Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
P.O. Box 16620
Little Rock, AR 72231
Phone 501-834-3320
Fax 501-834-5416

Date: 10/10/2023
Return Request: 10/16/2023
Project: ASU Mid-South RC & UC Chiller Replacement
Supplier: Core Insulation
Manufacturer: Various
Submittal: HVAC Piping Insulation
Submittal Number: 23 07 19-01
Drawing # and Installation: Mechanical Drawings

ARCHITECT
Witsell Evans Rasco
901 W. Third Street
Little Rock, AR 72201
501-374-5300

ENGINEER
Pettit & Pettit
201 E. Markham St. #400
Little Rock, AR 72201
501-374-3731

GENERAL CONTRACTOR
Baldwin & Shell
3725 Champion Hills Driver, Suite 1300
Memphis, TN 38125
901-755-2952

MECHANICAL SUBCONTRACTOR
Comfort Systems USA (Arkansas), Inc.
9924 Landers Rd.
N. Little Rock, AR 72117
501-834-3320

Notes:

CSUSA PROJECT NO.
23-1024
jon@comfortar.com

Core Insulation Contractors, LLC
124 W. Capitol Avenue
Suite 2000-CIC
Little Rock, AR 72201

August 21, 2023

To: Jon Davis
Comfort Systems USA (AR)
PO Box 16620
Little Rock, AR 72231

Project: ASU Mid-South

The following items will be insulated with Knauf Earthwool pipe insulation. All joints and seams will be sealed with 3" wide 3M ASJ+ tape. Fittings will be mitered sections of fiberglass pipe cover. Piping exposed in mechanical rooms will receive an additional .020 white PVC jacket. Piping located outdoors will receive an additional .016 smooth aluminum jacket.

#1 – Chilled Water (1-1/2" and smaller)……1" Thick
(2" and larger)……2" Thick

Thank you,

Scott Martin

DATA SHEET

Earthwool® 1000° Pipe Insulation

with ECOSE® Technology

DESCRIPTION

Earthwool 1000° Pipe Insulation is a molded, one-piece insulation made from highly resilient, inorganic glass fibers bonded with ECOSE Technology.

CONTRACTOR: _____

JOB: _____

DATE: _____

APPLICATION

- Iron, copper, stainless steel, PVC, and CPVC piping
- Hot, cold, concealed and exposed piping systems operating at temperatures 0° F-1000° F (-18° C to 538° C)
- Additional weather protection is needed for outdoors use

SPECIFICATION COMPLIANCE

U.S.

- ASTM C547; Type I, Type IV
- ASTM C585
- ASTM C1136 (jacket); Type I, II, III, IV, VII, VIII, X
- NFPA 90A and 90B
- Conformity for fit Marine Equipment IMO 1408
- MIL-DTL-32585; Type 1, Form 4, Facing A and D
- USCG 164.109/4/1
- UL/ULC Classified
- ASTM C795, MIL-I-24244, NRC Reg. Guide 1.36 (Certification needs to be specified at time of order)

Canada

- CAN/ULC S102
- CGSB 51-GP-9M
- CGSB 51-GP-52M (jacket)
- CAN/CGSB-51.9 (obsolete, replaced by ASTM C547)

DOING MORE FOR THE WORLD WE LIVE IN.

Knauf Insulation products with ECOSE® Technology are made using our patented, bio-based binder - a smarter alternative to the phenol/formaldehyde (PF) binder traditionally used in fiberglass products. The bio-based binder holds our product together and gives the product its unique appearance.

All of our products are formaldehyde-free and made from sustainable resources, such as recycled glass and sand. And we're proud to be putting glass bottles back to work rather than into landfills. Our products are made with a minimum of 50% recycled glass—totaling an average of 26 million bottles each month.

with ECOSE® TECHNOLOGY

TECHNICAL DATA		
Property (Unit)	**Test**	**Performance**
Corrosiveness	ASTM C665	Does not accelerate corrosion of steel
Corrosion	ASTM C1617	Pass
Maximum Service Temperature	ASTM C411 + ASTM C447	1000° F (538° C)
Water Vapor Permeance	ASTM E96, Procedure A	0.01 perms or less
Water Vapor Sorption (by weight)	ASTM C1104	Less than 5%
Shrinkage	ASTM C356	Negligible
Mold Growth	ASTM C1338	Pass
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84, UL 723, CAN/ULC S102	UL/ULC Classified FHC 25/50

INDOOR AIR QUALITY

- UL Environment
  - GREENGUARD Certified
  - GREENGUARD Gold Certified
  - Validated to be Formaldehyde-Free
- Does not contain polybrominated diphenyl ethers (PBDE) such as: Penta–BDE, Octa–BDE or Deca–BDE
- EUCEB Certified
- IgCC Section 806.6 compliant

PRODUCT FORMS AND SIZES

- Produced in 3' (914 mm) sections
- For iron pipe ½" – 24" (15 mm – 610 mm) nominal pipe size
- For copper tube ⅝" – 6⅛" (16 mm – 156 mm)
- All insulation inner and outer diameters comply with ASTM C585.
- Wall thicknesses from ½" to 6" (13 mm to 152 mm) in single layer for most sizes
- With or without a white, factory-applied jacket, ASJ+ (all-service jacket) is composed of aluminum foil, reinforced with a glass scrim bonded to a kraft paper interleaving with an outer flim layer leaving no paper exposed.
- A matching ASJ+ butt strip is supplied for each section
- The longitudinal lap of the jacket has the SSL+ self-sealing lap that creates a strong and lasting bond

Packaging

- Four carton sizes for easy ordering, inventory tracking and storage
- Reinforced carton handles for strength and easy lifting
- Bar-coded cartons for accurate shipments and tracking
- Full product range stocked at distributors for fast availability

ASHRAE 90.1-2016 REQUIREMENTS

MINIMUM PIPE INSULATION THICKNESS

Fluid Operating Temperature Range and Usage	Insulation Conductivity		Nominal Pipe or Tube Size				
	Conductivity Range BTU-in./(hr · ft² · °F)	Mean Temperature Rating	<1"	1"–<1½"	1½"–<4"	4"–<8"	≥8"
Heating and Hot Water Systems (Steam, Steam Condensate, Hot-Water Heating and Domestic Water Systems) a, b, c, d							
Above 350° F	0.32–0.34	250° F	4½"	5"	5"	5"	5"
251–350° F	0.29–0.31	200° F	3"	4"	4½"	4½"	4½"
201–250° F	0.27–0.30	150° F	2½"	2½"	2½"	3"	3"
141–200° F	0.25–0.29	125° F	1½"	1½"	2"	2"	2"
105–140° F	0.22–0.28	100° F	1"	1"	1½"	1½"	1½"
Cooling Systems (Chilled Water, Brine, Refrigerant) a, b, c, d							
40–60° F	0.21–0.27	75° F	½"	½"	1"	1"	1"
Below 40° F	0.20–0.26	50° F	½"	1"	1"	1"	1½"

a. For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows: $T=r\{(1+t/r)^{K/k}-1\}$, where T=minimum insulation thickness (in.), r=actual outside radius of pipe (in.), t=insulation thickness listed in this table for applicable fluid temperature and pipe size, K=conductivity of alternate material at mean rating temperature indicated for the applicable fluid temperature {Btu · in.(h · ft² · °F)}; and k=the upper value of the conductivity range listed in this table for the applicable fluid temperature.

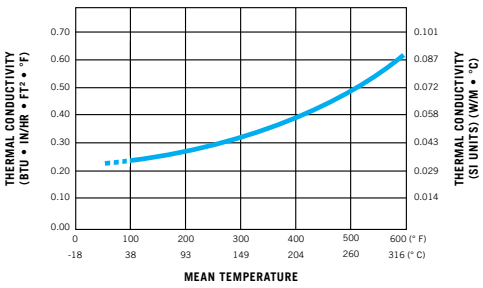
b. These thicknesses are based on energy efficiency considerations only.

c. For piping smaller than 1½" and located in partitions within conditioned spaces, reduction of these thicknesses by 1" shall be permitted (before thickness adjustment required in footnote a) but not to thicknesses below 1". These thicknesses are based on energy efficiency considerations only. Issues such as water vapor permeability or surface condensation sometimes require vapor retarders or additional insulation.

d. The table is based on steel pipe. Non-metallic pipes schedule 80 thickness or less shall use the table values. For other non-metallic pipes having thermal resistance greater than that of steel pipe, reduced insulation thicknesses are permitted if documentation is provided showing that the pipe with the proposed insulation has no more heat transfer per foot than a steel pipe of the same size with the insulation thickness shown on the table.

THERMAL CONDUCTIVITY | ASTM C335

Mean Temperature	k	k (SI)
75° F (24° C)	0.23	0.033
100° F (38° C)	0.24	0.035
200° F (93° C)	0.28	0.040
300° F (149° C)	0.34	0.049
400° F (204° C)	0.42	0.061
500° F (260° C)	0.51	0.074
600° F (316° C)	0.62	0.089



PRECAUTIONS

Hot Pipe

- May be installed while the system is in operation, at all temperatures up to 1000° F (538° C).
- Knauf Insulation recommends, for insulation thicknesses greater than 6" (152 mm), the temperature must be increased from 500° F (260° C) to maximum temperature at a rate not exceeding 100° F (37.8° C) per hour.
- During initial heat-up to operating temperatures above 350° F (177° C), a slight odor and some smoke may be given off as a portion of the bonding material used in the insulation begins to undergo a controlled decomposition.
- If natural convection is not adequate in confined areas, forced ventilation should be provided in order to protect against any harmful fumes and vapors that might be generated.
- Care must also be taken when using sealants, solvents or flammable adhesive during installation.
- A maximum of 6" (152 mm) wall thickness is recommended.

Cold Pipe

- Use a continuous vapor retarder on piping operating below ambient temperatures.
- Seal all joints, surfaces, seams and fittings to prevent condensation.
- On below freezing applications, and in high-abuse areas, the ASJ+ jacket shall be protected with a PVC vapor retarding outer jacket. In addition, exposed ends of insulation shall be sealed with vapor barrier mastic installed per the mastic manufacturer's instructions. Vapor seals at butt joints shall be applied at 12' to 21' intervals; at the Engineer's discretion and at each fitting to isolate any water incursion.
- On chilled water systems operating in high humidity conditions, it is recommended that the same guidelines be followed as listed above for below freezing applications.
- Exterior hanger supports are recommended.

Outside Application

- Do not expose pipe insulation to weather. It must be covered with appropriate jacketing, mastic or vapor retardant coatings.
- All exposed surfaces must be protected. Proto® Indoor/Outdoor PVC Jacketing is recommended. See Knauf Insulation Guide Specifications for recommended PVC jacketing application guidelines.
- Apply jacketing, mastics or vapor retardant adhesives per manufacturer's instructions.
- For metallic jackets, factory-applied moisture retarders are recommended.

ASJ+ SSL+

- Keep adhesive and contact surfaces free from dirt and water. Seal immediately once adhesive is exposed.
- Apply when ambient and insulation temperatures are between 20° F and 130° F (-6.7° C and 54° C).
- If stored below 20° F or above 130° F, allow insulation cartons to stand within recommended temperature range for 24 hours prior to application.
- Do not store product below -20° F (-29° C) or above 150° F (66° C).
- When using Knauf Insulation's SSL+ Advanced Closure System, make sure the longitudinal and circumferential joints are properly sealed by rubbing the closure firmly with a squeegee. Use of staples is not recommended.
- When using Earthwool® 1000° pipe insulation, the surface temperature of the ASJ+ facing should not exceed 150° F (66° C).

Fittings and Hangers

- Use Proto 25/50 Rated (ASTM E84) PVC Fitting Covers, applying PVC fittings per Proto's Data Sheet.
- Fittings should be insulated to same thickness as the adjoining insulation.
- Apply fittings per manufacturer's instructions.
- When required by specification, a hard insert of sufficient length should be used to avoid compression of the insulation.

APPLICATION GUIDELINES

Storage

- Protect insulation from water damage or other abuse, welding sparks and open flame.
- Cartons are not designed for outside storage.

Preparation

- Apply only on clean, dry surfaces
- Pipe or vessel should be tested and released before insulation is applied.

General Guidelines

- All sections should be firmly butted.
- Seal circumferential joint with a minimum 3" (76 mm) wide butt strip.
- Jackets, coating and adhesives should have a comparable F.H.C. rating.
- ASJ+ may be painted. As with traditional ASJ, Knauf Insulation does not encourage the painting of ASJ+ because the application of any paint may change the surface burning characteristics and will void the UL Classification and Knauf Insulation Limited Warranty.

Insulation Limited Warranty

- Where painting is necessary, use common water, oil, or solvent-based paints. All paints should be tested for compatibility and adhesion before use.
- All piping should have continuous insulation.
- Position longitudinal lap downward to avoid dirt and moisture infiltration.
- Do not expose pipe insulation to excessive vibration or physical abuse.
- Faced insulation should not have a facing temperature above 150° F (66° C).

SSL+ Installation Instructions:

- To install SSL+, first remove the kraft release liner to expose adhesive.
- Carefully align the jacketing. Starting in the center of the insulation section, begin initial SSL+ tack using pressure in the direction of the overlap. Again, starting in the center of the insulation section, with a plastic squeegee begin to apply firm pressure to the bonded lap area swiping from the center of the insulation section toward each end.
- **Note:** After initial SSL+ adhesive tack, it is critical that the closure is not re-opened and repositioned on the facing. Doing so will delaminate the jacket and adhesive, diminishing the bond strength.

Butt Strip Installation Instructions:

- To install Butt Strips, remove the kraft release liner by separating the butt strip from the kraft using the convenient, easy release kiss cut.
- Simply wrap the butt strip, centered around the joint, and apply firm pressure with a squeegee.
- **Note:** After initial Butt Strip adhesive tack, it is critical that the closure is not re-opened and repositioned on the facing. Doing so will weaken the adhesive and diminish bond strength.

Recommended Thicknesses (ASHRAE 90.1-2016)

The minimum thicknesses are based on ASHRAE 90.1-2016 standards and do not necessarily represent the Economic Thickness of Insulation or the thickness required for proper condensation control. Rather, they serve as minimum recommendations for commercial applications. For recommended Economic Thickness, install according to Knauf Insulation or NAIMA 3E Plus programs or as specified.

FIBERGLASS AND MOLD

Fiberglass insulation will not sustain mold growth. However, mold can grow on almost any material when it becomes wet and contaminated. Carefully inspect any insulation that has been exposed to water. If it shows any sign of mold it must be discarded. If the material is wet but shows no evidence of mold, it should be dried rapidly and thoroughly. If it shows signs of facing degradation from wetting, it should be replaced.

CERTIFICATIONS

Check with your Knauf Insulation Territory Manager to ensure information is current.

The chemical and physical properties of this product represent average values determined in accordance with accepted test methods. The data is subject to normal manufacturing variations. The data is supplied as a technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

This product is covered by one or more U.S. and/or other patents.
See patent www.knaufnorthamerica.com/patents

Visit **knaufnorthamerica.com** to learn more.

KNAUF INSULATION, INC.
One Knauf Drive
Shelbyville, IN 46176

Technical Support
(317) 398-4434 ext. 8727
info.us@knaufinsulation.com

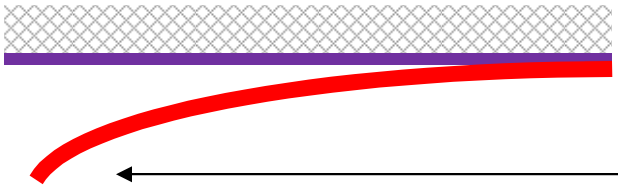
01-20

106FXP

NEXT GENERATION ASJ BUTTSTRIP TAPE

Product 106FXP NEXT GENERATION ASJ is a flexible white polypropylene/core/scrim/foil lamination coated with a cold weather solvent acrylic pressure sensitive adhesive. Specifically designed for use as a vapor seal on NEXT GENERATION ASJ faced duct board and pipe insulation, 106FXP applies easily and excels in demanding temperature and humidity applications, providing superior performance and durability over a wide range of conditions.

Product Construction



White polypropylene/core/scrim/foil lamination

Acrylic adhesive

Release liner

Features & Benefits

- *UL723 Classified (0/0 Flame/Smoke Rating)*

  UL file # R10984
- *Specifically designed for cold weather conditions*
- *High performance insulation tape is ideal for use as a vapor seal for on Next Generation ASJ (WMP-ASJ) faced fiberglass duct board and pipe insulation*
- *High tack acrylic adhesive performs well over a wide temperature range*
- *In stock product available for immediate delivery*

Test	Typical Value	Typical Value (Metric)	Test Method
Product Thickness Ω	10.0 mils	0.25 mm	PSTC-133
Peel Adhesion Δ	55 oz/in	15.3 N/25 mm	PSTC-101
Shear Adhesion	>24 hrs @ 2.2 psi	>24 hrs @ 15.2 kPa	PSTC-107
Tensile Strength	70 lb/in	333.2 N/25 mm	PSTC-131
Elongation	5 %	5 %	PSTC-131
Service Temperature	-40 to 240 ℉	-40 to 116 ℃	

Ω - excluding liner

Δ - 20 minute dwell

Typical values are not intended to be used for specification development. Technical data is believed to be true and accurate; Venture Tape recommends that the purchaser test for fitness of use in all applications.

Product Configurations

- *3" and 4" standard width*
- *Additional roll widths and lengths available, contact Venture Tape for information*

Contact Venture Tape today for a complete list of products or a free sample

Toll Free North America 800-343-1076

From United Kingdom 0-800-962-957

From Australia 1-800-122-797

VentureTape®

GTA - NHT, Inc.
Venture Tape
30 Commerce Rd., Rockland, MA 02370
Tel 781-331-5900; Fax 781-871-0065
800-343-1076 (U.S.A.), 800-544-1024 (Canada)
Toll Free Fax 877-264-5490
www.venturetape.com

GTA TAPES & ADHESIVES a 3M Company

Childers®

Mastics, Coatings, Adhesives, Sealants

CP-33 CHIL-OUT™ Vapor Retarder Coating

Product Data Sheet

INDOOR & OUTDOOR
WATER-BASED, VAPOR RETARDER COATING

DESCRIPTION

CP-33 is a water-based, vapor retarder coating for insulation on interior, exterior, low temperature, some dual temperature applications (such as chilled water and refrigerated pipe lines), HVAC ducts and low temperature equipment. It is fast drying and forms a tough, flexible dry film which protects insulated surfaces and helps retard the flow of vapor through an insulation system. It has a smooth, creamy consistency that spreads easily and can be applied in a relatively heavy coating or brushed out into a thin, smooth film.

USES

CP-33 can be used on most types of thermal insulations in both cold and dual temperature service. It is used to vapor seal the seams, overlaps and punctures from pins and staples in FSK, ASJ, white paper and polyester vapor retarder facings on insulation boards, duct wrap and pipe covering. It may also be used to seal cut ends of insulation to prevent moisture ingress and fiber release. It is compatible with fiber glass, mineral fiber, cellular glass, polyisocyanurate, polyurethane, polystyrene, phenolic, rubber foam and other insulations.

APPLICATION

CP-33 features easy application by trowel or brush. It may be applied with CHIL-GLAS® #10 Glass Fiber Reinforcing Mesh to increase film strength. See reverse side of product data sheet for application information.

ADVANTAGES

- Water-based for personal and environmental safety.
- Fast-drying contributes to maximum production rates.
- Non-flammable – safe for transport, storage and usage.
- Quick and efficient cleanup of tools and metal with warm water before coating completely dries.
- Outdoor rated and UV resistant.

CERTIFIED

- MAS Certified Green®
- California Dept. of Public Health Standard Method v1.2
- VOC Emissions and Content requirements to contribute to **LEED v4** EQ Credit: Low Emitting Materials – Paints and Coatings
- VOC Content: 49 g/l, less water and exempt solvents
- Collaborative for High Performance Schools EQ 7.1
- Meets NFPA Standard 90A and 90B 25/50 requirements as a closure mastic

COLOR

White

AVERAGE WET WEIGHT (ASTM D1475)

11.9 lbs./U.S. gal. (1.4 kg/liter)

AVERAGE NON-VOLATILE (ASTM D2369)

55% by volume (68.5% by weight)

SERVICE TEMPERATURE RANGE

Temperature to which dry film is subjected.
-20°F to 190°F (-29°C to 88°C)

APPLICATION & STORAGE TEMPERATURE RANGE

40°F to 100°F (4°C to 38°C)

DRYING TIME

Temperature, humidity and film thickness will affect drying time.
To Touch: 3 Hours
Through: 24 Hours

COVERAGE

Varies with substrate and membrane.
4 U.S. gal./100 sq. ft. (1.6 l/m^2)

CLEAN UP

Warm, soapy water while coating is still wet.

WATER VAPOR PERMEANCE (TYPICAL AVERAGE)

Tested with reinforcing mesh.

ASTM F1249: 0.15 perms (0.10 metric perms) at 28 – 53 mils (1.1 – 1.27 mm) dry film thickness. Tested at 73°F, 50% RH.

ASTM E96, PROCEDURE A: 0.15 perms (0.10 metric perms) at 50 mils (1.25 mm) dry film thickness.

Meets the permeance requirements of ASTM C755-19, Section 7.2.2 for below ambient vapor retarder coatings when used as a closure mastic in conjunction with ASJ and other vapor retarder membranes.

SURFACE BURNING CHARACTERISTICS (ASTM E84)

Flame Spread: 5
Smoke Developed: 15
Tested as applied in a 4 in. strip at a rate of 25 sq. ft./U.S. gallon to inorganic reinforced cement board.

Visit us on the web at www.fosterproducts.com

H.B. Fuller Construction Products Inc.

Customer Service
800-832-9002

1105 South Frontenac Street
Aurora, IL 60504

Fax
800-952-2368

Suggested Specifications Childers® CHIL-OUT™ CP-33

To seal seams, overlaps, punctures, penetrations and terminations of vapor retarder membrane jacketing:

CP-33 Vapor Retarder Coating shall be applied with a first tack coat applied at a coverage rate of 2 U.S. gals./100 sq. ft. (0.8 l/m^2). While still wet, a layer of CHIL-GLAS® #10 Glass Fiber Reinforcing Mesh shall be embedded, with all seams overlapped a minimum of 2" (5.08 cm). A finish coat at a coverage rate of 2 U.S. gals./100 sq. ft. (0.8 l/m^2) shall be applied so that the total wet film thickness is a minimum of 0.064". This will provide a minimum dry film thickness of 0.035".

NOTES TO SPECIFYING ENGINEER

1. CP-33 Vapor Retarder Coating, white, should be specified where white All Service Jacketing (ASJ), or other white coatings/finishes are specified on the adjoining pipe or equipment insulation.

2. CHIL-BYL® CP-76 or CHIL-JOINT® CP-70 Joint Sealant is recommended for use with CP-33 Vapor Retarder Coating. Confirm compatibility of joint sealant with insulation before choosing.

3. Do not use over copper clad wire.

4. All outdoor horizontal surfaces must be sloped at least 1/2 inch per foot to assure water run-off and prevent the ponding of rain water and melting snow or ice.

Application Guide and Suggested Procedures

1. USE OF MATERIAL

DO NOT THIN. Store the product in a warm and dry area. Protect from freezing until dry.

It is essential in applying vapor retarder sealing materials that the recommended film thickness be achieved. Therefore, do not try to spread the vapor retarder coating too thin.

2. THE CONDITION OF THE INSULATION TO BE COATED

Since CP-33 is a vapor retarder, it should never be applied over insulation containing moisture. Dusty or porous substrates should first be primed with CHIL-SEAL® CP-50A MV1, diluted 50% with water for proper bonding. Allow the primer to thoroughly dry before over-coating with CP-33 Vapor Retarder Coating.

3. HINTS FOR SUCCESS

A vapor retarder system is no better than its weakest link. It is extremely important that where the finish terminates at an uninsulated point, the finish of CP-33 Vapor Retarder Coating and glass fiber reinforcing mesh be flashed over the uninsulated section for a minimum of 4" (10.16 cm).

Where there is a possibility of the temperature of the uninsulated section exceeding 190°F (88°C) due to steam-off or other heated application, the vapor sealing at this joint shall be accomplished by using CHIL-BYL® CP-76 Joint Sealant.

The surface of extruded polystyrene and polyisocyanurate board stock may contain water-soluble inks that may bleed through water-based mastics. Test before applying CP-33 Vapor Retarder Coating.

CUSTOMER SERVICE: (800) 832-9002

For professional use only. Keep out of reach of children.

Consult Safety Data Sheet and container label for further information.

25/50 Smoke-Safe™ PVC

specification data

The Speedline® Smoke Safe™ PVC Insulated Fitting Covering System consists of preformed gloss white outdoor weatherable and gloss colored insulated covers for piping fittings. Their unique shapes fit screwed, Victaulic®, welded and flanged elbows, tees, valves, couplings, laterals, reducers and endcaps.

The Speedline® Smoke Safe™ PVC Jacketing System consists of gloss white outdoor weatherable and colored PVC sheet in either bulk rolls or precurled cut-to-fit pipe sizes. The white jacketing is available in .010", .015", .020", and .030" thicknesses. The color jacketing is only available in .020" and .030".

The Jacketing and Fitting Covering Systems include solvent weld adhesives, stainless steel tack fasteners, silicone caulking and adhesive tapes. A die-cut multi-temperature fiberglass insulation insert is available and sized for a full insulation over the exposed pipe fitting and under the overlay of the PVC Fitting Cover.

Code Compliance

Speedline® Smoke Safe™ PVC Fitting Covers and Jacketing meets:

- ASTM 1784
- Federal Specification HH-I-558, Form B, Type 1 Class B
- Requirements of USDA and FDA for use in facilities of the food processing, beverage and pharmaceutical industries

The products are also in compliance with the old Military Specs LP-1035A and LP-535E.

Applications

Speedline® Smoke Safe™ PVC Insulated Fitting Covers and Jacketing are designed for indoor and outdoor* applications in commercial, institutional and industrial facilities.

- Speedline® Smoke Safe™ PVC Fitting Covers are designed to cover pipe fittings and other mechanical equipment with an outside diameter of 1-5/8" up to 24" in accordance with ASTM C-585.
- Speedline® Smoke Safe™ PVC Jacketing is suitable for covering all flat and round surfaces such as ductwork, tanks and other mechanical equipment.

The Speedline® Smoke Safe™ PVC Jacketing System has an application temperature range of -35°F to 500°F (-37°C to 260°C). The PVC surface should remain below 150°F (66°C) through the installation of sufficient insulation on higher temperature applications.

- **Easy Installation - the unique shapes make an easy seal over an entire mechanical system**
- **Clean, neat and attractive appearance due to the high gloss PVC surface.**
- **Low maintenance**
- **Corrosion resistance**
- **Outdoor weatherability* (UV stable)**
- **The 25/50 fire class of all Speedline® Smoke Safe™ products provides greater universal building code acceptance**
- **Provide a natural barrier to moisture, bacteria and mold**

Colored Fitting Covers and Jacketing are NOT recommended for outdoor use.

Speedline Corporation
www.speedlinepvc.com

Cleveland 1 800 551 9759
Greensboro 1 800 551 9760
Stockton 1 800 833 4500

25/50 Smoke-Safe™ PVC

specification data

Physical Properties

Property	Test Method	Value
Speedline® Smoke Safe™ PVC		
Flame Spread	ASTM E84	25 or less
Smoke Developed	ASTM E84	50 or less
Specific Gravity	ASTM 792	1.46
Tensile Strength @ yield lb./in.^{2}	ASTM D638	7,000
Tensile Modulus PSI	ASTM D638	400,000
Izod Impact- ft.lb./in.	ASTM D256	15.0
Perm Rating @.030"	ASTM E96	0.03
Electrical Conductance	ASTM D257	None
Fiberglass Insulation		
Flame Spread	ASTM E84	25 or less
Smoke Developed	ASTM E84	50 or less
Thermal Conductivity (75°F/24°C)	ASTM C177	0.26

Specification Data

Hot Systems

All piping fittings shall be insulated by filling the total void over all fittings, between straight runs of pipe insulation, with Speedline® die-cut fiberglass insulation, forming a uniform insulation thickness equal to or exceeding the adjacent pipe insulation. Finish all insulated pipe fittings by applying Speedline® Smoke Safe™ PVC Fitting Covers overlapping the adjacent pipe insulation outer covering. Secure the Speedline® Fitting Covers with Speedline® Stainless Steel Tack Fasteners, Speedline® PVC Tape or by Welding PVC overlaps with Speedline® Vinyl Adhesive. Caution should be exercised to be sure that the insulation surface temperature is maintained below 150°F (66°C) through the application of sufficient insulation under all PVC Covering.

Cold Systems

All piping fittings shall be insulated by filling the total void over all pipe fittings between straight runs of pipe insulation with Speedline® die-cut fiberglass insulation, forming a uniform insulation thickness equal to, or exceeding, the adjacent pipe insulation. Finish all insulated pipe fittings by applying Speedline® Smoke Safe™ PVC Fitting Covers overlapping the adjacent pipe insulation outer covering. The overlap of the throat of the PVC Fitting Cover and the ends of the Fitting Cover overlapping the adjacent pipe insulation vapor barrier jacketing shall be vapor sealed with compatible vapor barrier mastic. The ends of the PVC Fitting Cover overlapping the pipe insulation shall be further sealed by an outer wrapping of Speedline® PVC Tape extending over the adjacent pipe insulation vapor barrier jacketing and overlapping its own juncture by at least two inches in the downward direction on the downward side.

Chemical Resistance

Inorganic Acids	
Sulfuric, nitric, hydrochloric, hydrofluoric (diluted or concentrated):	Excellent
Organic Acids	
Formic, acetic and propionic	Poor
Alkalies	
Sodium and potassium hydroxides	Excellent
Ammonium hydroxide	Excellent
Caustic Soda	Excellent
Soda Ash	Excellent
Miscellaneous Corrosive Chemicals	
Phenol, resorcinol and creosol	Poor
Iodine, crystals	Fair
Iodine, tincture	Excellent
Chlorine and bromine water	Excellent
Potassium dichromate	Excellent
Silver nitrate	Excellent
Tannic acid	Excellent
Solvent and Dilutents	
Alcohol and polyalcohols, including ethyl methanol, butanol and isopropyl alcohol	Excellent
Ketones	
Lower boiling ketones	Dissolves
Higher boiling ketones	Swells
Ethers	
Ethyl	Softens
Dichlorethyl ether	Swells
Diethyl cellosolve	Swells
Dioxane	Dissolves
Propylene oxide	Dissolves
Hydrocarbons	
Aromatics as gasoline, kerosene and petroleum oils	Excellent
Oils, Fats and Waxes	
Animal, mineral and vegetable	Excellent

Speedline Corporation
6810 Cochran Road · Solon, OH 44139
Toll Free: 1.800.551.9759 · Tel: 1.800.551.9759 · Fax: 1.440.914.9334

OHIO
6810 Cochran Road
Solon, OH 44139
Tel: 1.800.551.9759

NORTH CAROLINA
501 West Camel Street
Greenboro, NC 27401
Tel: 1.800.551.9760

CALIFORNIA
4283 Pock Lane #200
Stockton, CA 95206
Tel: 1-800.833.4500

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Volunteer Metal Systems

Aluminum Jacketing

Technical Data

Product Description

VMS Aluminum Roll Jacketing is produced from 3003 or 3105 Series Aluminum, conforming to ASTMB-209 and ASTM C1729. Jacketing is available with either of the following moisture protection membranes:

- Polysurlyn – 3-Mil Coextruded Film
- Polykraft - 40-LB Kraft & Polyethylene/Polysurlyn Laminate

Both Polysurlyn and Polykraft membranes are heat and pressure bonded to the interior surface of thejacketing. Standard jacketing material is provided in mill finish aluminum. However, painted is also available. Finishes include smooth, stucco embossed, and cross-crimped/corrugated. Standard thicknesses are .016", .020", .024"and .032". Standard roll sizes are 3' wide x 100' long, except for .032" thick (furnished in standard roll length of 50').
Contact VMS for other available sizes.

Standard Finishes

Stucco embossed
Cross-crimped
Corrugated

Standard Roll Sizes

0.16", .020", .024" and .032"
3' x 100', except for .032 thick (furnished in standard roll length of 50').
*Contact VMS for other available sizes.

Application Recommendations

Thicknesses	Applications
.016"	Piping, vessels, and tanks less than 8 ft. in diameter and requiring low to moderate protection against mechanical damage.
.020"	Piping, vessels, and tanks requiring a moderate degree of protection against mechanical damage.
.024"	Over insulation on larger diameter piping and other insulated surfaces where a high degree of protection against mechanical damage is required.
.032"	Over insulation on tanks and other insulated vessels where high-impact, high-traffic expo sures require extra protection from mechanical abuse and damage.

Corporate Headquarters
290 Fortner Rd. / McEwen, TN 37101
Phone: (931) 582-6871 Fax: (931) 582-6092