



# R-value update.

The Dow Chemical Company is working to meet regulations implemented by the Environmental Protection Agency based on the Montreal Protocol. To this end, Dow is replacing the blowing agent used in polyisocyanurate insulation, using hydrocarbons instead of HCFC-141b.

The new R-values\*\* and flame and smoke performance data are listed here for your convenience. Please use this information when specifying Dow polyisocyanurate insulation. For more information, contact your Dow representative or call 1-866-583-BLUE (2583).

## Dow Polyisocyanurate Insulation Products

Product	New R-Values <sup>1</sup>										
<b>CELO-VENT* Insulated Shingle Deck</b>											
Nominal Product Thickness (in.)	2.5	3.5	4.5	5.0	5.5						
Nominal <sup>(2)</sup> Core Foam Thickness (in.)	1.0	2.0	3.0	3.5	4.0						
Product R-Value <sup>(3)</sup>	7.1	13.2	19.6	22.8	26.1						
Board Size: 4' x 8'											
<b>HY-THERM* AP Roof Insulation</b>											
Nominal Board Thickness (in.)	1.0	1.5	1.8	2.0	2.5	2.7	3.0	3.5	4.0		
R-Value <sup>(3)</sup>	6.0	9.0	10.9	12.1	15.3	16.6	18.5	21.7	25.0		
Board Size: 4' x 4'; 4' x 8'											
<b>HY-THERM Composite Roof Insulation</b>											
Nominal Product Thickness (in.)	1.5	1.8	2.0	2.1	2.3	2.5	3.0	3.5	4.0		
R-Value <sup>(3)</sup>	7.4	9.2	10.3	11.0	12.3	13.4	16.6	19.8	23.0		
Board Size: 4' x 4'											
<b>HY-THERM NAIL-LINE* Roof Insulation</b>											
Nominal Product Thickness (in.)	1.5	2.0	2.4	3.0	4.0						
R-Value <sup>(3)</sup>	6.6	9.6	12.7	15.9	22.3						
Board Size: 4' x 8'											
<b>QUIK-R*</b>											
Nominal Board Thickness (in.)	0.625	0.75	1.0								
R-Value <sup>(3)</sup>	3.0	3.7	5.0								
Board Size: 4' x 8'; 4' x 9'; 4' x 10'; 4' x 12'											
<b>STURDY-R*</b>											
Nominal Board Thickness (in.)	0.57	0.625	0.75	1.0							
R-Value <sup>(3)</sup>	2.8	3.0	3.7	5.0							
Board Size: 4' x 8'; 4' x 9'											
<b>Super TUFF-R*</b>											
Nominal Board Thickness (in.)	0.5	0.625	0.75	1.0							
R-Value <sup>(3)</sup>	3.3	4.1	5.0	6.5							
Board Size: 1.3' x 8'; 4' x 8'; 4' x 9'											
<b>Super TUFF-R C</b>											
Nominal Board Thickness (in.)	1.0	1.5	1.55	1.75	1.875	2.0					
R-Value <sup>(3)</sup>	6.5	9.8	10.0	11.4	12.0	13.0					
Board Size: 1.3' x 8'; 4' x 8'; 4' x 9'											
<b>THERMAX* Heavy Duty</b>											
Nominal Board Thickness (in.)	0.5	0.75	1.0	1.25	1.55	1.75	2.0	2.5	3.0		
R-Value <sup>(3)</sup>	3.3	5.0	6.5	8.0	10.0	11.4	13.0	15.8	19.0		
Board Size: 4' x 8'; 4' x 10'											
<b>THERMAX Heavy Duty Plus</b>											
Nominal Board Thickness (in.)	0.5	0.75	1.0	1.25	1.55	1.75	2.0	2.5	3.0		
R-Value <sup>(3)</sup>	3.3	5.0	6.5	8.0	10.0	11.4	13.0	15.8	19.0		
Board Size: 4' x 8'; 4' x 10'											
<b>THERMAX Light Duty</b>											
Nominal Board Thickness (in.)	0.5	0.75	1.0	1.25	1.55	1.75	2.0	2.5	3.0		
R-Value <sup>(3)</sup>	3.3	5.0	6.5	8.0	10.0	11.4	13.0	15.8	19.0		
Board Size: 4' x 8'; 4' x 10'											
<b>THERMAX Metal Building Board</b>											
Nominal Board Thickness (in.)	0.5	0.75	1.0	1.25	1.55	1.75	2.0	2.5	3.0	3.5	4.0
R-Value <sup>(3)</sup>	3.3	5.0	6.5	8.0	10.0	11.4	13.0	15.8	19.0	21.1	25.3
Board Size: 4' x 8'; 4' x 10'											
<b>THERMAX Sheathing</b>											
Nominal Board Thickness (in.)	0.5	0.75	1.0	1.25	1.55	1.75	2.0	2.5	3.0	3.5	4.0
R-Value <sup>(3)</sup>	3.3	5.0	6.5	8.0	10.0	11.4	13.0	15.8	19.0	21.1	25.3
Board Size: 1.3' x 8'; 1.3' x 9'; 1.3' x 10'; 2' x 8'; 2' x 9'; 2' x 10'; 4' x 8'; 4' x 9'; 4' x 10'											
<b>TUFF-R</b>											
Nominal Board Thickness (in.)	0.4375	0.5	0.625	0.75	1.0						
R-Value <sup>(3)</sup>	3.0	3.3	4.1	5.0	6.5						
Board Size: 4' x 8'; 4' x 9'											
<b>TUFF-R C</b>											
Nominal Board Thickness (in.)	1.0	1.5	1.55	1.8125	2.0						
R-Value <sup>(3)</sup>	6.5	9.8	10.0	12.0	13.0						
Board Size: 1.3' x 8'; 4' x 8'; 4' x 9'											
<b>VALUE-R*</b>											
Nominal Board Thickness (in.)	2.5	3.0	3.5	4.0							
R-Value <sup>(3)</sup>	15.8	19.0	21.1	25.3							
Board Size: 4' x 8'; 4' x 9'											

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<sup>1</sup>A business unit of The Dow Chemical Company and its subsidiaries

\*\*R means resistance to heat flow. The higher the R-value, the greater the insulating power.  
 Note: Representative thicknesses

# Dow Polyisocyanurate Insulation Products

Physical Properties	Property (units)	Compressive strength <sup>(5)</sup> (lb/ft <sup>2</sup> ), min., core foam	Flexural strength (lb/ft <sup>2</sup> ), min., for 1" core foam	Water absorption (% increase by volume, 2-hr. results), max., core foam	Water vapor permeance <sup>(6)</sup> (perm)	Dimensional stability (% linear change), max.	Complies with ASTM Type	Maximum use temperature (°F)	Flame spread <sup>(7)</sup> , max., core foam	Smoke development, max., core foam
ASTM Method	D1621	C203	C209	E96	D2126	C1289			E84	E84
CELO-VENT Insulated Shingle Deck	16	40	1.0	-	2.0	V	-	55	150	
HY-THERM AP Roof Insulation	16	40	1.5	1.0	2.0	II Class 1	-	55	150	
HY-THERM Composite Roof Insulation	16	40	2.0	-	2.0	IV	-	55	150	
HY-THERM NAIL-LINE Roof Insulation	16	40	1.0	-	2.0	V	-	55	150	
QUIK-R	25	75	0.8	3.0	1.0	II Class 2	190	35	250	
STURDY-R	20 <sup>††</sup>	75	0.5	3.0	1.0	II Class 2	190	35	250	
Super TUFF-R	25	55	0.05	<0.03	1.0	I Class 1 or 2 <sup>(8)</sup>	190	40	70	
Super TUFF-R C	25	55	0.05	<0.03	1.0	I Class 2	190	40	70	
THERMAX Heavy Duty	25	55	0.05	<0.03	0.1	I Class 2	250	25	250	
THERMAX Heavy Duty Plus	25	55	0.05	<0.03	0.1	I Class 2	250	25	250	
THERMAX Light Duty	25	55	0.05	<0.03	0.1	I Class 2	250	25	250	
THERMAX Metal Building Board	25	55	0.05	<0.03	0.1	I Class 2	250	25	250	
THERMAX Sheathing	25	55	0.05	<0.03	0.1	I Class 2	250	25	250	
TUFF-R	25	55	0.05	<0.03	1.5	I Class 1 or 2 <sup>(8)</sup>	190	40	70	
TUFF-R C	25	55	0.05	<0.03	1.5	I Class 2	190	40	70	
VALUE-R	20	-	0.3	<0.03	2.0	I Class 1	190	55	150	

**NOTES:**

1. Aged R-value per 1" of core foam @ 75°F mean temperature; R-values are expressed in ft<sup>2</sup>·h<sup>2</sup>·F/Btu.
2. Includes facers.
3. Expected results for foam pending confirmation using Long-Term Thermal Resistance (LTTR) – ASTM C1289 Annex method.
4. R-value determined by ASTM C518.
5. Vertical compressive strength is measured at

10% deformation or at yield, whichever occurs first. Since Dow polyisocyanurate insulation products are visco-elastic materials, adequate design safety factors should be used to prevent long-term creep. For static loads, 3-1 is suggested. For dynamic loads, 5-1 is suggested.

6. Water vapor permeance varies with product type and thickness. Values are based on the desiccant method, and they apply to insulation

1" in thickness. Thicker products have lower permeance.

7. These numerical flame spread ratings are not intended to reflect hazards presented by this or any other material under actual fire conditions.

8. Varies with thickness.

<sup>††</sup>ASTM D1622

**IN THE U.S.:**

- For Technical Information: 1-866-583-BLUE (2583)
- For Sales Information: 1-800-232-2436

**THE DOW CHEMICAL COMPANY**

• Building Materials • 200 Larkin • Midland, MI 48674 • [www.dowbuildingmaterials.com](http://www.dowbuildingmaterials.com)

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**Dow Polyisocyanurate Insulation Other Than THERMAX Products**

COMBUSTIBLE: Protect from high heat sources. For more information, consult MSDS and/or call Dow at 1-866-583-BLUE (2583). In an emergency, call 1-989-636-4400. Local building codes may require a protective or thermal barrier. Contact your local building inspector for more information.

**THERMAX Products**

COMBUSTIBLE: THERMAX products should be used only in strict accordance with product application instructions. THERMAX products, when used in a building containing combustible materials, may contribute to the spread of fire. For more information, consult MSDS and/or call Dow at 1-866-583-BLUE (2583). In an emergency, call 1-989-636-4400.

WARNING: THERMAX insulation/finish boards do not constitute a working walkable surface or qualify as a fall protection product.



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