

Polar

TECHNICAL DATA & PHYSICAL PROPERTIES

Tech Data

Property	Type XI	Type I	Type VIII	Type II	Type IX	
Nominal Density, lb/ft ³ (kg/m ³)*	0.75 (12)	1.0 (16)	1.25 (20)	1.50 (24)	2.0 (32)	
Density ¹ , min., lb/ft ³ (kg/m ³)	0.70 (12)	0.90 (15)	1.15 (18)	1.35 (22)	1.80 (29)	
Design Thermal Resistance* Per 1.0 thickness °F: ft ² h/Btu (°K:m ² /W)	75°	3.22 (0.57)	3.85 (0.68)	3.92 (0.69)	4.17 (0.73)	4.35 (0.77)
	40°	3.43 (0.60)	4.17 (0.73)	4.25 (0.75)	4.55 (0.80)	4.76 (0.84)
Thermal Resistance, min* Per 1.0 thickness °F: ft ² h/Btu (°K:m ² /W)	75°	3.10 (0.55)	3.60 (0.63)	3.80 (0.67)	4.00 (0.70)	4.20 (0.74)
	40°	3.30 (0.58)	4.00 (0.70)	4.20 (0.74)	4.40 (0.77)	4.60 (0.81)
Compressive Strength @ 10% def. min.* psi (kPa)	5.0 (35)	10.0 (69)	13.0 (90)	15.0 (104)	25.0 (173)	
Flexural Strength min. psi (kPa)	10.0 (69)	25.0 (173)	30.0 (208)	35.0 (242)	50.0 (345)	
Water Vapor Permeance of 1.0 in. thickness, max perm	<1.0	<1.0	<1.0	<1.0	<1.0	
Water Absorption by total immersion, max, volume%	<1.0	<1.0	<1.0	<1.0	<1.0	
Oxygen Index, min, volume%	24.0	24.0	24.0	24.0	24.0	
Flame Spread**	20.0	20.0	20.0	20.0	20.0	
Smoke Developed**	150-300	150-300	150-300	150-300	150-300	

Caution: EPS contains flame retardant; however, it should be considered combustible and not exposed to sources of ignition. *See ASTM C-578 Standard Specification for complete information. **See UL Certificate AFM-1 available from ACH Foam Technologies.



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FOAM TECHNOLOGIES

LEADING THE INDUSTRY IN EPS MANUFACTURING ●●●

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Applications

- Below Grade Underslab
- Protection Board
- Siding Underlayment
- Exterior Sheathing
- Masonry Cavity Wall
- Roofing Re-cover Board
- Weather Resistive Barrier

Quality Assurance

All Polar products are made to the exacting standards of our industry leading Quality Control Program monitored by Underwriters Laboratories Inc (UL) and recognized by national code and regulatory agencies. ICC ES recognizes Polar for building code compliance. See ICC ES ESR-1006 (EPS core) and ESR-1504 (Polar).

Warranty

ACH Foam Technologies offers a product warranty ensuring thermal performance. For complete details, please contact ACH Foam Technologies.

Thermal Barrier

A thermal barrier refers to a fire resistive covering or coating which separates Polar-R® or Polar Fold® from the building interior. Model building codes often specify thermal barriers which provide 15 minutes of protection. Design and installation should comply with the current code requirements.

Polar-R® and Polar Fold® are manufactured with a rigid Foam-Control® EPS insulation core and wrapped with tough facers which create a durable water resistant board. EPS is a closed cell foam which is highly resistant to heat flow and moisture penetration. The standard film facers are available in white opaque on one side and a metalized film on the opposite side.

Termite Resistant

Foam insulation has been shown to become termite infested under certain exposure conditions. Polar-R® and Polar Fold® can be treated to resist the infestation of termites with the Perform Guard® treatment. Perform Guard® is made under a patented process that uses a natural mineral that is formulated to resist termites. This safe EPS regulated additive is thoroughly tested and nontoxic. Consult with ACH Foam Technologies for more information.

Weathering

Long-term exposure to sunlight causes yellowing and a slight oxidizing of the surface due to ultraviolet light. This has little effect on mechanical properties. If stored outdoors, cover EPS with light-colored, polyethylene film tarps.

Adhesives, Coatings, and Chemicals

Solvents, which attack EPS, include esters, ketones, ethers, aromatic and aliphatic hydrocarbons and their emulsions. If EPS is to be placed in contact with materials (or other vapors) of unknown composition, pretest for compatibility at maximum exposure temperature.

Flame Retardance/Performance

Although flame-retardants used in the manufacturing process of Polar EPS cores provide important margins of safety, all EPS products must be considered combustible and should not be exposed to open flame and other sources of ignition. Tests have demonstrated that the products of combustion for EPS are carbon monoxide and carbon dioxide, at concentrations far less than those given off by equal volumes of wood products. Polar-R® and Polar Fold® should not be exposed to temperatures in excess of 165 degrees F.

Environmental Advantages

Inert, non-nutritive, and highly stable. Contains no CFCs, HCFCs, HFCs or formaldehyde.



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