Bayer
Polymers Division

PRISM® CM-200

Solid Polyurethane RIM System

Product Code: **U750**

POLYURETHANES

Product Information

Description

PRISM CM-200 is a solid polyurethane system used in the reaction injection molding (RIM) process. The system incorporates an internal mold release (IMR) and is supplied as two reactive liquid components: Component A is a polymeric diphenylmethane diisocyanate (MDI), and Component B is a polyol blend. *Note:* The polyol component phase-separates upon standing and must be thoroughly mixed via mechanical means prior to use.

Typical Physical Properties* of System

Property	ASTM Test Method (Other)	Unit	Value
General			
Specific Gravity	D 792		1.09
Density	D 1622	lb/ft^3	68
Thickness		in	0.125
Shore Hardness	D 2240	D Scale	75
Mold Shrinkage	(Bayer)	%	0.7–0.9
Mechanical			
Tensile Strength at Break	D 638	lb/in^2	7,000
Tensile Elongation at Break	D 638	%	9
Flexural Modulus	D 790	lb/in^2	290,000
Flexural Strength	D 790	lb/in^2	11,000
Unnotched Impact Strength	D 256	ft·lb/in	8
Thermal			
Deflection Temperature Under Load:	D 648		
66 psi		°F	221
Heat Sag:	D 3769		
4-in Overhang, 1 hr at 250°F		in (mm)	0.16 (4)
Relative Temperature Index:	(UL746B)		
Electrical			
0.125-in Thickness		°C	85**
0.250-in Thickness		°C	85**
Mechanical with Impact			
0.125-in Thickness		°C	70**
0.250-in Thickness		°C	75**
Mechanical without Impact			
0.125-in Thickness		°C	85**
0.250-in Thickness		°C	85**
Flammability* **			
UL94 Flame Class:	(UL94)		
0.125-in Thickness		Rating	V-0/5VA
Electrical			
Volume Resistivity	D 257	ohm·cm	5.2 E+14
Surface Resistivity	D 257	ohm	7.9 E+14
Dielectric Strength	D 149	kV/mm	19.2
Dielectric Constant at 1 MHz	D 150		3.06

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

*** Bayer Provisional Value.*

**** Flammability results are based on small-scale laboratory tests for purposes of relative comparison and are not intended to reflect the hazards presented by this or any other material under actual fire conditions.*

The PRISM CM-200 system has a UL94 flammability rating* of V-0/5VA and is used for applications in the electronic, medical, and appliance markets. The applications typically take advantage of the material's strength, excellent surface finish, and large-part capability. As with any product, use of the PRISM CM-200 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	Dark brown liquid	Yellow to dark brown viscous liquid
Specific Gravity at 25°C	1.24	1.07
Viscosity at 25°C, mPa·s	60	1,800
Flash Point, PMCC, °C	199	206
NCO,%	32.0	—
Water, Wt.%	—	0.10

Processing Conditions

Molding Parameters**	
Material Temperature, °C (°F)	32–38 (90–100)
Mold Temperature, °C (°F)	65–75 (150–167)
Machine Reactivity at 35°C (95°F):	
Cream Time, sec	4
Gel Time, sec	6
Tack-Free Time, sec	7
Typical Cure Time, min:	
0.125-in Thickness	2–3
Typical Mold Density, lb/ft^3	68
Polyol Nucleation:	
Specific Gravity	0.80–0.85
Mixing Ratio, Iso/Polyol, 110 Index:	
By Weight	132/100
By Volume	113/100

Storage and Handling

Isocyanate Component – Component A (MDI isocyanate) must be stored in tightly closed containers and protected from moisture and foreign materials, which can adversely affect processing. Storage temperature should be maintained at 18–30°C (64–86°F).

Polyol Component – Component B (polyol) is hygroscopic and must be kept in tightly closed containers to prevent contamination with moisture and foreign materials, which can adversely affect processing. Storage should be maintained at ambient temperatures. *Note:* This polyol component 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 the PRISM CM-200 Components A and B. 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 Bayer Corporation representative or contact Bayer's Product Safety and Regulatory Affairs Department in Pittsburgh, PA.

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Note: The information contained in this bulletin is current as of March 1997. Please contact Bayer Corporation to determine whether this publication has been revised.

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