

**Description**

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, dust free, fiber free and resists mold and mildew.

- 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).

**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: 0.27 BTU-in/hr. ft<sup>2</sup> °F
- Water Vapor Transmission: 0.08 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 of up to and including 1" (25mm) 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.

**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 -70°F to +220°F (-57°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 1" 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 effectively retards the flow of moisture vapor, and Armaflex is considered a low-transmittance vapor retarder. 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 Adhesive or, where a low V.O.C. adhesive is required, Armaflex 520 BLV 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 Adhesive or 520 BLV Adhesive. 520 Adhesives are contact adhesives; therefore, in all cases, both surfaces to be joined are coated with adhesive.

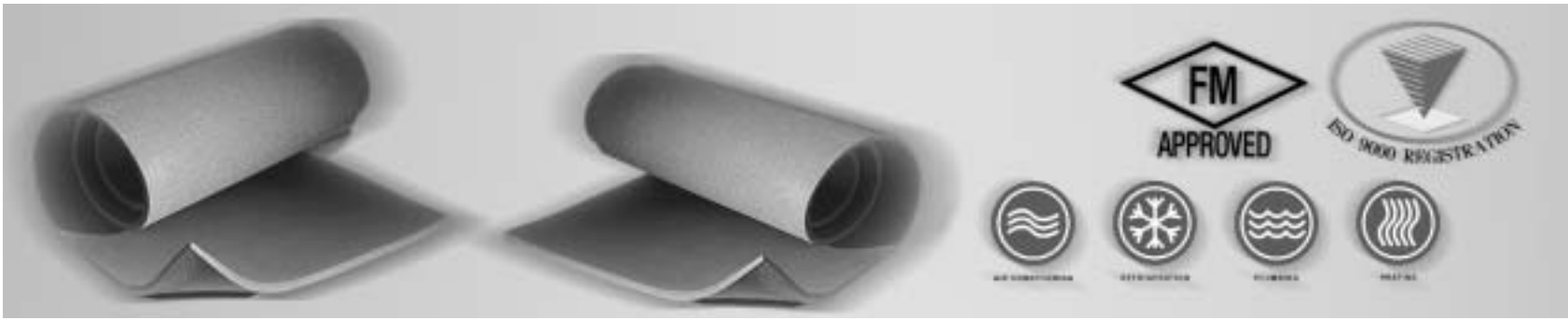
AP Armaflex is designed for installation above ground. Outdoors, a weather-resistant protective finish is to be applied. WB Armaflex Finish is recommended.

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 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
  - 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
  - CGSB CAN 2-51.40-M80

**AP/Armaflex®**  
**SHEET & ROLL**



## Physical Data

### Physical Properties

### Test Method

Thermal conductivity, Btu · in./h · ft <sup>2</sup> · °F (W/m·K) 75°F mean temp (24°C) 90°F mean temp (32°C)	0.27 (0.039) 0.276 (0.040)	ASTM C 177 or C 518
Water vapor permeability, perm-in. [Kg/(s·m·Pa)]	0.08 (1.16 x 10 <sup>-13</sup> )	ASTM E 96 Procedure A
Water absorption, % by volume	0.2%	ASTM C 209
Flame spread and smoke developed index through 1" (25mm)	25/50	ASTM E 84
Ozone resistance	GOOD	—
Upper use limit, °F (°C) (See note 1)	180/220 (82/105°C)	—
Lower use limit, °F (°C) (See note 2)	-70 (-57°C)*	—
Sizes – Sheet Width and length Thickness (nominal)	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)	—
Sizes – Roll Width Thickness (nominal) x Length	48" (1.22m) 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)	—
Density, typical range (See Note 3)	3.0 to 6.0 lbs./ft <sup>3</sup>	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 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 or 520 BLV Adhesive.

② At -20°F (-29°C), flexible AP Armaflex Insulation becomes hard and, as temperatures drop below -20°F (-29°C), will be increasingly brittle; however, this hardening characteristic does not affect thermal efficiency and resistance to water vapor permeability.

③ Reference ONLY

\* For applications of -40°F to -70°F (-40°C to -57°C), contact Armacell.

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

## Thickness Recommendations

### For Controlling Outer Insulation Surface Condensation

	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)



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