AUSTHANE DPE1783R

Rigid Low Density Polyurethane Injection Foam System

Product Description

AUSTHANE DPE 1783R is formulated as a rigid low density flame retarded void filling / injection foam system. The product is designed to provide excellent flow and stability in void filling operations where the in-situ density of the foam is controlled to be a minimum of 35 kg/m³. The product is formulated to give very good flow in narrow void filling applications.

It is recommended that it be processed through plural component PU injection machines at a Mix Ratio of 100 : 100 parts by Volume [Graco® Reactor Machines or SAiP™ LP Units or equivalent]. It can be ‘hand-mixed’ in small volume applications. Refer to Guide to ‘Hand-mixing of AUSTHANE Rigid Foam Systems-October 2010.

If required refer to AUS Technical staff for information on processing equipment.

DPE1783R Polyol is formulated using a mixed ‘blowing agent’ formulation, primarily ecomate® - a Zero ODP¹, Zero GWP², and VOC³ exempt Blowing Agent.

Recommended Product Applications

- In tank insulation as the injected insulation system between tank wall and external metal cladding
- In pipe-in-pipe annulus filling as the injected insulation system [see note under Guide to Use | Processing Recommendations]
- It is recommended to be used as a ‘buoyancy’ foam in large ‘metal skinned’ buoys, and in wave skis, canoes and similar marine craft, at an in-situ density > 35 kg/m³.
- In commercial refrigeration cabinets requiring an injection foam system with very good flow characteristics
- In thermal insulation in cold and hot applications, for contact surface temperatures ranging from -30°C to +85°C.

System Specifications

Mix Ratio by Volume

100 Parts by Volume to 100 Parts by Volume

DPE1783R POLYOL AUSTHANE AUSMDI ISO

Mix Ratio by Weight

100 Parts by Weight to 110 Parts by Weight

DPE1783R POLYOL AUSTHANE AUSMDI ISO

Laboratory Reactivity Profile / Free Rise Density @ 20°C

[Laboratory QA Foam Cup Test based on 210 gm of System]

Mix Time 20 seconds
Cream Time 28 - 30 seconds
Gel Time 210 - 220 seconds
Tack Free Time 250 - 270 seconds
Free Rise CORE Density 25 - 27 kg/m³

Liquid Properties of DPE1783R System Components @ 25°C

<table>
<thead>
<tr>
<th>Component</th>
<th>DPE1783R Polyol</th>
<th>AUSMDI Isocyanate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear Amber Liquid</td>
<td>Dark Brown liquid</td>
</tr>
<tr>
<td>Viscosity</td>
<td>400 ± 50 cPs</td>
<td>200 ± 50 cPs</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>1.09</td>
<td>1.24</td>
</tr>
</tbody>
</table>

Product Physical | Technical Data

Closed Cell Content @ 36.6 kg/m³ > 94 %

Compressive Stress at 10% deformation

<table>
<thead>
<tr>
<th>Density</th>
<th>Parallel to Rise</th>
<th>Perpendicular to Rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.6 kg/m³</td>
<td>&gt; 240 kPa</td>
<td>&gt; 140 kPa</td>
</tr>
</tbody>
</table>

Dimensional Stability of DPE1783R System at 36.1 kg/m³

(based on AS 2489.6)

<table>
<thead>
<tr>
<th>Dimensional Change</th>
<th>7 days exposure at -20°C</th>
<th>7 days exposure at 100°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Width</td>
<td>Nil</td>
<td>Nil</td>
</tr>
<tr>
<td>Thickness</td>
<td>Nil</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Thermal Conductivity

[Aged Sample - Density: 37.0 kg/m³]

k value: 0.0242 W/ m.K
R value @ 100 mm 4.13 m².k/W

Test Method based on AS 2646.5
Mean Temperature of Test: 17.52°C

Aged k factor

The Aged k factor of PU foam is affected by the exposure conditions and application of the foam, the actual temperature range of exposure over time and the density of the in-situ foam. Specific technical guidance should be obtained in regard to this aspect of polyurethane foam.

In applications where impermeable facings are in place or are applied to both faces of the AUSTHANE DPE1783R product, e.g. metal sheeting, metal foils, fibreglass lay-up construction, and is adhered firmly over the whole surface of both sides of the foam, the foam will retain its Initial k factor of typically 0.024 W/ m.K.

Foam Thickness

<table>
<thead>
<tr>
<th>Foam Thickness</th>
<th>50 mm</th>
<th>75 mm</th>
<th>100 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>R value - m².k/W</td>
<td>2.07</td>
<td>3.10</td>
<td>4.11</td>
</tr>
</tbody>
</table>

Guide to Use | Processing Recommendations

AUSTHANE DPE1783R System is designed to be used in applications where the injected / in-situ foam density achieved is a minimum of 35 kg/m³ density.

- when using a SAiP SE30 or similar equipment, the recommended processing conditions are:
  - Polyl Temperature 23 - 27°C
  - Hose Temperature Setting 23 - 27°C

continued next page....
**Guide to Use | Processing Recommendations continued**

- When processing through Graco® equipment [or equivalent] the recommended machine operating temperature range is 35 - 40°C at a Dynamic Mixing Pressure of > 1000 psi [ > 69 bar].
- Warming all mould / contact surfaces to 35 - 45°C will give the best flow and adhesion results.
- The in-situ density will be influenced by the configuration of the cavity in which the foaming process takes place. Restrictions to the flow / expansion of the foam will result in increases in the in-situ density. Calculation and monitoring of the rate of injection into 'void' sections is required to ensure that the required in-situ density is obtained and effective performance of the insulation layer is achieved.

**Component Storage Conditions**

- Store both the Component supply containers inside at 15 to 25°C away from sources of radiated heat on standard type pallets, not directly onto cold concrete floors.
- Ensure any partly used Drums / Bulk Containers are properly sealed.
- If intending to store partly used Drums / Bulk Containers for longer than 1 month then purge the ullage space above the liquid surface with Nitrogen or Dry Air if the containers are not fitted with Desiccant Dryer Units.

**Limitations and Hazards**

- In all external exposure and some internal applications the PU foam surface must be protected from weathering / physical deterioration by:
  - i) the application of a selected elastomeric membrane coating, typically acrylic, polyurethane or bituminous types.
  - ii) the application of fibreglass / Polyester Resin FRP skin.
  - iii) the application of metal sheeting or other weatherproof treatment.
- In specific temperature and humidity conditions the effects of water vapour ‘drive’ must be considered in system design and application requirements.
- Special precautions need to be taken in regard to system design and specification under possible water vapour condensation temperature conditions, or in conditions where high levels of water vapour/high humidity conditions may occur.
- When spraying or pouring, excessive thickness should not be applied in a single application as the exotherm of the reaction may lead to spontaneous combustion, excessive pressure build up or thermal expansion from the significant heat developed in the foaming reaction.
- All polyurethane & polyisocyanurate foams may present a fire hazard in certain conditions if exposed to fire and/or excessive heat e.g. welding, and cutting torches, in the presence of oxygen / air.

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**Health and Safety Issues**

Before using this Polyurethane System please refer to the MATERIAL SAFETY DATA SHEETS for both the Components for information on the correct handling procedures for these products and the Safety Issues and Hazards associated with their use.

The Isocyanate Component of this System is **AUSTHANE AUSMDI Isocyanate.** It is classified as a HAZARDOUS product under NOHSC criteria. Ensure that the conditions of use of the System are within the Exposure Limits as set out in the product Material Safety Data Sheet and the required Personal Protection Equipment is provided.

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**EXCLUSION OF WARRANTIES**

**THESE SYSTEMS ARE NOT INTENDED FOR USE BY NON-PROFESSIONAL OR INEXPERIENCED DESIGNERS AND APPLICATORS.**

The information presented in this Product Bulletin requires experience and background knowledge for correct interpretation and application.

The potential user must perform any pertinent tests in order to determine the product’s performance and suitability in the intended application since determination of fitness of the product for any particular use is the responsibility of the buyer.

The data, information and suggestions covered in this data sheet, are given on the basis that the materials will be used correctly and professionally and at the sole risk of the user.

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1. **ODP** = Ozone Depletion Potential
2. **GWP** = Global Warming Potential
3. **VOC** = Volatile Organic Compound