



ALLEY-K®

Operating Temperature: 0° F – 1000° F (-18° C – 538° C)

DESCRIPTION

Alley-K pipe insulation is a preformed insulation product composed of high quality glass fibers bonded together with a thermosetting resin. The 36" pipe sections are available with or without the all service jacket (ASJ). Our all service vapor retarder jacket (ASJ) reinforced with glass fibers comes with a factory-applied, pressure-sensitive self-sealing lap closure system (SSL). Butt strips are also supplied.

ECOSE® TECHNOLOGY

ECOSE Technology is a revolutionary binder chemistry that enhances the sustainability of our products. The "binder" is the bond that holds our fiberglass product together and gives the product its shape and brown color. ECOSE Technology is a plant-based, sustainable chemistry that replaces the phenol/formaldehyde (PF) binder traditionally used in fiberglass products. Products using ECOSE Technology are formaldehyde-free and have reduced global warming potential when compared to our products of the past.

SUSTAINABILITY

Manson Insulation's products used for thermal insulating purposes recover the energy that it took to make them in just hours or days, depending on the application. Once installed, the product continues to save energy and reduce carbon generation as long as it is in place.

Fiberglass insulation with ECOSE Technology contains three key ingredients:

- Recycled glass content, verified annually by UL Environment
- Sand, one of the world's most abundant resources
- Our green chemistry initiative ECOSE Technology, which is validated to be formaldehyde-free

APPLICATION

Manson Insulation pipe insulation is intended as a thermal insulation product for hot and cold service piping. Typical uses include domestic hot and cold water, hot water heating, high temperature, dual temperature, steam,

condensate and refrigerated lines. As a component of a suitable insulation system, plain pipe insulation may be used for light industrial applications, while pipe insulation with ASJ jacket may be used for commercial and institutional usage.

INSTALLATION

Manson Insulation pipe insulation should be installed in accordance with the procedure in the publication "Commercial & Industrial Standards" by the National Insulation Association (NIA).

INDOOR AIR QUALITY

- UL Environment
 - GREENGUARD Certified
 - GREENGUARD Gold Certified
 - Validated to be Formaldehyde-Free
- EUCB certified

SPECIFICATION COMPLIANCE

- ASTM C547; Type I, Type IV
 - ASTM C585
 - MIL-DTL-32585; Type I, Form 4, Facing A and D
 - UL/ULC Classified
- ASTM C795
 - MIL-I-24244
 - NRC Reg. Guide 1.36
(Certification needs to be specified at the time of the order)

Jacketing

- UL 723/ASTM E84
- CGSB 51-GP-52M
- ASTM C1136; Type I, II
- NFPA 90A and 90B

PRECAUTIONS

Hot Pipe

- May be installed while the system is in operation, at all temperatures up to 1000° F (538° C).
- Manson 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 Manson 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 Manson 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 Alley-K® 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.

ADDITIONAL PRECAUTIONS

- Fiberglass may cause temporary skin irritation. Wear long-sleeved, loose-fitting clothing, head covering, gloves and eye protection when handling and applying material.
- Wash with soap and warm water after handling.
- Wash work clothes separately and rinse washer afterwards.
- Use a disposable mask/respirator designed for nuisance-type dusts where sensitivity to dust and airborne particles may cause irritation to the nose or throat.

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, Manson 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 Manson 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.

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.

NOTES

The chemical and physical properties of Manson Insulation Alley-K insulation represent average values determined in accordance with accepted test methods. The data is subject to normal manufacturing and testing 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.

Check with your Manson Insulation Area Manager to ensure information is current.

TECHNICAL DATA

PROPERTY (UNIT)	TEST	PERFORMANCE
Corrosiveness	ASTM C665	Does not accelerate corrosion of steel
Linear Shrinkage	ASTM C356	Less than 0.3%
Maximum Service Temperature	C411	1000° F (538° C)
Water Vapor Sorption (by weight)	ASTM C1104	Less than 5%
Water Vapor Permeance	ASTM E96	0.02 perms
Puncture Resistance	TAPPI T803, Beach Units	Min. rating of 50
Microbial Growth	ASTM C1338	Pass
Surface Burning Characteristics (flame spread/smoke developed)	ASTM E84, UL 723, CAN/ULC S102	UL/ULC Classified FHC 25/50

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"

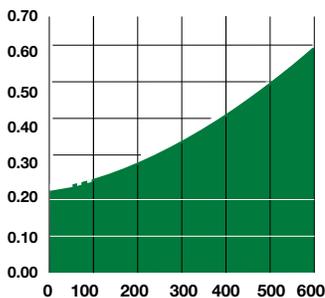
a. For insulation outside the stated conductivity range, the minimum thickness (T) shall be determined as follows: $T=r\{(1+t/r)^{k/k}-1\}$, where T=minimum insulation thickness (in.), r=actual outside radius of pipe (in.), t=insulation thickness listed in this table for applicable fluid temperature 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.

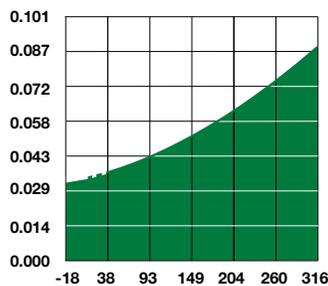
c. For piping smaller than 1½" and located in partitions within conditioned spaces, reduction of these thicknesses by 1" shall be permitted (before thickness adjustment required in footnote a) but not to thicknesses below 1". These thicknesses are based on energy efficiency considerations only. Issues 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 BTU · IN/FT² · HR. · °F



METRIC THERMAL CONDUCTIVITY | W/M · °C



THERMAL CONDUCTIVITY | ASTM C335

MEAN TEMPERATURE		BTU · IN/FT² · HR. · °F	W/M · °C
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

FIRE HAZARD CLASSIFICATION

FACING	FLAME SPREAD	SMOKE DEVELOPED
Plain	25	50
ASJ	25	50

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