Bayer MaterialScience

Product Information

BAYFLEX® MP-10,000

Elastomeric RIM System

Description

Bayflex MP-10,000 is a solid elastomer which has a flexural modulus of approximately 10,000 psi (69 MPa) at room temperature.* It is processed on reaction injection molding (RIM) equipment and is used for rollers, gaskets, and encapsulated windows. This system combines rapid demold times, excellent integrity at demold, improved release characteristics, and outstanding physical properties.

Bayflex MP-10,000 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. As with any product, use of the Bayflex MP-10,000 system in a given application must be tested (including field testing, etc.) in advance by the user to determine suitability.

Typical Properties of System

Property[a]	ASTM Test Method Other	S.I. Value	U.S. Value
General			
Specific Gravity	D 792	1.0	1.0
Density	D 1622	1,000 kg/m^3	62.4 lb/ft^3
Thickness		3 mm	0.118 in
Shore Hardness	D 2240	90A/40D	90A/40D
Mold Shrinkage	(Bayer)	1.42%	1.42%
Water Immersion, Dimensional Stability,	(Bayer)		
Length Increase		0.014 mm/mm	0.014 in/in
Water Absorption, Weight Gain:	(Bayer)		
24 Hours		3.3%	3.3%
240 Hours		5.0%	5.0%
Mechanical			
Tensile Strength, Ultimate	D 638/D 412	15 MPa	2,200 lb/in^2
Tear Strength, Die C	D 624	42 kN/m	240 lbf/in
Elongation at Break	D 412	300%	300%
Tensile Modulus:	D 412		
20 in/min, Die C			
20% Elongation		4.1 MPa	600 lb/in^2
50% Elongation		5.2 MPa	750 lb/in^2
100% Elongation		6.9 MPa	1,000 lb/in^2
Flexural Modulus:	D 790		
65°C (149°F)		54 MPa	7,900 lb/in^2
23°C (73°F)		69 MPa	10,000 lb/in^2
-30°C (-22°F)		163 MPa	23,600 lb/in^2
Thermal			
Coefficient of Linear Thermal Expansion	D 696	171 E-06 mm/mm/°C	95 E-06 in/in/°F
Low Temperature Brittleness	D 746		
-50°C		No Cracking	No Cracking

* *These items are provided as general information only. They are approximate values and are not part of the product specifications.*

[a] *Postcured at 121°C for one hour.*

Typical Properties* of Components

Property	Isocyanate (Component A)	Polyol (Component B)
Specific Gravity at 25°C	1.21	1.03
Viscosity at 25°C, mPa•s	700	1,350
Flash Point, PMCC,°C	213	185

Processing Conditions

Molding Parameters*	
Material Temperature,°C (°F)	32 - 42 (90 - 108)
Mold Temperature,°C (°F)	65 - 70 (149 - 158)
Demold Time	30 sec
Mixing Ratio (By Weight), A/B, 105 Index	37.5/100

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. The headspace of partially filled containers should be blanketed with dry nitrogen.

Storage temperatures should be maintained between 25° and 30°C (75° and 86°F). Under these conditions, Component A will remain clear for 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 product by heating. Use a well-ventilated oven for the minimum time necessary to render it clear. The temperature of the product should not exceed 60°C (140°F). Agitation or drum rollers 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 (polyol) is normally shipped in 55-gallon lined steel drums. The material is hygroscopic and should be kept in tightly closed containers or blanketed with a dry atmosphere to prevent contamination with atmospheric moisture and foreign materials, which can adversely affect processing. Storage temperatures should be in the range of 15°and 43°C (60°and 110°F). Note: Component B should be agitated thoroughly prior to transfer of contents from the drum to the day tank.

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 MP-10,000 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.

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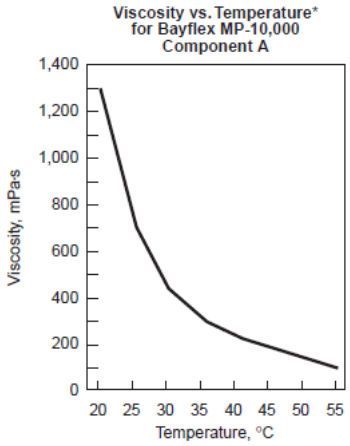

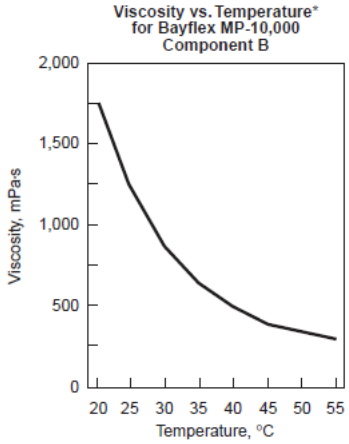

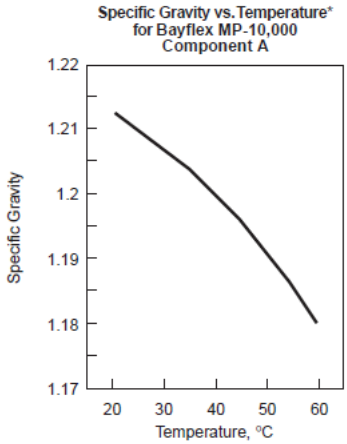

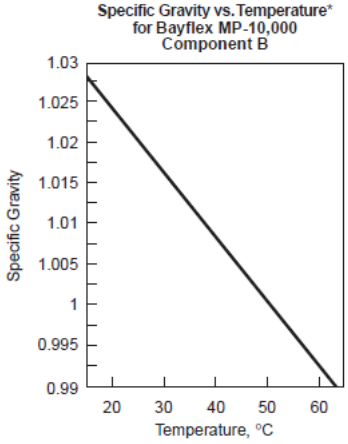

** Data presented in these charts is derived from a single sample and may vary from the typical properties information, which represents values derived by averaging data from various samples.*

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.

*Please see the "Guidance on Use of Bayer MaterialScience Products in a Medical Application" document which can be located at baycareonline.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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