

# SAFETY DATA SHEET

Underfill Epoxy 688



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

### 1.1 Product identifier

**Product name** : Underfill Epoxy 688  
**UFI** : YP1M-50J3-000W-VRAN  
**Product code** : Not available.  
**Product description** : Not available.  
**Product type** : Liquid.  
**Other means of identification** : Underfill 688, One Step Underfill Epoxy 688

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

#### Identified uses

Not applicable.

#### Uses advised against

Not applicable.

### 1.3 Details of the supplier of the safety data sheet

AIM  
9100 Henri Bourassa East  
Montreal, QC  
H1E 2S4  
(514) 494-2000

AIM Solder Europe Sp. z.o.o.  
ul. Papiernicza 7  
Łódź 92-312  
Poland

**e-mail address of person responsible for this SDS** : Safetydata@aimsolder.com

### 1.4 Emergency telephone number

**Telephone number** : INFOTRAC  
Europe: 0800-181-29-24  
International: (352) 323-3500

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Mixture

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Irrit. 2, H315  
Eye Dam. 1, H318  
Resp. Sens. 1, H334  
Skin Sens. 1, H317  
Aquatic Chronic 1, H410


The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

SECTION 2: Hazards identification

2.2 Label elements

|  |   |   |
|--|---|---|
| Hazard pictograms  | : |    |
| Signal word  | : | Danger  |
| Hazard statements  | : | Causes skin irritation.<br>May cause an allergic skin reaction.<br>Causes serious eye damage.<br>May cause allergy or asthma symptoms or breathing difficulties if inhaled.<br>Very toxic to aquatic life with long lasting effects.  |
| Precautionary statements   | : |   |
| Prevention   | : | Wear protective gloves. Wear eye or face protection. Wear respiratory protection.<br>Avoid release to the environment. Avoid breathing vapor. Wash thoroughly after handling.   |
| Response   | : | IF INHALED: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor. Take off immediately all contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. |
| Storage  | : | Store locked up.  |
| Disposal   | : | Dispose of contents and container in accordance with all local, regional, national and international regulations.   |
| Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles | : | Not applicable.   |

2.3 Other hazards

|   |   |   |
|---|---|---|
| Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII | : | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| Other hazards which do not result in classification   | : | None known.   |

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

| Product/ingredient name   | Identifiers   | %         | Classification   | Specific Conc. Limits, M-factors and ATEs                 | Type    |
|---|---|-----------|--|---|---------|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) | EC: 500-033-5<br>CAS: 25068-38-6<br>Index: 603-074-00-8 | ≥25 - ≤50 | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Skin Sens. 1, H317<br>Aquatic Chronic 2, H411 | Skin Irrit. 2, H315: C ≥ 5%<br>Eye Irrit. 2, H319: C ≥ 5% | [1]     |
| hexahydro-4-methylphthalic anhydride  | EC: 243-072-0<br>CAS: 19438-60-9<br>Index: 607-241-00-6 | ≥25 - ≤50 | Eye Dam. 1, H318<br>Resp. Sens. 1, H334<br>Skin Sens. 1, H317                              | -   | [1] [3] |
| benzyl alcohol  | EC: 202-859-9<br>CAS: 100-51-6                          | ≤10       | Acute Tox. 4, H332<br>Skin Irrit. 2, H315  | ATE [Inhalation (vapours)] = 11 mg/l                      | [1] [2] |

### SECTION 3: Composition/information on ingredients

|  |  |  |  |               |  |
|--|--|--|--|---------------|--|
|  |  |  | Aquatic Acute 1, H400<br><b>See Section 16 for the full text of the H statements declared above.</b> | M [Acute] = 1 |  |
|--|--|--|--|---------------|--|

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

#### Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance of equivalent concern

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

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. 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. 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 the event of any complaints or symptoms, avoid further exposure.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. 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. Chemical burns must be treated promptly by a physician. 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.
- 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.

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

##### Over-exposure signs/symptoms

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

## SECTION 4: First aid measures

- Inhalation** : Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

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

### 5.2 Special hazards arising from the substance or mixture

- Hazards from the substance or mixture** : 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 combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
halogenated compounds

### 5.3 Advice for firefighters

- 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## SECTION 6: Accidental release measures

### 6.1 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 specialized 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".

## SECTION 6: Accidental release measures

**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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and materials for containment and cleaning up

**Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill** : 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. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 7.1 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. Avoid release to the environment. 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.

### 7.2 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. See Section 10 for incompatible materials before handling or use.

#### Seveso Directive - Reporting thresholds

##### Danger criteria

| Category | Notification and MAPP threshold | Safety report threshold |
|----------|---------------------------------|-------------------------|
| E1       | 100 tonne                       | 200 tonne               |

### 7.3 Specific end use(s)

**Recommendations** : Not available.

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SECTION 7: Handling and storage

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

| Product/ingredient name | Exposure limit values   |
|-------------------------|---|
| benzyl alcohol          | <b>Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021).</b><br>TWA: 240 mg/m³ 8 hours. |

Recommended monitoring procedures : If this product contains ingredients with exposure limits, 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. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

| Product/ingredient name | Type | Exposure              | Value           | Population         | Effects  |
|-------------------------|------|-----------------------|-----------------|--------------------|----------|
| benzyl alcohol          | DNEL | Long term Oral        | 4 mg/kg bw/day  | General population | Systemic |
|                         | DNEL | Long term Dermal      | 4 mg/kg bw/day  | General population | Systemic |
|                         | DNEL | Long term Inhalation  | 5.4 mg/m³       | General population | Systemic |
|                         | DNEL | Long term Dermal      | 8 mg/kg bw/day  | Workers            | Systemic |
|                         | DNEL | Short term Oral       | 20 mg/kg bw/day | General population | Systemic |
|                         | DNEL | Short term Dermal     | 20 mg/kg bw/day | General population | Systemic |
|                         | DNEL | Long term Inhalation  | 22 mg/m³        | Workers            | Systemic |
|                         | DNEL | Short term Inhalation | 27 mg/m³        | General population | Systemic |
|                         | DNEL | Short term Dermal     | 40 mg/kg bw/day | Workers            | Systemic |
|                         | DNEL | Short term Inhalation | 110 mg/m³       | Workers            | Systemic |

PNECs

No PNECs available.

8.2 Exposure controls



## SECTION 8: Exposure controls/personal protection

- Appropriate engineering controls** : 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 or statutory limits.
- 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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- 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** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- 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.

## SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

### 9.1 Information on basic physical and chemical properties

#### Appearance

- Physical state** : Liquid.
- Color** : Not available.
- Odor** : Not available.
- Odor threshold** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : Not available.
- Flammability** : Not available.
- Lower and upper explosion limit** : Not available.
- Flash point** :

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SECTION 9: Physical and chemical properties

| Ingredient name                      | Closed cup |       |           | Open cup |    |        |
|--------------------------------------|------------|-------|-----------|----------|----|--------|
|                                      | °C         | °F    | Method    | °C       | °F | Method |
| benzyl alcohol                       | 100.56     | 213   | ASTM D 93 |          |    |        |
| hexahydro-4-methylphthalic anhydride | 159.75     | 319.6 |           |          |    |        |

Auto-ignition temperature :

| Ingredient name                   | °C         | °F           | Method  |
|-----------------------------------|------------|--------------|---------|
| cobalt(II) 4-oxopent-2-en-2-olate | 248 to 265 | 478.4 to 509 | EU A.16 |
| benzyl alcohol                    | 436        | 816.8        |         |

Decomposition temperature : Not available.

pH : Not available.

Viscosity : Not available.

Solubility(ies) :

Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/ water : Not applicable.

Vapor pressure :

| Ingredient name                      | Vapor Pressure at 20°C |            |        | Vapor pressure at 50°C |     |        |
|--------------------------------------|------------------------|------------|--------|------------------------|-----|--------|
|                                      | mm Hg                  | kPa        | Method | mm Hg                  | kPa | Method |
| benzyl alcohol                       | 0.05                   | 0.0067     | EU A.4 |                        |     |        |
| hexahydro-4-methylphthalic anhydride | 0.0025                 | 0.00033    |        |                        |     |        |
| cobalt(II) 4-oxopent-2-en-2-olate    | <0.000052              | <0.0000069 |        |                        |     |        |

Relative density : Not available.

Vapor density : Not available.

Explosive properties : Not available.

Oxidizing properties : Not available.

Particle characteristics

Median particle size : Not applicable.

SECTION 10: Stability and reactivity

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

10.2 Chemical stability : The product is stable.

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

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : No specific data.

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



## SECTION 11: Toxicological information

### 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Acute toxicity

| Product/ingredient name  | Result      | Species | Dose       | Exposure |
|--|-------------|---------|------------|----------|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)<br>benzyl alcohol | LD50 Oral   | Rat     | 11.4 g/kg  | -        |
|  | LD50 Dermal | Rabbit  | 2000 mg/kg | -        |
|  | LD50 Oral   | Rat     | 1230 mg/kg | -        |

**Conclusion/Summary** : Not available.

#### Acute toxicity estimates

| Product/ingredient name  | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|--|--------------|----------------|--------------------------|----------------------------|-------------------------------------|
| Underfill Epoxy 688  | N/A          | N/A            | N/A                      | 72.9                       | N/A                                 |
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700) | 11400        | N/A            | N/A                      | N/A                        | N/A                                 |
| benzyl alcohol   | N/A          | N/A            | N/A                      | 11                         | N/A                                 |

#### Irritation/Corrosion

| Product/ingredient name  | Result                   | Species | Score | Exposure                 | Observation |
|--|--------------------------|---------|-------|--------------------------|-------------|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)<br><br><br><br><br><br>benzyl alcohol | Eyes - Mild irritant     | Rabbit  | -     | 100 milligrams           | -           |
|  | Eyes - Moderate irritant | Rabbit  | -     | 24 hours 20 milligrams   | -           |
|  | Eyes - Severe irritant   | Rabbit  | -     | 24 hours 5 milligrams    | -           |
|  | Skin - Moderate irritant | Rabbit  | -     | 24 hours 500 microliters | -           |
|  | Skin - Severe irritant   | Rabbit  | -     | 24 hours 2 milligrams    | -           |
|  | Skin - Mild irritant     | Man     | -     | 48 hours 16 mg           | -           |
|  | Skin - Moderate irritant | Pig     | -     | 100 %                    | -           |
|  | Skin - Moderate irritant | Rabbit  | -     | 24 hours 100 mg          | -           |

**Conclusion/Summary** : Not available.

#### Sensitization

**Conclusion/Summary** : Not available.

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Carcinogenicity

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

**Conclusion/Summary** : Not available.

#### Specific target organ toxicity (single exposure)

Not available.

#### Specific target organ toxicity (repeated exposure)

## SECTION 11: Toxicological information

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Not available.

### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

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

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : Adverse symptoms may include the following:  
wheezing and breathing difficulties  
asthma
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Ingestion** : Adverse symptoms may include the following:  
stomach pains

### 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

Not available.

- Conclusion/Summary** : Not available.
- 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.
- Reproductive toxicity** : No known significant effects or critical hazards.

## 11.2 Information on other hazards

### 11.2.1 Endocrine disrupting properties

Not available.

### 11.2.2 Other information

## SECTION 11: Toxicological information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

## SECTION 12: Ecological information

### 12.1 Toxicity

| Product/ingredient name   | Result                        | Species                    | Exposure |
|---|-------------------------------|----------------------------|----------|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq 700$ ) | Acute EC50 2.1 mg/l           | Daphnia                    | 48 hours |
|   | Acute LC50 >11 mg/l           | Algae                      | 72 hours |
|   | Acute LC50 1.3 mg/l           | Fish                       | 96 hours |
|   | Acute NOEC 0.3 mg/l           | Daphnia                    | 21 days  |
| benzyl alcohol  | Acute LC50 10 ppm Fresh water | Fish - Lepomis macrochirus | 96 hours |

**Conclusion/Summary** : Not available.

### 12.2 Persistence and degradability

**Conclusion/Summary** : Not available.

### 12.3 Bioaccumulative potential

| Product/ingredient name              | LogP <sub>ow</sub> | BCF   | Potential |
|--------------------------------------|--------------------|-------|-----------|
| hexahydro-4-methylphthalic anhydride | 2.09               | 11.12 | low       |
| benzyl alcohol                       | 0.87               | -     | low       |

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

Not available.

### 12.7 Other adverse effects

No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

### 13.1 Waste treatment methods

#### Product

## SECTION 13: Disposal considerations

- Methods of disposal** : 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.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.
- Packaging**
- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : 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.

## SECTION 14: Transport information

|                                 | ADR/RID        | ADN            | IMDG           | IATA           |
|---------------------------------|----------------|----------------|----------------|----------------|
| 14.1 UN number or ID number     | Not regulated. | Not regulated. | Not regulated. | Not regulated. |
| 14.2 UN proper shipping name    | -              | -              | -              | -              |
| 14.3 Transport hazard class(es) | -              | -              | -              | -              |
| 14.4 Packing group              | -              | -              | -              | -              |
| 14.5 Environmental hazards      | No.            | No.            | No.            | No.            |

- 14.6 Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

- 14.7 Maritime transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed.

Substances of very high concern

## SECTION 15: Regulatory information

| Intrinsic property                               | Ingredient name  | Status      | Reference number | Date of revision |
|--|--|-------------|------------------|------------------|
| Substance of equivalent concern for human health | hexahydromethylphthalic anhydride including cis- and trans- stereo isomeric forms and all possible combinations of the isomers | Recommended | ED/01/2018       | 10/1/2019        |

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Other EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

### Ozone depleting substances (1005/2009/EU)

Not listed.

### Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

### Persistent Organic Pollutants

Not listed.

### Seveso Directive

This product is controlled under the Seveso Directive.

### Danger criteria

| Category |
|----------|
| E1       |

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**Australia** : All components are listed or exempted.

**Canada** : At least one component is not listed in DSL but all such components are listed in NDSL.

**China** : All components are listed or exempted.

**Eurasian Economic Union** : **Russian Federation inventory**: Not determined.

## SECTION 15: Regulatory information

|  |   |
|--|---|
| <b>Japan</b>                           | : <b>Japan inventory (CSCL):</b> All components are listed or exempted.<br><b>Japan inventory (ISHL):</b> Not determined. |
| <b>New Zealand</b>                     | : All components are listed or exempted.  |
| <b>Philippines</b>                     | : All components are listed or exempted.  |
| <b>Republic of Korea</b>               | : All components are listed or exempted.  |
| <b>Taiwan</b>                          | : Not determined.   |
| <b>Thailand</b>                        | : Not determined.   |
| <b>Turkey</b>                          | : Not determined.   |
| <b>United States</b>                   | : Not determined.   |
| <b>Viet Nam</b>                        | : Not determined.   |
| <b>15.2 Chemical Safety Assessment</b> | : This product contains substances for which Chemical Safety Assessments are still required.                              |

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
N/A = Not available  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number  
SGG = Segregation Group  
vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

| Classification          | Justification      |
|-------------------------|--------------------|
| Skin Irrit. 2, H315     | Calculation method |
| Eye Dam. 1, H318        | Calculation method |
| Resp. Sens. 1, H334     | Calculation method |
| Skin Sens. 1, H317      | Calculation method |
| Aquatic Chronic 1, H410 | Expert judgment    |

### Full text of abbreviated H statements

|      |  |
|------|--|
| H315 | Causes skin irritation.  |
| H317 | May cause an allergic skin reaction.                                       |
| H318 | Causes serious eye damage.   |
| H319 | Causes serious eye irritation.   |
| H332 | Harmful if inhaled.  |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H400 | Very toxic to aquatic life.  |
| H410 | Very toxic to aquatic life with long lasting effects.                      |
| H411 | Toxic to aquatic life with long lasting effects.                           |

### Full text of classifications [CLP/GHS]

|                   |   |
|-------------------|---|
| Acute Tox. 4      | ACUTE TOXICITY - Category 4                     |
| Aquatic Acute 1   | AQUATIC HAZARD (ACUTE) - Category 1             |
| Aquatic Chronic 1 | AQUATIC HAZARD (LONG-TERM) - Category 1         |
| Aquatic Chronic 2 | AQUATIC HAZARD (LONG-TERM) - Category 2         |
| Eye Dam. 1        | SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1 |
| Eye Irrit. 2      | SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 |
| Resp. Sens. 1     | RESPIRATORY SENSITIZATION - Category 1          |
| Skin Irrit. 2     | SKIN CORROSION/IRRITATION - Category 2          |
| Skin Sens. 1      | SKIN SENSITIZATION - Category 1                 |

**Date of printing** : 5/17/2024

Underfill Epoxy 688

SECTION 16: Other information

Date of issue/ Date of revision : 5/17/2024

Date of previous issue : 12/11/2023

Version : 1.03

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