



# AP/Armaflex®

## Sheet & Roll Insulation

### Superior Moisture Control on Large Jobs, Mold Resistant



- Closed-cell, nonwicking
- Microban® antimicrobial product protection
- The IAQ Insulation™
- Reduces HVAC noise

# AP Armaflex Sheet and Roll Insulation

**AP Armaflex Sheet and Roll Insulation** is the original closed cell, fiber-free elastomeric foam and the world's most recognized brand in flexible mechanical insulation.

- **Proven:** World's first choice for insulating ductwork, large piping, fittings, tanks, vessels and curved or irregular surfaces
- **Mold resistant:** Made with Microban antimicrobial product protection
- **Indoor Air Quality-friendly:** Fiber-free, formaldehyde-free, low VOCs, nonparticulating
- **Quiet:** Noise blocking and vibration damage
- **Durable:** No fragile vapor retarder

## Description

**AP Armaflex Sheet and Roll Insulation** is a black flexible elastomeric thermal insulation. It is furnished with a smooth skin on one side which forms the outer exposed insulation surface. The expanded closed-cell structure makes it an efficient insulation. It is manufactured without the use of CFC's, HFC's or HCFC's. All AP Armaflex products are made with Microban® antimicrobial product protection for added defense against mold on the insulation. It is also effective for reducing HVAC noise.

- **AP Armaflex Sheet** is supplied in flat sheets 36" x 48" (.915m x 1.22) in nominal wall 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). Also available in 60" (1.53m) in 1" thickness

## Factory Mutual (FM) Approvals

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

- **Thermal Conductivity:** 0.25 BTU-in/hr. ft<sup>2</sup> °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", AP Armaflex in wall thickness up to and including 2" (50mm) has 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.*

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

## Armaflex Sheet and Roll Insulation

[www.armacell.com/us](http://www.armacell.com/us)

For the latest document, please refer to our website.

## Uses

- Retards heat gain and controls condensation drip from chilled-water and refrigeration systems. Efficiently reduces heat flow on hot systems
- Acceptable in wall thicknesses through 2" (50mm) for use in air plenums and conforms to NFPA 90A and NFPA 90B requirements

The recommended temperature usage range for AP Armaflex Sheet & Roll Insulation 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). On cold systems, insulation 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 meets 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.

## Application

AP Armaflex Sheet and Roll is installed using one of our Armaflex adhesives: Armaflex 520, 520 Black or, where a low V.O.C. adhesive is required, Armaflex 520 BLV or Armaflex Spray Contact Adhesive. For application to large, flat or curved metal surfaces such as ducts, very large pipes, tanks and vessels, full adhesive coverage is used. For application as pipe insulation and fitting covers, only the seams and joints are adhered with Armaflex adhesive. 520 Adhesives are contact adhesives; therefore, in all cases, both surfaces to be joined are coated with adhesive. Exterior ductwork must be pitched to allow rainwater to run off the insulation.

For many applications, Armaflex needs no supplementary protection. Additional vapor-retarder protection may be necessary on very-low-temperature surfaces or piping where the insulation is exposed to continually high humidity conditions.

AP Armaflex is designed for installation above ground. Outdoors, a weather-resistant protective finish is to be applied and Armaflex WB Finish is recommended. 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 Sheet & Roll Insulation developed to meet:

ASTM C 534, Type II — Sheet Grade 1	MIL-P-15280J, FORM S MIL-C-3133C (MIL STD 670B), Grade SBE 3
ASTM C 1534	MEA 107-89M
ASTM E 84, NFPA 255, UL 723	UL 181
CAN/ULC S102	UL 94 5V-A, V-0, File E 55798
NFPA 90A, 90B	UL 84
ASTM G21/C1338	City of Los Angeles – RR 7642
ASTM G22	
ASTM D 1056, 2B1	

## Physical Properties

Specifications	Values	Test Method
<b>Thermal Conductivity, Btu • in./h • ft<sup>2</sup> • °F (W/mK)</b> 75°F Mean Temperature (24°C) 90°F Mean Temperature (32°C)	0.25 (0.036) 0.256 (0.037)	ASTM C 177 or C 518
<b>Water Vapor Permeability, Perm-in. [Kg/(s•m•Pa)]</b>	0.05 (0.725 x 10 <sup>-13</sup> )	ASTM E 96, Procedure A
<b>Flame Spread and Smoke Developed Index through 2" (50mm)*</b>	25/50	ASTM E 84 CAN/ULC S102 <sup>④</sup>
<b>Mold Growth Fungi Resistance Bacterial Resistance</b>	UL181 ASTM G21/C1338 ASTM G22	Meets requirements Meets requirements Meets requirements
<b>Water Absorption, % by Volume</b>	0.2%	ASTM C 209
<b>Upper Use Limit<sup>①</sup></b>	180/220°F (82/105°C)	—
<b>Lower Use Limit<sup>②</sup></b>	-297°F (-183°C)**	—
<b>Ozone Resistance</b>	GOOD	—
<b>Sizes – Sheet Width and Length Thickness (nominal)</b>	36" x 48" (.915m x 1.22m) 1/8", 1/4", 3/8", 1/2", 3/4", 1", 1-1/2" & 2" (3, 6, 10, 13, 19, 25, 38 & 50mm)	—
<b>Sizes – Roll Width Thickness (nominal) x Length</b>	48" (1.22mm) and 60" (1.53m) <sup>†</sup> 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	—
<b>Density, Typical Range<sup>③</sup></b>	3.0 - 6.0 lbs./ft. <sup>3</sup>	ASTM D 1622 or 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 Though 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 Approvals.

## Thickness Recommendations

### For Controlling Outer Insulation Surface Condensation

(Based upon available manufactured thicknesses and not intended to supercede 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 <b>NORMAL</b> DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under <b>normal</b> design conditions, a maximum severity of <b>85°F (29°C) and 70% RH</b> . 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 <b>MILD</b> DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under <b>mild</b> design conditions, a maximum severity of <b>80°F (27°C) and 50% RH</b> . 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 <b>SEVERE</b> DESIGN CONDITIONS AP Armaflex in the thicknesses noted and within the specified temperature ranges will control outer insulation surface condensation indoors under <b>severe</b> design conditions, a maximum severity of <b>90°F (32°C) and 80% RH</b> . 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)
For <b>VERY SEVERE</b> DESIGN CONDITIONS which Armacell would consider temperatures above recommended insulation <b>90°F (32°C)</b> and/or above <b>80% RH</b> .	Consult Armacell for recommended insulation thickness		

## Air-drying contact adhesives that are excellent for joining seams.

Armaflex 520, 520 Black & 520 BLV Adhesive



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