# POLYURETHANE SYSTEM FOR SPRAY APPLICATION

**POLYOL : ACI POLYOL SPR-35**
**ISOCYANATE : ACI-MDI-5**

# TECHNICAL DATA SHEET

## General

**ACI's** rigid polyurethane systems for Spray applications are two components, ACI Polyol SPR-35 and Polymeric MDI based systems. Available in three nominal density grades 30-35,40-45 & 50-55 Kg/m3. The systems have 1 : 1 volume mix ratio and the preferred spray equipment is the Gusmer machine (FF1600) with Model D type gun.

## TECHNICAL DATA (All grades) POLYOL COMPONENT

Viscosity at 25 ºC – Approx 700-800 cps.
Specific gravity - Approximately 1.24 gm/cc

## TYPICAL REACTION AND DENSITY (Laboratory cup mix)

Component temperature 20 ºC, 100 gm. Mix weight

| Grade | 30-35 kg/m³ | 40-45 kg /m³ | 50-55 kg/m³ |
|---|---|---|---|
| Cream Time Seconds | 5-6 | 5 - 8 | 4 - 6 |
| Tack Free Time Seconds | 16-18 | 25 - 35 | 15 - 25 |
| Above Cup Density kg/m³ | 26 - 28 | 34 - 37 | 41.6 - 45 |

Reactivity may vary depending on the ambient conditions and grade.

## TYPICAL PHYSICAL PROPERTIES

Based on 60 mm. total thickness obtained in three applications to metal or concrete substrates, using a Gusmer FF1600 proportioning unit and D- gun.

| Core Density (kg/m³) | 30-36 | 37 - 43 | 51 - 60 |
|---|---|---|---|
| Compr. Strength(with rise)kg/cm² | 2-2.8 | 2.7 – 3.0 | 4.0 – 4.2 |
| Tensile Strength (with rise)kg/cm² | 2.6-2.8 | 3.0 – 3.2 | 4.50 – 5.0 |

## TEST METHOD BS 4370

Thermal Conductivity W/Mº K

| Initial Value | 0.017 | 0.017 | 0.017 |
|---|---|---|---|
| Aged Value | 0.023 | 0.023 | 0.023 |

## TEST METHOD ANACON THERMAL CONDUCTIVITY METHOD

Dimensional Stability % Linear Change

| 7 days at 15ºC | 1.0 | 1.0 | 1.0 |
|---|---|---|---|
| 7 days at 100 ºC | 1.4+ | 2.0+ | 1.5+ |
| 7 days at 70 ºC 100% RH | 2.8+ | 3.0+ | 2.0+ |

## TEST METHOD BS 4370

MVT; u gr/Nh (perm inch)
25 mm Sample at 38 ºC 100 RH

| All cut surfaces | 12.0 | 10.5 | 7.7 |
|---|---|---|---|
| With Skin Retained | 5.8 | 5.3 | 4.2 |

## TEST METHOD BS 4370

| Closed Cells % | 95-98 | 95-97 | 96-98 | |
|---|---|---|---|---|

**TEST METHOD ASTM D 2856**
**BURNING CHARACTERISTICS**

| | | | | |
|---|---|---|---|---|
| Extent Burn. mm (ASTM 1692 – 74) | 40 – 50 mm | 40 – 50 mm | 40 – 50 mm | |

These burning characteristics are not intended to reflect hazards presented by this or other materials under fire conditions. Rigid polyurethane foam may present a fire risk in actual applications if exposed to fire and/or heat eg: welding or cutting torches.

## TYPES OF SPRAY SYSTEMS

The "W" type (winter grazed) with modified catalyst is recommended where ambient temperatures are below 25 ºC.

The "S" type (summer grade) with a slower reaction rate is the preferred system where the ambient temperature is above 25 ºC.

The choice of grade system is not mandatory, the type of substrate, equipment and other factors may be considered as indicative:

| | **Winter Grade** | **Summer Grade** |
|---|---|---|
| **Ambient Temperature Min.** | 5 ºC | 20 ºC |
| **Ambient Temperature Max.** | 25 ºC | 50 ºC |
| **Substrate Temperature Min.** | 10 ºC | 25 ºC |
| **Substrate Temperature Max.** | 30 ºC | 70 ºC |

## HANDLING AND STORAGE

The following precautions are necessary when using ACI's Spray Systems.

### ACI's Resin Component

ACI's Resin component is a low-medium viscosity blend of polyols, HCFC-141b blowing agent silicone surfactants and catalysts. The resin component should be stored at a temperature below 30 ºC in sealed drums to avoid pressurization of the drum by the HCFC-141b (boiling point 32 ºC).Drums should be resealed immediately after use to avoid loss of blowing agent and absorption of moisture. Agitate contents before use, particularly after long standing.

### ACI's ISOCYANATE COMPONENT

**ACI's** Isocyanate component is a dark brown, undistilled grade of dipheny1methane diisocyanate (commonly called MDI). MDI should be stored at room temperature in sealed drums. Moisture readily reacts with Isocyanates to form insoluble products which can readily block spray guns and the equipment.
Drums should be resealed immediately after use to prevent moisture absorption.

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**TECHNICAL SERVICE:**

Our Technical Service Department is available at any time to advise you in the correct use of this product or any other Ahlia products.

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