Bayer MaterialScience

Product Information

BAYFLEX® XGT-50 Black

Elastomeric Polyurethane RIM System

Description

Bayflex XGT-50 Black is a black-pigmented elastomeric polyurethane system used in the reaction injection molding (RIM) process. The formulated system is supplied as two liquid components: Component A is a diphenylmethane diisocyanate (MDI) prepolymer, and Component B is a polyether polyol system.

Bayflex XGT-50 Black system has a flexural modulus of 50,000 psi* at room temperature. It is used in applications requiring excellent impact properties, such as bumpers for buses and other vehicles. As with any product, use of the Bayflex XGT-50 Black 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	Black liquid
Specific Gravity at 25°C	1.21	1.05
Viscosity at 25°C, mPa•s	700	600
Flash Point, PMCC, °C	213	119
NCO, Wt. %	22.6 - 23.1	-
Water, Wt. (max), %	-	0.09
Hydroxyl Number	-	316 mg KOH/g

Typical Physical Properties of the System*

Property[a]	ASTM Test Method (Other)	Value
General		
Specific Gravity	D 792	1.04
Density, lb/ft^3	D 1622	64.9
Thickness, in		0.125
Shore Hardness	D 2240	55D
Taber Abrasion, mg Loss	D 3489	
H-18 Wheel, 1,000-g Load, 1,000 cycles		200
Mold Shrinkage, %	(Bayer)	0.80 - 0.90
Mechanical		
Tensile Strength at Break, lb/in^2	D 412	3,500
Tensile Elongation at Break, %	D 412	200
Flexural Modulus, lb/in^2	D 790	
65°C (149°F)		18,000
23°C (73°F)		50,000
-30°C (-22°F)		105,000
Tear Strength, Die C, lbf/in	D 624	530
Impact Strength, Notched Izod, ft·lb/in	D 256	12.5
Thermal		
Heat Sag: 4-in Overhang, 1hr @ 121°C, in	D 3769	0.67
Coefficient of Linear Thermal Expansion, in/in/°F	D 696	61 E-06
Flammability[b]	FMVSS-302	Pass

** These items are provided as general information only. They are approximate values and are not part of the product specifications.*
[a] All directional properties are measured parallel to flow.
[b] Flammability results are based on small-scale laboratory tests for purposes of the hazards presented by this or any other material under actual fire conditions.

Processing Conditions

Molding Parameters*	
Material Temperature,°C (°F)	32 - 38 (90 - 100)
Mold Temperature,°C (°F)	60 - 70 (140 - 158)
Polyol Nucleation: Specific Gravity	0.75 - 0.80
Maximum Shot Time, sec	11 - 12
Typical Cure Time, min. 0.125-in Thickness	2 - 3
Mixing Ratio, Iso/Polyol, 105 Index: By Weight By Volume	 108/100 96/100

Storage and Handling

Component A (MDI prepolymer isocyanate) 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 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 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/or properties of the final product may be affected.

Component B (polyol blend) is 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. 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-50 Black 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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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.

Bayer MaterialScience LLC

100 Bayer Road • Pittsburgh, PA 15205-9741 • Phone: 1-800-662-2927 • www.bayermaterialsciencenafta.com

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