Bayer MaterialScience

Product Information

BAYFLEX® 110-35 IMR

Elastomeric Polyurethane RIM System

Description

Bayflex 110-35 IMR system produces a solid urethane elastomer which has a flexural modulus of approximately 33,500 psi* at room temperature. This system is used to provide multiple releases of large reaction injection molding (RIM) parts, such as automotive fascias. The system contains internal mold release (IMR) and is used with milled glass fiber or mineral reinforcements.

Bayflex 110-35 IMR is a formulated RIM system supplied as two liquid components. Component A is a diphenylmethane diisocyanate (MDI) prepolymer, and Component B is a polyether polyol system. As with any product, use of the Bayflex 110-35 IMR system in a given application must be tested (including field testing, etc.) in advance by the user to determine suitability.

Typical Properties* of Components

Property	Isocyanate (Component A)	Polyol (Component B)
Appearance	Light yellow to yellow liquid	Pale yellow liquid
Specific Gravity at 25°C	1.21	1.10
Viscosity at 25°C, mPa•s	700	1,250
Flash Point, PMCC, °C	213	160

Processing Conditions

Molding Parameters*	
Material Temperature,°C (°F)	
Component A	38 (100)
Component B	43 - 49 (110 - 120)
Mold Temperature,°C (°F)	66 (150)
Demold time, sec.	30
Mixing Ratio (by weight), A/B, 105 Index	53/100

Typical Properties of System*

Property**	ASTM Test Method (Other)	Unfilled	15% Glass	15% Wollastonite	18% Mineral[1]
General					
Specific Gravity	D 792	1.04	1.14	1.14	1.13
Density	D 1622	64.9 lb/ft^3	71.2 lb/ft^3	71.2 lb/ft^3	70.5 lb/ft^3
Thickness		0.125 in	0.125 in	0.125 in	0.125 in
Mold Shrinkage	(Bayer)	1.3%	0.7%	0.7%	0.56%
Mechanical					
Tensile Strength, Ultimate	D 638/ D 412	3,500 lb/in	3,200 lb/in	3,200 lb/in	2,200 lb/in
Elongation at Break	D 638/ D 412	135%	75%	75%	105%
Flexural Modulus, lb/in^2	D 790				
65°C (149°F)		51,000 lb/in^2	100,000 lb/in	100,000 lb/in^2	40,000 lb/in^2
23°C (73°F)		80,000 lb/in^2	150,000 lb/in	150,000 lb/in^2	68,000 lb/in^2
-30°C (-22°F)		200,000 lb/in^2	275,000 lb/in^2	275,000 lb/in^2	153,000 lb/in^2
Tear Strength, Die C	D 624	470 lbf/in	600 lbf/in	600 lbf/in	445 lbf/in
Impact Strength: Notched Izod	D 256	5 ft·lb/in	3 ft·lb/in	3 ft·lb/in	3 ft·lb/in
Thermal					
Heat Sag	D 3769				
6-in Overhang, 1 hr @ 250°F		0.3 In	0.16 In	0.16 In	0.39 In
Coefficient of Linear Thermal Expansion	D 696	61 E-06 in/in/°F	28 E-06 in/in/°F	28 E-06 in/in/°F	23 E-06 in/in/°F

* *These items are provided as general information only. They are approximate values and are not part of the product specifications.*
** *Properties are for materals postcured at 121°C for one hour. All directional properties are listed parallel to flow.*
[1] *Calcium Silicate*

Storage and Handling

Component A (MDI prepolymer) must be stored in tightly closed containers and protected from contamination with moisture and other foreign substances, which can adversely affect processing. It will react slowly with water to form ureas and carbon dioxide gas, which may cause sealed containers to expand and rupture. Partially filled containers should be blanketed with dry nitrogen.

Storage temperatures should be maintained between 24° and 30°C (75° and 86°F). Under these conditions, Component A will remain clear for periods of up to six months. Within this range, lower storage temperatures will maximize the storage life of the product.

Component A must not be allowed to freeze. Exposure to temperatures less than 15°C (59°F), even for short periods of time, can result in the formation of solid material. During the winter months, appropriate precautions must be taken during shipment and storage.

Prolonged storage of solid or partially solid Component A may result in the formation of MDI dimer in amounts which exceed its solubility in the prepolymer at normal storage temperatures. This can make the product unusable.

If solids should form because of exposure of Component A to lower temperatures, it may be possible to reliquify the prepolymer by reheating. Use a well-ventilated oven for the minimum time necessary to render it clear. The temperature of the prepolymer should not exceed 60°C (140°F). Agitation or drum rolers are recommended to avoid excessive local heating, which will degrade the prepolymer.

Significant amounts of MDI dimer may form during the heating process. As a result, the remelted prepolymer may be cloudy, and the processing behavior and properties of the final product may be affected.

Component B (polyether polyol system) is slightly hygroscopic and may absorb water. Containers should be kept in tightly closed and protected from contamination with moisture and foreign materials which can adversely affect processing. For ease of handling, storage temperatures between 16° and 43°C (60°and 110°F).

Health And Safety Information

Appropriate literature has been assembled which provides information concerning the health and safety precautions that must be observed when handling Bayflex 110-35 system components. Before working with these products, you must read and become familiar with the available information on their hazards, proper use, and handling. This cannot be overemphasized. Information is available in several forms, e.g.,material safety data sheets and product labels. Consult your local Bayer MaterialScience representative or contact Bayer's Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

This product is not designated as "Medical Grade" and therefore shall not be considered a candidate for the manufacture of a medical device or of intermediate products for medical devices, which are intended under normal use to be brought into direct contact with the patient's body (e.g., skin, body fluids or tissues, including indirect contact to blood)*. If the intended use of the product is for the manufacture of a medical device or of intermediate products for medical devices, Bayer MaterialScience LLC must be contacted in advance to provide its agreement to sell such product for such purpose. Nonetheless, any determination as to whether a product is appropriate for use in a medical device or intermediate products for medical devices must be made solely by the purchaser of the product without relying upon any representations by Bayer MaterialScience LLC. For further information, please contact bmsmedicalapplication@bayer.com.

Note: The information contained in this bulletin is current as of May 2012, please contact Bayer MaterialScience to determine whether this publication has been revised.

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