

AP/Armaflex®

Sheet & Roll Insulation

Superior Moisture Control on Large Jobs, Mold Resistant



- Closed-cell, nonwicking
- GREENGUARD Indoor Air Quality Certified®
- Microban® antimicrobial product protection
- The IAQ Insulation™
- Reduces HVAC noise
- 25/50 - through 1" wall



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. GREENGUARD Indoor Air Quality Certified®.
- **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).
- **AP Armaflex FS Sheet and Roll** available in 25/50 for 1-1/2" and 2" thicknesses - See AP Armaflex FS submittal.

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 through 1" (25mm):

- **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", AP Armaflex in wall thickness 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.

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

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 1" (25mm) 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 or below ground. For below ground applications, contact Armacell or see our Technical Bulletin No. 7 on our website, www.armacell.com. Outdoors, a weather-resistant protective finish is to be applied and Armaflex WB Finish is recommended.

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	City of Los Angeles – RR 7642
ASTM G21/C1338	
ASTM G22	
ASTM D 1056, 2B1	

Physical Properties

Specifications	Values	Test Method
Thermal Conductivity, Btu • in./h • ft² • °F (W/mK) 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
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 1" (25mm)*	25/50*	ASTM E 84 CAN/ULC S102
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 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" (1.22mm) 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 - 6.0 lbs./ft. ³	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.

* For 25/50 above 1" (25mm). Please see AP Armaflex FS submittal. 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.

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 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)
For VERY SEVERE DESIGN CONDITIONS which Armacell would consider temperatures above recommended insulation 90°F (32°C) and/or above 80% RH .	Consult Armacell for recommended insulation thickness		

Insulation Products for Mechanical Systems

Armaflex® Adhesives

Armaflex® 520 and **Armaflex 520 Black Adhesives** are air-drying contact adhesives that are excellent for joining seams and butt joints of AP and NH Armaflex Pipe and Sheet Insulation and Tubolit Pipe Insulation. Where a low V.O.C. adhesive is required, use **Armaflex 520 BLV Adhesive**.

520 Adhesives meet MIL-A-24179A and Amend-2 as Type II, Class 1. 520 Adhesives when dried to a film meet codes and specifications of less than 25 for flame spread and less than 50 for smoke (ASTM E 84).



Armaflex Low VOC Spray Contact Adhesive, green in color, is supplied in 27 pound aerosolized canisters. The product contains no chlorinated solvents such as methylene chloride and does not contain ozone depleting compounds. Complies with SCAQMD rule 1168 for volatile organic compound content less than 80 g/l. Dried film meets the fire building codes of flame spread index of less than 25 and smoke developed index of less than 50. Excellent for bonding Armaflex sheet and roll insulations to vessels, tanks, ducts and mechanical equipment operating at temperatures below 180°F (82°C).



Armaflex® WB Finish

Armaflex WB Finish is a white water-based latex enamel for use over all forms of Armaflex insulations. It provides a protective semi-gloss finish for both indoor and outdoor applications. Armaflex WB Finish brushes or rolls on easily. Its water base formulation makes it fast-drying without solvent fumes. Cleans up with soap and warm water. Armaflex WB Finish is supplied in gallon and quart containers.

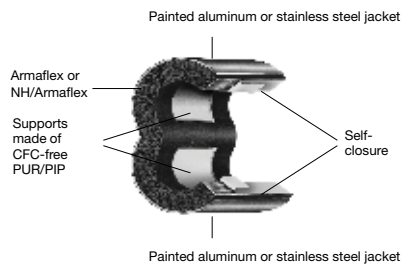


Impervious to moisture. Outdoors, is exceptionally durable and weather resistant to ultraviolet (UV) and ozone. Outdoor surfaces should be recoated every 2-4 years.

Armafix IPH, NPH Pipe Hangers

Uses

Armafix is used to support Armaflex and Armaflex NH (nonhaogen)insulated pipes with pre-insulated hangers that retard heat gain and control condensation drip from chilled-water and refrigeration systems. See Armafix Submittal Sheet for details.



Armacell Fabricated Fittings

Armacell Fabricated Fittings are made-to-order and prefabricated using the world's highest quality, closed cell insulation. Available in wall thicknesses up to 2", these fittings are labor saving, easy to work with and apply, and provide total Armaflex system integrity.



Options include 90-degree elbows (2-piece and 3-piece), T's, 45-degree elbows, grooved fittings (AP Armaflex black) and grooved couplings

Insulation Tape

AP Armaflex® Insulation Tape is made of high-quality AP Armaflex insulation. Available in tape dispenser form, the expanded closed-cell structure makes it an efficient insulation. Made with Microban® antimicrobial product protection, our tape is also formaldehyde free, low VOCs, fiber free, dust free and resists mold and mildew.

Provides a fast, easy method for insulating pipes and fittings. Reduces heat loss when applied to hot-water lines that operate up to 180°F (82°C). AP Armaflex Tape may be used with AP Armaflex Pipe and Sheet Insulation.



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