



BAYFLEX® XGT-80

Elastomeric Polyurethane RIM System

Product Code: U135

Description

Bayflex XGT-80 is an elastomeric polyurethane system used in the reaction injection molding (RIM) process. The system is supplied as two liquid components: Component A is a modified diphenylmethane diisocyanate (MDI), and Component B is a polyether polyol system. *Note:* The polyol component phase-separates upon standing and must be thoroughly mixed via mechanical means prior to use.

The extended gel time of Bayflex XGT-80 gives equipment designers the flexibility to create large, complex parts that can be molded on existing injection machinery. The resin's excellent surface quality and high impact resistance make it a candidate for agricultural equipment, heavy-duty trucks, specialty transportation, and marine applications.

As with any product, use of Bayflex XGT-80 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	Colorless to straw yellow liquid	Pale green to amber liquid
Specific Gravity at 25°C	1.21	1.04
Viscosity at 25°C, mPa•s	700	550
Flash Point, PMCC, °C	213	112
NCO, %	22.6	—
Water, Wt.%	—	≤ 0.09

Typical Properties* of System

Property ^a	ASTM Test Method (Other)	Unit	Unfilled	15% Glass ^b
General				
Specific Gravity	D 792		1.04	1.15
Density	D 1622	lb/ft ³	64.9	71.8
Thickness		in	0.125	0.125
Shore Hardness	D 2240	D Scale	65	70
Mold Shrinkage	(Bayer)	%	0.80–0.90	0.55–0.65
Mechanical				
Tensile Strength at Break		lb/in ²	3,700	3,800
Tensile Elongation at Break		%	150	75
Flexural Modulus:	D 790			
158°F (70°C)		lb/in ²	33,000	78,000
73°F (23°C)		lb/in ²	83,000	170,000
-22°F (-30°C)		lb/in ²	180,000	280,000
Tear Strength, Die C	D 624	lbf/in	630	650
Notched Izod Impact Strength	D 256	ft•lb/in	12	5
Instrumented Impact, Crack Energy at 5 mph:	D 3763			
73°F (23°C)		ft•lb	25.0	5.7
-22°F (-30°C)		ft•lb	4.0	2.0
Thermal				
Heat Sag:	D 3769			
4-in Overhang, 1 hr at 250°F in (mm)			0.59 (15)	0.39 (10)
Coefficient of Linear Thermal Expansion	D 696	in/in/°F	61 E-06	31 E-06

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

^aAll directional properties are measured parallel to flow.

^bMilled glass fiber, Owens Corning 737, 1/16 inch.

Processing Conditions

Molding Parameters*	Unfilled	Filled
Material Temperature, °C (°F):		
Isocyanate (Comp. A)	32–38 (90–100)	
Polyol (Comp. B)	32–38 (90–100)	43–49 (110–120)
Mold Temperature, °C (°F)	66–71 (150–160)	66–71 (150–160)
Polyol Nucleation:		
Specific Gravity	0.70 – 0.80	0.90
Maximum Shot Time, sec	5	5
Typical Demold Time, sec:		
0.125-in Thickness	90	90
Mixing Ratio, Iso/Polyol, 1.05 Index:		
By Weight	140/100	
By Volume	119/100	

Storage and Handling

Isocyanate Component – Component A (MDI prepolymer isocyanate) must be stored in tightly closed containers and protected from moisture and foreign materials, which can adversely affect processing. Storage temperatures should be maintained at 21°– 43°C (70°–110°F). Under these storage conditions, the product will remain clear and constant in composition for periods of up to six months.

If solidification should occur because of exposure to temperatures below 16°C (61°F), the product can be reheated up to 60°C (140°F), in a well-ventilated oven for the minimum amount of time necessary to render it clear. However, there is a definite risk of sufficient MDI dimer formation during the heating process which would exceed the dimer solubility in Component A at room temperature. As a result, the melted product may be cloudy, and the processing behavior and/or properties of the final product may be affected. Furthermore the rate of dimer formation

in the solid state is significantly greater than the rate in the liquid state at the same temperature. Consequently, any prolonged storage of solid Component A will almost inevitably result in the formation of MDI dimer in an amount which exceeds its solubility in Component A at room temperature.

Excessive heating causes dimerization, loss of NCO, and increase in viscosity. As with any isocyanate, contact with moist air will produce a premature and adverse reaction, rendering it useless for production. Therefore, partially filled containers should be blanketed with nitrogen.

Polyol Component – Component B (polyol) is hygroscopic and may absorb water. Containers should be kept tightly closed and protected from moisture and foreign materials, which can adversely affect processing. Storage should be maintained at ambient temperatures. *Note:* Component B phase-separates upon standing and must be thoroughly mixed via mechanical means prior to use.

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 XGT-80 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.

Note: The information contained in this bulletin is current as of July 1996. Please contact Bayer MaterialScience to determine whether this publication has been revised.

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