

Description

Mold resistant AP Armaflex Sheet and Roll Insulation is a flexible, elastomeric thermal insulation, black in color. It is furnished with a smooth skin on one side which forms the outer exposed insulation surface. The expanded closed-cell structure of Armaflex makes it an efficient insulation. It is manufactured without the use of CFC's, HCFC's or HFC's. It is also formaldehyde-free, low VOCS, dust free, fiber free and resists mold and mildew. All AP Armaflex products are made with Microban® antimicrobial product protection for added defense against mold on the insulation.

- AP Armaflex Sheet is supplied in flat sheets 36" x 48" (.915m x 1.22m), in nominal thicknesses of 1/8", 1/4", 3/8", 1/2", 3/4", 1", 1-1/2", and 2" (3, 6, 10, 13, 19, 25, 38, and 50mm).
- AP Armaflex Roll is supplied in 48" wide (1.22m) continuous rolls in nominal wall thicknesses of 3/8", 1/2", 3/4", 1", 1-1/2" and 2" (10, 13, 19, 25, 38 and 50mm). It is also available in 60" (1.53m) in 1" thickness.

Factory Mutual (FM) Approvals

AP Armaflex is approved through continuing supervision by Factory Mutual (FM) Approvals to consistently provide actual values on these key performance criteria for mechanical system insulation:

Thermal Conductivity: 0.25 BTU-in/hr. ft² °F

Water Vapor Transmission: 0.05 perm-inch

Fire Rating: will not contribute significantly to fire (simulated end use testing)

As tested by ASTM E 84 "Method of Test for Surface Burning Characteristics for Building Materials" and CAN/ULC S-102, AP Armaflex Insulation in thicknesses through 2" (50mm) have a flame-spread index of less than 25 and a smoke-developed index of less than 50.

Note: Numerical flammability ratings alone may not define the performance of products under actual fire conditions. They are provided only for use in the selection of products to meet limits specified.

AP/Armaflex Sheet and Roll Insulation meet the energy code requirements of International Energy Conservation Code (IECC) and ASHRAE for R-Value 4.2 at 1" wall thickness and R-Value 8 at 2" wall thickness.

Uses

AP Armaflex is used to retard heat gain and control condensation drip from chilled water and refrigeration systems. It also efficiently reduces heat flow on hot systems. Flexible AP Armaflex Sheet and Roll Insulation is used for all applications that cannot be accomplished by AP Armaflex Pipe Insulation. It is particularly adaptable for insulating:

- ductwork, large piping and fittings
- tanks
- vessels
- curved and irregular surfaces
- all types of fitting covers

The recommended temperature usage range for AP Armaflex Sheet is -297°F to +220°F (-183°C to +105°C) according to method of application. With full adhesive coverage attachment, the surface to which it is applied may operate to a limit of 180°F (82°C). When used for pipe insulation with adhesive adhering seams and joints only, AP Armaflex Sheet can be applied to lines that will operate to a limit of 220°F (105°C).

For use on cold systems, AP Armaflex thicknesses have been calculated to control condensation on the insulation outer surface, as shown in the table of thickness recommendations.

AP Armaflex Sheet and Roll Insulation is acceptable in thicknesses through 2" for use in air plenums. Conforms to NFPA 90A and NFPA 90B requirements.

Resistance To Moisture Vapor Flow

The closed-cell structure of Armaflex Insulations prevent moisture from wicking and make it an efficient insulation. For many applications, Armaflex needs no supplementary protection.



Additional vapor-retarder protection may be necessary for Armaflex when installed on very low-temperature surfaces or piping or where exposed to continually high humidity conditions.

Application

AP Armaflex Sheet is installed using Armaflex 520, 520 Black Adhesive or,

where a low V.O.C. adhesive is required, Armaflex 520 BLV or Armaflex Low VOC Spray Contact Adhesive. For application to large, flat or curved metal surfaces such as ducts, very large pipes, tanks, and vessels, full adhesive coverage attachment is used. For application as pipe insulation and fitting covers, only the seams and joints are adhered with Armaflex 520, 520 Black Adhesive or 520 BLV Adhesive. 520 Adhesives are contact adhesives; therefore, in all cases, both surfaces to be joined are coated with adhesive. Exterior duct work must be pitched to allow rain water to run off the insulation.

AP Armaflex is designed for installation above ground. Outdoors, a weather-resistant protective finish is to be applied. Armaflex WB Finish is recommended. For exterior applications, consider maintenance-free ArmaTuff products.

Armaflex insulation products must be installed according to "Installation of Armaflex Insulations" brochure. Proper installation is required to assure Armaflex insulation performance.

Specification Compliance

AP Armaflex developed to meet:
 ASTM C 534, Type II—Sheet Grade 1
 ASTM C 1534
 ASTM E 84, NFPA 255, UL 723
 CAN/ULC S-102
 UL 94 5V-A, V-0, File E 55798
 NFPA 90A, 90B
 UL181
 ASTM G 21/C1338
 ASTM G 22
 ASTM D 1056, 2B1
 MIL-P-15280J, FORM S
 MIL-C-3133C (MIL STD 670B), Grade SBE 3
 MEA 107-89-M
 City of Los Angeles - RR 7642

AP/Armaflex®
SHEET & ROLL



ALL ARMACELL FACILITIES IN NORTH AMERICA ARE ISO 9001:2000 CERTIFIED.

Physical Data

Physical Properties

Test Method

Thermal conductivity, Btu • in./h • ft ² • °F (W/mK) 75°F mean temp (24°C) 90°F mean temp (32°C)	0.25 (0.036) 0.256 (0.037)	ASTM C 177 or C 518
Water vapor permeability, perm-in. [Kg/(s•m•Pa)]	0.05 (0.725 x 10 ⁻¹³)	ASTM E 96 Procedure A
Flame spread and smoke developed index through 2" (50mm)*	25/50	ASTM E 84 CAN/ULC S102 ^③
Mold growth Fungi resistance Bacterial resistance	UL181 ASTM G21/C1338 ASTM G22	Meets requirements Meets requirements Meets requirements
Water absorption, % by volume	0.2%	ASTM C 209
Upper use limit ^①	180/220°F (82/105°C)	—
Lower use limit ^②	-297°F (-183°C)*	—
Ozone resistance	GOOD	—
Sizes – Sheet Width and length Thickness (nominal)	36" x 48" (.915m x1.22m) 1/8", 1/4", 3/8", 1/2", 3/4", 1", 1-1/2" & 2" (3, 6, 10, 13, 19, 25, 38 & 50mm)	—
Sizes – Roll Width Thickness (nominal) x Length	48" (1.22m) and 60" (1.53m)† 3/8" x 100' (10mm x 30.5m) 1/2" x 70' (13mm x 21.4m) 3/4" x 50' (19mm x 15.2m) 1" x 35' (25mm x 10.7m) 1-1/2" x 25' (38mm x 7.6m) 2" x 18' (50mm x 5.4m) † 1" thickness only	—
Density, typical range ^③	3.0 to 6.0 lbs./ft ³	ASTM D 1622 or ASTM D 1667

Notes

① When AP Armaflex Sheet is installed by adhering butt joints and seams only, the upper temperature limit is 220°F (105°C) using 520, 520 Black or 520 BLV Adhesive. AP Armaflex Sheet adhered with complete adhesive coverage on flat or curved metal surfaces may be applied to surfaces that will operate as high as 180°F (82°C) using 520, 520 Black, 520 BLV or Armaflex Low VOC Spray Contact Adhesive.

② At temperatures below -20°F (-29°C), elastomeric insulation starts to become less flexible. However, this characteristic does not affect thermal efficiency or water vapor permeability of Armaflex insulation

③ Reference ONLY

④ Through 1"

* 1-1/2" and 2" available in 25/50 and non 25/50.

** For applications of -40°F to -297°F (-40°C to -183°C), contact Armacell.

Performance approved through continuing supervision by Factory Mutual (FM) Approvals.

Thickness Recommendations

For Controlling Outer Insulation Surface Condensation (based upon available manufactured thicknesses and not intended to supersede any state or local building codes)

	Ducts—Tanks—Vessels—Equipment Metal Surface Temperature		
	50°F (10°C)	35°F (2°C)	0°F (-18°C)
BASED ON NORMAL DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under normal design conditions, a maximum severity of 85°F (29°C) and 70% RH . Armacell research and field experience indicate that indoor conditions anywhere in the United States seldom exceed this degree of severity.	Nom. 3/8" (10mm)	Nom. 3/4" (19mm)	Nom. 1-1/2" (38mm)
BASED ON MILD DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under mild design conditions, a maximum severity of 80°F (27°C) and 50% RH . Typical of these conditions are most air-conditioned spaces and arid climates.	Nom. 1/8" (3mm)	Nom. 1/4" (6mm)	Nom. 1/2" (13mm)
BASED ON SEVERE DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under severe design conditions, a maximum severity of 90°F (32°C) and 80% RH . Typical of these conditions are indoor areas in which excessive moisture is introduced or in poorly ventilated confined areas where the temperature may be depressed below ambient.	Nom. 1" (25mm)	Nom. 1-1/2" (38mm)	Nom. 2" (50mm)
ON VERY SEVERE DESIGN CONDITIONS which Armacell would consider temperatures above 90°F (32°C) and/or above 80% RH .	Consult Armacell for recommended insulation thickness	Consult Armacell for recommended insulation thickness	Consult Armacell for recommended insulation thickness

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