



BAYDUR PUL 2500

Polyurethane System for Pultrusion

Description

Baydur PUL 2500 is a two-component liquid polyurethane system for use in composite manufacturing. The isocyanate is a modified diphenylmethane diisocyanate (MDI), and the polyol component is a polyether polyol blend. The system has been specially designed for use in pultrusion and gives excellent composite properties, including superior elongation to failure, shear strength and impact resistance.

As with any product, use of the Baydur PUL 2500 system in a given application must be tested (including field testing, etc.) in advance by the user to determine suitability.

Typical Properties* of Machine Processed System

Property	ASTM Test Method (Other)	Unit	Pultuded Bar**
Specific Gravity	D 792		2.10
Density	D 792	lb/ft ³	130.0
Flexural Strength	D 790	psi	200,000
Flexural Modulus	D 790	psi	7,000,000
Flexural Strain	D 790	%	3
Short Beam Shear	D 2344	kpsi	> 9

Typical Properties* of Components

Property	Baydur PUL 2500 (Component A) Isocyanate	Baydur PUL 2500 (Component B) Polyol
Viscosity at 25°C, mPa·s	200	750
Specific Gravity at 25°C	1.24	1.07
Flash Point, PMCC, °C	199	> 200
NCO, Wt. %	31.0 min	-
Hydroxyl Number, mg KOH/g	-	438
Appearance	Dark brown liquid	Milky liquid

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

** Undirectional composite properties measured on pultruded bar with ~ 81 wt. % glass.

Processing Conditions

Baydur PUL 2500 is designed so that it can be processed on low-pressure equipment using static mixing. There are no special heating or pumping requirements other than keeping the liquid components between 18-29°C (65- 85°F) and delivering them to the mixer at the ratio shown below. The pump should deliver the materials to the mixer, free of pulsations. Baydur PUL 2500 contains catalyst but not an internal mold release agent (IMR). The customer must add in 4 parts of internal mold release to the B side polyol and blend before use. Recommended internal mold release materials are Axel 1948 MCH and Techlube 550 HB.

Baydur PUL 2500 Processing:

By *weight*: 100 parts Polyol Blend (96 parts Baydur PUL 2500 Comp. B Polyol + 4 parts IMR), reacted with 114 parts Baydur PUL 2500 Comp. A Isocyanate

By *volume*: 100 parts Polyol Blend (96 parts Baydur PUL 2500 Comp. B Polyol + 4 parts IMR), reacted with 100 parts Baydur PUL 2500 Comp A. Isocyanate

Typical Pultrusion Process Conditions*	
Die Profile (Cross-section)	1 inch x 1/8 inch
Line Speed	36 inches/minute
Die Temperatures	Entry - Cooling on Center - 190-230°C (375-450°F) Exit - 176°C (350°F)

Storage and Handling

Isocyanate Component - The MDI isocyanate must be stored in tightly closed containers and protected from moisture. Processability of this material can be adversely affected by contamination. It will react slowly with water to form polyureas and liberate carbon dioxide gas, which may cause sealed containers to expand and rupture. Recommended storage temperatures are 10° and 30°C (50° and 86°F). The shelf life is six months when stored in closed original containers and stored under the recommended conditions.

Polyol Component - The blend will separate on standing and needs to be mixed before and during use. The polyol component is hygroscopic, and containers must be kept closed to prevent absorption of moisture, which can adversely affect processing. Recommended storage temperature is 10° - 32°C (50° and 90°F). Shelf life is 12 months when stored in closed, original containers at 25°C (77°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 Baydur PUL 2500 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 June 2012, please contact Bayer MaterialScience to determine whether this publication has been revised.

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