

# FOAMGLAS® HIGH LOAD BEARING CELLULAR GLASS INSULATION



## FOAMGLAS® HLB 1000 Insulation

ASTM C552 Grade 10

FOAMGLAS® HLB 1000 Insulation is specially designed for high load bearing industrial applications. Its unique combination of high compressive strength and low thermal conductivity makes it ideal for a wide range of tank base construction and other industrial load bearing applications.

### Applications

- Cold & cryogenic tanks bases
- Hot & high temperature tank bases
- Load bearing pipe supports
- Secondary containment corner protection
- Special loading bearing applications

FOAMGLAS® HLB Block Insulation is manufactured in a full range of standard grades and it is available in standard SI and Imperial formats.

TYPE I BLOCK DIMENSIONS		
	SI	ENGLISH
WIDTH & LENGTH	450 x 600 mm	18 x 24 in
THICKNESSES	50-175 mm 25 mm increments	2-7 in 1 in increments

Contact a representative for regional availability.

### Attributes

- Constant insulating efficiency
- Noncombustible
- Non-absorbent
- Impermeable to water and water vapor
- Corrosion/chemical resistant
- Long term dimensional stability
- Vermin resistance
- High compressive strength
- Ecologically friendly, sustainable

### STANDARDS, CERTIFICATIONS<sup>1</sup> AND APPROVALS

FOAMGLAS® Insulation can be certified to conform to the requirements of:

- ASTM C552 "Standard Specification for Cellular Glass Thermal Insulation" (Grade 10)
- I-QC-HLB / ISO 3951
- Military Specification MIL-DLT-24244D (SH), with Special Corrosion and Chloride Requirement"
- Nuclear Regulatory Guide 1.36, ASTM C795, C692, C871
- Flame Spread Index 0, Smoke Developed Index 0 (UL 723, ASTM E 84), UL R2844; also classified by UL of Canada
- UL 1709, Rapid Rise Fire Tests of Protection Materials for Structural Steel
- USGS Approval for Noncombustible Inspections
- GreenSpec® Listed. [www.greenspec.com](http://www.greenspec.com)
- FOAMGLAS® insulation is identified by Federal Supply code for Manufacturers (FSCM 08869)
- Living Building Challenge RED LIST FREE product. Find our RED LIST FREE labels in the International Living Future Institute's database: FGL-0001 / FG-0002



<sup>1</sup>Request for certification shall be included with valid order for FOAMGLAS® HLB Insulation.

# INDUSTRIAL PIPE & EQUIPMENT INSULATION



PHYSICAL AND THERMAL PROPERTIES <sup>2,3</sup>			
PROPERTY	ASTM METHOD	SI	ENGLISH
ABSORPTION OF MOISTURE	C240	< 0.2% by Vol	< 0.2% by Vol
CAPILLARITY		NONE	
CHEMICAL RESISTANCE		Impervious to common acids and their fumes.	
COEFFICIENT OF LINEAR THERMAL EXPANSION	E228	25 to 300 °C, 9.0 x 10 <sup>-6</sup> / K -170 to 25 °C, 6.6 x 10 <sup>-6</sup> / K	75 to 575 °F, 5.0 x 10 <sup>-6</sup> / °F -274 to 75 °F, 3.7 x 10 <sup>-6</sup> / °F
COMBUSTIBILITY	E136	Noncombustible	
COMPOSITION		Soda lime glass. Inorganic. No fibers or binders.	
COMPRESSIVE STRENGTH	C165 / C240 / C552	LSL <sub>lot avg</sub> = 1000 kPa LSL <sub>ind</sub> = 689 kPa	LSL <sub>lot avg</sub> = 145 lb / in <sup>2</sup> LSL <sub>ind</sub> = 100 lb / in <sup>2</sup>
CORROSION, WATER SOLUBLE IONS AND PH	C871 C692 C1617	Acceptable for use with stainless steel Pass < DI Water	
DENSITY (+/-15%)	C303	130 kg / m <sup>3</sup>	8.1 lb / ft <sup>3</sup>
DIMENSIONAL STABILITY		Excellent - does not shrink or swell.	
FLEXURAL STRENGTH	C203 / C240	LSL = 351 kPa	LSL = 51 lb / in <sup>2</sup>
HYGROSCOPICITY		No increase in weight at 90% relative humidity.	
MODULUS OF ELASTICITY, APPROXIMATE (V= 0.25)	C623	1234 MPa	1.8 x 10 <sup>5</sup> lb-in <sup>2</sup>
SERVICE TEMPERATURE	Without Load With Load	-268 to 482 °C -268 to 400 °C	-450 to 900 °F -450 to 752 °F
SPECIFIC HEAT	E1461	0.77 kJ / kg·K @ 25°C	0.18 BTU / lb·°F @ 77°F
SURFACE BURNING CHARACTERISTICS	E84	Flame Spread Index 0 / Smoke Development Index 0	
WATER VAPOR PERMEABILITY	E96 WET CUP	0.00 ng / Pa·s·m	0.00 perm-inch

## THERMAL CONDUCTIVITY (λ) VALUES AT SELECT MEAN TEMPERATURES (ASTM C518, C177)

TEMPERATURE	°C (°F)	204 (400)	149 (300)	93 (200)	38 (100)	24 (75)	10 (50)	-18 (0)	-46 (-50)	-73 (-100)	-101 (-150)	-129 (-200)	-157 (-250)	-165 (-265)
ASTM C552 <sup>3</sup>	W/m K (BTU in/hr °F ft <sup>2</sup> )	0.084 (0.58)	0.074 (0.51)	0.061 (0.42)	0.050 (0.35)	0.048 (0.33)	0.046 (0.32)	0.042 (0.29)	0.037 (0.26)	0.035 (0.24)	0.032 (0.22)	0.029 (0.20)	0.026 (0.18)	N/A
FOAMGLAS® HLB 1000 Insulation <sup>4</sup>	W/m K (BTU in/hr °F ft <sup>2</sup> )	0.081 (0.56)	0.069 (0.49)	0.057 (0.40)	0.047 (0.33)	0.045 (0.31)	0.043 (0.30)	0.039 (0.27)	0.035 (0.24)	0.032 (0.22)	0.029 (0.20)	0.026 (0.18)	0.024 (0.16)	0.023 (0.16)

<sup>2</sup>Values represent typical physical and thermal properties.

<sup>3</sup>Type I Block (Grade 8) limit values, where applicable, are specified by ASTM C552 Standard Specification for Cellular Glass Thermal Insulation.

<sup>4</sup>The values were determined by evaluating a polynomial at the insulation mean temperature. Contact Pittsburgh Corning for assistance applying our design polynomials to your application.

For additional information on FOAMGLAS® HLB insulation or systems, please contact Pittsburgh Corning at any of our worldwide offices or visit us at [www.foamglas.com](http://www.foamglas.com).

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