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engineered foams

SUBMITTAL

THE MAKERS OF
Armaflex®

Description

Mold resistant AP Armaflex black SS Self-Seal Pipe Insulation is a 25/50-rated flexible elastomeric thermal insulation, supplied in:

- nominal wall thicknesses of 1/2", 3/4", and 1" (13, 19, and 25mm)
- popular sizes up to 4" IPS.

The expanded closed-cell structure of AP Armaflex makes it an efficient insulation. It is manufactured without the use of CFC's, HFC's or HCFC's. It is also formaldehyde free, low VOCs, fiber free, dust 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 SS meets the energy code requirements of ASHRAE 90.1, ASHRAE 90.2, International Energy Conservation Code (IECC) and other building codes.

Factory Mutual Approvals System

AP Armaflex SS is certified through ongoing 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 sq.ft. °F
Water Vapor Transmission: 0.05 perm-inch

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

AP Armaflex SS has a flame-spread index of less than 25 and a smoke-developed index of less than 50 as tested by ASTM E 84 and CAN/ULC S-102, "Method of Test for Surface Burning Characteristics of Building Materials" through 1" wall thickness.**

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.

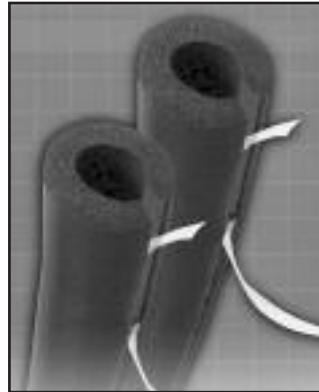
Uses

AP Armaflex SS Pipe Insulation is used to retard heat gain and control condensation drip from chilled-water and refrigeration lines. It also efficiently reduces heat flow on hot systems. The recommended temperature usage range is -297°F to +180°F (-183°C to +82°C).

AP Armaflex SS Insulation is acceptable in wall thicknesses through 1" for use in air plenums. Conforms to NFPA 90A and 90B requirements.

Resistance To Moisture Vapor Flow

The closed-cell structure of AP Armaflex SS Insulation prevents moisture from wicking and makes it an efficient insulation. Additional vapor-retarder protection may be necessary on very-low-temperature piping or where exposed to continually high humidity.



a low V.O.C. adhesive is required, Armaflex 520 BLV Adhesive. 520 Adhesives are contact adhesives; therefore, both surfaces to be joined are coated with adhesive.

AP Armaflex SS is designed for installation above ground. Outdoors, a weather-resistant protective finish is to be applied. 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. AP Armaflex SS must be protected from direct sunlight exposure and weather elements when installed outdoors with water-resistant jacketing or Armaflex WB Finish.

Before starting—the temperature of the air and of the insulation should be between 40°F (4°C) and 100°F (38°C) at the time of installation.

NOTE: Self Seal Armaflex features an advanced pressure sensitive adhesive (PSA) system for tight bonds. However, any factory applied PSA is susceptible to losing tack and hence loss of adhesion properties if left unused for a prolonged period. For best results, Armacell recommends applying Armaflex self seal products within one year of lamination date.

Specification Compliance

AP Armaflex SS Pipe Insulation developed to meet:
ASTM C 534, Type I—Tubular Grade 1
ASTM E 84, NFPA 225, UL 723
CAN/ULC-S102
NFPA 90A, 90B
UL 181
ASTM G21/C1338
ASTM G22
ASTM D 1056, 2B1
MIL-P-15280J, FORM T
MIL-C-3133C (MIL STD 670B), Grade SBE 3
MEA 96-85-M
City of Los Angeles RR 7642

Application

AP Armaflex SS Pipe Insulation can be snapped over piping already connected. Apply firm and even pressure along the entire longitudinal seam for proper seal. Fitting covers are fabricated from miter-cut tubes. Butt joints are to be sealed with Armaflex 520 Adhesive or, where

**AP/Armaflex®
SS (SELF-SEAL) TUBES**



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

Tubes

Sheets & Rolls

Pipe Hangers

Insulation Tape

Sundries



Physical Data

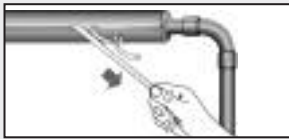
Physical Properties

Physical Properties		Test Method
Thermal conductivity, Btu • in./h • ft ² • °F (W/m/K) 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-inch. [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° F (82°C)	—
Lower use limit ②	- 297°F (-183°C)*	—
Ozone resistance	GOOD	—
Sizes Wall thickness, (nominal) Inside diameter, tubular Length of sections, tubular	1/2", 3/4", 1" (13, 19, 25mm) 5/8" ID to 4" IPS (15mm to 114mm) 6 (1.8m)	— — —
Density, typical range ③	3.0 - 6.0 lbs./ft. ³	ASTM D 1622 or D 1667

Notes

- ① On the heating cycle, AP Armaflex SS Pipe Insulation will with stand temperatures as high as 220°F (105°C) intermittent exposure. For continuous exposure the temperature should be limited to 180°F (82°C).
- 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 applications of -40°F to -297°F (-40°C to -183°C), contact Armacell.

Performance approved through continuing supervision by Factory Mutual Approvals.



Peel the protective release strips from the adhesive surface in 8" and 12" increments after insulation is snapped over pipe. The protective release strips can be removed by gently pulling at an angle. Apply firm and even pressure along the entire longitudinal seam for proper seal.

Armaflex SS Pipe Insulation Thickness Recommendations

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

Pipe Size	Line Temperatures			
	50°F (10°C)	35°F (2°C)	0°F (-18°C)	-20°F (-29°C)
BASED ON NORMAL DESIGN CONDITIONS* 3/8" ID through 1-1/8" ID (10mm-28mm) Over 1-1/8" ID through 2-1/8" ID (28mm-54mm) Over 2-1/8" ID through 2-5/8" ID (54mm-65mm) Over 2-5/8" ID through 6" IPS (65mm-168mm)	Nom 3/8" (10mm) Nom 3/8" (10mm) Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 1/2" (13mm) Nom 1/2" (13mm) Nom 1/2" (13mm) Nom 3/4" (19mm)	Nom 3/4" (19mm) Nom 1" (25mm) Nom 1" (25mm) Nom 1" (25mm)	Nom 1" (25mm) Nom 1" (25mm) Nom 1-1/4" (32mm) Nom 1-1/4" (32mm)
BASED ON MILD DESIGN CONDITIONS** 3/8" ID through 2-5/8" ID (10mm-65mm) Over 2-5/8" ID through 6" IPS (65mm-168mm)	Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 3/8" (10mm) Nom 1/2" (13mm)	Nom 1/2" (13mm) Nom 1/2" (13mm)	Nom 3/4" (19mm) Nom 3/4" (19mm)
BASED ON SEVERE DESIGN CONDITIONS*** 3/8" ID through 1-5/8" ID (10mm-40mm) Over 1-5/8" ID through 3-5/8" ID (40mm-90mm) Over 3-5/8" ID through 6" IPS (90mm-168mm)	Nom 3/4" (19mm) Nom 3/4" (19mm) Nom 3/4" (19mm)	Nom 1" (25mm) Nom 1" (25mm) Nom 1" (25mm)	Nom 1-1/2" (38mm) Nom 1-1/2" (38mm) Nom 1-1/2" (38mm)	Nom 1-1/2" (38mm) Nom 1-3/4" (44mm) Nom 2" (50mm)

NOTE: Thicknesses greater than 1" (25mm) are multiple-layer applications, see technical bulletin #30.

*BASED ON **NORMAL** DESIGN CONDITIONS AP Armaflex SS 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.

BASED ON **MILD DESIGN CONDITIONS AP Armaflex SS 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.

***BASED ON **SEVERE** DESIGN CONDITIONS AP Armaflex SS 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.

Microban is a registered trademark of Microban Products Company.



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