

TECHNICAL BULLETIN # 1033

SUBJECT: InsulFoam GF vs. InsulFoam EPS Physical Properties

DATE: March 18, 2020

Insulfoam manufactures our products to meet specific standards depending on the application. These include ASTM C578 “Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation” and ASTM D6817 “Standard Specification for Rigid Cellular Polystyrene Geofoam”. The physical properties specified these standards are different. Many times, we are asked what the primary differences are. Page two of this bulletin has a comparison chart to address these questions.

Typical Physical Properties of Insulfoam Products—ASTM C578 & D6817

PRODUCT	IF XI	IF I	IF VIII	IF II	IF IX	IF XIV	IF XV	GF 12	GF 15	GF 19	GF 22	GF 29	GF 39	GF 46
ASTM C578 COMPLIANCE TYPE	TYPE XI	TYPE I	TYPE VIII	TYPE II	TYPE IX	TYPE XIV	TYPE XV							
ASTM D6817 COMPLIANCE TYPE								EPS 12	EPS 15	EPS 19	EPS 22	EPS 29	EPS 39	EPS 46
DENSITY* (NOM. PCF) lb/ft3 (kg/m3)	0.70 (11.2)	0.90 (14.4)	1.15 (18.4)	1.35 (21.6)	1.80 (28.8)	2.40 (38.4)	3.00 (48.0)	0.70 (11.2)	0.90 (14.4)	1.15 (18.4)	1.35 (21.6)	1.80 (28.8)	2.40 (38.4)	2.85 (45.7)
R-VALUE * F·ft2·h/Btu (K·m2/W) Resistance per inch (C518) 25 Degrees F° 40 Degrees F° 75 Degrees F°	3.45 3.30 3.10	4.35 4.17 3.85	4.55 4.25 3.92	4.76 4.55 4.17	5.00 4.76 4.36	5.05 4.85 4.50	5.10 5.05 4.60	3.45 3.30 3.10	4.35 4.17 3.85	4.55 4.25 3.92	4.76 4.55 4.17	5.00 4.76 4.36	5.0 4.8 4.5	5.1 4.9 4.5
COMPRESSIVE RESISTANCE* MIN. @ 1% DEFORMATION psi (kPa)								2.2 (15)	3.6 (25)	5.8 (40)	7.3 (50)	10.9 (75)	15.0 (103)	18.6 (128)
COMPRESSIVE RESISTANCE* MIN. @ 10% DEFORMATION psi (kPa)	5.00 (35)	10.0 (69)	13.0 (90)	15.0 (104)	25.0 (173)	40.0 (276)	60.0 (414)							
ELASTIC MODULUS, (MIN.) psi (kPa)								220 (1500)	360 (2500)	580 (4000)	730 (5000)	1090 (7500)	1500 (10300)	1860 (12800)
FLEXURAL STRENGTH * (MIN.) psi (kPa)	10.0 (69)	25.0 (172)	30.0 (207)	35.0 (240)	50.0 (345)	60.0 (414)	75.0 (517)	10.0 (69)	25.0 (172)	30.0 (207)	35 (240)	50 (345)	60.0 (414)	75.0 (517)
OXYGEN INDEX *(MIN.) volume (%)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
BUOYANCY FORCE lb/ft3 (kg/m3)	61.9	61.7 (990)	61.5 (980)	61.3 (980)	61.1 (980)	60.6 (970)	59 (950)	61.7 (990)	61.5 (980)	61.3 (980)	61.1 (980)	60.6 (970)	60.0 (960)	59.5 (950)

* - Please refer to ASTM C578 and ASTM D6817 specifications for complete details.