1 Identification

- Product name: M-Bond 610 Adhesive
- Part number: 71-20000
- Application of the substance / the mixture: Adhesives
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier:
  Allied High Tech Products Inc.
  2376 East Pacifica Place
  USA-RANCHO DOMINGUEZ, CA 90220
  USA
  info@alliedhightech.com
- Information department: Product safety department
- Emergency telephone number:
  During normal opening times: +1 (310) 635-2466
  Chemtrec: +1 (202) 483-7616

2 Hazard(s) identification

- Classification of the substance or mixture
  - GHS02 Flame
    Flam. Liq. 2 H225 Highly flammable liquid and vapor.
  - GHS08 Health hazard
    Carc. 2 H351 Suspected of causing cancer.
  - GHS09 Environment
    Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.
  - GHS07
    Skin Irrit. 2 H315 Causes skin irritation.
    Eye Irrit. 2A H319 Causes serious eye irritation.

(Contd. on page 2)
Product name: M-Bond 610 Adhesive

Skin Sens. 1  H317 May cause an allergic skin reaction.
STOT SE 3  H335 May cause respiratory irritation.

- Label elements
- GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).
- Hazard pictograms

![GHS02](image1) ![GHS07](image2) ![GHS08](image3) ![GHS09](image4)

- Signal word Danger
- Hazard-determining components of labeling:
tetrahydrofuran
Polyglycidyl Ether of Phenol-Formaldehyde
- Hazard statements
Highly flammable liquid and vapor.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Suspected of causing cancer.
May cause respiratory irritation.
Toxic to aquatic life with long lasting effects.

- Precautionary statements
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapors/spray
Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Call a poison center/doctor if you feel unwell.
Specific treatment (see on this label).
Take off contaminated clothing and wash it before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Wash contaminated clothing before reuse.
In case of fire: Use for extinction: CO2, powder or water spray.
Collect spillage.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

(Contd. on page 3)
Product name: M-Bond 610 Adhesive

Dispose of contents/container in accordance with local/regional/national/international regulations.

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 1
    - Fire = 3
    - Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  - HEALTH: Health = 1
  - FIRE: Fire = 3
  - REACTIVITY: Reactivity = 0

- Other hazards
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

<table>
<thead>
<tr>
<th>Hazardous Components:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>109-99-9 tetrahydrofuran</td>
<td>Flam. Liq. 2, H225; Carc. 2, H331; Eye Irrit. 2A, H319; STOT SE 3, H335</td>
</tr>
<tr>
<td>28064-14-4 Polyglycidyl Ether of Phenol-Formaldehyde</td>
<td>Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Skin Sens. 1, H317</td>
</tr>
<tr>
<td>78-93-3 ethyl methyl ketone</td>
<td>Flam. Liq. 2, H225; Eye Irrit. 2A, H319; STOT SE 3, H336</td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- After inhalation:
  - Supply fresh air and to be sure call for a doctor.
  - In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
  - Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- After swallowing: If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed: No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed: No further relevant information available.
5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet
- Special hazards arising from the substance or mixture: No further relevant information available.
- Advice for firefighters
- Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.

- Environmental precautions:
  Do not allow product to reach sewage system or any water course.
  Do not allow to enter sewers/surface or ground water.
  Prevent seepage into sewage system, workpits and cellars.
  Inform respective authorities in case of seepage into water course or sewage system.
  Dilute with plenty of water.

- Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.

- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

- Protective Action Criteria for Chemicals

- PAC-1:
  109-99-9 tetrahydrofuran 100 ppm
  28064-14-4 Polyglycidyl Ether of Phenol-Formaldehyde 30 mg/m³
  78-93-3 ethyl methyl ketone 200 ppm

- PAC-2:
  109-99-9 tetrahydrofuran 500 ppm
  28064-14-4 Polyglycidyl Ether of Phenol-Formaldehyde 330 mg/m³
  78-93-3 ethyl methyl ketone 2700* ppm

- PAC-3:
  109-99-9 tetrahydrofuran 5000* ppm
  28064-14-4 Polyglycidyl Ether of Phenol-Formaldehyde 2,000 mg/m³
  78-93-3 ethyl methyl ketone 4000* ppm

7 Handling and storage

- Handling:
- Precautions for safe handling
  Open and handle receptacle with care.
  Prevent formation of aerosols.
Product name: M-Bond 610 Adhesive

· Information about protection against explosions and fires:
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
  Keep respiratory protective device available.

· Conditions for safe storage, including any incompatibilities

· Storage:
  · Requirements to be met by storerooms and receptacles:
    Protect from sunlight.
    Store at temperatures not exceeding 35°C.
  · Information about storage in one common storage facility: Not required.

· Further information about storage conditions:
  Keep receptacle tightly sealed.
  Store in cool, dry conditions in well sealed receptacles.
  Store receptacle in a well ventilated area.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Control parameters
  · Components with limit values that require monitoring at the workplace:
    The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
    At this time, the remaining constituent has no known exposure limits.

<table>
<thead>
<tr>
<th>109-99-9 tetrahydrofuran</th>
<th>PEL</th>
<th>Long-term value: 590 mg/m³, 200 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REL</td>
<td>Short-term value: 735 mg/m³, 250 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td>TLV</td>
<td>Short-term value: 295 mg/m³, 100 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 147 mg/m³, 50 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>78-93-3 ethyl methyl ketone</th>
<th>PEL</th>
<th>Long-term value: 590 mg/m³, 200 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>REL</td>
<td>Short-term value: 885 mg/m³, 300 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td>TLV</td>
<td>Short-term value: 885 mg/m³, 300 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Long-term value: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BEI</td>
</tr>
</tbody>
</table>

· Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>109-99-9 tetrahydrofuran</th>
<th>BEI</th>
<th>2 mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Medium: urine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parameter: Tetrahydrofuran</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>78-93-3 ethyl methyl ketone</th>
<th>BEI</th>
<th>2 mg/L</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Medium: urine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time: end of shift</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parameter: MEK</td>
</tr>
</tbody>
</table>
Product name: M-Bond 610 Adhesive

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
  - **General protective and hygienic measures:**
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing.
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Avoid contact with the eyes and skin.
- **Breathing equipment:** Use suitable respiratory protective device when high concentrations are present.
- **Protection of hands:**
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

**Protective gloves**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

**Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

**Eye protection:**

Tightly sealed goggles

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
    - **Appearance:**
      - Form: Liquid
      - Color: Colorless
    - **Odor:** Ether-like
    - **Odor threshold:** Not determined.
  - **pH-value:** Not determined.
  - **Change in condition**
    - Melting point/Melting range: Undetermined.
    - Boiling point/Boiling range: 65 °C (149 °F)
  - **Flash point:** -14 °C (6.8 °F)
  - **Flammability (solid, gaseous):** Not applicable.
  - **Ignition temperature:** 230 °C (446 °F)
### Product name: M-Bond 610 Adhesive

- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
  - **Explosion limits:**
    - Lower: 1.5 Vol %
    - Upper: 12 Vol %
  - **Vapor pressure at 20 °C (68 °F):** 172 hPa (129 mm Hg)
  - **Density:** Not determined.
    - Relative density: 0.9 (H2O=1)
    - Vapor density: 2.4 (Air=1)
    - Evaporation rate: 8.0 (BuAc=1)
- **Solubility in / Miscibility with Water:** Partly miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- **Solvent content:**
  - Organic solvents: 70.1 %
  - VOC content: 70.09 %
    - 700.9 g/l / 5.85 lb/gl
- **Other information**
  - No further relevant information available.

## 10. Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
  - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
  - **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid**
  - Keep away from oxidising agents and acidic substances.
  - Do not mix with alkalis.
  - Keep away from heat.
  - Keep away from open flames. - No smoking.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**
  - Explosive peroxides
  - Phenolic compounds
  - Carbon monoxide and carbon dioxide
- **Additional information:** Hazardous decomposition products may form when burned.
11 Toxicological information

- Information on toxicological effects
- Acute toxicity:

LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>Compound</th>
<th>Oral LD₅₀</th>
<th>Dermal LD₅₀</th>
</tr>
</thead>
<tbody>
<tr>
<td>109-99-9 tetrahydrofuran</td>
<td>2,500 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>78-93-3 ethyl methyl ketone</td>
<td>3,300 mg/kg (rat)</td>
<td>5,000 mg/kg (rabbit)</td>
</tr>
</tbody>
</table>

Primary chemical irritant effect:
- on the skin: Irritant to skin and mucous membranes.
- on the eye: Irritating effect.
- Sensitization: Sensitization possible through skin contact.

Additional toxicological information:
- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    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:
    LC₅₀ (48 h) 1-10 mg/l (oncorhynchus mykiss)
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Ecotoxicological effects:
  - Remark: Toxic for fish
  - Additional ecological information:
  - General notes:
    Also poisonous for fish and plankton in water bodies.
    Toxic for aquatic organisms.
    Water hazard class 1 (Self-assessment): slightly hazardous for water.
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation: Contact waste processors for recycling information.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA: UN1133

- UN proper shipping name
  - DOT: Adhesives
  - IMDG: ADHESIVES (Polyglycidyl Ether of Phenol-Formaldehyde), MARINE POLLUTANT
  - IATA: ADHESIVES

- Transport hazard class(es)
  - DOT
    - Class: 3 Flammable liquids
    - Label: 3
  - IMDG
    - Class: 3 Flammable liquids
    - Label: 3
  - IATA
    - Class: 3 Flammable liquids
    - Label: 3

- Packing group
  - DOT, IMDG, IATA: II

- Environmental hazards:
  - Product contains environmentally hazardous substances: Polyglycidyl Ether of Phenol-Formaldehyde

- Marine pollutant:
  - Yes
  - Symbol (fish and tree)

- Special precautions for user
  - Warning: Flammable liquids

- Danger code (Kemler):
  - 33
Product name: M-Bond 610 Adhesive

- EMS Number: F-E,S-D
- Stowage Category: B
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.
- Transport/Additional information:
  - DOT
  - Quantity limitations:
    - On passenger aircraft/rail: 5 L
    - On cargo aircraft only: 60 L
- IMDG
  - Limited quantities (LQ): 5L
  - Excepted quantities (EQ): Code: E2
    - Maximum net quantity per inner packaging: 30 ml
    - Maximum net quantity per outer packaging: 500 ml
- UN "Model Regulation": UN 1133 ADHESIVES, 3, II, ENVIRONMENTALLY HAZARDOUS

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara
  - Section 355 (extremely hazardous substances):
    None of the ingredients is listed.
  - Section 313 (Specific toxic chemical listings):
    78-93-3 ethyl methyl ketone
- TSCA (Toxic Substances Control Act):
  All ingredients are listed.
- Proposition 65
  - Chemicals known to cause cancer:
    None of the ingredients is listed.
  - Chemicals known to cause reproductive toxicity for females:
    None of the ingredients is listed.
  - Chemicals known to cause reproductive toxicity for males:
    None of the ingredients is listed.
  - Chemicals known to cause developmental toxicity:
    None of the ingredients is listed.
- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    109-99-9 tetrahydrofuran SC
    78-93-3 ethyl methyl ketone
  - TLV (Threshold Limit Value established by ACGIH)
    109-99-9 tetrahydrofuran A3
  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
Product name: M-Bond 610 Adhesive

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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 SDS: Environment protection department.
- Contact: Kim Dermit
- Date of preparation / last revision: 06/13/2018 / -
- Abbreviations and acronyms:
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - BEI: Biological Exposure Limit
  - Flam. Liq. 2: Flammable liquids – Category 2
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  - Skin Sens. 1: Skin sensitisation – Category 1
  - Carc. 2: Carcinogenicity – Category 2
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
  - Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
1 Identification

- **Product name:** M-Bond 610 Curing Agent
- **Part number:** 71-20000

**Application of the substance / the mixture**
- **Hardening agent/ Curing agent**

**Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
  Allied High Tech Products Inc.
  2376 East Pacifica Place
  USA-RANCHO DOMINGUEZ, CA 90220
  USA
  info@alliedhightech.com

- **Information department:** Product safety department
- **Emergency telephone number:**
  During normal opening times: +1 (310) 635-2466
  Chemtrec: +1 (202) 483-7616

2 Hazard(s) identification

- **Classification of the substance or mixture**
  - **GHS02 Flame**
    - Flam. Liq. 2  H225  Highly flammable liquid and vapor.
  - **GHS08 Health hazard**
    - Resp. Sens. 1  H334  May cause allergy or asthma symptoms or breathing difficulties if inhaled.
    - Carc. 2  H351  Suspected of causing cancer.
  - **GHS05 Corrosion**
    - Eye Dam. 1  H318  Causes serious eye damage.
  - **GHS07 Skin Sens. 1**
    - H317  May cause an allergic skin reaction.
Product name: M-Bond 610 Curing Agent

STOT SE 3  H335  May cause respiratory irritation.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**

![GHS pictograms](image)

- **Signal word** Danger
- **Hazard-determining components of labeling:**
  - tetrahydrofuran
  - benzene-1,2:4,5-tetracarboxylic dianhydride
- **Hazard statements**
  - Highly flammable liquid and vapor.
  - Causes serious eye damage.
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - May cause an allergic skin reaction.
  - Suspected of causing cancer.
  - May cause respiratory irritation.
- **Precautionary statements**
  - Obtain special instructions before use.
  - Do not handle until all safety precautions have been read and understood.
  - Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
  - Ground/bond container and receiving equipment.
  - Use explosion-proof electrical/ventilating/lighting/equipment.
  - Use only non-sparking tools.
  - Take precautionary measures against static discharge.
  - Avoid breathing dust/fume/gas/mist/vapors/spray
  - Use only outdoors or in a well-ventilated area.
  - Contaminated work clothing must not be allowed out of the workplace.
  - Wear protective gloves/protective clothing/eye protection/face protection.
  - [In case of inadequate ventilation] wear respiratory protection.
  - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - If skin irritation or rash occurs: Get medical advice/attention.
  - If experiencing respiratory symptoms: Call a poison center/doctor.
  - Wash contaminated clothing before reuse.
  - In case of fire: Use for extinction: CO2, powder or water spray.
  - Store in a well-ventilated place. Keep container tightly closed.
  - Store in a well-ventilated place. Keep cool.
  - Store locked up.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. of page 1)

(Contd. on page 3)
Product name: M-Bond 610 Curing Agent

- Classification system:
- NFPA ratings (scale 0 - 4)
  
  Health = 1
  Fire = 3
  Reactivity = 0

- HMIS-ratings (scale 0 - 4)

  HEALTH  
  Fire = 3
  Reactivity = 0

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/Information on ingredients

- Chemical characterization: Mixtures
- Description: Mixture of the substances listed below with nonhazardous additions.

- Hazardous Components:
  
<table>
<thead>
<tr>
<th>109-99-9 tetrahydrofuran</th>
<th>50-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 2, H225; Carc. 2, H331; Eye Irrit. 2A, H319; STOT SE 3, H335</td>
<td></td>
</tr>
<tr>
<td>89-32-7 benzene-1,2,4,5-tetracarboxylic dianhydride</td>
<td>2.5-10%</td>
</tr>
<tr>
<td>Resp. Sens. 1, H334; Eye Dam. 1, H318; Skin Sens. 1, H317</td>
<td></td>
</tr>
</tbody>
</table>

- Non-hazardous Components:
  
  | 89-05-4 benzene-1,2,4,5-tetracarboxylic acid | 2.5-10% |

4 First-aid measures

- Description of first aid measures
- General information: Immediately remove any clothing soiled by the product.
- After inhalation:
  Supply fresh air and be sure call for a doctor.
  In case of unconsciousness place patient stably in side position for transportation.
- After skin contact:
  Immediately wash with water and soap and rinse thoroughly.
- After eye contact:
  Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing:
  If symptoms persist consult doctor.
- Information for doctor:
  Most important symptoms and effects, both acute and delayed No further relevant information available.
  Indication of any immediate medical attention and special treatment needed
  No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture No further relevant information available.
Product name: M-Bond 610 Curing Agent

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.
- Environmental precautions:
  Do not allow product to reach sewage system or any water course.
  Do not allow to enter sewers/surface or ground water.
  Prevent seepage into sewage system, workpits and cellars.
  Dilute with plenty of water.
- Methods and material for containment and cleaning up:
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  - PAC-1:
    | Compound                          | Limit          |
    |----------------------------------|----------------|
    | 109-99-9 tetrahydrofuran         | 100 ppm        |
    | 89-32-7 benzene-1,2,4,5-tetra-carboxylic dianhydride | 6.8 mg/m³     |
    | 89-05-4 benzene-1,2,4,5-tetra-carboxylic acid     | 0.98 mg/m³    |
  - PAC-2:
    | Compound                          | Limit          |
    |----------------------------------|----------------|
    | 109-99-9 tetrahydrofuran         | 500 ppm        |
    | 89-32-7 benzene-1,2,4,5-tetra-carboxylic dianhydride | 74 mg/m³      |
    | 89-05-4 benzene-1,2,4,5-tetra-carboxylic acid     | 11 mg/m³      |
  - PAC-3:
    | Compound                          | Limit          |
    |----------------------------------|----------------|
    | 109-99-9 tetrahydrofuran         | 5000* ppm      |
    | 89-32-7 benzene-1,2,4,5-tetra-carboxylic dianhydride | 450 mg/m³  |
    | 89-05-4 benzene-1,2,4,5-tetra-carboxylic acid     | 65 mg/m³      |

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Open and handle receptacle with care.
    Prevent formation of aerosols.
  - Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
    Keep respiratory protective device available.
- Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles: Store in a cool location.
    - Information about storage in one common storage facility: Not required.
Further information about storage conditions:
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Store receptacle in a well ventilated area.
Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Components with 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 remaining constituent has no known exposure limits.

<table>
<thead>
<tr>
<th>109-99-9 tetrahydrofuran</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
</tr>
<tr>
<td>Long-term value: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>REL</td>
</tr>
<tr>
<td>Short-term value: 735 mg/m³, 250 ppm</td>
</tr>
<tr>
<td>Long-term value: 590 mg/m³, 200 ppm</td>
</tr>
<tr>
<td>TLV</td>
</tr>
<tr>
<td>Short-term value: 295 mg/m³, 100 ppm</td>
</tr>
<tr>
<td>Long-term value: 147 mg/m³, 50 ppm</td>
</tr>
</tbody>
</table>

Ingredients with biological limit values:

<table>
<thead>
<tr>
<th>109-99-9 tetrahydrofuran</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEI</td>
</tr>
<tr>
<td>2 mg/L</td>
</tr>
<tr>
<td>Medium: urine</td>
</tr>
<tr>
<td>Time: end of shift</td>
</tr>
<tr>
<td>Parameter: Tetrahydrofuran</td>
</tr>
</tbody>
</table>

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respiratory protective device when high concentrations are present.

Protection of hands:
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
9 Physical and chemical properties

- **Form:** Liquid
- **Color:** Amber colored
- **Odor:** Ether-like
- **Odor threshold:** Not determined.
- **pH-value:** Not determined.
- **Change in condition**
  - **Melting point/Melting range:** Undetermined.
  - **Boiling point/Boiling range:** 65 °C (149 °F)
- **Flash point:** -14 °C (6.8 °F)
- **Flammability (solid, gaseous):** Not applicable.
- **Ignition temperature:** 230 °C (446 °F)
- **Decomposition temperature:** Not determined.
- **Auto igniting:** Product is not selfigniting.
- **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- **Explosion limits:**
  - **Lower:** 1.5 Vol %
  - **Upper:** 12 Vol %
- **Vapor pressure at 15 °C (59 °F):** 193 hPa (144.8 mm Hg)
- **Density at 20 °C (68 °F):** 0.95908 g/cm³ (8.00352 lbs/gal)
- **Relative density:** 0.9 (H2O=1)
- **Vapor density:** 2.5 (Air=1)
- **Evaporation rate:** >1 (BuAc=1)
- **Solubility in / Miscibility with Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - **Dynamic:** Not determined.
  - **Kinematic:** Not determined.
47.0

· Solvent content:
  Organic solvents: 88.2 %
  VOC content: 88.21 %
  Solids content: 11.8 %
  Other information: No further relevant information available.

10 Stability and reactivity

· Reactivity: No further relevant information available.
· Chemical stability:
· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
· Possibility of hazardous reactions: Possible formation of peroxide.
· Conditions to avoid:
  Mild steel
  Keep away from oxidising agents and acidic substances.
  Keep away from heat.
  Keep away from open flames. - No smoking.
· Incompatible materials: No further relevant information available.
· Hazardous decomposition products:
  Explosive peroxides
  Carbon monoxide and carbon dioxide
· Additional information: Hazardous decomposition products may form when burned.

11 Toxicological information

· Information on toxicological effects:
· Acute toxicity:
· LD/LC50 values that are relevant for classification:
  109-99-9 tetrahydrofuran
  Oral LD50 2,500 mg/kg (rat)
  89-32-7 benzene-1,2:4,5-tetracarboxylic dianhydride
  Oral LD50 2,250 mg/kg (rat)
· Primary chemical irritant effect:
  on the skin: No irritant effect.
  on the eye: Strong irritant with the danger of severe eye injury.
· Sensitization:
  Sensitization possible through inhalation.
  Sensitization possible through skin contact.
· Additional toxicological information:
· Carcinogenic categories:
  IARC (International Agency for Research on Cancer)
  None of the ingredients is listed.
  NTP (National Toxicology Program)
  None of the ingredients is listed.
12 Ecological information

- Toxicity
  - Aquatic toxicity:
    - LC50 (48 h) >100 mg/l (oncorhynchus mykiss)
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.
  - Additional ecological information:
  - General notes:
    - Water hazard class 1 (Self-assessment): slightly hazardous for water
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation: Contact waste processors for recycling information.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA: UN2056

- UN proper shipping name
  - DOT: Tetrahydrofuran mixture
  - IMDG, IATA: TETRAHYDROFURAN mixture

- Transport hazard class(es)
  - DOT
    - Class: 3 Flammable liquids
### Product name: M-Bond 610 Curing Agent

<table>
<thead>
<tr>
<th>· Label</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>· IMDG, IATA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>· Class</td>
<td>3 Flammable liquids</td>
</tr>
<tr>
<td>· Label</td>
<td>3</td>
</tr>
<tr>
<td>· Packing group</td>
<td></td>
</tr>
<tr>
<td>· DOT, IMDG, IATA</td>
<td>II</td>
</tr>
<tr>
<td>· Environmental hazards:</td>
<td></td>
</tr>
<tr>
<td>· Marine pollutant:</td>
<td>No</td>
</tr>
<tr>
<td>· Special precautions for user</td>
<td>Warning: Flammable liquids</td>
</tr>
<tr>
<td>· Danger code (Kemler):</td>
<td>33</td>
</tr>
<tr>
<td>· EMS Number:</td>
<td>F-E,S-D</td>
</tr>
<tr>
<td>· Stowage Category</td>
<td>B</td>
</tr>
<tr>
<td>· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Transport/Additional information:</td>
<td></td>
</tr>
<tr>
<td>· DOT</td>
<td></td>
</tr>
<tr>
<td>· Quantity limitations</td>
<td>On passenger aircraft/rail: 5 L</td>
</tr>
<tr>
<td></td>
<td>On cargo aircraft only: 60 L</td>
</tr>
<tr>
<td>· IMDG</td>
<td></td>
</tr>
<tr>
<td>· Limited quantities (LQ)</td>
<td>1L</td>
</tr>
<tr>
<td>· Excepted quantities (EQ)</td>
<td>Code: E2</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per inner packaging: 30 ml</td>
</tr>
<tr>
<td></td>
<td>Maximum net quantity per outer packaging: 500 ml</td>
</tr>
<tr>
<td>· UN &quot;Model Regulation&quot;:</td>
<td>UN 2056 TETRAHYDROFURAN MIXTURE, 3, II</td>
</tr>
</tbody>
</table>

## 15 Regulatory information

| · Safety, health and environmental regulations/legislation specific for the substance or mixture | |
| · Sara | |
| |  |
| · Section 355 (extremely hazardous substances): | None of the ingredients is listed. |
| · Section 313 (Specific toxic chemical listings): | None of the ingredients is listed. |
| · TSCA (Toxic Substances Control Act): | All ingredients are listed. |
| · Proposition 65 | |
| · Chemicals known to cause cancer: | None of the ingredients is listed. |
| · Chemicals known to cause reproductive toxicity for females: | 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 SDS:** Environment protection department.
- **Contact:** Kim Dermit
- **Date of preparation / last revision** 06/13/2018 / -
- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - BEI: Biological Exposure Limit
  - Flam. Liq. 2: Flammable liquids – Category 2
  - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  - Resp. Sens. 1: Respiratory sensitisation – Category 1
  - Skin Sens. 1: Skin sensitisation – Category 1
  - Carc. 2: Carcinogenicity – Category 2
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3