1 Identification

· Product identifier
  · Trade name: DynaBond Two Part Catalyst
  · Details of the supplier of the safety data sheet
  · Manufacturer/Supplier:
    NBC MESHTEC AMERICAS
    512 Kingsland Drive
    Batavia, IL 60510
    USA (800) 235-5056
    INT +1(630) 293-5454
    FAX +1(630) 293-5647
  · Information department: Product safety department
  · Emergency telephone number: INFOTRAC 1-800-535-5053

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.
  STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

  GHS07
  Acute Tox. 4 H332 Harmful if inhaled.
  Skin Irrit. 2 H315 Causes skin irritation.
  Skin Sens. 1 H317 May cause an allergic skin reaction.
  STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.

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

  GHS02 GHS07 GHS08

· Signal word Danger

· Hazard-determining components of labeling:
  4,4'-methylenediphenyl diisocyanate ethyl acetate

(Contd. on page 2)
Hazard statements

H225 Highly flammable liquid and vapor.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P284 [In case of inadequate ventilation] wear respiratory protection.
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a poison center/doctor if you feel unwell.
P321 Specific treatment (see on this label).
P314 Get medical advice/attention if you feel unwell.
P362+P364 Take off contaminated clothing and wash it before reuse.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P342+P311 If experiencing respiratory symptoms: Call a poison center/doctor.
P363 Wash contaminated clothing before reuse.
P370+P378 In case of fire: Use for extinguition: CO2, powder or water spray.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

Chemical characterization: Mixtures

Description: Mixture of the substances listed below with nonhazardous additions.

Dangerous components:

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>65-85%</td>
</tr>
<tr>
<td>101-68-8</td>
<td>4,4’-methylene diisocyanate</td>
<td>15-35%</td>
</tr>
</tbody>
</table>
4 First-aid measures

- Description of first aid measures
  - General information:
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - 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, sand, extinguishing powder. Do not use water.
  - 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: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Wear protective equipment. Keep unprotected persons away.
  - Environmental precautions: For large spills: Do not allow to enter sewers/surface or ground 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.
    Do not flush with water or aqueous cleansing agents
- 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

<table>
<thead>
<tr>
<th></th>
<th>PAC-1:</th>
<th>PAC-2:</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>1,200 ppm</td>
</tr>
<tr>
<td>101-68-8</td>
<td>4,4’-methylene diphenyl diisocyanate</td>
<td>0.45 mg/m³</td>
</tr>
<tr>
<td>141-78-6</td>
<td>ethyl acetate</td>
<td>1,700 ppm</td>
</tr>
<tr>
<td>101-68-8</td>
<td>4,4’-methylene diphenyl diisocyanate</td>
<td>5 mg/m³</td>
</tr>
</tbody>
</table>
Trade name: DynaBond Two Part Catalyst

7 Handling and storage

· Handling:
· Precautions for safe handling
  Ensure good ventilation/exhaustion at the workplace.
  Prevent formation of aerosols.
  Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
· 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.
· 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:

  **PAC-3:**
  141-78-6 ethyl acetate 10000** ppm
  101-68-8 4,4′-methylene diphenyl diisocyanate 55 mg/m³

  7 Handling and storage

  · Handling:
  · Precautions for safe handling
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
  · Information about protection against explosions and fires:
    Keep ignition sources away - Do not smoke.
    Protect against electrostatic charges.
  · 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.
  · Specific end use(s) No further relevant information available.

  **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:

    **PAC-3:**
    141-78-6 ethyl acetate
    PEL Long-term value: 1400 mg/m³, 400 ppm
    REL Long-term value: 1400 mg/m³, 400 ppm
    TLV Long-term value: 1440 mg/m³, 400 ppm

    101-68-8 4,4′-methylene diphenyl diisocyanate
    PEL Ceiling limit value: 0.2 mg/m³, 0.02 ppm
    REL Long-term value: 0.05 mg/m³, 0.005 ppm
    Ceiling limit value: 0.2* mg/m³, 0.02* ppm
    *10-min
    TLV Long-term value: 0.051 mg/m³, 0.005 ppm

    · 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.
    Avoid contact with the eyes and skin.
Trade name: DynaBond Two Part Catalyst

- **Breathing equipment:**
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**
  
  **Protective gloves**

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. 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:** Clear

  - **Odor:** Characteristic

  - **Odor threshold:** Not determined.

  - **pH-value:** Not determined.

- **Change in condition**

  - **Melting point/Melting range:** Undetermined.
  - **Boiling point/Boiling range:** 77 °C (170.6 °F)

- **Flash point:** -1 °C (30.2 °F)

- **Flammability (solid, gaseous):** Not applicable.

- **Ignition temperature:** 460 °C (860 °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.
Trade name: DynaBond Two Part Catalyst

- **Explosion limits:**
  - Lower: 0.4 Vol %
  - Upper: 11.5 Vol %
- **Vapor pressure at 20 °C (68 °F):** 97 hPa (72.8 mm Hg)
- **Density at 20 °C (68 °F):** 0.99 g/cm³ (8.26155 lbs/gal)
  - Relative density: Not determined.
  - Vapor density: Not determined.
  - Evaporation rate: Not determined.
- **Solubility in / Miscibility with Water:** Not miscible or difficult to mix.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- **Solvent content:**
  - VOC content: 693.0 g/l / 5.78 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:** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Oral LD50</th>
<th>Inhalative LC50/4 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>141-78-6 ethyl acetate</td>
<td>5620 mg/kg (rabbit)</td>
<td>1600 mg/l (rat)</td>
</tr>
<tr>
<td>101-68-8 4,4’-methylenediphenyl diisocyanate</td>
<td>2200 mg/kg (mouse)</td>
<td></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Irritating effect.
  - Sensitization:
    - Sensitization possible through inhalation.
    - Sensitization possible through skin contact.
Trade name: DynaBond Two Part Catalyst

· Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
  Harmful
  Irritant

· Carcinogenic categories
  · IARC (International Agency for Research on Cancer)
    101-68-8 4,4'-methylenebisphenyl diisocyanate 3
  · 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: No further relevant information available.
  · 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:
    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:
    Dispose of content and/or container in accordance with local, regional, national and/or international regulations.

· Uncleaned packagings:
  · Recommendation:
    Dispose of content and/or container in accordance with local, regional, national and/or international regulations

14 Transport information

· UN-Number
  · DOT, IMDG, IATA: UN1993

· UN proper shipping name
  · DOT: Flammable liquids, n.o.s. (ethyl acetate)
  · IMDG: FLAMMABLE LIQUID, N.O.S.(ethyl acetate)
  · IATA: FLAMMABLE LIQUID, N.O.S.(ethyl acetate)
Trade name: DynaBond Two Part Catalyst

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

- Packing group
  - DOT, IMDG, IATA II

- Environmental hazards:
  - Marine pollutant: No

- Special precautions for user
  - Warning: Flammable liquids
  - Danger code (Kemler): 33
  - EMS Number: F-E,S-E

- 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) 1L
    - Excepted quantities (EQ)
      - Code: E2
      - Maximum net quantity per inner packaging: 30 ml
      - Maximum net quantity per outer packaging: 500 ml

- UN "Model Regulation": UN1993, Flammable liquids, n.o.s. (ethyl acetate), 3, II

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.
## Safety Data Sheet

**Trade name: DynaBond Two Part Catalyst**

### Specific Toxic Chemical Listings

- **Section 313 (Specific toxic chemical listings):**
  - 101-68-8 4,4'-methylene diphenyl diisocyanate

### TSCA (Toxic Substances Control Act):

- All components have the value ACTIVE.

### Hazardous Air Pollutants

- 101-68-8 4,4'-methylene diphenyl diisocyanate

### 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.

### New Jersey Special Hazardous Substance List:

- 141-78-6 ethyl acetate F3

### Pennsylvania Right-to-Know List:

- All ingredients are listed.

### Pennsylvania Special Hazardous Substance List:

- All components have the value E.

### Carcinogenic Categories

- **EPA (Environmental Protection Agency):**
  - 101-68-8 4,4'-methylene diphenyl diisocyanate D, CBD

- **TLV (Threshold Limit Value established by ACGIH):**
  - None of the ingredients is listed.

### NIOSH-Ca (National Institute for Occupational Safety and Health)

- None of the ingredients is listed.

### GHS Label Elements

- **Carcinogenic categories**
- **Signal word** Danger

### Hazard Determining Components of Labeling

- 4,4'-methylene diphenyl diisocyanate
- Ethyl acetate

### Hazard Statements

- **H225** Highly flammable liquid and vapor.
- **H332** Harmful if inhaled.
- **H315** Causes skin irritation.
Trade name: DynaBond Two Part Catalyst

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.
H373 May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ventilating/lighting/equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
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P272 Contaminated work clothing must not be allowed out of the workplace.
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P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a poison center/doctor if you feel unwell.
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P403+P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 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.
· Date of preparation / last revision 08/14/2019 / -
· Abbreviations and acronyms:
  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)
  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
Trade name: DynaBond Two Part Catalyst

OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Flam. Liq. 2: Flammable liquids – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Resp. Sens. 1: Respiratory sensitisation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

(Contd. of page 10)