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PROTAL 7200 PART B (HARDENER)

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

1.1. Product identifier
- Product name: PROTAL 7200 Part B (Hardener)

1.2. Relevant identified uses of the substance or mixture and uses advised against
- Product Use: Industrial use as a protective coating in prevention of corrosion.
- Restricted Use: Not intended for use by general public.

1.3. Details of the supplier of the safety data sheet
- Company: Denso North America
- Address: 9747 Whithorn Drive
  Houston, TX 77095
- Web: www.densona.com
- Telephone: 1 (281) 821-3355
- Fax: 1 (281) 821-0304
- Email: info@densona.com

1.4. Emergency telephone number
- Emergency telephone number (24 Hour): 1-801-629-0667

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

2.1.1. Health
- Skin Irritation – Category 1
- Eye Damage – Category 1
- Skin sensitizer
- STOT Repeat – Category 2 Inhalation, Ingestion, Contact (Liver, Lungs, Skin, Eyes)

2.1.2. Environmental
- Acute aquatic toxicity – Category 3

2.1.3. Physical
- None

2.2. Label elements

Hazard pictograms

Signal Word

Hazard statement

H302 – Harmful if swallowed.
H314 – Causes skin severe skin burns and eye damage.
H317 – May cause an allergic skin reaction.
H318 – Causes serious eye damage.
H335 – May cause respiratory irritation.
H373 – May cause damage to organs (Liver, Lungs, Skin, Eyes) through prolonged or
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Precautionary Statement: Prevention
P102 – Keep out of reach of children.
P202 – Do not handle until all safety precautions have been read and understood
P233 – Keep container tightly closed.
P234 – Keep only in original container.
P235 – Store in a well ventilated place. Keep cool.
P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
P262 – Do not get in eyes, on skin, or on clothing.
P264 – Wash thoroughly after handling.
P270 – Do not eat, drink, or smoke when using this product.
P271 – Use only outdoors or in a well-ventilated area.
P272 – Contaminated work clothing should not be allowed out of the workplace.
P273 – Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary Statement: Response
P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P302+P352 – IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353 – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 – Get medical advice/attention if you feel unwell.
P331 – Do not induce vomiting.
P333+P313 – If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 – If eye irritation persists: Get medical advice/attention.
P363 – Wash contaminated clothing before reuse.
P391 – Collect spillage.

Precautionary Statement: Disposal
P501 – Dispose of contents/container in accordance with local/national regulations.

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Concentration (%w/w)</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Aminoethylpiperazine</td>
<td>140-31-8</td>
<td>40-70%</td>
<td>Skin Irr 2; H315</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irr 2; H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aqua Acute/Chronic 2; H411 (1) (2)</td>
</tr>
<tr>
<td>4,4'-Isopropylidene-diphenol</td>
<td>80-05-7</td>
<td>1-10%</td>
<td>Skin Irr 2; H315</td>
</tr>
<tr>
<td>Reaction product: bisphenol-F-epichlorohydrin</td>
<td>28064-14-4</td>
<td>5-20%</td>
<td>Eye Irr 2; H319</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin Sens 1; H317</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aqua Chronic 2; H411</td>
</tr>
</tbody>
</table>

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Revision Date: 31 July 2015
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Reaction product: bisphenol-A-(epichlorohydrin); epoxy resin (number average molecular weight < 700)
4-Nonyl phenol, branched

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Concentration</th>
<th>Hazard Code(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25068-38-6</td>
<td>5-20%</td>
<td>Xi; R36/38, 43; N; R51/53</td>
</tr>
<tr>
<td>84852-15-3</td>
<td>1-5%</td>
<td>Skin Irr 2; H315; Eye Irr 2; H319; Aqua Acute/Chronic 1; H411</td>
</tr>
</tbody>
</table>

NOTES:
1. Substance classified with a health or environmental hazard.
2. Substance with a workplace exposure limit.

SECTION 4: First aid measures

4.1. General advice
Seek medical advice. If breathing has stopped or is labored, give assisted respirations. Supplemental oxygen may be indicated. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately.

4.2. Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention.

4.3. Skin contact
Flush contaminated skin with plenty of 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. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse. For contact with hot product, flush contaminated skin with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze. Get medical attention immediately.

4.4. Ingestion
Wash out mouth with water. Remove dentures, if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposure 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 if adverse health effects persist or are severe. 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.

4.5. Inhalation
Move exposed person to fresh air. Keep person warm and at rest. 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 adverse health effects persist or are severe. 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.
4.6. Most important symptoms and effects, both acute and delayed

**Eye contact**
Corrosive to the eyes and may cause severe damage including blindness. Causes permanent eye injury. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.

**Skin contact**
Corrosive. Contact may cause severe burns to skin. Symptoms may include redness, edema, drying, defatting and cracking of the skin. May cause allergic skin reaction or sensitization.

**Ingestion**
Harmful if swallowed. May produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract. May cause abdominal pain, nausea, vomiting, or diarrhea.

**Inhalation**
High vapor concentrations are irritating to the eyes, nose, throat, and lungs. May cause irritation to respiratory system with throat discomfort, coughing or difficulty breathing.

### SECTION 5: Firefighting measures

5.1. Suitable extinguishing media
Alcohol-resistant foam, Carbon dioxide (CO2), Dry chemical, or water spray. Do not use a solid water stream as it may scatter and spread fire.

5.2. Specific hazards
Decomposition products may include the following materials: carbon oxides; nitrogen oxides. Downwind personnel must be evacuated. Burning produces noxious and toxic fumes.

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

5.4. Further information
Do not allow run-off from fire-fighting to enter drains or water courses.

### SECTION 6: Accidental release measures

6.1. Personal precautions
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 materials. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

6.2. 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).

6.3. Methods for cleaning up
Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Use absorbent with inert material. Vacuum or sweep up material and place in a designated, labeled waste
SECTION 7: Handling and storage

7.1. Handling
Put on appropriate personal protective equipment (see Section 8). 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 or smoking. Persons with a history of skin sensitization problems 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.

7.2. Storage
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. Keep aware from heat, sparks, and flames. 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.

7.3. Technical precautions
Do not store in reactive metal containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>ACGIH TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>140-31-8</td>
<td>None established</td>
</tr>
<tr>
<td>80-05-7</td>
<td>5 mg/m³ (dust)</td>
</tr>
<tr>
<td>28064-14-4</td>
<td>None established</td>
</tr>
<tr>
<td>25068-38-6</td>
<td>None established</td>
</tr>
<tr>
<td>84852-15-3</td>
<td>None established</td>
</tr>
</tbody>
</table>

8.2. Control measures / Personal Protection

8.2.1. Recommended monitoring procedures
To meet the exposure limits for the materials listed above, personal workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

8.2.2. Engineering measures
Use only with adequate ventilation. 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
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8.2.3. Hygiene measures
Wash hands, forearms, and face after handling chemical products, before eating, smoking or using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing or discard as necessary. Ensure that eyewash stations/bottles with pure water and safety showers are close to the workstation location.

8.2.4. 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. Select equipment to provide protection from the ingredients in Section 3 of this document.

8.2.5. Eye 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. This may include, but is not limited to, safety glasses, goggles and face shields.

8.2.6. Skin 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. This equipment may include, but is not limited to, impervious gloves, gauntlets, impervious shoes/boots, and protective clothing. The breakthrough time of the selected protective glove(s), shoes and clothing must be greater than the intended use period.

8.2.7. 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. Environmental exposure controls may also include dikes or other liquid containment devices.

<table>
<thead>
<tr>
<th>Form</th>
<th>Liquid</th>
<th>Vapor Pressure</th>
<th>ND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Green</td>
<td>Relative vapor density</td>
<td>&gt;1</td>
</tr>
<tr>
<td>Odor</td>
<td>Irritating</td>
<td>Relative density</td>
<td>1.08</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>ND</td>
<td>Water solubility</td>
<td>Slight</td>
</tr>
<tr>
<td>pH</td>
<td>about 10</td>
<td>Partition coefficient (n-octanol/water)</td>
<td>ND</td>
</tr>
<tr>
<td>Freezing point</td>
<td>ND</td>
<td>Auto-ignition temperature</td>
<td>ND</td>
</tr>
<tr>
<td>Boiling point</td>
<td>ND</td>
<td>Decomposition temperature</td>
<td>ND</td>
</tr>
<tr>
<td>Flash Point</td>
<td>ND</td>
<td>Viscosity</td>
<td>5,500 cP @ 73°F (22°C)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>N/A</td>
<td>Oxidizing</td>
<td>N/A</td>
</tr>
<tr>
<td>Flammable Limits</td>
<td>ND</td>
<td>Explosion Limits</td>
<td>ND</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity
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10.1 Stability
The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.

10.2. Conditions to avoid
May burn but does not ignite readily. When heated, vapors may form explosive mixtures with air. Containers may explode when heated.

10.3. Materials to avoid
Reactive or incompatible with the following materials: Strong oxidizing agents, acids, alcohols, cresol, glycol, isocyanates, phenol, vinyl acetates, strong bases

10.4. Other hazards
Reacts with considerable heat release.

10.5. Hazardous decomposition products
Decomposition products may include the following materials: Carbon oxides, Nitrogen oxides, Ammonia, Toxic/Noxious fumes

SECTION 11: Toxicological information

11.1. Acute health hazard
Product:
Acute oral toxicity: ND
Acute dermal toxicity: ND

Components:
140-31-8
Acute oral toxicity: LD50 (rabbit): 2097 mg/kg
Acute dermal toxicity: LD50 (rabbit): 866 mg/kg

80-05-7
Acute oral toxicity: LD50 (rat): 3,250 mg/kg
Acute dermal toxicity: LD50 (rabbit): 3,000 mg/kg

28064-14-4
Acute oral toxicity: LD50 (rat): >2,000 mg/kg
Acute dermal toxicity: LD50 (rabbit): >2,000 mg/kg

25068-38-6
Acute oral toxicity: LD50 (rat): 30,000 mg/kg
Acute dermal toxicity: LD50 (rat): >1,200 mg/kg

84852-15-3
Acute oral toxicity: LD50 (rat): 580 mg/kg
Acute dermal toxicity: LD50 (rabbit): 2,031 mg/kg

11.2. Skin corrosion or irritation
Product: May cause skin irritation or burns. May cause sensitization in susceptible persons.

Components:
140-31-8
Species: adult rabbit
11.3. Serious eye damage or irritation

Result: Corrosive to skin
Classification: corrosive to skin

80-05-7
Result: None known.

28064-14-4
Species: adult rabbit
Result: slight to moderate irritation to skin
Classification: irritating to skin

25068-38-6
Species: adult rabbit
Result: slight to moderate irritation to skin
Classification: irritating to skin

84852-15-3
Species: rabbit
Result: severe irritation and burns
Classification: severe irritation and burns

Product: Corrosive to eyes and may cause severe damage including blindness.

Components:
140-31-8
Species: adult rabbit
Result: corrosive to eyes
Classification: corrosive to eyes

80-05-7
Result: None known.

28064-14-4
Species: adult rabbit
Result: slightly irritation
Classification: irritating to eyes

25068-38-6
Species: adult rabbit
Result: slightly irritating
Classification: irritating to eyes

84852-15-3
Species: rabbit
Result: severe irritation and burns
Classification: severe irritation and burns
### 11.4. Respiratory or skin sensitization

**Product:** May cause skin sensitization in susceptible persons.

**Components:**
- 140-31-8
  - Species: adult guinea pig
  - Result: Causes skin sensitization
- 80-05-7
  - Result: None known.
- 28064-14-4
  - Species: adult guinea pig
  - Result: Causes skin sensitization
- 25068-38-6
  - Species: adult guinea pig
  - Result: Causes skin sensitization
- 84852-15-3
  - Species: guinea pig
  - Result: not sensitizing

### 11.5. Germ cell mutagenicity

**Product:** Not likely to be mutagenic based on components.

**Components:** None of the components is known to have significant mutagenic effect.

### 11.6. Carcinogenicity

**Product:** Not classifiable as a human carcinogen based on components.

**Components:** None of the components is classified as a carcinogen.

### 11.7. Reproductive toxicity

**Product:** Not Determined.

**Components:** None of the components is known to have significant reproductive effects,

### 11.8. STOT – single exposure

**Product:** No data available, but irritation, sensitization and/or burns to respiratory system, skin, and eyes are likely—Lungs, Skin, and Eyes. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Components:** See Sections 11.2, 11.3, and 11.4 for specific information regarding the effects of the components.

### 11.9. STOT – repeated exposure

**Product:** No data available, but, based on components, may cause damage to organs through prolonged or repeated exposure—Liver, Lungs, Skin, and Eyes. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
11.10. Repeated dose toxicity  
**Product:** No data available, but, based on components, Causes skin and eye irritation, damage, burns. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Changes to the liver, lungs, skin and eyes possible.

11.11. Aspiration toxicity  
**Product:** Not determined.  
**Components:** Not determined.

11.12. Further information  
Likely routes of exposure – inhalation; skin and eye contact.

### SECTION 12: Ecological information

12.1. Ecotoxicity  
**Product:**  
Remarks: Likely toxic to aquatic life based on components present.

**Components:**

- 140-31-8  
  Toxicity to fish – 96 h LC50: >100 mg/L  
  Toxicity to daphnia and other aquatic invertebrates – 48 h LC50: 32 mg/L  
  Toxicity to algae – 72 h LC50: >1,000 mg/L  
- 80-05-7  
  Toxicity to fish – 96 h LC50: 4.6 mg/L  
- 28064-14-4  
  Toxicity to fish – 96 h LC50: >1-10 mg/L  
  Toxicity to daphnia and other aquatic invertebrates – 48 h EC50: >1-10 mg/L  
  Toxicity to algae EC50: ND  
- 25068-38-6  
  Toxicity to fish – 96 h LC50: 3.1 mg/L  
  Toxicity to daphnia and other aquatic invertebrates – 48 h LC50: 1.3 mg/L  
- 84852-15-3  
  Toxicity to fish – 96 h static LC50: 0.05 mg/L  
  Toxicity to daphnia and other aquatic invertebrates – 48 h static EC50: 0.085 mg/L  
  Toxicity to algae – 96 h EC50: 0.41 mg/L

12.2. Persistence and degradability  
**Product:** No data available
Components:
140-31-8
Remarks: <60% after 28 days.

80-05-7
Remarks: N/A

28064-14-4
Remarks: Not readily biodegradable.

25068-38-6
Remarks: 12% after 28 days.

84852-15-3
Remarks: 100% after 63 days.

12.3. Bioaccumulative potential

Product: No data available

Components: Not determined.

12.4. Mobility in soil

Product: Not determined.

Components: Not determined.

12.5. Other adverse effects

Product: Not determined. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal, toxic to aquatic life.

Components: No data available

SECTION 13: Disposal considerations

13.1. Waste disposal

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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 and local authority requirements. Avoid disposal of spilled material and runoff and contaminated soils in waterways, drains or sewers. Dispose of contaminated containers, soils, etc. in compliance with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements. Empty any remaining contents from packaging prior to disposal and dispose of as unused product. Do not reuse empty containers.

SECTION 14: Transport information
14.1. UN number
UN3066

14.2. UN proper shipping name
PAINT

14.3. Transport hazard class
International Carriage of Dangerous Good by Road/Rail
ADR/RID: 8

International Maritime Dangerous Goods
IMDG: 8

International Air Transport Association
IATA: 8

US Code of Federal Regulations
CFR 8

Canadian Transportation of Dangerous Goods
TDG: 8

US Department of Transportation
DOT: 8

14.4. Packing group
II

14.5. Environmental hazards
Environmental hazards: Yes
Marine pollutant: Yes
IMDG
EmS Code: F-A S-B
IATA
Packing Instruction (Cargo): 855 Maximum quantity: 30 L
Packing instruction (Passenger): 851 Maximum quantity: 1 L

SECTION 15: Regulatory information

15.1. OSHA Hazards
Irritant, Sensitizer, Corrosive

15.2. CERCLA Reportable Quantity
Components CAS No. Component RQ Product RQ
None

15.3. SARA 314 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 314 Extremely Hazardous Substances RQ.
15.4. SARA 311/312 Hazards  | Acute health hazard, Chronic health hazard  
15.5. SARA Title III, Section 302 Reporting  | No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.  
15.6. SARA Title III, Section 313 Reporting  | The following chemicals in this material are subject to the reporting requirements of SARA Title III, Section 313: 4,4’-Isopropylidenediphenol  
15.7. Clean Air Act  | The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61): None.  
|  | This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).  
|  | The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC’s (40 CFR 60.489): None.  
15.8. Clean Water Act  | The following Hazardous Substances are listed under the U.S. Clean Water Act, Section 311, Table 116.4A: None.  
|  | The following Hazardous Substances are listed under the U.S. Clean Water Act, Section 311, Table 117.3: None.  
|  | This product contains the following toxic pollutants listed under the U.S. Clean Water Act, Section 307: None.  
15.9. US State Regulations  | Massachusetts Right-To-Know  
|  | 4,4’-Isopropylidenediphenol  
|  | Pennsylvania Right-To-Know  
|  | 4,4’-Isopropylidenediphenol  
|  | New Jersey Right-To-Know  
|  | 4,4’-Isopropylidenediphenol  
|  | California Prop 65  
|  | This product contains no chemicals known to the State of California to cause cancer.  
|  | This product contains no chemicals known to the State of California to cause birth defects or other reproductive harm.  
15.10. International Chemical Inventory Listing  | TSCA (US)  
|  | Yes (All components of this product are on US inventory)  
| DSL (Canada)  | Yes (All components of this product are on Canadian inventory)  
| AICS (Australia)  | Yes (On Australian inventory or in compliance with inventory)  
| ICS (New Zealand)  | Yes (On New Zealand inventory or in compliance with inventory)  
| ENCS (Japan)  | Yes (On Japanese inventory or in compliance with inventory)  
| ISHL (Japan)  | Yes (On Japanese inventory or in compliance with inventory)
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<table>
<thead>
<tr>
<th>KECI (Korea)</th>
<th>Yes (On Korean inventory or in compliance with inventory)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICCS (Philippines)</td>
<td>Yes (On Philippine inventory or in compliance with inventory)</td>
</tr>
<tr>
<td>IECSC (China)</td>
<td>Yes (On Chinese inventory or in compliance with inventory)</td>
</tr>
</tbody>
</table>

15.11. WHMIS Hazard Classification (Canada)

- Class D-2B: Material causing other toxic effects (Toxic).
- Canadian NPRI: None required.

### SECTION 16: Other information

16.1. NFPA

16.2. HMIS®

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

16.3. Text of Risk phrases in Section 3

- R36/38 – Irritating to eyes and skin.
- R43 – May cause sensitization by skin contact.
- R51/53 – Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

16.4. Text of Hazard statements in Section 3

- H302 – Harmful if swallowed.
- H314 – Causes skin severe skin burns and eye damage.
- H315 – Causes skin irritation.
- H317 – May cause an allergic skin reaction.
- H318 – Causes serious eye damage.
- H319 – Causes serious eye irritation.
- H335 – May cause respiratory irritation.
- H373 – May cause damage to organs through prolonged or repeated exposure.
- H411 – Toxic to aquatic life with long-lasting effects.
16.5. Notice to Reader

The information provided herein was believed by Denso North America (“Denso”) to be accurate at the time of preparation and prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. All products supplied by Denso are subject to Denso’s terms and conditions of sale. DENSO MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MECHANABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY DENSO, except that the product shall conform to Denso’s specifications. Nothing contained herein constitutes an offer for the sale of any product.

16.6. Key/Legend to abbreviations and acronyms used in the safety data sheet

- ACGIH: American Conference Government Industrial Hygienists
- ADR: European Agreement for International Carriage of Dangerous Materials Road
- AICS: Australia, Inventory of Chemical Substances
- DSL: Canada, Domestic Substances List
- NDSL: Canada, Non-Domestic Substances List
- CAS: Chemical Abstract Service
- CNS: Central Nervous System
- DOT: Department of Transportation
- EC50: Effective Concentration 50%
- EGEST: EOSCA Generic Exposure Scenario Tool
- EOSCA: European Oilfield Specialty Chemicals Association
- EINECS: European Inventory of Existing Chemical Substances
- ENCS: Japan, Inventory Existing and New Chemical Substances
- GHS: Global Harmonization System
- HMIS: Hazardous Materials Identification System
- IARC: International Agency for Research on Cancer
- IATA: International Air Transport Association
- IC50: Inhibition Concentration 50%
- IECS: Inventory of Existing Chemical Substances in China
- IMDG: International Maritime Dangerous Goods
- KECI: Korea, Existing Chemical Inventory
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- LOAEL: Lowest Observed Adverse Effect Level
- MAK: Germany Maximum Concentration Values
- N/A: Not Available
- ND: Not Determined
- NFPA: National Fire Protection Agency
- NIOSH: National Institute for Occupational Safety & Health
- NOAEL: No Observable Adverse Effect Level
- NOEC: No Observed Effect Concentration
- NTP: National Toxicology Program
- NZIoC: New Zealand Inventory of Chemicals
SAFETY DATA SHEET
According to 29 CFR 1910.1200(g)

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
</tr>
<tr>
<td>PICCS</td>
<td>Philippines Inventory Commercial Chemical Substances</td>
</tr>
<tr>
<td>PRNT</td>
<td>Presumed Not Toxic</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
</tr>
<tr>
<td>RID</td>
<td>European Agreement for International Carriage of Dangerous Materials Rail</td>
</tr>
<tr>
<td>RQ</td>
<td>Reportable Quantity</td>
</tr>
<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act</td>
</tr>
<tr>
<td>STEL</td>
<td>Short-Term Exposure Limit</td>
</tr>
<tr>
<td>TDG</td>
<td>Transportation of Dangerous Goods (Canada)</td>
</tr>
<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
</tr>
<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
</tr>
<tr>
<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>

16.7. Prepared by
Denso EH & S Department

16.8. Telephone
1-281-821-3355 Corporate
1-801-629-0667 Emergency (24 hour)