

ICYNENE® / 80 HIGH-R

Icynene® High-R 80 is a two component, open cell, spray applied, semi-rigid polyurethane foam system that contains more than 20% renewable agricultural based materials (refined vegetable oils). This product is a fully water blown foam system having a low in-place density with excellent adhesion to various substrates and to itself. Icynene High-R 80 incorporates the single phase solution technology developed by Huntsman Building Solutions for excellent shelf life and consistent processing. Icynene High-R 80 complies with the intent of the International Code Council’s residential and commercial building codes for spray polyurethane foam plastic insulation. Icynene High-R 80 meets the USDA guidelines for incidental food contact.

PHYSICAL PROPERTIES

ASTM D 1622	Density	Nominal 0.6 – 0.8 lb/ft ³
ASTM C 518	Aged Thermal Resistance	R-4.45 @ 1"
ASTM E 283	Air Permeance @ 75 Pa @ 3.5" (75 Pa)	< 0.02 L/sm ²
ASTM E 96	Water Vapor Permeance @ 5"	4.95 perms
ASTM D 2126	Dimensional Stability @ 158°F (70°C) 97% R.H. (28 days)	3.16 (% volume change)
ASTM D 1621	Compressive Strength	1.86 psi
ASTM D 1623	Tensile Strength	3.87 psi
ATSM C 1338	Fungi Resistance	Pass

FIRE TEST RESULTS

ASTM E 84	Surface Burning Characteristics Flame Spread Index Smoke Developed	Class I 15-20 400
AC 377 Appendix X*	Ignition Barrier - Compliant with IBC and IRC, and ICC-ES AC-377 Appendix X, for use in attics and crawl spaces with an intumescent coating thickness found in the corresponding table.	Pass
NFPA 285	Compliant IBC with brick, metal, or aluminum cladding for exterior walls of Type I, II, III and IV buildings of any height. See UES 565 Tables for specific assembly requirements. Contact the Huntsman Building Solutions Engineering Department for assistance with alternate assemblies.	Pass
NFPA 286	Thermal Barrier - Compliant with the IBC and IRC, as an interior finish with an intumescent coating thickness found at the corresponding table.	Pass

IGNITION BARRIER THICKNESS REQUIREMENTS

Coating	Mils wet film thickness	Mils dry film thickness
DC 315	6	4
No Burn Plus XD	6	4

THERMAL BARRIER THICKNESS REQUIREMENTS

Coating	Mils wet film thickness	Mils dry film thickness
DC 315	18	12
No Burn Plus ThB	18	12

RECOMMENDED PROCESSING PARAMETERS*

Initial Primary Heater A-Side (ISO) Setpoint**	120 - 125°F
Initial Hose Heat Setpoint**	120 - 125°F
Initial Primary Heater B-Side (Resin) Setpoint**	120 - 125°F
Initial Recirculating Setpoint	90 - 100°F
Initial Processing Setpoint Pressure	1100 - 1500 psi
Drum Temperature During Storage	50 - 100°F
Drum Temperature During Processing	70 - 75°F
Substrate & Ambient Temperature	20 - 120°F
Moisture Content of Substrate	≤19%
Moisture Content of Concrete	Concrete must be cured, dry and free of dust and form release agents.

*Foam application temperatures and pressures can vary widely depending on temperature, humidity, elevation, substrate, equipment and other factors. While processing, the applicator must continuously observe the characteristics of the sprayed foam and adjust processing temperatures and pressures to maintain proper cell structure, adhesion, cohesion and general foam quality. It is the sole responsibility of the applicator to process and apply Icynene High-R 80 within specification.

**It may be necessary to go outside of the recommended processing parameters or split temps due to ambient temps and material viscosity.

REACTIVITY PROFILE

Cream Time 1 – 2 seconds	Gel Time Tack 3 – 4 seconds	Free Time 6 – 7 seconds	End of Rise 6 – 7 seconds
-----------------------------	--------------------------------	----------------------------	------------------------------

LIQUID COMPONENT PROPERTIES

PROPERTY	A-PMDI ISOCYANATE	ICYNENE HIGH-R 80 RESIN
Color	Brown	Blue
Viscosity @ 77°F	180 - 220 cps	250 - 450 cps
Specific Gravity	1.24	1.08 - 1.12
Shelf Life of unopened drum properly stored	12 months	12 months
Storage Temperature	50 - 100°F	50 - 100°F
Mixing Ratio (volume)	1:1	1:1

*See SDS for more information.

LIMITATIONS OF USE: Icynene High-R 80 is a combustible material with a maximum continuous service temperature of 180°F (82°C). Icynene High-R 80 should not be used in direct contact with chimneys, flues, steam pipes, recessed lighting or heat emitting devices. Consult the listing or label of such materials for clearance to combustibles. A minimum clearance of 3" should be maintained when applying around recessed lighting, and it's important to avoid spraying inside electric outlets or junction boxes. Properly prep and secure any material or surface that should not get insulated. If in doubt about the substrate temperature or surface conditions, a trial application should be conducted to check foam quality and spray performance. Water on the surface from rain, fog, condensation, etc. will react chemically with the isocyanate, adversely affecting the foam and physical properties, particularly adhesion. For further product and application knowledge reference this product's application guide and consult with a member of the Huntsman Building Solutions team.

GENERAL REQUIREMENTS: Equipment must be capable of delivering the proper ratio (1:1 by volume) of polymeric isocyanate (PMDI) and polyol blend at adequate temperatures and spray pressures. Substrate must be at least 5 degrees above dew point, with best processing results when ambient humidity is below 80%. Substrate must also be free of moisture (dew or frost), grease, oil, solvents and other materials that would adversely affect adhesion of the polyurethane foam. Icynene High-R 80 must be separated from the interior of the building by an approved thermal barrier or an approved finish material equivalent to a thermal barrier in accordance with applicable codes. Icynene High-R 80 must be sprayed at a minimum thickness of 1" per pass. This product must not be used when the continuous service temperature of the substrate or foam is below -60°F (-51°C) or above 180°F (82°C). Icynene High-R 80 should not be used to cover flexible ductwork.

DISCLAIMER: The information herein is to assist customers in determining whether our products are suitable for their applications. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent inferred. All patent rights are reserved. The foam product is combustible and must be protected in accordance with applicable codes. Protect from direct flame and spark contact, around hot work for example. The exclusive remedy for all proven claims is replacement of our materials.

