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| 3 Composition/informat   | ion on ingredients   |          |
|--|--|----------|
| · Chemical Characterization:   | Mixtures   |          |
| <ul> <li>Composition/Informatio</li> </ul>   | n on Ingredients   |          |
| CAS: 25068-38-6<br>NLP: 500-033-5<br>Index Number: 603-074-00-8                        | Bisphenol-A-(epichlorohydrin) epoxy resin<br>Aquatic Chronic 2, H411<br>Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317 | _ 40-50% |
|  | Organophosphorous salt   | _ 10-20% |
| CAS: 17557-23-2<br>EINECS: 241-536-7<br>Index Number: 603-094-00-7<br>RTECS: TX3760000 | Diglycidyl ether of neopentyl gylcol<br>Skin Irrit. 2, H315: Skin Sens. 1, H317: STOT SE 3, H335<br>Eye Dam. 2B, H320                | _ 5-<10% |
| CAS: 68609-97-2<br>EINECS: 271-846-8<br>Index Number: 603-103-00-4                     | Alkyl (C12, C14) glycidyl ether<br>Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317                                      | _ 5-<10% |
| CAS: 1333-86-4<br>EINECS: 215-609-9<br>RTECS: FF5800000                                | Carbon black   | 0.1-1%   |
| . Additional Information   |  |          |

Additional Information: If the chemical name/CAS number is proprietary and or weight percentage is listed as a range, the specific chemical identity and or percentage of composition has been withheld as a trade secret.

## 4 First-aid measures

#### Description of First Aid Measures

#### **General Information**

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

# · After Inhalation

Remove victim from exposure to fresh air. Keep person at rest. Provide oxygen if person is not breathing. In case of unconsciousness place patient stably in side position for transportation. Supply fresh air; consult doctor in case of complaints.

After Skin Contact Remove all contaminated clothing and wash before reuse. Wash contaminated skin with water and soap and rinse thoroughly. Seek medical treatment in case of complaints.

#### After Eye Contact

Immediately bathe eyes for 15 minutes under running water. Immediately remove contact lenses if present. Continue rinsing. Seek medical treatment in case of complaints.

## After Swallowing

If victim is unconscious; never give anything by mouth. If victim is conscious; rinse out mouth and give victim small amounts of water. Seek medical treatment in case of complaints.

#### Information for Doctor

# Indication of any Immediate Medical Attention and Special Treatment Needed Check section 11 Toxicological Information for further relevant information.

# 5 Fire-fighting measures

 Extinguishing Media
 Suitable Extinguishing Agent(s)
 Use fire fighting measures and extinguishing agents that suit the environment.
 In case of fire, suitable extinguishing agents are: Alcohol resistant foam. Dry chemical or fire-extinguishing powder. Carbon dioxide (CO<sub>2</sub>). Water spray or water fog. • **Unsuitable Extinguishing Agent(s)** Water with full jet

- · Special Hazards Arising in Fire

In case of fire, following can be released:

Carbon dioxide ( $CO_2$ ) and Carbon monoxide (CO)

### Advice for Firefighters

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

# 6 Accidental release measures

### Personal Precautions

Do not breathe gas, vapors, dusts or mists if their inhalable particles occur during use. Ensure personnel take precautions for their personal protection during clean up; see Section 8 for the specific requirements.

### · Environmental Precautions No further relevant information.

#### Cleaning Up Methods

Ensure adequate ventilation. Remove all sources of ignition. Soak up spilled material with inert absorbant.



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| Absorb residues with liquid-binding materials.  | (Contd. of page 2) |
|---|--------------------|
| Absorb residues with liquid-binding materials.<br>Avoid confined spaces, such as sewers, because of the possibility of an explosion.<br>Do not use solvents unless following safe handling practices and within the recommended exposure guidelines.<br>Dispose contaminated chemicals as waste according to Section 13.<br>• <b>Protective Action Criteria for Chemicals</b> |                    |
| · PAC-1:  |                    |
| 25068-38-6  Bisphenol-A-(epichlorohydrin) epoxy resin   | 90 mg/m3           |
| 21645-51-2 Aluminum hydroxide   | 8.7 mg/m3          |
| 1333-86-4 Carbon black  | 9 mg/m3            |
| · PAC-2:  |                    |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin  | 990 mg/m3          |
| 21645-51-2 Aluminum hydroxide   | 73 mg/m3           |
| 1333-86-4 Carbon black  | 99 mg/m3           |
| · PAC-3:  |                    |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin  | 5,900 mg/m3        |
| 21645-51-2 Aluminum hydroxide   | 440 mg/m3          |
| 1333-86-4 Carbon black  | 590 mg/m3          |

# 7 Handling and storage

#### ·Handling

Precautions for Safe Handling

Precautions for Safe Handling Keep away from incompatible material(s). Avoid any release into the environment. Do not breathe dust created by cutting, sanding, grinding or machining. For industrial or professional use only Do not breathe dust/fumes/mist/vapor/spray. Avoid contact with eyes, skin and clothing. Keep away from heat,sparks, flames and ignition sources. Observe all the personal profection requirements in Section 8

Observe all the personal protection requirements in Section 8. • Information about Protection Against Explosions and Fires Dust can combine with air to form an explosive mixture.

Storage

Requirements to be Met by Storerooms and Receptacles

Store in a well-ventilated place; provide ventilation for receptacles. Keep stored in accordance with local, regional, national, and international regulations.

· Additional Information No further relevant information.

## 8 Exposure controls/personal protection

#### Engineering Measures or Controls

**Exposure Limit Values that Require Monitoring at the Workplace** The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

- 1333-86-4 Carbon black PEL Long-term value: 3.5 mg/m<sup>3</sup>
  - REL

Long-term value: 3.5\* mg/m<sup>3</sup> \*0.1 in presence of PAHs;See Pocket Guide Apps.A+C

TLV

Long-term value: 3\* mg/m<sup>3</sup> \*inhalable fraction

# Other Engineering Measures or Controls

Ventilation rates should be matched to conditions. If applicable, use general ventilation, process enclosure(s), local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If ventilation is not adequate, use respiratory protection equipment.

#### · Personal Protective

## General Protective and Hygienic Measures

Avoid any contact with eye. Do not eat, drink or smoke during work. Clean hands and exposed skin thoroughly after handling.

Personal Protective Equipment (PPE)

#### Breathing Equipment

Sufficient ventilation in pattern and volume should be provided in order to maintain air contaminant levels below recommended exposure limits. Use a NIOSH approved air-purifying organic vapor respirator if occupational limits are exceeded. For emergency situations,

confined space use, or other conditions where exposure limits may be greatly exceeded, use an approved air supplied respirator. Observe OSHA regulations (29CFR 1910.134) for respirator use. Hand Protection

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

Butyl Rubber Gloves

Eye Protection safety glasses with side shields and or face shield.

Body Protection Appropriate chemical resistant clothing.

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#### · Additional Information

The Engineering measures or controls, and PPE recommendations are only guidelines and may not apply to every situation. For additional information, please consult the corresponding requirements under OSHA 29 CFR 1910.94-95, and 29 CFR 1910.132-138.

# 9 Physical and chemical properties

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|--|--|
| Information on Basic Physical and<br>Appearance:<br>Form:<br>Color:<br>Odor:<br>Odor Threshold:  | I Chemical Properties<br>Liquid<br>Black<br>Mild epoxy odor<br>Not determined.   |
| · PH-Value:  | Not determined.  |
| Change in Condition:<br>Melting Point:<br>Boiling Point:<br>Flash Point:<br>Decomposition Temperature:<br>Auto-ignition Temperature:<br>Flammability:<br>Explosion:<br>Explosion Limits:<br>Lower:<br>Upper:                         | Not determined.<br>Not determined.<br>>93 °C (>199 °F)<br>Not determined.<br>Not determined.<br>Not determined.<br>Not determined.<br>Not determined.<br>Not determined. |
| <ul> <li>Vapor Pressure:</li> <li>Vapor Density:</li> <li>Density at 20 °C (68 °F):</li> <li>Solubility in or Miscibility with</li> <li>Water:</li> <li>Viscosity:</li> <li>Dynamic at 20 °C (68 °F):</li> <li>Kinematic:</li> </ul> | Not determined.<br>not determined  |

## 10 Stability and reactivity

· Physical Hazard(s) Not a regulated physical hazard under GHS.

· Hazardous Reactivity and Chemical Stability Stable under normal conditions of use, storage and temperatures.

· Thermal Decomposition and Conditions to be Avoided

Keep away from incompatible material(s). Thermally decomposes during fire or high heat; keep away from heat, sparks, open flame and other ignition sources.

· Possibility of Other Hazardous Reaction(s) No further relevant information available.

· Incompatible Material(s) Oxidizing agents Mercaptans Acids Amines Bases (Alkalis)

F

Hazardous Decomposition Product(s) Thermally decomposes during fire or very high heat. See Section 5 for fire hazards evolved during thermal decomposition.

# 11 Toxicological information

For detailed Toxilogical Information please email the Product Safety Department.

· Information on toxicological effects

Acute Toxicity
 LD/LC50 values that are relevant for classification:

| Not a classified acute oral hazard.  |
|--|
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin                           |
| Oral LD50 11400 mg/kg (rat)  |
| 21645-51-2 Aluminum hydroxide  |
| Oral LD50 (rat) (LD0(OECD TG 401)>5000mg/kg: no death occurred)                |
| Organophosphorous salt   |
| Oral LD50 > 2000 mg/kg (rat) (OECD TG 401)                                     |
| 92704-41-1 Calcined Kaolin   |
| Oral LD50 > 5000 mg/kg (rat)<br>Reference: ECHA (2011).                        |
| 17557-23-2 Diglycidyl ether of neopentyl gylcol                                |
| Oral LD50 4500 mg/kg (rat)<br>Reference: ChemID (2010).                        |
| 68609-97-2 Alkyl (C12, C14) glycidyl ether                                     |
| Oral LD50 26800 mg/kg (rat) (Male rats; By calculation from 30.1 ml/kg)        |
| • Specific symptoms in biological assay: Not a classified acute dermal hazard. |

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| Primary irritant effect:   |  |
|--|--|
| cough<br>sore throat   |  |
| Not a classified acute inhalative hazard.                        |  |
| No further relevant information; classification is not possible. |  |
| on the skin: Irritates skin and mucous membranes.                |  |
|  |  |

· on the eye: Causes eye irritation.

· Sensitization: Possible sensitization upon contact with skin.

· Experience with humans: Not applicable.

 Additional toxicological information: The product shows the following dangers according to internally approved calculation methods for preparations: Irrita'nt

· Carcinogenic categories

| <ul> <li>IARC (International Agency for Research on Cancer)</li> </ul> |  |  |
|--|--|--|
| None of the ingredients is listed.                                     |  |  |
| · NTP (National Toxicology Program)                                    |  |  |
| None of the ingredients is listed.                                     |  |  |
| • OSHA-Ca (Occupational Safety & Health Administration)                |  |  |

None of the ingredients is listed.

# **12 Ecological information**

| · Toxicity  |
|---|
| · Aquatic toxicity:   |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin  |
| Dermal LD50 20000 mg/kg (rabbit) (Test guideline not available)   |
| 21645-51-2 Aluminum hydroxide   |
| Dermal LD50 (Test species: n/a) (Toxicity not expected based on acute oral data)  |
| Organophosphorous salt  |
| Dermal LD50 > 2000 mg/kg (rat) (OECD TG 402; female rats)   |
| 92704-41-1 Calcined Kaolin  |
| Dermal LD50 > 5000 mg/kg (rat)<br>Reference: ECHA (2011).   |
| 17557-23-2 Diglycidyl ether of neopentyl gylcol   |
| Dermal LD50 (rat)<br>> 2000 mg/kg; end value or test detail was not available; classification was not possible.   |
| 68609-97-2 Alkyl (C12, C14) glycidyl ether  |
| Dermal LD50 (Test species: n/a) (Toxicity not expected based on acute oral data)  |
| Persistence and degradability No data available.     Behavior in environmental systems:   |
| · Behavior in environmental systems:  |
| · Bioaccumulative potential No data available.<br>· Mobility in soil No further relevant information available.   |
| • Additional ecological information: The product is non-rapid degradable, and low or not highly bioaccumulative.  |
| · General notes:  |
| Water hazard class 2 (Self-assessment): hazardous for water   |
| Do not allow product to reach ground water, water course or sewage system.<br>Danger to drinking water if even small quantities leak into the ground.<br>• Results of PBT and vPvB assessment |
| Danger to drinking water in even strian quantities leak into the ground.  |
| • PBT: None of the ingredients is listed.   |
| · vPvB: None of the ingredients is listed.  |
| · Other adverse effects No further relevant information.  |

## 13 Disposal considerations

#### · Waste treatment methods

· Recommendation:

Generation of waste should be avoided or minimized wherever possible. Chemical waste, even small quantities, is neither allowed to be poured down drains, sewage system or waterways; nor disposed with household garbage.

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

#### Uncleaned packagings:

Recommendation Dispose of according to your local waste regulations.

# **14 Transport information**

UN-Number • DOT, ADR, IMDG, IATA

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| ade Name: EP1340 A  |  |
|   | (Contd. of pa  |
| · UN Proper Shipping Name<br>· DOT  | Environmentally hazardous substances, liquid, n.o.s. (Bisph<br>A-(epichlorohydrin) epoxy resin, o-Cresyl alycidyl ether)   |
| · IMDG<br>· IATA  | A-(epichlorohydrin) epoxy resin, o-Cresyl glycidyl ether)<br>A-(epichlorohydrin) epoxy resin, o-Cresyl glycidyl ether)<br>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIG<br>N.O.S. (Bisphenol-A-(epichlorohydrin) epoxy resin, o-C<br>glycidyl ether), MARINE POLLUTANT<br>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIG<br>N.O.S. (Bisphenol-A-(epichlorohydrin) epoxy resin, o-C<br>glycidyl ethor) |
|   | N.O.S. (Bisphenol-A-(epichlorohydrin) epoxy resin, o-C<br>glycidyl ether)  |
| · Transport hazard class(es)  |  |
| · DOT, IMDG, IATA   |  |
|   |  |
| · Class<br>· Label  | 9 Miscellaneous dangerous substances and articles<br>9   |
| - ADR   |  |
| · Class<br>· Label  | 9 (M6) Miscellaneous dangerous substances and articles<br>9  |
| · Packing group<br>DOT, ADR, IMDG, IATA                                       | <i>III</i>   |
| Environmental Hazards:<br>Marine Pollutant:                                   | Yes<br>Symbol (fish and tree)  |
| · Special Marking (ADR):<br>· Special Marking (IATA):                         | Symbol (fish and tree)<br>Symbol (fish and tree)   |
| · Special Precautions:  | Warning: Miscellaneous dangerous substances and articles   |
| Danger Code (Kemler):<br>EMS Number:<br>Stowage Category                      | -90<br>F-A,N/A<br>A  |
| Transport in Bulk according to Annex II of I     IBC Code                     | MARPOL73/78 and the<br>Not applicable.   |
| · Transport/Additional Information:   |  |
| · DOT<br>· Quantity limitations   | On passenger aircraft/rail:<br>On cargo aircraft only:   |
| · Remarks:  | Special marking with the symbol (fish and tree).   |
| · ADR<br>· Excepted quantities (EQ)   | Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml   |
| · IMDG  |  |
| <ul> <li>Limited quantities (LQ)</li> <li>Excepted quantities (EQ)</li> </ul> | 5L<br>Code: E1<br>Maximum net quantity per inner packaging: 30 ml<br>Maximum net quantity per outer packaging: 1000 ml   |
| · UN "Model Regulation":  | UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTAN<br>LIQUID, N.O.S. (BISPHENOL-A-(EPICHLOROHYDRIN) EF<br>RESIN, O-CRESYL GLYCIDYL ETHER), 9, III   |

| Organophosphorous salt A 10-20  | <ul> <li>USA Regulation Lists</li> <li>SARA (Superfund Amendments and Reauthorization Act of 1986)</li> </ul> |              |
|---|---|--------------|
| Section 313 (Toxics Release Inventory (TRI) reporting)         None of the ingredients is listed.         Section 311/312 (Hazardous Chemical Inventory Reporting)         25068-38-6       Bisphenol-A-(epichlorohydrin) epoxy resin       A, C       40-50         Organophosphorous salt       A       10-20 | Section 302 (Extremely Hazardous Substances)  |              |
| None of the ingredients is listed.         Section 311/312 (Hazardous Chemical Inventory Reporting)         25068-38-6       Bisphenol-A-(epichlorohydrin) epoxy resin       A, C       40-50         Organophosphorous salt       A       10-20  | None of the ingredients is listed.  |              |
| Section 311/312 (Hazardous Chemical Inventory Reporting)           25068-38-6         Bisphenol-A-(epichlorohydrin) epoxy resin         A, C         40-50           Organophosphorous salt         A         10-20   | <ul> <li>Section 313 (Toxics Release Inventory (TRI) reporting)</li> </ul>                                    |              |
| 25068-38-6Bisphenol-A-(epichlorohydrin) epoxy resinA, C40-50Organophosphorous saltA10-20  | None of the ingredients is listed.  |              |
| Organophosphorous salt A 10-20  |   |              |
|   | 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin  | A, C 40-509  |
| 1333-86-4 Carbon black A, C 0.1-19  |   | A 10-209     |
|   | 1333-86-4 Carbon black  | A, C 0.1-1%  |
|   | A - Acute Health Hazard   |              |
|   | C - Chronic Health Hazard   | ( <b>O</b> ) |

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| F - Fire Hazard<br>R - Reactive Hazard  |                 |
| R - Reactive Hazard<br>S - Sudden Release of Pressure Hazard                          |                 |
| TSCA (Toxic Substances Control Act)   |                 |
| All ingredients are listed.   |                 |
| · Proposition 65  |                 |
| Chemicals Known to Cause Cancer   |                 |
| This product contains a chemical known in the State of California to cause cance      | er.             |
| 1333-86-4 Carbon black  |                 |
| 106-89-8 1-chloro-2,3-epoxypropane  |                 |
| <ul> <li>Chemicals Known to Cause Reproductive Toxicity for Females</li> </ul>        |                 |
| None of the ingredients is listed.  |                 |
| Chemicals Known to Cause Reproductive Toxicity for Males                              |                 |
| 106-89-8 1-chloro-2,3-epoxypropane  |                 |
| Chemicals Known to Cause Developmental Toxicity                                       |                 |
| None of the ingredients is listed.  |                 |
| <u> </u>  |                 |
| Carcinogenic Categories   |                 |
| · EPA (Environmental Protection Agency)   |                 |
| None of the ingredients is listed.  |                 |
| TLV (Threshold Limit Value Established by ACGIH)                                      |                 |
| 1333-86-4 Carbon black  | A               |
| <ul> <li>NIOSH-Ca (National Institute for Occupational Safety and Health)</li> </ul>  |                 |
| None of the ingredients is listed.  |                 |
| International Regulation Lists  |                 |
| Chinese Chemical Inventory of Existing Chemical Substances:                           |                 |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin                                  |                 |
| 21645-51-2 Aluminum hydroxide   |                 |
| 92704-41-1 Calcined Kaolin  |                 |
| 17557-23-2 Diglycidyl ether of neopentyl gylcol                                       |                 |
| 68609-97-2 Alkyl (C12, C14) glycidyl ether  |                 |
| 1333-86-4 Carbon black  |                 |
| 1317-70-0 Anatase   |                 |
| <ul> <li>Japanese Existing and New Chemical Substance List:</li> </ul>                |                 |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin                                  |                 |
| 21645-51-2 Aluminum hydroxide   |                 |
| 92704-41-1 Calcined Kaolin  |                 |
| 17557-23-2 Diglycidyl ether of neopentyl gylcol                                       |                 |
| 68609-97-2 Alkyl (C12, C14) glycidyl ether  |                 |
| 1333-86-4 Carbon black  |                 |
| 1317-70-0 Anatase   |                 |
| Korean Existing Chemical Inventory:   |                 |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin                                  |                 |
| 21645-51-2 Aluminum hydroxide   |                 |
| 92704-41-1 Calcined Kaolin<br>17557 22 2 Disk sided other of peopental sudgel         |                 |
| 17557-23-2 Diglycidyl ether of neopentyl gylcol                                       |                 |
| 68609-97-2 Alkyl (C12, C14) glycidyl ether<br>1333-86-4 Carbon black                  |                 |
| 1333-00-4 Carbon black<br>1317-70-0 Anatase   |                 |
|   |                 |
| European Pre-registered substances:   |                 |
| 25068-38-6 Bisphenol-A-(epichlorohydrin) epoxy resin<br>21645-51-2 Aluminum hydroxide |                 |
| 92704-41-1 Calcined Kaolin  |                 |
| 17557-23-2 Diglycidyl ether of neopentyl gylcol                                       |                 |
| 68609-97-2 Alkyl (C12, C14) glycidyl ether  |                 |
| 1333-86-4 Carbon black  |                 |
| 1333-00-4 Carbon black<br>1317-70-0 Anatase   |                 |
|   |                 |
| REACh - Substances of Very High Concern (SVHC) List:                                  |                 |
| None of the ingredients is listed.  |                 |
| <ul> <li>Restriction of Hazardous Substances Directive (RoHS) list:</li> </ul>        |                 |
| None of the ingredients is listed.  |                 |

# **16 Other information**

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

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