



**HiTHERM®**  
HOT OR COLD WE GOT YOU COVERED

**TECHNICAL DATA SHEET**  
**FOR**  
**HT-450**

HT-450 is a rigid, closed cell polyisocyanurate foam that provides exceptional insulating value at continuous operating temperatures of +400<sup>0</sup> F (202<sup>0</sup> C), with intermittent service to +450<sup>0</sup> F (230<sup>0</sup> C).

HT-450 offers operators improved energy conservation due to increased insulating efficiency, better process controls and yields, while providing upgrades in strength, durability, stability, moisture resistance and a low installed cost. It is also available as a liquid system for use in pre-insulated pipes and “in situ” applications. HT-450 can also be made available as bun stock in limited sizes. The physical and chemical properties of HT-450 are shown below.

**PHYSICAL PROPERTIES\***

| <b><u>Property</u></b>  | <b><u>ASTM Test Method</u></b> | <b><u>Result</u></b> |
|---|--------------------------------|----------------------|
| Density, pcf (kg/m <sup>3</sup> )   | D-1622                         | 2.45 (38.5)          |
| <b>Compressive Strength, psi (kPa)</b><br>@ 10% Deflection  | <b>D-1621</b>                  |                      |
| Parallel to Rise  |                                | 30 (207)             |
| Perpendicular to Rise   |                                | 27 (186)             |
| <b>Compressive Strength after 28 day exposure to 400<sup>0</sup> F (202<sup>0</sup> C), psi (kPa)</b> |                                |                      |
| Parallel to Rise  |                                | 17.5 (120)           |
| Perpendicular to Rise   |                                | 16.0 (110)           |
| <b>Closed Cell Content, %</b>   | <b>D-2856</b>                  | 87                   |
| <b>k-Factor, BTU-in/hr.ft<sup>2</sup> °F (W/mK)</b>   | <b>C-518</b>                   |                      |
| Initial   |                                | 0.13 (0.018)         |
| Aged 90 Days @ 77 <sup>0</sup> F (25 <sup>0</sup> C)  |                                | 0.165 (0.022)        |
| Aged 90 Days @ 140 <sup>0</sup> F (60 <sup>0</sup> C)   |                                | 0.18 (0.026)         |
| <b>Water Absorption, psf (g/cm<sup>2</sup>)</b><br>% by Volume  | <b>D-2842</b>                  | 0.035 (0.017)<br>< 2 |
| <b>Water Vapor Permeability, perm-in. (ng/Pa S m)</b>   | <b>E-96</b>                    | 4.25 (6.65)          |
| <b>DIMENSIONAL STABILITY, % Change</b>  | <b>D-2126</b>                  |                      |

| <b>Dry Heat, 400<sup>0</sup> F (202<sup>0</sup> C)</b> | <b>Length</b> | <b>Volume</b> |
|--|---------------|---------------|
| 1 Day  | +1.3          | +0.1          |
| 7 Days   | +2.3          | -2.3          |
| 28 Days  | +1.6          | -4.4          |

**Dry Heat, 450<sup>0</sup> F (230<sup>0</sup>C)**

|         |       |       |
|---------|-------|-------|
| 1 Day   | +10.3 | +14.6 |
| 7 Days  | +7.1  | +1.5  |
| 28 Days | +1.9  | -11.9 |

**Dry Cold, -30<sup>0</sup> F (-34<sup>0</sup> C)**

|        |   |   |
|--------|---|---|
| 1 Day  | 0 | 0 |
| 7 Days | 0 | 0 |

**Humid Age, 158<sup>0</sup> F (70<sup>0</sup> C), 95 % Relative Humidity**

|         |       |       |
|---------|-------|-------|
| 1 Day   | +1.0  | +0.84 |
| 7 Days  | +1.52 | +1.85 |
| 28 Days | +2.02 | +1.85 |

**Service Temperature**

|              |  |
|--------------|--|
| Continuous   | -100 <sup>0</sup> F (-73 <sup>0</sup> C) to +400 <sup>0</sup> F (202 <sup>0</sup> C) |
| Intermittent | To +450 <sup>0</sup> F (230 <sup>0</sup> C)  |

**Color** Aqua Green (for bun stock only)

<sup>1</sup> The numerical flame spread and smoke developed data shown above is not intended to reflect fire hazards presented under actual fire conditions.

- The physical properties shown above were obtained by processing the chemicals through a conventional low pressure high shear mixing machine. Chemical temperatures were maintained at 90<sup>0</sup> F (32<sup>0</sup> C) for the isocyanate component and 80<sup>0</sup> F (27<sup>0</sup> C) for the polyol. Box pours measuring 24" x 24" x 24" (61cm x 61 cm x 61 cm) were made and the resulting foam was cured for 30 days at room temperature, approximately 77<sup>0</sup> F (25<sup>0</sup> C). Testing was done on core samples cut from the box pour.

**CHEMICAL PROPERTIES-HT-450**

| <b>Property</b>   | <b>Component A</b>                       | <b>Component B</b> | <b>Component C</b> |
|---|--|--------------------|--------------------|
| <b>Viscosity, cps @ 77<sup>0</sup> F (25<sup>0</sup> C)</b>   | 600-800                                  | 750-1000           | 275-450            |
| <b>Specific Gravity, @77<sup>0</sup> F (25<sup>0</sup> C)</b> | 1.24                                     | 1.24               | 1.24               |
| <b>Ratio, Parts by weight</b>                                 | 67                                       | 16.5               | 16.5               |
| <b>Reaction Profile:</b>                                      | 200 gm Lab Hand mix with 3000 rpm mixer  |                    |                    |
| Start of Rise:  | 15-45 secs.                              |                    |                    |
| String Gel:   | 60-150 secs.                             |                    |                    |
| Rise time:  | 90-240 secs.                             |                    |                    |
| Free Rise Density:  | 2.1-2.3 pcf (33.7-37 kg/m <sup>3</sup> ) |                    |                    |

HiTHERM, LLC.

14056 Artesia Blvd., Cerritos, CA 90703

TEL/FAX: (562) 483-1555/ (562) 483-1554