

Armstrong

Insulation products

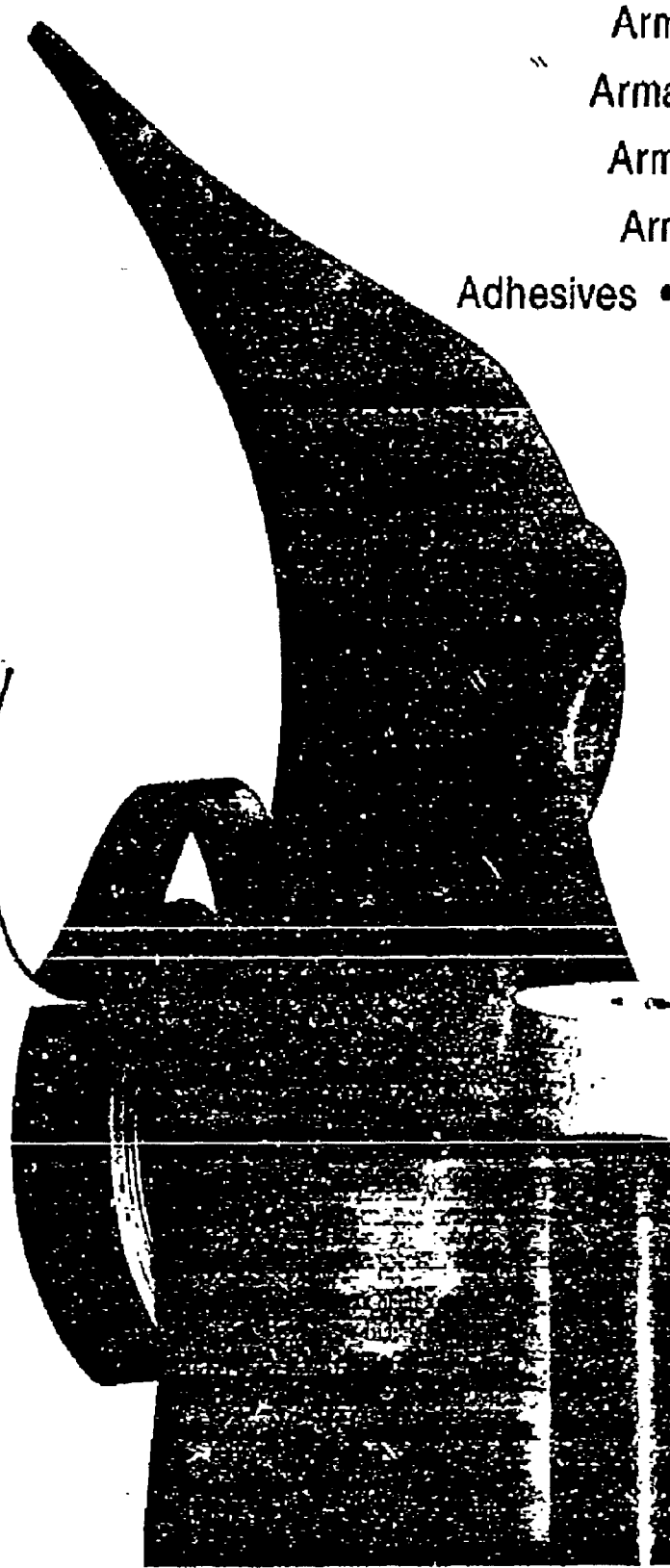
Armaflex pipe insulation

Armaflex sheet insulation

Armaflex tape insulation

Armalok pipe insulation

Adhesives • Coatings • Sealers



Armstrong 15 MECHANICAL SYSTEMS INSULATION
January 1972

Armstrong 15 MECHANICAL SYSTEMS INSULATION
January 1972

384288

Armalflex Insulations

General product data

Armstrong Armalflex is an elastomeric thermal insulation material available in flexible and rigid pipe insulation and in flexible sheet and tape form. These insulations are used to retard heat gain and prevent condensation and frost formation on cold temperature lines. They also efficiently reduce heat loss for liquid heating and cooling temperature piping. Armalflex Sheet provides the same range of protection on large piping, ducts, tanks, vessels, and equipment of all types. Armalflex Insulations have a fine, closed cellular structure and are vapor barriers in themselves, so no separately applied vapor barrier is required. The extreme flexibility of Armalflex Pipe Insulation and Sheet speeds and simplifies their application. Rigid Armalflex has load-bearing properties and can be used at hanger locations and on piping, subject to mechanical abuse or compression. All three products are non-shiny black in color, have smooth surfaces, and are exceptionally clean to handle.

Armalflex Pipe and Sheet Insulation are chemically acceptable to USDA Consumer and Marketing Service.

Because of high insulating efficiency and vapor resistance, Armalflex Insulations in engineered wall thicknesses will offer the same condensation protection under varying design conditions to the entire range of pipe sizes. For specific thickness recommendations, see Insulation Thickness chart on Pages 14 and 15.

Armalflex Pipe Insulation

Armstrong Armalflex Pipe Insulation is made in three engineered wall thicknesses, each calculated to prevent condensation on cold lines within its individual recommended usage ranges at temperatures down to zero. For temperatures below zero, Armalflex may need to be applied in multiple thicknesses, depending upon air conditions.

Armalflex Pipe Insulation also can be used on heated lines where it will withstand temperatures up to 220 F.

Wide Temperature Range

Armalflex has a wide usage range from -40 F to +220 F.

Efficient Insulation

The closed cellular structure of Armalflex gives it a low average "k" value of 0.253 at 75 F mean.

Impervious to Moisture Vapor

The uniformly sized, closed cells of Armalflex seal out air and moisture vapor. The result is an average water vapor permeability of 0.1 perm-in.

Dimensionally Stable

When Armalflex Pipe Insulation is tested at a soaking test of 220 F for 7 days, average shrinkage is 6%. In application, only the linear surface is exposed to 220 F, so shrinkage is considerably less than the test figure.

Self-Extinguishing

When tested according to ASTM D1882 procedures, Armalflex is rated self-extinguishing by this test as 5E 1.0 in., 53 sec.

Ozone Resistant

It can be applied to pipe bonds without flexing or cracking at the stressed area.

Smooth Surface

Armalflex has an exceptionally smooth, uniform outer surface finish. This results in a neat-looking installation.

The extreme flexibility of Armalflex makes application rapid. It can be applied easily, even in close and crowded quarters. Fittings can be insulated with minor cut pieces of insulation, assembled as the job using Armstrong 520 Adhesive. Outdoor installations, excellent protection is provided by Armstrong Armalflex Finish, a vinyl-lacquer-type coating. Indoors, Armalflex requires no finish, but for a protective coating, see Armalflex Finish.

For data of average physical properties, see Page 9.

AC/Armalflex Pipe Insulation

AC/Armalflex Pipe Insulation is a pre-all flexible, elastomeric thermal insulation with a factory-applied dry adhesive on the longitudinal seam and butt-end surfaces. It will substantially reduce installation time because it eliminates the need for separate application of adhesive. After the insulation is applied to pipes, the dry adhesive is activated and provides a tight, superior, heat-resistant seal for seams and joints.

AC/Armalflex is recommended for plumbing, heating, dual-temperature, air-conditioning, and refrigeration systems. It is made in three engineered wall thicknesses, each calculated to prevent condensation on cold lines within their individual recommended usage ranges at temperatures down to zero.

AC/Armalflex Pipe Insulation used to insulate heated lines will withstand temperatures up to 220 F.

For data of average physical properties, see Page 9.

Rigid Armalflex

Armstrong Rigid Armalflex is a rigid elastomeric thermal pipe insulation, developed for use at pipe hanger locations and at other places where pipe insulation may be subjected to compression deformation. Rigid Armalflex is made in nominal 1/2" and 3/4" engineered wall thicknesses. Except for its rigidity, Rigid Armalflex is similar in average physical properties to the flexible material. Rigid Armalflex has a smooth outer surface finish. The material is manufactured in 3'-long sections and is available in sizes from 3/4" ID to 5" IPS. Each section is split lengthwise at the factory, and the matching half sections are held together in one component, assuring accurate match and fit at joints during application.

For data of Rigid Armalflex pipe supports, see Page 14.



381298

381290

Armstrong

Armalflex Sheet

Armstrong Armalflex Sheet is a flexible, elastomeric thermal insulation. It has a fine, closed cellular structure with excellent insulating efficiency and high vapor resistance. It is particularly adaptable to insulating ducts, large tanks of all shapes, irregular vessels, and large-size piping. Armalflex Sheet may be applied with full adhesive coverage to metal surfaces that will operate as high as 180 F. When used within recommended usage ranges, Armalflex Sheet thicknesses have been calculated to prevent condensation on cold surfaces. Temperatures below zero may require application of Armalflex Sheet in multiple layers, depending upon air conditions. When used for pipe insulation, with adhesive at joints only, Armalflex Sheet can be applied to lines that will operate as high as 220 F.

Efficient Insulation

Armalflex Sheet has a low average thermal conductivity of 0.27 Btu/hr sq ft (F deg/in.) at 75 F mean temperature. Because this material resists deterioration, efficiency remains high.

Resistant to Water Vapor and Air Transmission

Uniformly sized closed cell structure seals out air and moisture vapor. The result is an average water vapor permeability of 0.1 perm-in.

Fast and Easy to Apply
Armalflex Sheet can be applied directly to clean, dry metal surfaces with Armstrong 520 Adhesive. Conventional mechanical supports are unnecessary. High resistance to water vapor and air transmission eliminates the need for a separate vapor barrier, but outdoor installations should be protected with Armstrong Armalflex Finish, a vinyl-lacquer-type coating.

Self-Exfoliating

When tested according to ASTM D1692 procedures, Armalflex Sheet insulation is rated self-exfoliating by this test as SE 1.0 in., 53 sec.

Physically and Chemically Stable

Armalflex is only slightly affected by solvents and, for all practical purposes, is unaffected by oils, common corrosive chemicals, or fungus attack. Ten percent solutions of hydrochloric and sulfuric acids and sodium hydroxide have no adverse effects on Armalflex. Solvents such as toluene, methyl ethyl ketone, and dichloroethylene do not dissolve it but do cause some swelling.

For chart of average physical properties, see Page 2

LC/Armalflex Sheet Insulation

Armstrong LC/Armalflex Sheet Insulation is a light-colored, flexible, elastomeric thermal insulation with excellent light reflectance. It is especially recommended for installation in ships' hulls and other areas where

available light during installation is inadequate.

LC/Armalflex incorporates three other highly desirable characteristics of a low- and medium-temperature insulation: high insulation efficiency, high resistance to water vapor, and ease of application. It is particularly adaptable to insulating ships' hulls and other curved surfaces, large tanks of all shapes, ductwork, irregularly shaped vessels, and large-size piping.

LC/Armalflex Sheets may be applied with full adhesive coverage to metal surfaces that will operate as high as 180 F.

Because LC/Armalflex is primarily intended for insulation of ships' hulls, it has been designed to meet the requirements of MIL-P-15200E, Amendment 1 (ships).

For chart of average physical properties, see Page 1

Armalflex Tape

Armalflex Insulation Tape is the same flexible, elastomeric thermal insulating material that is used for other Armalflex insulations. The tape is supplied in convenient strip form 1/8" thick x 2" wide with pressure-sensitive adhesive for wrapping around cold or hot pipes and fittings. It is used to retard heat gain on cold lines and to reduce heat loss on hot lines. When properly applied, sweating and dripping are controlled on domestic cold water lines, suction lines for air conditioning equipment, and chiller water piping.

Roll Size

30 feet per roll 1/4" thick x 2" wide.

Closed Cell Structure

Seals out air and moisture vapor without need of an additional vapor barrier. Closed cell structure offers high resistance to moisture vapor flow and to water absorption. It stops condensation and sweating on cold pipes when applied in the proper number of wraps for the line temperature, the air temperature, and percent relative humidity shown in the table of recommended thickness.

Efficient Insulation

High insulating efficiency. The low thermal conductivity retards heat flow, keeping cold lines cold and hot lines hot. On hot lines, the number of wraps applied is dictated only by the amount of heat loss prevention that is desired. On cold piping, the number of wraps required must be sufficient to keep the outer insulation surface above the dew point of the air or sweating will occur. On dual-temperature lines, any number of wraps sufficient to stop sweat on the cold cycle will be adequate for the heating cycle.

Convenient and Easy to Use

Wrapping is easily accomplished without need of experience. The pressure-sensitive adhesive adheres quickly and firmly to all metals. The easily removed release paper keeps the adhesive fresh, and the insulation begins performing the moment it is applied. There are no bands, wires, or additional adhesive required. The greater the number of wraps applied, the better will be the protection obtained.

Armalflex Tape Thickness to Prevent Sweating and Dripping

Air Temperature and Relative Humidity	Typical Temperature	Single Layer*	50% Overlap plus Single Layer
30 F	35 F	50% Overlap	50% Overlap plus Single Layer
40 F & 50% RH		50% Overlap	50% Overlap plus Single Layer
45 F & 70% RH		50% Overlap	50% Overlap plus Single Layer

*Dual-temperature line must be 50% wettable applications



381292

Armstrong

381291