

## INDUSTRIAL PIPE & EQUIPMENT INSULATION

### FOAMGLAS® ONE™ Insulation ASTM C552 Grade 6

FOAMGLAS® ONE™ insulation is a lightweight, rigid material composed of millions of completely sealed glass cells. It is manufactured by Pittsburgh Corning in a block form and then fabricated into a wide range of shapes and sizes to satisfy industrial and commercial insulation requirements.

### Applications

- Cryogenic systems
- Low temperature pipe, equipment, tanks and vessels
- Medium and high temperature pipes and equipment
- Hot oil and hot asphalt storage tanks
- Heat transfer fluid systems
- Hydrocarbon processing systems
- Chemical processing systems
- Steam and chilled water piping
- Commercial piping and ductwork
- Direct burial / underground

FOAMGLAS® ONE™ Block Insulation is manufactured in a full range of standard thicknesses and it is available in standard SI and English formats.

TYPE I BLOCK DIMENSIONS			
FORMATS	STANDARD		LARGE
	SI	ENGLISH	ENGLISH
WIDTH & LENGTH	450 x 600 mm	18 x 24 in	18 x 36 in
THICKNESSES	40-180 mm 10 mm increments	2-7 in 1/2 in increments	3-8 in 1/2 in increments

Contact a representative for regional availability.



### Benefits

- 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® ONE™ Insulation can be certified to conform to the requirements of:

- ASTM C552 "Standard Specification for Cellular Glass Thermal Insulation" (Grade 6)
- ASTM C1639 "Standard Specification for Fabrication of Cellular Glass Piping and Tubing Insulation"
- 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
- UL Through Penetration Fire Stop Approved Systems UL1479/ASTM E814, please search the UL Database at [www.ul.com](http://www.ul.com). Click on ONLINE CERTIFICATION DIRECTORY under RESOURCES in the bottom right corner of the page. Under BEGIN A BASIC SEARCH, type R15207 in UL FILE NUMBER and then click SEARCH.
- Board of Steamship Inspection (Canada) Certificate of Approval No. 100 / FI-98
- General Services Administration, PBS (PCD; 15250, Public Building Services Guide Specification, "Thermal Insulation (Mechanical)"
- New York City Department of Buildings, MEA #138-81-M FOAMGLAS® insulation for piping, equipment, walls and ceilings
- New York State Uniform Fire Prevention and Building Code Department of state (DOS) 07200-890201-2013
- USGS Approval for Non-combustible Inspections
- GreenSpec® Listed. [www.greenspec.com](http://www.greenspec.com)
- EC-114.456 USCG 164.109/EC0736/114.456 Approval for marine use
- FOAMGLAS® ONE™ insulation is identified by Federal Supply code for Manufacturers (FSCM 08869)

<sup>1</sup>Request for certification shall be included with valid order for FOAMGLAS® ONE™ 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	AVG = 620 kPa LSL = 414 kPa	AVG = 90 lb / in <sup>2</sup> LSL = 60 lb / in <sup>2</sup>
CORROSION, WATER SOLUBLE IONS AND PH	C871 C692 C1617	Acceptable for use with stainless steel Pass (0 Coupon Cracked) < DI Water	
DENSITY (+/-10%)	C303	115 kg / m <sup>3</sup>	7.18 lb / ft <sup>3</sup>
DIMENSIONAL STABILITY		Excellent - does not shrink or swell.	
FLEXURAL STRENGTH	C203 / C240	AVG = 480 kPa LSL = 283 kPa	AVG = 70 lb / in <sup>2</sup> LSL = 41 lb / in <sup>2</sup>
HYGROSCOPICITY		No increase in weight at 90% relative humidity.	
MODULUS OF ELASTICITY, APPROXIMATE (ν= 0.25)	C623	900 MPa	1.3 x 10 <sup>5</sup> lb·in <sup>-2</sup>
SERVICE TEMPERATURE		-268 to 482 °C	-450 to 900 °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)	0.069 (0.48)	0.058 (0.40)	0.048 (0.33)	0.045 (0.31)	0.043 (0.30)	0.039 (0.27)	0.035 (0.24)	0.030 (0.21)	0.027 (0.19)	0.025 (0.17)	0.023 (0.16)	N/A
FOAMGLAS® ONE™ Insulation <sup>4</sup>	W/m K (BTU in/hr °F ft <sup>2</sup> )	0.078 (0.54)	0.066 (0.46)	0.054 (0.38)	0.044 (0.31)	0.042 (0.29)	0.040 (0.28)	0.036 (0.25)	0.032 (0.22)	0.029 (0.20)	0.026 (0.18)	0.023 (0.16)	0.021 (0.14)	0.020 (0.14)

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

<sup>3</sup>Type I Block (Grade 6) 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® ONE™ 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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