Safety Data Sheet
acc. to OSHA HCS

Printing Date 08/16/2016 Revision Date 08/16/2016
Revision Number 4

1 Identification

· Product identifier
· Trade name: Millennium One Step™ Foamable Adhesive Part 1
· Article number: 730673
· Relevant identified uses of the substance or mixture. Adhesive
· Application of the substance / the mixture Adhesive
· Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  Royal Adhesives & Sealants, LLC
  17340 Munn Road
  Chagrin Falls, OH 44023
  Information Phone Number: 517-764-0334
· Information department: Environment protection department.
· Emergency telephone number:
  ChemTrec: Day or Night within USA and Canada: 1-800-424-9300.
  Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

· Classification of the substance or mixture
  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 H302 Harmful if swallowed.
  Acute Tox. 4 H332 Harmful if inhaled.
  Skin Irrit. 2 H315 Causes skin irritation.
  Eye Irrit. 2A H319 Causes serious eye irritation.
  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

GHS07 GHS08

· Signal word Danger

(Contd. on page 2)
Trade name: Millennium One Step™ Foamable Adhesive Part 1

- **Hazard statements**
  - Harmful if swallowed or if inhaled.
  - Causes skin irritation.
  - Causes serious eye irritation.
  - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
  - May cause an allergic skin reaction.
  - May cause respiratory irritation.
  - May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  - Do not breathe dust/fume/gas/mist/vapors/spray.
  - Wear protective gloves.
  - Wear eye protection / face protection.
  - Wash thoroughly after handling.
  - Do not eat, drink or smoke when using this product.
  - Use only outdoors or in a well-ventilated area.
  - Contaminated work clothing must not be allowed out of the workplace.
  - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - Specific treatment (see on this label).
  - If experiencing respiratory symptoms: Call a POISON CENTER/doctor.
  - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
  - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - Wash contaminated clothing before reuse.
  - If skin irritation or rash occurs: Get medical advice/attention.
  - If eye irritation persists: Get medical advice/attention.
  - Get medical advice/attention if you feel unwell.
  - Rinse mouth.
  - IF ON SKIN: Wash with plenty of water.
  - Take off contaminated clothing and wash it before reuse.
  - Store locked up.
  - Store in a well-ventilated place. Keep container tightly closed.
  - Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 1
    - Fire = 1
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = *1
    - Fire = 1
    - Physical Hazard = 0

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

(Contd. of page 1)
3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture
- **Hazardous components:**
  - **and Non-Dangerous Components:**
    - 9016-87-9 diphenylmethanediisocyanate, isomers and homologues 25-50%
    - 101-68-8 4,4'-methylene diphenyl diisocyanate 25-50%
    - 25322-69-4 Polyol 10-25%
    - 26447-40-5 methylenediphenyl diisocyanate 2.5-10%

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.
    Call a doctor immediately.
    Overexposure, remove to fresh air and seek medical attention.
  - **After skin contact:**
    If skin becomes irritated seek medical attention.
    Immediately wash with water and soap and rinse thoroughly.
  - **After eye contact:**
    Rinse opened eye for 20 minutes under running water. Call a Doctor immediately.
  - **After swallowing:**
    Rinse out mouth with water. Drink 1 - 2 glasses of water but DO NOT induce vomiting. Do not give liquids to a drowsy, convulsing or unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.
    Seek medical treatment.
  - **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.
    Use fire fighting measures that suit the environment.
  - **For safety reasons unsuitable extinguishing agents:** Water
  - **Special hazards arising from the substance or mixture:** No further relevant information available.
  - **Advice for firefighters**
    - **Protective equipment:**
      Mouth respiratory protective device.
      Protective clothing and respiratory protective device.
6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures: Keep away from ignition sources.
- Environmental precautions: No special measures required.
- Methods and material for containment and cleaning up:
  Cover spilled material with neutralization solution (see below) and mix. Wait 15 minutes. Collect material in open-head metal containers. Repeat neutralization and cleaning process until surface is decontaminated. Apply drum lid but DO NOT secure. Allow containers to vent for 72 hours to let carbon dioxide escape.
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Dispose of contaminated material as waste in accordance with federal state and local regulations.
  Ensure adequate ventilation.
- Reference to other sections
  Neutralization solutions:
  1. A mixture of 90% water. 3-8% ammonium hydroxide or concentrated ammonia, and 2% liquid detergent.
  2. A mixture of 80% water, 20% non-ionic surfactant.
  Apply solution. Wait 15 minutes. Collect in open-head container. Re-apply until surface is decontaminated. Apply drum lid but DO NOT secure. Let containers vent for 72 hours allowing carbon dioxide to escape. Secure drum lid.
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

7 Handling and storage

- Handling:
- Precautions for safe handling
  Avoid prolonged or repeated contact with skin.
  Avoid contact with eyes.
  Wash thoroughly after handling.
  Prevent formation of aerosols.
- Information about protection against explosions and fires:
  Product reacts with water. Reaction may produce heat and/or gases.
- Conditions for safe storage, including any incompatibilities
- Storage:
  Requirements to be met by storerooms and receptacles:
  Keep containers tightly closed when not in use. Protect from atmospheric moisture.
  Information about storage in one common storage facility: Keep away from open flames and high temperatures.
- Further information about storage conditions:
  Storage Temperature - 32F - 90F
  Keep receptacle tightly sealed.
- Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data.
- Control parameters
- 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 other constituents have no known exposure limits.
101-68-8 4,4'-methylene diphenyl diisocyanate

<table>
<thead>
<tr>
<th></th>
<th>Ceiling limit value</th>
<th>Long-term value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>0.2 mg/m³, 0.02 ppm</td>
<td>0.05 mg/m³, 0.005 ppm</td>
</tr>
<tr>
<td>REL</td>
<td>0.2* mg/m³, 0.02* ppm</td>
<td>0.051 mg/m³, 0.005 ppm</td>
</tr>
<tr>
<td>TLV</td>
<td>0.2* mg/m³, 0.02* ppm</td>
<td>0.051 mg/m³, 0.005 ppm</td>
</tr>
</tbody>
</table>

Additional information:
MDI products have poor warning properties, since recognition of an odor is far above the TLV. Observe OSHA regulations for respirator use (29 CFR 1910.134).
The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment (see listings below)

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.

Breathing equipment:
Use approved respiratory protection equipment when airborne exposure is excessive. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer.

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
Chloroprene rubber, CR
Nitrile rubber, NBR
Butyl rubber, BR
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:
Face Shield
Safety glasses with side shields.

Body protection:
Apron
9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
  - Appearance:
    - Form: Liquid
    - Color: Off White - Light Amber
  - Odor: Faint Aromatic
  - Odor threshold: Not determined.
- pH-value: Not determined.
- Change in condition
  - Melting point: Undetermined.
  - Boiling point: 176 °C (349 °F)
  - Flash point: 176 °C (349 °F)
- Flammability (solid, gaseous): Not applicable.
- Ignition temperature: 400 °C (752 °F)
- Decomposition temperature: Not determined.
- Danger of explosion: Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
- Flammable limits:
  - Lower: % by volume = .9
  - Upper: % by volume = 6.7
- Vapor pressure: 0 mm Hg
- Specific gravity at 20 °C (68 °F): 1.12 g/cm³ (9.346 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:
  - Organic solvents: 0.0 %
- Other information No further relevant information available.

10 Stability and reactivity

- Reactivity No further relevant information available.
Trade name: Millennium One Step™ Foamable Adhesive Part 1

· Chemical stability
· Thermal decomposition / conditions to be avoided:
  Contact with moisture, other materials that react with isocyanates, or temperatures above 350F (177C), may cause polymerization.
· Possibility of hazardous reactions
  May produce violent reactions with bases and numerous organic substances including alcohols and amines. MDI reacts slowly with water to form Carbon Dioxide gas. This gas can cause sealed containers to expand and possibly rupture. Contact with moisture, other materials that react with isocyanates, or temperatures above 350F, may cause polymerization.
· Conditions to avoid
  Exposure to high temperatures.
  Moisture
· Incompatible materials:
  Reacts with amines, caustic alkali solutions, alcohols, ammonia, oxidizers, acids, polyols.
  Reacts with water forming carbon dioxide-may rupture sealed containers if contaminated with water.
· Hazardous decomposition products:
  Carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke, hydrogen cyanide, isocyanic acid, other undetermined compounds.

II Toxicological information

· Information on toxicological effects
· Acute toxicity:
  · LD/LC50 values that are relevant for classification:
    | 101-68-8 4,4’-methylenehexyl diphenyl disocyanate |
    | Oral LD50 2200 mg/kg (mouse) |
  · Primary irritant effect:
    · on the skin:
      Skin irritant.
      Irritant to skin and mucous membranes.
    · on the eye:
      Irritating effect.
    · Sensitization:
      Inhalation - Sensitization possible through inhalation.
      Skin Contact - Sensitization possible through skin contact.
  · 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)
    | 9016-87-9 diphenylmethanediisocyanate, isomers and homologues |
    | 101-68-8 4,4’-methylenehexyl diphenyl disocyanate |
    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*: At present there are no ecotoxicological assessments.
- **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**: Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Must be specially treated adhering to official regulations. Disposal must be made according to official regulations.
- **Uncleaned packagings**:
  - **Recommendation**: Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
  - *DOT, ADR, ADN, IMDG, IATA*: not regulated
- **UN proper shipping name**
  - *DOT, ADR, ADN, IMDG, IATA*: not regulated
- **Transport hazard class(es)**
  - *DOT, ADR, ADN, IMDG, IATA*: not regulated
- **Packing group**
  - *DOT, ADR, IMDG, IATA*: not regulated
- **Environmental hazards**: Not applicable.
- **Special precautions for user**: Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**: Not applicable.
- **Transport/Additional information**: MDI (CAS 101-68-8) exhibits a CERCLA RQ equal to 5,000 pounds. Quantities less than the RQ amount are not regulated in transportation.
- **UN "Model Regulation"**: not regulated
## 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):**
    
    | CAS Number | Description                          |
    |------------|--------------------------------------|
    | 9016-87-9  | diphenylmethanediisocyanate, isomers and homologues |
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate  |

  - **TSCA (Toxic Substances Control Act):**
    
    | CAS Number | Description                          |
    |------------|--------------------------------------|
    | 9016-87-9  | diphenylmethanediisocyanate, isomers and homologues |
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate  |
    | 26447-40-5 | 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.

  - **(DSL) Canada Domestic Substance List**
    
    All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.

    | CAS Number | Description                          |
    |------------|--------------------------------------|
    | 9016-87-9  | diphenylmethanediisocyanate, isomers and homologues |
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate  |

  - **New Jersey Right-to-Know List:**
    
    | CAS Number | Description                          |
    |------------|--------------------------------------|
    | 9016-87-9  | diphenylmethanediisocyanate, isomers and homologues |
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate  |

  - **New Jersey Special Hazardous Substance List:**
    
    None of the ingredients is listed.

  - **Pennsylvania Right-to-Know List:**
    
    | CAS Number | Description                          |
    |------------|--------------------------------------|
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate  |

  - **Pennsylvania Special Hazardous Substance List:**
    
    | CAS Number | Description                          |
    |------------|--------------------------------------|
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate  |

- **Cancerogenity categories**

  - **EPA (Environmental Protection Agency)**
    
    | CAS Number | Description                          | Category |
    |------------|--------------------------------------|----------|
    | 9016-87-9  | diphenylmethanediisocyanate, isomers and homologues | CBD      |
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate        | D, CBD   |

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

  - **MAK (German Maximum Workplace Concentration)**
    
    | CAS Number | Description                          | Concentration |
    |------------|--------------------------------------|---------------|
    | 9016-87-9  | diphenylmethanediisocyanate, isomers and homologues | 4             |
    | 101-68-8   | 4,4’-methylene diphenyl diisocyanate        | 4             |

(Contd. on page 10)
Trade name: Millennium One Step™ Foamy Adhesive Part 1

· NIOSH-Ca (National Institute for Occupational Safety and Health)
  None of the ingredients is listed.

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

16 Other information

Although the information and recommendations set forth in this SDS are presented in good faith and are believed to be correct as of the date of this SDS, Royal Adhesives & Sealants makes no representations as to the completeness or accuracy thereof. Information is supplied on the condition that the persons receiving and using it will make their own determination as to the suitability for their purpose prior to use. In no event will Royal Adhesives & Sealants or any affiliate thereof be responsible for damages of any nature whatsoever resulting from the use or reliance on the information set forth in the SDS.

· Department issuing SDS: Environment protection department.
· Creation Date: 03/26/2014
· Date of preparation / last revision 08/16/2016 / 3
· Abbreviations and acronyms:
  RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  ICAO: International Civil Aviation Organisation
  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)
  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
  Acute Tox. 4: Acute toxicity – Category 4
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
  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
1 Identification

· Product identifier

· Trade name: Millennium One Step™ Foamable Adhesive Part 2

· Article number: 730674

· Relevant identified uses of the substance or mixture. Adhesive

· Application of the substance / the mixture Adhesive

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier: Royal Adhesives & Sealants, LLC
  17340 Munn Road
  Chagrin Falls, OH 44023
  Information Phone Number: 517-764-0334

· Information department: Environment protection department.

· Emergency telephone number:
  ChemTrec: Day or Night within USA and Canada: 1-800-424-9300.
  Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

2 Hazard(s) identification

· Classification of the substance or mixture

![GHS07]

Skin Irrit. 2  H315  Causes skin irritation.
Eye Irrit. 2A H319  Causes serious eye irritation.
Skin Sens. 1  H317  May cause an allergic skin reaction.

· Label elements

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

· Hazard pictograms

![GHS07]

· Signal word Warning

· Hazard statements
  Causes skin irritation.
  Causes serious eye irritation.
  May cause an allergic skin reaction.

· Precautionary statements
  Avoid breathing dust/fume/gas/mist/vapors/spray
  Wear protective gloves.
  Wear eye protection / face protection.
  Wash thoroughly after handling.
  Contaminated work clothing must not be allowed out of the workplace.

(Contd. on page 2)
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. 
Specific treatment (see on this label). Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. IF ON SKIN: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. Dispose of contents/container in accordance with local/regional/national/international regulations. 
· Classification system: 
· NFPA ratings (scale 0 - 4) 
  Health = 1 
  Fire = 1 
  Reactivity = 0 
· HMIS-ratings (scale 0 - 4) 
  HEALTH Health = 1 
  FIRE Fire = 1 
  PHYSICAL HAZARD Physical Hazard = 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 
· Hazardous components: 
  1760-24-3 N-(3-(trimethoxysilyl)propyl)ethylenediamine ≤2.5% 

**4 First-aid measures**

· Description of first aid measures 
· 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. Call a doctor immediately. 
  Overexposure, remove to fresh air and seek medical attention. 
· After skin contact: 
  Immediately wash with water and soap and rinse thoroughly. 
· After eye contact: 
  Rinse opened eye for 20 minutes under running water. If eye becomes irritated, obtain medical treatment. 
· After swallowing: 
  Rinse out mouth with water. Drink 1 - 2 glasses of water but DO NOT induce vomiting. Do not give liquids to a drowsy, convulsing or unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Seek medical treatment. 
· Information for doctor: 
· Most important symptoms and effects, both acute and delayed No further relevant information available.
Trade name: Millennium One Step™ Foamable Adhesive Part 2

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents: Use fire fighting measures that suit the environment.
- Special hazards arising from the substance or mixture
  Dried solids can burn and release toxic fumes and vapors.
- No further relevant information available.
- Advice for firefighters
- Protective equipment: Protective clothing and respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Ensure adequate ventilation
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  Dispose of contaminated material as waste in accordance with federal state and local regulations.
- 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.

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Avoid prolonged or repeated contact with skin.
    Avoid contact with eyes.
    Wash thoroughly after handling.
    Open containers in a well ventilated area and avoid breathing headspace vapors.
  - Information about protection against explosions and fires: No special measures required.
  - Conditions for safe storage, including any incompatibilities
  - Storage:
    - Requirements to be met by storerooms and receptacles: No special requirements.
    - Information about storage in one common storage facility: Store away from oxidizing agents.
    - Further information about storage conditions: None.
  - 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 product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.
· Exposure controls
· Personal protective equipment (see listings below)
· General protective and hygienic measures:
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
· Breathing equipment: Not necessary if room is well-ventilated.
· 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
  Nitrile rubber, NBR
  Chloroprene rubber, CR
  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: Safety glasses with side shields.
· Body protection: Protective work clothing

* 9 Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:
  Form: Liquid
  Color: Colorless
  Odor: Polyether
  Odor threshold: Not determined.
· pH-value at 20 °C (68 °F): 9-10
· Change in condition
  Melting point: Undetermined.
· Boiling point: > 350 °C (> 662 °F)
· Flammability (solid, gaseous): Not determined.
· Ignition temperature:
  Decomposition temperature: Not determined.
· Auto igniting: Product is not selfigniting.
· Danger of explosion: Product does not present an explosion hazard.
· Flammable limits:
  Lower: % by volume = .9
Trade name: Millennium One Step™ Foamable Adhesive Part 2

<table>
<thead>
<tr>
<th>Upper:</th>
<th>% by volume = 6.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Vapor pressure:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Specific gravity at 20 °C (68 °F):</td>
<td>0.98 g/cm³ (8.178 lbs/gal)</td>
</tr>
<tr>
<td>· Relative density</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Vapor density</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Evaporation rate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Solubility in / Miscibility with Water:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Partition coefficient (n-octanol/water):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Viscosity:</td>
<td></td>
</tr>
<tr>
<td>· Dynamic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Kinematic:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Solvent content:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organic solvents: 0.0 %</td>
</tr>
<tr>
<td></td>
<td>Solids content: 100.0 %</td>
</tr>
<tr>
<td>· Other information</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

*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: Exposure to high temperatures.
· Incompatible materials: Reacts with oxidizing agents.
· Hazardous decomposition products:
  Carbon monoxide and carbon dioxide
  tin oxide

*11 Toxicological information

· Information on toxicological effects
· Acute toxicity:
· Primary irritant effect:
  on the skin: Skin irritant.
  on the eye: May irritate the eye.
· Sensitization: Skin Contact - Sensitization possible through skin contact.
· Additional toxicological information:
  The product shows the following dangers according to internally approved calculation methods for preparations:
  Irritant

· Carcinogenic categories
· IARC (International Agency for Research on Cancer)
  None of the ingredients is listed.
Trade name: Millennium One Step™ Foamable Adhesive Part 2

12 Ecological information

- Toxicty
  - 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:
    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:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
    Must be specially treated adhering to official regulations.
    Disposal must be made according to official regulations.
- 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, ADR, ADN, IMDG, IATA: not regulated
- UN proper shipping name
  - DOT, ADR, ADN, IMDG, IATA: not regulated
- Transport hazard class(es)
  - DOT, ADR, ADN, IMDG, IATA: not regulated
- Packing group
  - DOT, ADR, IMDG, IATA: not regulated
- Environmental hazards:
  - Not applicable.
### 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 components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements.
    - **Proposition 65**
      - **Chemicals known to cause cancer:**
        - None of the ingredients is listed.
      - **Chemicals known to cause reproductive toxicity:**
        - None of the ingredients is listed.
      - **Chemicals known to cause developmental toxicity:**
        - None of the ingredients is listed.
  - **(DSL) Canada Domestic Substance List**
    - All components of this product are on the DSL(Canada Domestic Substance list) or are exempt from DSL requirements.
  - **New Jersey Right-to-Know List:**
    - None of the ingredients is listed.
  - **New Jersey Special Hazardous Substance List:**
    - None of the ingredients is listed.
  - **Pennsylvania Right-to-Know List:**
    - None of the ingredients is listed.
  - **Pennsylvania Special Hazardous Substance List:**
    - None of the ingredients is listed.
  - **Cancerogenity categories**
    - **EPA (Environmental Protection Agency)**
      - None of the ingredients is listed.
    - **TLV (Threshold Limit Value established by ACGIH)**
      - None of the ingredients listed.
    - **MAK (German Maximum Workplace Concentration)**
      - None of the ingredients is listed.
    - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
      - None of the ingredients is listed.
Trade name: Millennium One Step™ Foamable Adhesive Part 2

- National regulations:
- Water hazard class: Water hazard class 1 (Self-assessment): slightly hazardous for water.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

Although the information and recommendations set forth in this SDS are presented in good faith and are believed to be correct as of the date of this SDS, Royal Adhesives & Sealants makes no representations as to the completeness or accuracy thereof. Information is supplied on the condition that the persons receiving and using it will make their own determination as to the suitability for their purpose prior to use. In no event will Royal Adhesives & Sealants or any affiliate thereof be responsible for damages of any nature whatsoever resulting from the use or reliance on the information set forth in the SDS.

- Department issuing SDS: Environment protection department.
- Creation Date: 03/27/2014
- Date of preparation / last revision: 12/16/2015 / 2
- Abbreviations and acronyms:
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - 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)
  - WHMIS: Workplace Hazardous Materials Information System (Canada)
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
  - Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
  - Skin Sens. 1: Sensitisation - Skin, Hazard Category 1