Avoid breathing smoke.
6. ACCIDENTAL RELEASE MEASURES

Personal precautions
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 for cleaning up
Eliminate all ignition sources.
Evacuate personnel to safe areas.
Ventilate the area.
Floor may be slippery; use care to avoid falling.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Sweep up or vacuum up spillage and collect in suitable container for disposal.
No sparking tools should be used.
Avoid breathing vapor.
NOTE: Spills on porous surfaces can contaminate groundwater.

7. HANDLING AND STORAGE

Handling
Vapors can be evolved when material is heated during processing operations. See SECTION 8, Exposure Controls/Personal Protection, for types of ventilation required. Use non-sparking tools and grounding cables when transferring. Wash after handling and shower at end of work period.
CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all MSDS and label warnings even after container is emptied.

Storage
Storage conditions: Avoid temperature extremes during storage; ambient temperature preferred.
Store away from excessive heat (e.g. steampipes, radiators), from sources of ignition and from reactive materials. Material can burn; limit indoor storage to approved areas equipped with automatic sprinklers. Store out of direct sunlight in a cool place. Keep containers tightly closed in a cool, well-ventilated place. Avoid all ignition sources. Ground all metal containers during storage and handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit(s)
Exposure limits are listed below, if they exist.

<table>
<thead>
<tr>
<th>Component</th>
<th>Regulation</th>
<th>Type of listing</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>toluene</td>
<td>ACGIH</td>
<td>TWA</td>
<td>20 ppm</td>
</tr>
<tr>
<td>toluene</td>
<td>Rohm and Haas</td>
<td>TWA</td>
<td>10 ppm</td>
</tr>
<tr>
<td>toluene</td>
<td>Rohm and Haas</td>
<td>STEL</td>
<td>20 ppm</td>
</tr>
<tr>
<td>toluene</td>
<td>Rohm and Haas</td>
<td>Absorbed via skin</td>
<td></td>
</tr>
</tbody>
</table>
toluene          AU OEL       TWA  191 mg/m3  50 ppm
toluene          AU OEL       TWA  191 mg/m3  50 ppm
butan-2-ol      ACGIH       STEL 574 mg/m3 150 ppm
butan-2-ol      Rohm and Haas TWA 100 ppm
butan-2-ol      Rohm and Haas STEL 200 ppm
butan-2-ol      AU OEL       TWA  303 mg/m3 100 ppm
methyl 2-methylprop-2- enoate  ACGIH TWA 50 ppm
methyl 2-methylprop-2- enoate  ACGIH STEL 100 ppm
methyl 2-methylprop-2- enoate  Rohm and Haas TWA 50 ppm
methyl 2-methylprop-2- enoate  Rohm and Haas STEL 75 ppm
methyl 2-methylprop-2- enoate  AU OEL       TWA  208 mg/m3  50 ppm
methyl 2-methylprop-2- enoate  AU OEL       STEL 416 mg/m3 100 ppm
n-Butyl acrylate ACGIH       TWA  2 ppm
n-Butyl acrylate Rohm and Haas TWA  2 ppm
n-Butyl acrylate Rohm and Haas STEL  6 ppm
n-Butyl acrylate AU OEL       TWA  5 mg/m3  1 ppm
n-Butyl acrylate AU OEL       STEL 26 mg/m3  5 ppm
n-butyl methacrylate Rohm and Haas TWA  50 ppm
n-butyl methacrylate Rohm and Haas STEL  75 ppm

Exposure controls
Engineering measures: 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: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Individual protection measures

Eye/face protection: Chemical resistant goggles must be worn. Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: Chemical-resistant gloves should be worn whenever this material is handled. The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Nitrile rubber butyl-rubber Solvent-resistant gloves 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.
**Other protection:** Use chemically resistant apron or other impervious clothing to avoid prolonged or repeated skin contact. Where splashing is possible, full chemically resistant protective clothing (e.g. acid suit) and boots are required.

**Respiratory protection:** Use certified respiratory protection equipment meeting EU requirements (89/656/EEC, 89/686/EEC), or equivalent, when respiratory risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization.

---

### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>Clear to hazy yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>Sour, burnt odor</td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>-95.00 °C</td>
</tr>
<tr>
<td>Boiling point/boiling range</td>
<td>99 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>9 °C SETAFLASH CLOSED CUP</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>&gt;1.00</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>1.20 % volestimated</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>9.80 % volestimated</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>2,799.7704 Pa at 20 °C</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>10.4</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.95</td>
</tr>
<tr>
<td>Water solubility</td>
<td>practically insoluble</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>404 °C estimated</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>2,500.000 - 7,200.000 mPa.s</td>
</tr>
<tr>
<td>Percent volatility</td>
<td>54 - 56 %</td>
</tr>
</tbody>
</table>

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

---

### 10. STABILITY AND REACTIVITY

**Hazardous reactions**

This material is considered stable. However, avoid contact with ignition sources (e.g. sparks, open flame, heated surfaces).

**Materials to avoid**

Avoid contact with the following: Strong oxidizing agents, Strong acids and strong bases

**Hazardous decomposition products**

There are no known hazardous decomposition products for this material.

**Polymerisation**

Product will not undergo polymerization.
11. TOXICOLOGICAL INFORMATION

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

Component: butan-2-ol
    Acute oral toxicity       LD50 rat  6,480 mg/kg

Component: methyl 2-methylprop-2-enoate
    Acute oral toxicity       LD50 rat  7,900 mg/kg

Component: n-Butyl acrylate
    Acute oral toxicity       LD50 rat  3,150 mg/kg

Component: n-butyl methacrylate
    Acute oral toxicity       LD50 rat  > 2,000 mg/kg OECD Test Guideline 401

Component: toluene
    Acute inhalation toxicity  LC50 rat  4 Hour 15.07 mg/l

Component: butan-2-ol
    Acute inhalation toxicity  LC50 rat  16,000 mg/m3

Component: methyl 2-methylprop-2-enoate
    Acute inhalation toxicity  LC50 rat  4 Hour 29.8 mg/l

Component: n-Butyl acrylate
    Acute inhalation toxicity  LC50 rat  4 Hour 10.3 mg/l

Component: n-butyl methacrylate
    Acute inhalation toxicity  LC50 rat  4 Hour ca.29 mg/l OECD Test Guideline 403

Component: toluene
    Acute dermal toxicity      LD50 rabbit 12,400 mg/kg

Component: methyl 2-methylprop-2-enoate
    Acute dermal toxicity      LD50 rabbit  > 5,000 mg/kg

Component: n-Butyl acrylate
    Acute dermal toxicity      LD50 rabbit  > 2,000 - 3,024 mg/kg

Component: n-butyl methacrylate
    Acute dermal toxicity      LD50 rabbit  > 2,000 mg/kg OECD Test Guideline 402

Component: methyl 2-methylprop-2-enoate
    Skin irritation            rabbit irritating

Component: n-Butyl acrylate
    Skin irritation            Moderate irritation.

Component: n-butyl methacrylate
Skin irritation slight to moderate skin irritation

Component: **methyl 2-methylprop-2-enoate**
- Eye irritation rabbit slight irritation

Component: **n-Butyl acrylate**
- Eye irritation Irritating to eyes.

Component: **n-butyl methacrylate**
- Eye irritation slight irritation

Component: **toluene**
- Sensitisation no data available

Component: **n-Butyl acrylate**
- Sensitisation Skin sensitiser

Component: **toluene**
- **Subchronic toxicity** IARC assessment: this product is not classifiable as to its carcinogenicity to humans (Group 3).

Component: **toluene**
- **Reproductive toxicity**
  - In laboratory studies, birth defects, increased fetal lethality and delayed fetal development have been observed in offspring of female animals exposed during pregnancy.

Component: **toluene**
- **Teratogenicity**
  - Toluene has been demonstrated to be embryofetotoxic and teratogenic in laboratory animals.

Component: **methyl 2-methylprop-2-enoate**
- **Subchronic toxicity** 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

Component: **methyl 2-methylprop-2-enoate**
- **Carcinogenicity**: Animal testing did not show any carcinogenic effects.

Component: **methyl 2-methylprop-2-enoate**
- **Reproductive toxicity**
  - Animal testing did not show any effects on fertility. No toxicity to reproduction

Component: **methyl 2-methylprop-2-enoate**
- **Mutagenicity**
  - In vitro studies showed both positive and negative effects. In vivo tests did not show mutagenic effects

Component: **n-Butyl acrylate**
- **Subchronic toxicity** Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.
Component: **n-Butyl acrylate**
- **Carcinogenicity:** Animal testing did not show any carcinogenic effects.
- **Reproductive toxicity**
  - In animal studies, did not interfere with reproduction.
Component: **n-Butyl acrylate**
- **Teratogenicity**
  - Developmental effects were seen in laboratory animals only at dose levels that were maternally toxic.
Component: **n-Butyl acrylate**
- **Mutagenicity**
  - In vitro tests did not show mutagenic effects  In vivo tests did not show mutagenic effects

Component: **n-butyl methacrylate**
- **Carcinogenicity:** Animal testing did not show any carcinogenic effects.
Component: **n-butyl methacrylate**
- **Reproductive toxicity**
  - For analogous substance  No toxicity to reproduction
Component: **n-butyl methacrylate**
- **Teratogenicity**
  - Did not show teratogenic effects in animal experiments.
Component: **n-butyl methacrylate**
- **Genetic Toxicity in vitro**
  - Result: negative
Component: **n-butyl methacrylate**
- **Genetic Toxicity in vivo**
  - In vivo micronucleus test mouse  Mutagenicity (micronucleus test) negative
Component: **n-butyl methacrylate**
- **Mutagenicity**
  - Negative

### 12. ECOLOGICAL INFORMATION

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

There is no data available for this product.

**toluene**

*Elimination information (persistence and degradability)*

**Biodegradability**

86 %
10-day Window: Fail
Readily biodegradable

**Bioaccumulation**

Freshwater fish  No information available.
Bioconcentration factor (BCF): 90

**Ecotoxicity effects**

**Toxicity to fish**

LC50 Oncorhynchus mykiss (rainbow trout) 96 Hour 24 ppm

**Toxicity to fish**

LC50 Fathead minnow (Pimephales promelas) 96 Hour 26 ppm
<table>
<thead>
<tr>
<th>Ecotoxicity effects</th>
<th>Toxicity to fish</th>
<th>LC50 Fathead minnow (Pimephales promelas)</th>
<th>96 Hour Method Not Specified</th>
<th>3,670 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotoxicity effects</td>
<td>Toxicity to fish</td>
<td>LC50 Oncorhynchus mykiss (rainbow trout)</td>
<td>96 Hour OECD Test Guideline 203 or Equivalent</td>
<td>&gt; 79 mg/l</td>
</tr>
<tr>
<td>Ecotoxicity effects</td>
<td>Toxicity to algae</td>
<td>static test EC50 Pseudokirchneriella subcapitata (green algae)</td>
<td>72 Hour OECD Test Guideline 201</td>
<td>&gt; 110 mg/l</td>
</tr>
<tr>
<td>Ecotoxicity effects</td>
<td>Toxicity to aquatic invertebrates</td>
<td>EC50 Daphnia magna</td>
<td>48 Hour Method Not Specified</td>
<td>69 mg/l</td>
</tr>
</tbody>
</table>

Harmful to aquatic organisms.
**n-Butyl acrylate**

Elimination information (persistence and degradability)

**Biodegradability**
Readily biodegradable. 80 - 90 %

**Bioaccumulation**
Fish
Bioconcentration factor (BCF): 17.27
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Ecotoxicity effects**

**Toxicity to fish**
LC50 Oncorhynchus mykiss (rainbow trout) 96 Hour OECD Test Guideline 203 or Equivalent
5.2 mg/l

**to fish**
LC50 Cyprinodon variegatus (sheepshead minnow) 96 Hour OECD Test Guideline 203 or Equivalent
2.1 mg/l

**Toxicity to algae**
EC50 Pseudokirchneriella subcapitata (green algae) 96 Hour OECD Test Guideline 201 or Equivalent
5.2 mg/l

**Toxicity to bacteria**
EC0 Bacteria (active sludge) 3 d
> 150 mg/l

**Toxicity to aquatic invertebrates**
LC50 Daphnia magna (Water flea) 48 Hour Method Not Specified
8.2 mg/l

---

**n-butyl methacrylate**

Elimination information (persistence and degradability)

**Biodegradability**
OECD Test Guideline 301C or Equivalent Readily biodegradable. 88 %
Readily biodegradable

**Bioaccumulation**
Calculated
Bioconcentration factor (BCF): 70
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Ecotoxicity effects**

**Toxicity to fish**
semi-static test LC50 Oryzias latipes (Orange-red killifish) 96 Hour OECD Test Guideline 203 or Equivalent
5.57 mg/l

**to fish**
flow-through test LC50 Pimephales promelas (fathead minnow) 96 Hour OECD Test Guideline 203 or Equivalent
11 mg/l

**Toxicity to algae**
static test EC50 green alga Pseudokirchneriella subcapitata (formerly known as Selenastrum capricornutum) 72 Hour OECD Test Guideline 201
31.2 mg/l
Toxicity to aquatic invertebrates: static test EC50 Daphnia magna (Water flea) 48 Hour OECD Test Guideline 202 or Equivalent
25.4 mg/l

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

13. DISPOSAL CONSIDERATIONS

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

Disposal
Incinerate liquid and contaminated solids in accordance with local, state, and federal regulations.

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. TRANSPORT INFORMATION

ADG

Proper shipping name: RESIN SOLUTION
UN number: UN 1866
Class: 3
Packing group: II

Classification for SEA transport (IMO-IMDG):
Proper shipping name: RESIN SOLUTION
UN number: UN 1866
Class: 3
Packing group: II

Classification for AIR transport (IATA/ICAO):
Proper shipping name: Resin solution
UN number: UN 1866
Class: 3
Packing group: II

Hazchem Code
3[Y]E

Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations.

15. REGULATORY INFORMATION

Label
Classification and labeling have been performed according to regulations.
Hazard symbol and Indication of danger
F Highly flammable
Xn Harmful
Contains: toluene

R-phrase(s)
R11 Highly flammable.
R38 Irritating to skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R63 Possible risk of harm to the unborn child.
R65 Harmful: may cause lung damage if swallowed.
R67 Vapours may cause drowsiness and dizziness.

S-phrase(s)
S 9 Keep container in a well-ventilated place.
S16 Keep away from sources of ignition - No smoking.
S33 Take precautionary measures against static discharges.
S36/37 Wear suitable protective clothing and gloves.
S43 In case of fire, use sand, dry chemical or alcohol-resistant foam.
S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

Contains: n-butyl methacrylate: n-Butyl acrylate: methyl 2-methylprop-2-enoate
May produce an allergic reaction.

Australia Inventory of Chemical Substances (AICS) (AICS): All ingredients in this preparation are listed in the Australian Inventory of Chemical Substances, AICS

United States TSCA Inventory (US.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.

Dangerous Substance Safety Management Act
Class 4, Group 1 PETROLEUM LIQUIDS, Flammable

16. OTHER INFORMATION

Full text of the R-phrases given in Section 3
R10 Flammable.
R11 Highly flammable.
R36/37 Irritating to eyes and respiratory system.
R36/37/38 Irritating to eyes, respiratory system and skin.
R37/38 Irritating to respiratory system and skin.
R38 Irritating to skin.
R43 May cause sensitization by skin contact.
R48/20 Harmful: danger of serious damage to health by prolonged
exposure through inhalation.
R63  Possible risk of harm to the unborn child.
R65  Harmful: may cause lung damage if swallowed.
R67  Vapours may cause drowsiness and dizziness.

Legend

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>American Conference of Governmental Industrial Hygienists</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAc</td>
<td>Butyl acetate</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>STEL</td>
<td>Short Term Exposure Limit (STEL):</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average (TWA):</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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