

Special Reference Material Report

GM 43 and GM 44

Rigid Isocyanurate Foam, Contains some Polyurethane (Fluorocarbon Blown, Polymeric Isocyanate)

This material was prepared to provide a uniform lot of cellular plastic for use in fire research. Produced under the sponsorship of the Products Research Committee (PRC) on the Fire Safety Aspects of Cellular Plastic Products, these materials are being distributed by the NBS Office of Standard Reference Materials as Special Reference Materials, GM 43 and GM 44.

The chemical and physical information provided for this material has been derived from data submitted to the PRC by the manufacturers of the material and/or independent testing laboratories. Neither PRC nor NBS assumes any responsibility for the accuracy of this information.

Applicable American Society for Testing and Materials (ASTM) test methods are indicated.

<u>Property</u> ⁽¹⁾	<u>ASTM Test</u>	<u>Rating</u>
Apparent Density, lb/ft ³	D-1622	1.8-2.3
Thermal Conductivity, K-Factor, BTU·in/h·ft ² ·°F	C-177	0.15
Closed Cell Content, % ⁽²⁾	D-1940	93
Compressive Strength, psi	D-1621	
Parallel		25
Perpendicular		17
Compressive Modulus, psi	D-1621	
Parallel		700
Perpendicular		450
Tensile Strength, psi	D-1623	
Parallel		27
Perpendicular		24
Flexural Strength, psi	C-203	35
Shear Strength, psi	C-273	
Parallel		ND*
Perpendicular		24
Shear Modulus, psi	C-273	
Parallel		ND
Perpendicular		250
Coefficient of Linear Expansion, in/in·°F	NA	ND
Water Absorption, lb/ft ² , 96h under 5.1 cm (2 in) head	D-2127	0.04
Water Vapor Permeability, Perm-in	C-355	2-3

⁽¹⁾ To serve only as a guide for engineering design. Values shown are average values obtained from laboratory specimens. All test methods taken from 1975 ASTM Book of Standards unless otherwise noted. Properties measured to direction of rise as indicated.

⁽²⁾ Taken from 1968 ASTM Book of Standards.

* ND = Not Determined.

(over)

<u>Property⁽¹⁾</u>	<u>ASTM Test</u>	<u>Rating</u>	
Dimensional Stability	D-2126		
Net Change in Volume, %	70±1°C, 90-100% R.H.		
1 day		1.2	
7 day		2.3	
14 day		2.5	
28 day		2.6	
Net Change in Volume, %	149°C, amb R.H.		
1 day		1.5	
7 day		2.7	
14 day		2.5	
28 day		0	
Net Change in Volume, %	Mfg Test Method 42		
1 day	-23.3°C, amb R.H.	-0.3	
7 day		-0.3	
Surface Burning Characteristics	E-84		
<u>Thickness</u>	<u>Flame Spread Classification**</u>	<u>Smoke Density</u>	<u>Fuel Contribution</u>
0.65 in	25**	55	ND
1 in	25**	70	ND
2 in	25**	135	5
3-4 in	25**	135-200	ND
Bureau of Mines Flame Penetration Test***	NA		
Std 1 inch thickness			gtr than 45 min/in***

** THIS NUMERICAL FLAME SPREAD RATING IS NOT INTENDED TO REFLECT HAZARDS PRESENTED BY THIS OR ANY OTHER MATERIAL UNDER ACTUAL FIRE CONDITIONS.

*** CAUTION: THE RESULTS OF THIS TEST ARE NOT TO BE CONSIDERED OR USED AS A FIRE HAZARD CLASSIFICATION AND ARE NOT INTENDED TO REFLECT HAZARDS PRESENTED BY THIS OR ANY OTHER MATERIAL UNDER ACTUAL FIRE CONDITIONS.