# SAFETY DATA SHEET
URALANE® 5776 A US

## Section 1. Identification

<table>
<thead>
<tr>
<th>GHS product identifier</th>
<th>URALANE® 5776 A US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product code</td>
<td>00071214</td>
</tr>
<tr>
<td>Other means of identification</td>
<td>OXIRANE, METHYL-, POLYMER WITH OXIRANE, ETHER WITH 1,2, 3-PROPANETRIOL POLYMER WITH 1,1'-METHYLENEBIS (4-ISOCYANATOCYCLOHEXANE)</td>
</tr>
<tr>
<td>Product type</td>
<td>Liquid</td>
</tr>
<tr>
<td>Material uses</td>
<td>Isocyanate for adhesive systems</td>
</tr>
<tr>
<td>Supplier's details</td>
<td>Huntsman Advanced Materials Americas LLC</td>
</tr>
<tr>
<td></td>
<td>P.O. Box 4980</td>
</tr>
<tr>
<td></td>
<td>The Woodlands, TX 7738</td>
</tr>
<tr>
<td></td>
<td>Non-Emergency phone: (800) 257-5547</td>
</tr>
<tr>
<td>e-mail address of person</td>
<td><a href="mailto:MSDS@huntsman.com">MSDS@huntsman.com</a></td>
</tr>
<tr>
<td>responsible for this SDS</td>
<td></td>
</tr>
<tr>
<td>Emergency telephone number</td>
<td>Chemtrec: (800) 424-9300 or (703) 527-3887</td>
</tr>
<tr>
<td>(24h/7day)</td>
<td></td>
</tr>
</tbody>
</table>

## Section 2. Hazards identification

<table>
<thead>
<tr>
<th>OSHA/HCS status</th>
<th>This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification of the</td>
<td>ACUTE TOXICITY: INHALATION - Category 3</td>
</tr>
<tr>
<td>substance or mixture</td>
<td>SKIN CORROSION/IRRITATION - Category 2</td>
</tr>
<tr>
<td></td>
<td>SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td></td>
<td>RESPIRATORY SENSITIZATION - Category 1</td>
</tr>
<tr>
<td></td>
<td>SKIN SENSITIZATION - Category 1</td>
</tr>
<tr>
<td></td>
<td>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation] - Category 3</td>
</tr>
</tbody>
</table>

## GHS label elements

### Hazard pictograms

![Hazard pictograms: Skull and Crossbones, Exclamation]

### Signal word

Danger

### Hazard statements

- Toxic if inhaled.
- Causes serious eye irritation.
- Causes skin irritation.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- May cause respiratory irritation.
Section 2. Hazards identification

Precautionary statements: Wear protective gloves. Wear eye or face protection. In case of inadequate ventilation wear respiratory protection. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. 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 attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification: None known.

Section 3. Composition/information on ingredients

Substance/mixture: Substance

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>OXIRANE, METHYL-, POLYMER WITH OXIRANE, ETHER WITH 1,2,3-PROPANETRIOL POLYMER WITH 1,1'-METHYLENEBIS (4-ISOCYANATOCYCLOHEXANE)</td>
<td>60 - 100</td>
<td>67837-35-8</td>
</tr>
<tr>
<td>Dicyclohexylmethane-4,4'-diisocyanate</td>
<td>1 - 3</td>
<td>5124-30-1</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 4. First aid measures

<table>
<thead>
<tr>
<th>Description of necessary first aid measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.</td>
</tr>
<tr>
<td>Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. In the event of any complaints or symptoms, avoid further exposure.</td>
</tr>
<tr>
<td>Skin contact: Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.</td>
</tr>
</tbody>
</table>
Section 4. First aid measures

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Causes serious eye irritation.
Inhalation: Toxic if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact: Causes skin irritation. May cause an allergic skin reaction.
Ingestion: Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following:
- pain or irritation
- watering
- redness
Inhalation: Adverse symptoms may include the following:
- respiratory tract irritation
- coughing
- wheezing and breathing difficulties
- asthma
Skin contact: Adverse symptoms may include the following:
- irritation
- redness
Ingestion: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)
Section 5. Fire-fighting measures

| Flash point | : Closed cup: 202°C (395.6°F) [TCC - Tag (Tagliabue) Closed Cup] |
| Extinguishing media | |
| Suitable extinguishing media | : Use an extinguishing agent suitable for the surrounding fire. |
| Unsuitable extinguishing media | : None known. |
| Specific hazards arising from the chemical | : In a fire or if heated, a pressure increase will occur and the container may burst. |
| Hazardous thermal decomposition products | : Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides |
| Special protective actions for fire-fighters | : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| Special protective equipment for fire-fighters | : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

Section 6. Accidental release measures

| Personal precautions, protective equipment and emergency procedures | |
| For non-emergency personnel | : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. |
| For emergency responders | : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| Environmental precautions | : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| Methods and materials for containment and cleaning up | : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. |
Section 7. Handling and storage

Precautions for safe handling

**Protective measures**: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene**: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**Conditions for safe storage, including any incompatibilities**: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

**Control parameters**

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4'-diisocyanate</td>
<td>ACGIH TLV (United States, 6/2013). TWA: 0.054 mg/m³ 8 hours. TWA: 0.005 ppm 8 hours. OSHA PEL (United States, 2/2013). Absorbed through skin. TWA: 5 mg/m³, (as CN) 8 hours.</td>
</tr>
</tbody>
</table>

**Appropriate engineering controls**: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Environmental exposure controls**: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

**Individual protection measures**

**Hygiene measures**: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Section 8. Exposure controls/personal protection

**Eye/face protection**: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

**Hand protection**: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

**Body protection**: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Other skin protection**: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**Thermal hazards**: Not available.

Section 9. Physical and chemical properties

**Appearance**

- **Physical state**: Liquid.
- **Color**: Light yellow
- **Odor**: Pungent.
- **Odor threshold**: Not available.
- **pH**: Not available.
- **Melting point/Freezing point**: Not available.
- **Boiling/condensation point**: >200°C (>392°F)
- **Flash point**: Closed cup: 202°C (395.6°F) [TCC - Tag (Tagliabue) Closed Cup]
- **Evaporation rate**: Not available.
- **Flammability (solid, gas)**: Not available.
- **Lower and upper explosive (flammable) limits**: Not available.
- **Vapor pressure**: <0.0001 kPa (<0.00075 mm Hg) [room temperature]
- **Vapor density**: Not available.
- **Relative density**: 1
- **Solubility in water**: Reacts with water
- **Partition coefficient: n-octanol/water**: Not available.
- **Auto-ignition temperature**: Not available.
- **Decomposition temperature**: >200°C (>392°F)
- **Density**: 1.1 g/cm³ [25°C (77°F)]
- **Viscosity**: Dynamic (room temperature): 3700000 mPa·s (3700000 cP)
Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Endpoint</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4'-diisocyanate</td>
<td>OECD 403 Acute Inhalation Toxicity OECD 402 Acute Dermal Toxicity</td>
<td>LC50 Inhalation Dusts and mists LD50 Dermal</td>
<td>Rat - Male, Female Rat - Male, Female Rat - Male, Female</td>
<td>0.43 mg/l &gt;7000 mg/kg 18200 mg/kg</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4'-diisocyanate</td>
<td>OECD 404 Acute Dermal Irritation/Corrosion OECD 405 Acute Eye Irritation/Corrosion</td>
<td>Rabbit Rabbit</td>
<td>Skin - Irritant Eyes - Irritant</td>
</tr>
</tbody>
</table>

Conclusion/Summary

Skin : OXIRANE, METHYL-, POLYMER WITH OXIRANE, ETHER WITH 1,2,3-PROPYANETRIOL POLYMER WITH 1,1'- METHYLENEBIS (4-ISOCYANATOCYCLOHEXANE) Dicyclohexylmethane-4,4'-diisocyanate No additional information.

Eyes : SeVERELY IRRITATING TO THE SKIN.
Section 11. Toxicological information

Table: Sensitization

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4'-diisocyanate</td>
<td>OECD 406 Skin Sensitization No official guidelines</td>
<td>skin Respiratory</td>
<td>Guinea pig Guinea pig</td>
<td>Sensitizing Sensitizing</td>
</tr>
</tbody>
</table>

Table: Mutagenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4'-diisocyanate</td>
<td>Experiment: In vitro Subject: Bacteria Metabolic activation: +/-</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-</td>
<td>Negative</td>
</tr>
<tr>
<td></td>
<td>Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: +/-</td>
<td>Negative</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Dicyclohexylmethane-4,4'-diisocyanate Not mutagenic in a standard battery of genetic toxicological tests.

Carcinogenicity
Not available.

Reproductive toxicity
## Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Maternal toxicity</th>
<th>Fertility</th>
<th>Developmental effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4''-diisocyanate</td>
<td>OECD 421 Reproduction/Developmental Toxicity Screening Test</td>
<td>Rat - Male, Female</td>
<td>Positive</td>
<td>Negative</td>
<td>Negative</td>
</tr>
</tbody>
</table>

### Teratogenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Result/Result type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4''-diisocyanate</td>
<td>OECD 414 Prenatal Developmental Toxicity Study</td>
<td>Rat - Female</td>
<td>Negative - Inhalation</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>OXIRANE, METHYL-, POLYMER WITH OXIRANE, ETHER WITH 1,2, 3-PROPANETRIOL POLYMER WITH 1,1''-METHYLENEBIS (4-ISOCYANATOCYCLOHEXANE)</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Dicyclohexylmethane-4,4''-diisocyanate</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

### Information on the likely routes of exposure

Not available.

### Potential acute health effects

- **Eye contact**: Causes serious eye irritation.
- **Inhalation**: Toxic if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- **Skin contact**: Causes skin irritation. May cause an allergic skin reaction.
- **Ingestion**: Irritating to mouth, throat and stomach.

### Symptoms related to the physical, chemical and toxicological characteristics

- **Eye contact**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

- **Inhalation**: Adverse symptoms may include the following:
  - respiratory tract irritation
  - coughing
  - wheezing and breathing difficulties
  - asthma
Section 11. Toxicological information

Skin contact: Adverse symptoms may include the following: irritation, redness.

Ingestion: No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects**: Not available.

**Potential delayed effects**: Not available.

#### Long term exposure

**Potential immediate effects**: Not available.

**Potential delayed effects**: Not available.

### Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Endpoint</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4’-disocyanate</td>
<td>OECD 413 Subchronic Inhalation Toxicity: 90-day Study</td>
<td>Sub-chronic NOEC Inhalation Dusts and mists</td>
<td>Rat - Male, Female</td>
<td>3 mg/m³</td>
</tr>
</tbody>
</table>

#### General

Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

#### Carcinogenicity

No known significant effects or critical hazards.

#### Mutagenicity

No known significant effects or critical hazards.

#### Teratogenicity

No known significant effects or critical hazards.

#### Developmental effects

No known significant effects or critical hazards.

#### Fertility effects

No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation (vapors)</td>
<td>3.062 mg/l</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>21.5 mg/l</td>
</tr>
</tbody>
</table>

### Other information

Not available.

Section 12. Ecological information
Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Endpoint</th>
<th>Exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4’-diisocyanate</td>
<td>EU EC C.2 Acute Toxicity for Daphnia</td>
<td>Acute EC50</td>
<td>48 hours Static</td>
<td>Daphnia</td>
<td>&gt;8.3 mg/l</td>
</tr>
<tr>
<td></td>
<td>EU EC C.3 Algal Inhibition Test</td>
<td>Acute EgC50</td>
<td>72 hours Static</td>
<td>Algae</td>
<td>&gt;5 mg/l</td>
</tr>
<tr>
<td></td>
<td>EU EC C.1 Acute Toxicity for Fish</td>
<td>Acute LC50</td>
<td>96 hours Static</td>
<td>Fish</td>
<td>&gt;8.1 mg/l</td>
</tr>
<tr>
<td></td>
<td>EU EC C.3 Algal Inhibition Test</td>
<td>Chronic NOECr</td>
<td>72 hours Static</td>
<td>Algae</td>
<td>0.31 mg/l</td>
</tr>
</tbody>
</table>

Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4,4’-diisocyanate</td>
<td>EU</td>
<td>28 days</td>
<td>0 %</td>
</tr>
</tbody>
</table>

Bioaccumulative potential

Not available.

Mobility in soil

Not available.

Other adverse effects

No known significant effects or critical hazards.

Other ecological information

- BOD5: Not determined.
- COD: Not determined.
- TOC: Not determined.

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.
Section 14. Transport information

Proper shipping name

DOT : Not regulated.
TDG : Not regulated.
IMDG : Not regulated.
IATA : Not regulated.

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>UN number</th>
<th>Classes</th>
<th>PG*</th>
<th>Label</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TDG Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IMDG Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IATA Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

TSCA 8(b) inventory : All components are listed or exempted.
TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.
TSCA 5(e) substance consent order : No ingredients listed.
TSCA 12(b) export notification : No ingredients listed.
SARA 311/312 : Immediate (acute) health hazard

Clean Air Act - Section 112(b) Hazardous Air Pollutants (HAPs)

Product name : Dicyclohexylmethane-4,4'-diisocyanate
Concentration % : 2

Clean Air Act - Ozone Depleting Substances (ODS)

: This product does not contain nor is it manufactured with ozone depleting substances.
Section 15. Regulatory information

### Product name

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4, 4'-diisocyanate</td>
<td>2</td>
</tr>
</tbody>
</table>

### CERCLA Hazardous substances

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dicyclohexylmethane-4, 4'-diisocyanate</td>
<td>Listed</td>
</tr>
<tr>
<td>No RQ assigned</td>
<td></td>
</tr>
</tbody>
</table>

### State regulations

**PENNSYLVANIA - RTK**

- Dicyclohexylmethane-4, 4'-diisocyanate

**California Prop 65**

- This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

### Canadian regulations

**CEPA DSL**

- At least one component is not listed.

### WHMIS Classes

- Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
- Class D-2A: Material causing other toxic effects (Very toxic).
- Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### Brazil Regulations

**Classification system used**

- Norma ABNT-NBR 14725-2:2012

### International lists

- Australia inventory (AICS): At least one component is not listed.
- China inventory (IECSC): All components are listed or exempted.
- Japan inventory: Not determined.
- Korea inventory: At least one component is not listed.
- Malaysia Inventory (EHS Register): Not determined.
- New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
- Philippines inventory (PICCS): At least one component is not listed.
- Taiwan inventory (CSNN): Not determined.

### Section 16. Other information

#### Hazardous Material Information System (U.S.A.)

- Health: 2
- Flammability: 1
- Physical hazards: 1
- Personal protection

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00071214
Section 16. Other information

The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

National Fire Protection Association (U.S.A.)

Health 2 Flammability 1
Instability 1
Special

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

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Date of previous issue : 3/27/2014.
Version         : 2

Indicates information that has changed from previously issued version.

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED
Section 16. Other information

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Section 1. Identification

GHS product identifier : URALANE® 5776 B US
Product code : 00066330
Other means of identification : Not available.
Product type : Liquid.
Material uses : Adhesive
Supplier's details : Huntsman Advanced Materials Americas LLC
P.O. Box 4980
The Woodlands, TX 77387
Non-Emergency phone: (800) 257-5547

e-mail address of person responsible for this SDS : MSDS@huntsman.com

Emergency telephone number (24h/7day) : Chemtrec: (800) 424-9300 or (703) 527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B
SKIN SENSITIZATION - Category 1
CARCINOGENICITY - Category 2
AQUATIC HAZARD (ACUTE) - Category 1
AQUATIC HAZARD (LONG-TERM) - Category 1
Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 2.5%
Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2.5%

GHS label elements
Hazard pictograms : ![pictograms]

Signal word : Warning
Hazard statements : Causes eye irritation.
May cause an allergic skin reaction.
Suspected of causing cancer.
Very toxic to aquatic life with long lasting effects.
Section 2. Hazards identification

Precautionary statements: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Collect spillage. IF exposed or concerned: Get medical attention. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical attention. 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 attention. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

Other hazards which do not result in classification: None known.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N'-di-sec-butyl-4,4'-methylenedianiline</td>
<td>30 - 60</td>
<td>5285-60-9</td>
</tr>
<tr>
<td>Castor Oil</td>
<td>13 - 30</td>
<td>8001-79-4</td>
</tr>
<tr>
<td>diethyl methylene dianiline</td>
<td>3 - 7</td>
<td>19900-65-3</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl)ethylenediamine (THPE)</td>
<td>3 - 7</td>
<td>102-60-3</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Eye contact: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact: Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Section 4. First aid measures

**Most important symptoms/effects, acute and delayed**

**Potential acute health effects**

- **Eye contact**: Causes eye irritation.
- **Inhalation**: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
- **Skin contact**: May cause an allergic skin reaction.
- **Ingestion**: May be irritating to mouth, throat and stomach.

**Over-exposure signs/symptoms**

- **Eye contact**: Adverse symptoms may include the following:
  - irritation
  - watering
  - redness

- **Inhalation**: No specific data.

- **Skin contact**: Adverse symptoms may include the following:
  - irritation
  - redness

- **Ingestion**: No specific data.

**Indication of immediate medical attention and special treatment needed, if necessary**

- **Notes to physician**: No specific treatment. Treat symptomatically. Call medical doctor or poison control center immediately if large quantities have been ingested.

- **Protection of first-aiders**: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- **Flash point**: Closed cup: >94°C (>201.2°F)

- **Extinguishing media**
  - **Suitable extinguishing media**: Use an extinguishing agent suitable for the surrounding fire.
  - **Unsuitable extinguishing media**: None known.

- **Specific hazards arising from the chemical**: In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- **Hazardous thermal decomposition products**: Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - nitrogen oxides
  - metal oxide/oxides
### Section 5. Fire-fighting measures

**Special protective actions for fire-fighters**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders**: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions**: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

**Methods and materials for containment and cleaning up**: Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

### Section 7. Handling and storage

**Precautions for safe handling**

**Protective measures**: Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene**: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities:
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Appropriate engineering controls:
If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls:
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures:
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection:
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Hand protection:
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection:
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection:
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection:
Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Thermal hazards:
Not available.
Section 9. Physical and chemical properties

Appearance

- Physical state: Liquid.
- Color: Brown.
- Odor: Ammoniacal.
- Odor threshold: Not available.
- pH: Not available.
- Melting point/Freezing point: Not available.
- Boiling/condensation point: Not available.
- Flash point: Closed cup: >94°C (>201.2°F)
- Evaporation rate: <1 (butyl acetate = 1)
- Flammability (solid, gas): Not available.
- Lower and upper explosive (flammable) limits: Not available.
- Vapor pressure: <0.13 kPa (<1 mm Hg) [room temperature]
- Vapor density: >1 [Air = 1]
- Relative density: 1.12
- Solubility in water: negligible
- Partition coefficient: n-octanol/water: Not available.
- Auto-ignition temperature: Not available.
- Decomposition temperature: Not available.
- Evaporation rate (butyl acetate = 1): <1
- Viscosity: Not available.

Section 10. Stability and reactivity

Reactivity

: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability

: The product is stable.

Possibility of hazardous reactions

: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid

: No specific data.

Incompatible materials

: No specific data.

Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Endpoint</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N'-di-sec-butyl-4,4'-methyleneedianiline</td>
<td>-</td>
<td>LD50 Dermal</td>
<td>Rabbit</td>
<td>3090 mg/kg</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1380 mg/kg</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>LC50 Inhalation Dusts and mists</td>
<td>Rat - Male, Female</td>
<td>&gt;0.85 mg/l</td>
</tr>
<tr>
<td>Castor Oil</td>
<td>-</td>
<td>LD50 Dermal</td>
<td>Rat - Male, Female</td>
<td>2080 mg/kg</td>
</tr>
<tr>
<td>diethyl methylene dianiline</td>
<td>OECD 402 Acute Dermal Toxicity</td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>444 mg/kg</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>-</td>
<td>LD50 Oral</td>
<td>Rat - Male, Female</td>
<td>2890 mg/kg</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N'-di-sec-butyl-4,4'-methyleneedianiline</td>
<td>-</td>
<td>Rabbit</td>
<td>Skin - Mild irritant</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Rabbit</td>
<td>Eyes - Mild irritant</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Human</td>
<td>Skin - Mild irritant</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Rabbit</td>
<td>Eyes - Mild irritant</td>
</tr>
<tr>
<td>Castor Oil</td>
<td>-</td>
<td>Rabbit</td>
<td>Skin - Non-irritant.</td>
</tr>
<tr>
<td>diethyl methylene dianiline</td>
<td>EPA OPPTS OPPTS 870.2500 Acute Dermal Irritation</td>
<td>Rabbit</td>
<td>Eyes - Non-irritant.</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Rabbit</td>
<td>Eyes - Irritant</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>-</td>
<td>Rabbit</td>
<td>Eyes - Non-irritant.</td>
</tr>
</tbody>
</table>

Conclusion/Summary

Skin: N,N'-di-sec-butyl-4,4'-methyleneedianiline Slightly irritating to the skin. Castor Oil Irritating to skin. diethyl methylene dianiline Non-irritating to the skin. Tetrakis(2-hydroxypropyl) ethylenediamine (THPE) No additional information.

Eyes: N,N'-di-sec-butyl-4,4'-methyleneedianiline Slightly irritating to the eyes. Castor Oil Slightly irritating to the eyes. diethyl methylene dianiline Non-irritating to the eyes. Tetrakis(2-hydroxypropyl) ethylenediamine (THPE) Irritating to eyes.

Respiratory: N,N'-di-sec-butyl-4,4'-methyleneedianiline No additional information. Castor Oil No additional information. diethyl methylene dianiline No additional information. Tetrakis(2-hydroxypropyl) ethylenediamine (THPE) No additional information.

Sensitization
## Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Route of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>diethyl methane dianiline</td>
<td>-</td>
<td>skin</td>
<td>Human</td>
<td>Sensitizing</td>
</tr>
</tbody>
</table>

### Mutagenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castor Oil</td>
<td>-</td>
<td>Positive</td>
</tr>
<tr>
<td>diethyl methane dianiline</td>
<td>Experiment: In vitro</td>
<td>Positive</td>
</tr>
<tr>
<td></td>
<td>Subject: bacteria/yeast</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Metabolic activation: +/-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Experiment: In vivo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subject: Mammalian-Animal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cell: Somatic</td>
<td></td>
</tr>
</tbody>
</table>

**Conclusion/Summary**: diethyl methane dianiline and Tetrakis(2-hydroxypropyl) ethylenediamine (THPE) are Mutagenic.

### Carcinogenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
<th>Result/Result type</th>
</tr>
</thead>
<tbody>
<tr>
<td>diethyl methane dianiline</td>
<td>OECD 451 Carcinogenicity Studies</td>
<td>Rat - Male, Female</td>
<td>9 to 10 mg/kg</td>
<td>103 weeks; 24 hours per day</td>
<td>Positive - Oral - LOAEL</td>
</tr>
</tbody>
</table>

### Reproductive toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Maternal toxicity</th>
<th>Fertility</th>
<th>Developmental effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test</td>
<td>Rat - Male, Female</td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
</tr>
</tbody>
</table>

### Teratogenicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Species</th>
<th>Result/Result type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>-</td>
<td>Rat - Female</td>
<td>Negative - Oral</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (single exposure)
Not available.

### Specific target organ toxicity (repeated exposure)
Not available.

### Aspiration hazard

3/27/2014. 00066330  8/15
Section 11. Toxicological information

Not available.

Information on the likely routes of exposure

Not available.

Potential acute health effects

Eye contact : Causes eye irritation.
Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin contact : May cause an allergic skin reaction.
Ingestion : May be irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
- irritation
- watering
- redness
Inhalation : No specific data.
Skin contact : Adverse symptoms may include the following:
- irritation
- redness
Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Endpoint</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castor Oil</td>
<td>-</td>
<td>Sub-chronic LOAEL Oral</td>
<td>Rat</td>
<td>7.5 g/kg</td>
</tr>
<tr>
<td>diethyl methylene dianiline</td>
<td>OECD 408 Repeated Dose 90-Day Oral Toxicity Study in Rodents</td>
<td>Sub-chronic LOAEL Oral</td>
<td>Rat - Male, Female</td>
<td>7.5 to 8 mg/kg/d</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>OECD 422 Combined Repeated Dose Toxicity Study with the Reproduction/</td>
<td>Sub-chronic NOAEL Oral</td>
<td>Rat - Male, Female</td>
<td>3 mg/kg/d</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-chronic LOAEL Oral</td>
<td>Rat - Male, Female</td>
<td>8 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sub-acute NOAEL Oral</td>
<td>Rat - Male, Female</td>
<td>1000 mg/kg/d</td>
</tr>
</tbody>
</table>

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Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Developmental Toxicity Screening Test</th>
<th>Sub-acute NOAEL Oral</th>
<th>Rat - Male, Female</th>
<th>300 mg/kg/d</th>
</tr>
</thead>
</table>

**General**: Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity**: Suspected of causing cancer. Risk of cancer depends on duration and level of exposure.

**Mutagenicity**: No known significant effects or critical hazards.

**Teratogenicity**: No known significant effects or critical hazards.

**Developmental effects**

**Fertility effects**: No known significant effects or critical hazards.

**Numerical measures of toxicity**

**Acute toxicity estimates**

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>2248 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>6581.6 mg/kg</td>
</tr>
</tbody>
</table>

**Other information**: Not available.

Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Endpoint</th>
<th>Exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>diethyl methylene dianiline</td>
<td>OECD 202 Daphnia sp. Acute Immobilisation Test</td>
<td>Acute</td>
<td>EC50</td>
<td>Daphnia</td>
<td>0.35 mg/l</td>
</tr>
<tr>
<td></td>
<td>OECD 203 Fish, Acute Toxicity Test</td>
<td>Acute</td>
<td>LC50</td>
<td>Fish</td>
<td>20.6 mg/l</td>
</tr>
<tr>
<td></td>
<td>OECD 211 Daphnia Magna Reproduction Test</td>
<td>Chronic</td>
<td>NOEC</td>
<td>Daphnia</td>
<td>0.00525 mg/l</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>EU EC C.3 Algal Inhibition Test</td>
<td>Acute</td>
<td>EC50</td>
<td>Algae</td>
<td>150.67 mg/l</td>
</tr>
<tr>
<td></td>
<td>EU EC C.2 Acute Toxicity for Daphnia</td>
<td>Acute</td>
<td>IC0</td>
<td>Daphnia</td>
<td>&gt;100 mg/l</td>
</tr>
<tr>
<td></td>
<td>DIN DIN 38412 Part 15</td>
<td>Acute</td>
<td>LC50</td>
<td>Fish</td>
<td>2700 mg/l</td>
</tr>
<tr>
<td></td>
<td>DIN DIN 38412 Part 15</td>
<td>Acute</td>
<td>LC50</td>
<td>Fish</td>
<td>4600 mg/l</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>Chronic</td>
<td>NOEC</td>
<td>Bacteria</td>
<td>700 mg/l</td>
</tr>
<tr>
<td></td>
<td>OECD 211 Daphnia Magna Reproduction Test</td>
<td>Chronic</td>
<td>NOEC</td>
<td>Daphnia</td>
<td>10 mg/l</td>
</tr>
</tbody>
</table>
Section 12. Ecological information

### EU EC C.3 Algal Inhibition Test

<table>
<thead>
<tr>
<th>Chronic NOECr 72 hours Algae</th>
<th>4.25 mg/l</th>
</tr>
</thead>
</table>

**Conclusion/Summary**: N,N'-di-sec-butyl-4,4'-methylenedianiline Toxic to aquatic organisms if run directly to surface waters.

### Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Period</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>OECD 302B Inherent Biodegradability: Zahn-Wellens/EMPA Test EU</td>
<td>28 days</td>
<td>36 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 days</td>
<td>9 %</td>
</tr>
</tbody>
</table>

**Conclusion/Summary**: N,N'-di-sec-butyl-4,4'-methylenedianiline Poorly eliminated by biodegradation

Tetrakis(2-hydroxypropyl) ethylenediamine (THPE) Inherently biodegradable

Siloxanes and Silicones, di-Me, reaction products with silica Eliminated by adsorption onto effluent treatment sludge.

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castor Oil</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>Fresh water days</td>
<td>-</td>
<td>Not readily</td>
</tr>
</tbody>
</table>

### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogPow</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>N,N'-di-sec-butyl-4,4'-methylenedianiline</td>
<td>6.08</td>
<td>4700</td>
<td>high</td>
</tr>
<tr>
<td>Tetrakis(2-hydroxypropyl) ethylenediamine (THPE)</td>
<td>-2.08</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

### Mobility in soil

Not available.

### Other adverse effects

No known significant effects or critical hazards.

### Other ecological information

**BOD5**: Not determined.

**COD**: Not determined.

**TOC**: Not determined.

### Section 13. Disposal considerations

**Disposal methods**: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when...
Section 13. Disposal considerations

handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

Proper shipping name

DOT : Not regulated.
TDG : Not regulated.
IMDG : Not regulated.
IATA : Not regulated.

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>UN number</th>
<th>Classes</th>
<th>PG*</th>
<th>Label</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TDG Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IMDG Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IATA Classification</td>
<td>Not regulated.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

PG* : Packing group

Section 15. Regulatory information

Safety, health and environmental regulations specific for the product

United States Regulations

TSCA 8(b) inventory : All components are listed or exempted.
TSCA 5(a)2 final significant new use rule (SNUR) : No ingredients listed.
TSCA 5(e) substance consent order : No ingredients listed.
TSCA 12(b) export notification : No ingredients listed.
SARA 311/312 : Immediate (acute) health hazard
                Delayed (chronic) health hazard
Section 15. Regulatory information

Clean Air Act - Ozone Depleting Substances (ODS)

This product does not contain nor is it manufactured with ozone depleting substances.

SARA 313

No ingredients listed.

---

Section 304 CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CERCLA Hazardous Substance</th>
<th>CERCLA Reportable Quantity (Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>zinc bis (2-ethylhexanoate)</td>
<td>0.0245</td>
<td>Listed</td>
<td>No RQ assigned</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>0.000007</td>
<td>Listed</td>
<td>1000</td>
</tr>
</tbody>
</table>

---

California Prop 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Cancer</th>
<th>Reproductive</th>
</tr>
</thead>
<tbody>
<tr>
<td>quartz (SiO2)</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Yes.</td>
<td>No.</td>
</tr>
</tbody>
</table>

---

State regulations

Pennsylvania - RTK

quartz (SiO2)

California Prop 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Cancer</th>
<th>Reproductive</th>
</tr>
</thead>
<tbody>
<tr>
<td>quartz (SiO2)</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>Yes.</td>
<td>No.</td>
</tr>
</tbody>
</table>

---

Canadian regulations

CEPA DSL

All components are listed or exempted.

WHMIS Classes

Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

---

Brazil Regulations

Classification system used

Norma ABNT-NBR 14725-2:2012

---

International lists

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): Not determined.
Japan inventory: At least one component is not listed.
Korea inventory: At least one component is not listed.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): At least one component is not listed.
Philippines inventory (PICCS): At least one component is not listed.
Taiwan inventory (CSNN): Not determined.
The customer is responsible for determining the PPE code for this material.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

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Section 16. Other information

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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