SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Mixture
Product name: RAPTOR HARDENER (RLHV-US)
Product group: 2K Hardener
Other means of identification: UP4821, UP4824, UP0827, UP5010

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.3. Details of the supplier of the safety data sheet

Supplier
U-POL US Inc
108 Commerce Way
Stockertown PA 18083 - USA
T 1-800-340-7824 - F 1-800-787-5150
technical.department@u-pol.com - www.u-pol.com

1.4. Emergency telephone number

Emergency number: CHEMTREC - 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification
Flam. Liq. 2 H225
Eye Irrit. 2 H319
Skin Sens. 1 H317
Carc. 2 H351
STOT SE 2 H336
STOT RE 2 H373

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US): 🎯 ✓ 🔴

Signal word (GHS-US): Danger
Hazard statements (GHS-US):
- H225 - Highly flammable liquid and vapour
- H317 - May cause an allergic skin reaction
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation
- H336 - May cause drowsiness or dizziness
- H351 - Suspected of causing cancer
- H373 - May cause damage to organs (hearing organs) through prolonged or repeated exposure (Inhalation)

Precautionary statements (GHS-US):
- P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking.
- P260 - Do not breathe vapors, spray, fume.
- P264 - Wash hands thoroughly after handling.
- P280 - Wear eye protection, protective gloves, protective clothing.
- P337+P313 - If eye irritation persists: Get medical advice/attention.
- P403+P235 - Store in a well-ventilated place. Keep cool.
- P501 - Dispose of contents/container to hazardous or special waste collection point, in
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2.3. Other hazards
No additional information available

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hexamethylene Disocyanate Oligomers</td>
<td>(CAS-No.) 28182-81-2</td>
<td>&lt; 43</td>
<td>Acute Tox. 4 (Inhalation), H332 Skin Sens. 1, H317 STOT SE 3, H335</td>
</tr>
<tr>
<td>methyl acetate</td>
<td>(CAS-No.) 79-20-9</td>
<td>23 - 43</td>
<td>Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336</td>
</tr>
<tr>
<td>4-CHLORO BENZOTRIFLUORIDE</td>
<td>(CAS-No.) 98-56-6</td>
<td>5 - 23</td>
<td>Flam. Liq. 3, H226 Skin Sens. 1, H317 Aquatic Chronic 2, H411</td>
</tr>
<tr>
<td>xylene</td>
<td>(CAS-No.) 1330-20-7</td>
<td>5 - 23</td>
<td>Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315</td>
</tr>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td></td>
<td>&lt; 5</td>
<td>Flam. Liq. 3, H226 STOT SE 3, H336 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411</td>
</tr>
<tr>
<td>ethylbenzene</td>
<td>(CAS-No.) 100-41-4</td>
<td>&lt; 5</td>
<td>Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Carc. 2, H51 STOT RE 2, H373 Asp. Tox. 1, H304</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: IF exposed or concerned: Get medical advice/attention.
First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.
First-aid measures after eye contact: 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.
First-aid measures after ingestion: Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects: May cause drowsiness or dizziness.
Symptoms/effects after inhalation: May cause respiratory irritation.
Symptoms/effects after skin contact: May cause an allergic skin reaction.
Symptoms/effects after eye contact: Eye irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media


5.2. Special hazards arising from the substance or mixture

Fire hazard: Highly flammable liquid and vapour.
Reactivity: Highly flammable liquid and vapour.
5.3. Advice for firefighters
Protection during firefighting: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Ventilate spillage area. No open flames, no sparks, and no smoking. Do not breathe vapors, fume, spray. Avoid contact with skin and eyes.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment: Contain released substance, pump into suitable containers. Collect spillage.
Methods for cleaning up: Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters.
Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors, fume, spray. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes.

Hygiene measures: Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Technical measures: Ground/bond container and receiving equipment.
Storage conditions: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
Storage temperature: < 25 °C
Storage area: Store in a well-ventilated place.
Special rules on packaging: Keep only in original container.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAPTOR HARDENER</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>methyl acetate</td>
<td>ACGIH TWA (ppm)</td>
<td>200 ppm</td>
</tr>
<tr>
<td></td>
<td>ACGIH STEL (ppm)</td>
<td>250 ppm</td>
</tr>
<tr>
<td></td>
<td>Remark (ACGIH)</td>
<td>eye &amp; URT irr</td>
</tr>
<tr>
<td>ACGIH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>610 mg/m³</td>
</tr>
</tbody>
</table>
**RAPTOR HARDENER (RLHV-US)**

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<table>
<thead>
<tr>
<th>methyl acetate (79-20-9)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4-CHLORO BENZOTRIFLUORIDE (98-56-6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ethylbenzene (100-41-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>xylene (1330-20-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
</tbody>
</table>

Solvent naphtha (petroleum), light aromatic

<table>
<thead>
<tr>
<th>Hexamethylene Diisocyanate Oligomers (28182-81-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
</tr>
<tr>
<td>OSHA</td>
</tr>
</tbody>
</table>

### 8.2. Exposure controls

- **Appropriate engineering controls**: Ensure good ventilation of the work station.
- **Materials for protective clothing**: Impermeable clothing.
- **Hand protection**: Protective gloves.
- **Eye protection**: Safety glasses.
- **Skin and body protection**: Wear suitable protective clothing.
- **Respiratory protection**: Air-fed respiratory protective equipment should be worn when this product is sprayed.
- **Environmental exposure controls**: Avoid release to the environment.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>aromatic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>&gt; 35 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; 0 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
</tbody>
</table>
RAPTOR HARDENER (RLHV-US)
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### Physical Properties

- **Vapor pressure**: No data available
- **Relative vapor density at 20 °C**: No data available
- **Relative density**: No data available
- **Specific gravity / density**: 1.04 - 1.06
- **Solubility**: insoluble in water, soluble in most organic solvents.
- **Log Pow**: No data available
- **Log Kow**: No data available
- **Viscosity, kinematic**: No data available
- **Viscosity, dynamic**: No data available
- **Explosive properties**: No data available
- **Oxidizing properties**: No data available
- **Explosion limits**: No data available

### Other Information

- **VOC content - Actual**: 118 g/l
- **VOC content - Regulatory**: 245 g/l

### SECTION 10: Stability and reactivity

**10.1. Reactivity**
Highly flammable liquid and vapour.

**10.2. Chemical stability**
Stable under normal conditions.

**10.3. Possibility of hazardous reactions**
No dangerous reactions known under normal conditions of use.

**10.4. Conditions to avoid**
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

**10.5. Incompatible materials**
No additional information available

**10.6. Hazardous decomposition products**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11: Toxicological information

**11.1. Information on toxicological effects**

- **Acute toxicity**: Not classified
- **Skin corrosion/irritation**: Not classified
- **Serious eye damage/irritation**: Causes serious eye irritation.
- **Respiratory or skin sensitization**: May cause an allergic skin reaction.
- **Germ cell mutagenicity**: Not classified

**ethylbenzene (100-41-4)**
- ATE US (gases): 4500 ppmV/4h
- ATE US (vapors): 11 mg/l/4h
- ATE US (dust, mist): 1.5 mg/l/4h

**xylene (1330-20-7)**
- ATE US (dermal): 1100 mg/kg body weight
- ATE US (dust, mist): 1.5 mg/l/4h

**Hexamethylene Diisocyanate Oligomers (28182-81-2)**
- LD50 oral rat: > 2500 mg/kg
- LD50 dermal rat: > 2000 mg/kg
- ATE US (gases): 4500 ppmV/4h
- ATE US (vapors): 11 mg/l/4h
- ATE US (dust, mist): 1.5 mg/l/4h
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Carcinogenicity: Suspected of causing cancer.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethylbenzene (100-41-4)</td>
<td>IARC group 2B - Possibly carcinogenic to humans</td>
</tr>
<tr>
<td>xylene (1330-20-7)</td>
<td>IARC group 3 - Not classifiable</td>
</tr>
</tbody>
</table>

Reproductive toxicity: Not classified

Specific target organ toxicity – single exposure: May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity – repeated exposure: May cause damage to organs (hearing organs) through prolonged or repeated exposure (inhalation).

Aspiration hazard: Not classified

Symptoms/effects after inhalation: May cause respiratory irritation.

Symptoms/effects after skin contact: May cause an allergic skin reaction.

Symptoms/effects after eye contact: Eye irritation.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>Persistence and degradability May cause long-term adverse effects in the environment.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>Bioaccumulative potential Not established.</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the ozone layer: No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional legislation (waste)</td>
<td>Disposal must be done according to official regulations.</td>
</tr>
<tr>
<td>Waste treatment methods</td>
<td>Dispose of contents/container in accordance with licensed collector’s sorting instructions.</td>
</tr>
<tr>
<td>Additional information</td>
<td>Flammable vapors may accumulate in the container.</td>
</tr>
</tbody>
</table>

SECTION 14: Transport information

In accordance with DOT
Not regulated for transport

Additional information

Other information: No supplementary information available.

ADR

Transport document description: UN 1263 PAINT RELATED MATERIAL, 3, II, (D/E)
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Packing group (ADR) : II
Class (ADR) : 3 - Flammable liquid
Hazard identification number (Kemler No.) : 33
Classification code (ADR) : F1
Hazard labels (ADR) : 3 - Flammable liquids

Orange plates

Tunnel restriction code (ADR) : D/E
LQ : 5l
Excepted quantities (ADR) : E2

Transport by sea
UN-No. (IMDG) : 1263
Proper Shipping Name (IMDG) : PAINT RELATED MATERIAL
Class (IMDG) : 3 - Flammable liquids
Packing group (IMDG) : II - substances presenting medium danger

Air transport
UN-No. (IATA) : 1263
Proper Shipping Name (IATA) : Paint
Class (IATA) : 3 - Flammable Liquids
Packing group (IATA) : II - Medium Danger

SECTION 15: Regulatory information

15.1. US Federal regulations
methyl acetate (79-20-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

4-CHLORO BENZOTRIFLUORIDE (98-56-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

ethylbenzene (100-41-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313
CERCLA RO : 1000 lb
SARA Section 313 - Emission Reporting : 0.1 %

xylene (1330-20-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Subject to reporting requirements of United States SARA Section 313
CERCLA RO : 100 lb
SARA Section 313 - Emission Reporting : 1 %

Solvent naphtha (petroleum), light aromatic
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Hexamethylene Disocyanate Oligomers (28182-81-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
CANADA
methyl acetate (79-20-9)
Listed on the Canadian DSL (Domestic Substances List)
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ethylbenzene (100-41-4)
- Listed on the Canadian DSL (Domestic Substances List)

xylene (1330-20-7)
- Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations
No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
- Flam. Liq. 2 H225
- Eye Irrit. 2 H319
- Skin Sens. 1 H317
- STOT SE 3 H335
- STOT SE 3 H336
- Aquatic Chronic 3 H412

Full text of H statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

15.2. National regulations
ethylbenzene (100-41-4)
- Listed on IARC (International Agency for Research on Cancer)
- Listed on EPA Hazardous Air Pollutant (HAPS)

xylene (1330-20-7)
- Listed on EPA Hazardous Air Pollutant (HAPS)

Solvent naphtha (petroleum), light aromatic
- Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

15.3. US State regulations

ethylbenzene (100-41-4)

<table>
<thead>
<tr>
<th>U.S. - California - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significant risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>54 µg/day</td>
</tr>
</tbody>
</table>

**SECTION 16: Other information**

Revision date : 11/21/2017

Full text of H-phrases:

- **H225**: Highly flammable liquid and vapour
- **H226**: Flammable liquid and vapor
- **H304**: May be fatal if swallowed and enters airways
- **H312**: Harmful in contact with skin
- **H315**: Causes skin irritation
- **H317**: May cause an allergic skin reaction
- **H319**: Causes serious eye irritation
- **H322**: Harmful if inhaled
- **H335**: May cause respiratory irritation
- **H336**: May cause drowsiness or dizziness
- **H351**: Suspected of causing cancer
- **H373**: May cause damage to organs through prolonged or repeated exposure
- **H411**: Toxic to aquatic life with long lasting effects
RAPTOR HARDENER (RLHV-US)
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