

PLAINTIFF'S
EXHIBIT
K-1727

Pipe Insulations

a complete line of pipe and
tubing insulations for temperatures
from minus 120 F to 1800 F

532433



October, 1959

A.L.A. FILE NO. 37-9

FIBERGLAS

PIPE INSULATIONS

- ALABAMA**
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995
- ALASKA**
Fiberglass, 120, Box 995
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Fiberglass, 120, Box 995
- CALIFORNIA**
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- CONNECTICUT**
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- DELAWARE**
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- FLORIDA**
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- GEORGIA**
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- ILLINOIS**
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- INDIANA**
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- IOWA**
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- KANSAS**
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- KENTUCKY**
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- LOUISIANA**
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- MAINE**
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- MARYLAND**
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- MASSACHUSETTS**
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- MICHIGAN**
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- MINNESOTA**
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- MISSISSIPPI**
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- MOBILE**
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- NEBRASKA**
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- NEVADA**
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- NEW YORK**
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- NEW JERSEY**
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- NEW HAMPSHIRE**
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- NEW MEXICO**
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- NORTH CAROLINA**
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- NORTH DAKOTA**
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- OHIO**
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- OREGON**
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- PENNSYLVANIA**
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- RHODE ISLAND**
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- SOUTH CAROLINA**
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Fiberglass, 120, Box 995
- TENNESSEE**
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- TEXAS**
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- UTAH**
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- VIRGINIA**
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- WASHINGTON**
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Fiberglass, 120, Box 995
- WEST VIRGINIA**
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- WISCONSIN**
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995
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- DISTRICT OF COLUMBIA**
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995
- INTERNATIONAL DIVISION**
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995
Fiberglass, 120, Box 995

FIBERGLAS

branch offices . . .

Fiberglass Industrial Insulations are well and
apply Fiberglass Industrial Insulations are located in
principal cities. Call your Fiberglass branch for their
addresses as set the yellow pages of the telephone directory.

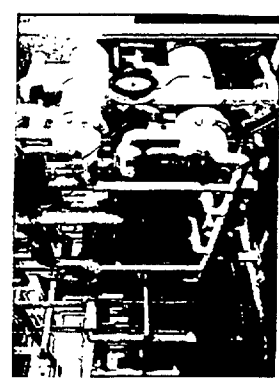
Owens-Corning Fiberglas Corporation

PACIFIC COAST, Santa Clara, Calif. TEXTILE PRODUCTS, New York, N.Y.
GENERAL OFFICES AND GENERAL PRODUCTS, Toledo, Ohio

No. 10, 1-404328



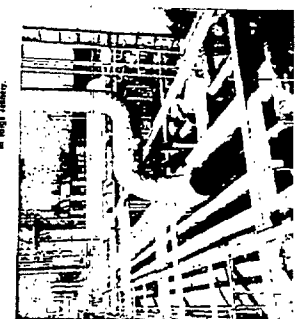
FIBERGLAS PIPE INSULATIONS



Fiberglass pipe insulation reduces heat loss, improves efficiency.

Applied either indoors or outdoors, Fiberglas Pipe Insulations assure superior performance and durability in all temperature ranges. Each of the eight product types offered in this Selection Guide is the result of special engineering research and design to meet such particular use requirements. Manufactured to exacting standards, these fine Fiberglas products have proven their merit through years of industrial experience.

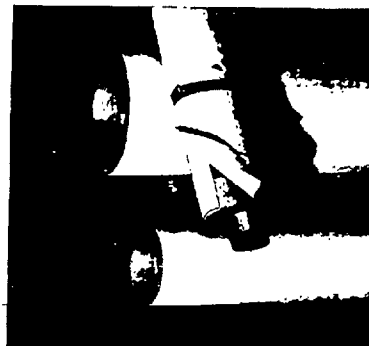
Flexible pipe insulation conforms to long elbows.



pipe insulations selection guide

requirements	service temperature	product	available thickness	standard sizes	page
for indoor and outdoor hot lines	up to 400 F	core-insulated pipe insulation	nominal 1", 1 1/2", 2", 2 1/2", 3", 3 1/2", 4", 4 1/2", 5", 5 1/2", 6", 6 1/2", 7", 7 1/2", 8", 8 1/2", 9", 9 1/2", 10", 10 1/2", 11", 11 1/2", 12", 12 1/2", 13", 13 1/2", 14", 14 1/2", 15", 15 1/2", 16", 16 1/2", 17", 17 1/2", 18", 18 1/2", 19", 19 1/2", 20", 20 1/2", 21", 21 1/2", 22", 22 1/2", 23", 23 1/2", 24", 24 1/2", 25", 25 1/2", 26", 26 1/2", 27", 27 1/2", 28", 28 1/2", 29", 29 1/2", 30", 30 1/2", 31", 31 1/2", 32", 32 1/2", 33", 33 1/2", 34", 34 1/2", 35", 35 1/2", 36", 36 1/2", 37", 37 1/2", 38", 38 1/2", 39", 39 1/2", 40", 40 1/2", 41", 41 1/2", 42", 42 1/2", 43", 43 1/2", 44", 44 1/2", 45", 45 1/2", 46", 46 1/2", 47", 47 1/2", 48", 48 1/2", 49", 49 1/2", 50", 50 1/2", 51", 51 1/2", 52", 52 1/2", 53", 53 1/2", 54", 54 1/2", 55", 55 1/2", 56", 56 1/2", 57", 57 1/2", 58", 58 1/2", 59", 59 1/2", 60", 60 1/2", 61", 61 1/2", 62", 62 1/2", 63", 63 1/2", 64", 64 1/2", 65", 65 1/2", 66", 66 1/2", 67", 67 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859 1/2, 860", 860 1/2, 861", 861 1/2, 862", 862 1/2, 863",		

FIBERGLAS heavy density sectional pipe insulation



sizes

from 10" (254) to 108" (2743)

insulating thicknesses: 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 28", 32", 36", 40", 44", 48", 52", 56", 60", 64", 68", 72", 76", 80", 84", 88", 92", 96", 100", 104", 108", 112", 116", 120", 124", 128", 132", 136", 140", 144", 148", 152", 156", 160", 164", 168", 172", 176", 180", 184", 188", 192", 196", 200", 204", 208", 212", 216", 220", 224", 228", 232", 236", 240", 244", 248", 252", 256", 260", 264", 268", 272", 276", 280", 284", 288", 292", 296", 300", 304", 308", 312", 316", 320", 324", 328", 332", 336", 340", 344", 348", 352", 356", 360", 364", 368", 372", 376", 380", 384", 388", 392", 396", 400", 404", 408", 412", 416", 420", 424", 428", 432", 436", 440", 444", 448", 452", 456", 460", 464", 468", 472", 476", 480", 484", 488", 492", 496", 500", 504", 508", 512", 516", 520", 524", 528", 532", 536", 540", 544", 548", 552", 556", 560", 564", 568", 572", 576", 580", 584", 588", 592", 596", 600", 604", 608", 612", 616", 620", 624", 628", 632", 636", 640", 644", 648", 652", 656", 660", 664", 668", 672", 676", 680", 684", 688", 692", 696", 700", 704", 708", 712", 716", 720", 724", 728", 732", 736", 740", 744", 748", 752", 756", 760", 764", 768", 772", 776", 780", 784", 788", 792", 796", 800", 804", 808", 812", 816", 820", 824", 828", 832", 836", 840", 844", 848", 852", 856", 860", 864", 868", 872", 876", 880", 884", 888", 892", 896", 900", 904", 908", 912", 916", 920", 924", 928", 932", 936", 940", 944", 948", 952", 956", 960, 964, 968, 972, 976, 980, 984, 988, 992, 996, 1000

insulating thicknesses: 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 28", 32", 36", 40", 44", 48", 52", 56", 60", 64", 68", 72", 76", 80", 84", 88", 92", 96", 100", 104", 108", 112", 116", 120", 124", 128", 132", 136", 140", 144", 148", 152", 156", 160", 164", 168", 172", 176", 180", 184", 188", 192", 196", 200", 204", 208", 212", 216", 220", 224", 228", 232", 236", 240", 244", 248", 252", 256", 260", 264", 268", 272", 276", 280", 284", 288", 292", 296", 300", 304", 308", 312", 316", 320", 324", 328", 332", 336", 340", 344", 348", 352", 356", 360", 364", 368", 372", 376", 380", 384", 388", 392", 396", 400", 404", 408", 412", 416", 420", 424", 428", 432", 436", 440", 444", 448", 452", 456", 460, 464, 468, 472, 476, 480, 484, 488, 492, 496, 500, 504, 508, 512, 516, 520, 524, 528, 532, 536, 540, 544, 548, 552, 556, 560, 564, 568, 572, 576, 580, 584, 588, 592, 596, 600, 604, 608, 612, 616, 620, 624, 628, 632, 636, 640, 644, 648, 652, 656, 660, 664, 668, 672, 676, 680, 684, 688, 692, 696, 700, 704, 708, 712, 716, 720, 724, 728, 732, 736, 740, 744, 748, 752, 756, 760, 764, 768, 772, 776, 780, 784, 788, 792, 796, 800, 804, 808, 812, 816, 820, 824, 828, 832, 836, 840, 844, 848, 852, 856, 860, 864, 868, 872, 876, 880, 884, 888, 892, 896, 900, 904, 908, 912, 916, 920, 924, 928, 932, 936, 940, 944, 948, 952, 956, 960, 964, 968, 972, 976, 980, 984, 988, 992, 996, 1000

insulating thicknesses: 1", 1 1/2", 2", 2 1/2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 24", 28", 32", 36", 40", 44", 48", 52", 56", 60", 64", 68", 72", 76", 80", 84", 88", 92", 96", 100", 104", 108", 112", 116", 120", 124", 128", 132", 136", 140", 144, 148, 152, 156, 160, 164, 168, 172, 176, 180, 184, 188, 192, 196, 200, 204, 208, 212, 216, 220, 224, 228, 232, 236, 240, 244, 248, 252, 256, 260, 264, 268, 272, 276, 280, 284, 288, 292, 296, 300, 304, 308, 312, 316, 320, 324, 328, 332, 336, 340, 344, 348, 352, 356, 360, 364, 368, 372, 376, 380, 384, 388, 392, 396, 400, 404, 408, 412, 416, 420, 424, 428, 432, 436, 440, 444, 448, 452, 456, 460, 464, 468, 472, 476, 480, 484, 488, 492, 496, 500, 504, 508, 512, 516, 520, 524, 528, 532, 536, 540, 544, 548, 552, 556, 560, 564, 568, 572, 576, 580, 584, 588, 592, 596, 600, 604, 608, 612, 616, 620, 624, 628, 632, 636, 640, 644, 648, 652, 656, 660, 664, 668, 672, 676, 680, 684, 688, 692, 696, 700, 704, 708, 712, 716, 720, 724, 728, 732, 736, 740, 744, 748, 752, 756, 760, 764, 768, 772, 776, 780, 784, 788, 792, 796, 800, 804, 808, 812, 816, 820, 824, 828, 832, 836, 840, 844, 848, 852, 856, 860, 864, 868, 872, 876, 880, 884, 888, 892, 896, 900, 904, 908, 912, 916, 920, 924, 928, 932, 936, 940, 944, 948, 952, 956, 960, 964, 968, 972, 976, 980, 984, 988, 992, 996, 1000

insulations

temperatures (max): Should not be used on pipes operating above 1200 F.
low temperature range: May have vapor barrier properties when used on pipes operating below 100 F.
pressure: Should be protected from mechanical damage in locations where severe abuse is likely.
tensile strength: All values given are subject to normal manufacturing and testing tolerances.

*See page 479

for hot lines indoor or outdoor up to 450 F

Fiberglass Pipe Insulation is made of fine-fiber Fiberglass wool bonded and accurately molded to conform to the dimensions of the pipe. The insulation is designed to fit iron pipe or copper tubing. With a variety of jackets, this insulating insulation offers superior efficiency and service life in industrial applications. The fiberglass pipe insulation is the ideal choice for efficient, convenient, unobstructed, easy-to-install insulation.

The low thermal conductivity of Fiberglass Pipe Insulation means high efficiency and fuel savings. When used in some thicknesses as ordinary insulation this product offers fuel savings up to 25%.

Insulating thicknesses offer performance equal to greater thicknesses of other insulations. Less thickness lowers cost. It is easy to install and does not require special tools or equipment. It is long-lasting, resistant to cracking from thermal shock. It is lightweight and will not set over outside pipe. Not permanently affected by moisture, it dries quickly.

Fiberglass Pipe Insulation is easy to cut and fit, a major time saver. No special tools are required. It is easy to install and does not require special tools or equipment. It is long-lasting, resistant to cracking from thermal shock. It is lightweight and will not set over outside pipe. Not permanently affected by moisture, it dries quickly.

jackets

for indoor use: "Standard", 6 oz. or 8 oz. canvas or aluminum foil. For outdoor use: 16 oz. or 24 oz. canvas and aluminum bands (provided at additional cost).

Where future structure is desired, F12 (Flame Retardant Jacket) which is reinforced with glass yarn for high puncture resistance and with aluminum foil for excellent vapor resistance is available at a slight extra charge. For hot indoor lines, jackets may be supplied in bulk.

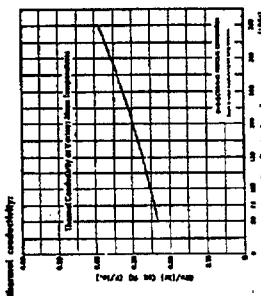
For outdoor use: If acceptable for the exposure, three widths of water-tight jacket are available: 4", 8" and 16", and 1" joint sealing strips of jacket material furnished at no extra cost. Aluminum bands furnished at additional cost when ordered.

for other jackets: see the following page.

physical properties

density: 75 lb. per cubic foot
insulating efficiency: 0.25% by volume—94 lb. of 10" and 95% 16" insulation equals 24" steel
thermal conductivity: 0.035 Btu/hr. ft.
thermal efficiency: 0.035 Btu/hr. ft.
thermal conductivity: 0.035 Btu/hr. ft.

Thermal efficiency is used when both thermal conductivity and heat capacity are known and may be defined as thermal conductivity divided by the specific heat and density.
The property of thermal efficiency is based on the values of thermal conductivity, density and specific heat. The values of thermal conductivity and density are constant, but the values of specific heat vary with temperature. The values of thermal efficiency are given for the temperature range 100 to 450 F. The values of thermal efficiency are given for the temperature range 100 to 450 F. The values of thermal efficiency are given for the temperature range 100 to 450 F.



Thermal Conductivity of Fiberglass Pipe Insulation



pipe Insulations to 450 F

specifications

specification compliance

HH-3-352 Insulation Pipe Covering, Thermal, and Insulation Standard, Insulation, Thermal, Pipe Covering Type 1, Class A and B
HH-3-362 Insulation, Thermal, Standard, Thermal, Steel or Wood and Pipe Insulation Jacketed Type 1, Class A and B
ASTM Specification 381-317

1. Insulating materials

All hot pipes shall be insulated to the thickness noted on drawings or as shown in the following table with Fiberglass Pipe Insulation as manufactured by Owens-Corning Fiberglass Corporation.

2. Application

All Pipe Insulation shall be applied over clean, dry surfaces, having sufficient structural strength to support the weight of the insulation. Longitudinal and circumferential joints need not be pointed with flanking cement to conserve bulk.

Insulation on pipes over 12" diameter shall be applied in layers. Where double layer insulation is applied, the first layer shall be wired in place without jacket; the second layer shall be applied with all joints staggered.

All flanges, valves and fittings shall be insulated with Fiberglass molded fitting insulation or fabricated metal segments of pipe insulation equal in thickness to the insulation on the adjoining pipe. Fittings on pipes over 12" diameter shall be insulated with OGC 110 Insulating Cement of equal thickness.

3. Surface finish

Indoor piping under 12" diameter not subject to abrasion or mechanical abuse requires no finish in addition to the factory-furnished canvas and bands. Piping over 12" diameter shall be finished with commercial paint.

Pipes jacketed outdoors shall be finished with approved painted weather resistant corrugated aluminum jacketing, with all longitudinal joints lapped not less than 2". All circumferential joints shall be lapped not less than 6". The jacket shall be finished with 1" wide strips of the same material securely fastened with bands.

Fabricated insulations on flanges, valves and fittings, other than molded fitting insulation, shall be covered with 1/2" of OGC 110 Insulating Cement. Cement, insulation bonded indoors shall be further finished with canvas neatly matted in place.

All insulation on flanges, valves and fittings located outdoors shall be covered with asphalt weathering paint and be finished with 1/2" of OGC 110 Insulating Cement. Blasting shall be applied in sufficient thickness to give a 1/2" dry coat and shall be troweled evenly over the fitting and lapped over the jacket on the adjacent pipe.

The foregoing is necessarily general in nature. Appropriate provisions shall be made in the design engineer to meet specific job requirements.

pipe Insulations
to 450 f

Applications

spending 400 pounds are one of several methods used for snoring them and charge themselves to victims to meet conditions. Reeling for pounds are being covered with heaps of 10 gauge gauge shot wire.

Test with Scotch fix drying instructions
• bonded glass tape with stretch
superadhesive which permits normal applied
appearance. Tape is tested to place
with a brush rod of permanent tagging
drying.

Standard Pipe Installation can be facilitated easily to provide installation for joints at elbows. After pouring up with rubbing cement, cones to exposed over flange for a neat, uniform, seamless finished flange.

After finishing (and he has been called street brawlers and even has been operated and pinned, a very attractive appearing inebriated result. A variety of other salutes are possible to meet similar demands.

OWENS-CORNING FIBERGLAS CORP. 7

FIBERGAS heavy density sectional low pressure pipe insulation



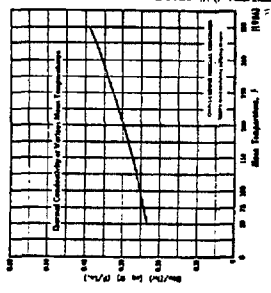
for cold water, hot water and low
pressure steam lines in the
temperature range of 50°F to 250°F

physical properties

density: 7.6 lb. per cubic foot
insulating efficiency: 85% by volume 46 lb. at 250°F and
65% at 50°F
corrosion of steel or aluminum does not occur or accelerate
specific heat: 0.19 Btu/lb.°F
vapor permeance: retards vapor, insulating jacket less than 0.2
pence or galls per hour per square foot per inch of
insulation
thermal diffusivity: 0.015 sq. ft. per hr. at 78°F mean tem-
perature

Thermal capacity is used when both thermal conductivity and
heat capacity are known and may be defined as thermal
conductivity divided by the specific heat and density.
The property of thermal capacity is important in the design
of an insulation where a condition of steady heat flow
exists. The insulation of great thickness the heating time is
long. The insulation of great thickness the heating time is
long. The insulation of great thickness the heating time is
long.

thermal conductivity



design data

The table on page 9 has been designed to indicate
the thermal permeance characteristics of the insu-
lation. It is designed to give heat loss, efficiency and
surface temperature values for low pressure applications
with cold water, hot water and steam. Only values for
insulation are shown.

Fiberglass Low Pressure Pipe Insulation is installed
in thick and designed for use on cold water, hot
water and low pressure steam lines. It is applied in a
continuous covering of efficient insulation. High
efficiency permits the use of 1/2" thick covering in-
stead of 2" of low pressure pipe insulation for cold water
lines.

sizes

Insulation 1/2" to 12" in diameter
tapes 1/2" to 12" in diameter
insulation 1/2" to 12" in diameter

jackets

universal—Heavy, white kraft paper is laminated to
the insulation. It is designed to resist the effects of
water, steam, acids, alkalis, and other corrosive
materials. It is designed to resist the effects of
water, steam, acids, alkalis, and other corrosive
materials. It is designed to resist the effects of
water, steam, acids, alkalis, and other corrosive
materials.

insulation—Heavy, white kraft paper is laminated to
the insulation. It is designed to resist the effects of
water, steam, acids, alkalis, and other corrosive
materials. It is designed to resist the effects of
water, steam, acids, alkalis, and other corrosive
materials. It is designed to resist the effects of
water, steam, acids, alkalis, and other corrosive
materials.

limitations

Fiberglass Low Pressure Pipe Insulation is designed
for use on cold water, hot water and low pressure
steam lines. It is not recommended for use on
high pressure steam lines or on lines carrying
liquids or gases at temperatures above 250°F.

pipe insulations from 50 to 250 F

specifications

HH-1-322 Insulation, Fiberglass Thermal and Insulation
Thermal, Pipe Covering Type 1, Class A

1. Insulating materials

All cold water, hot water and low pressure steam
lines shall be insulated with Fiberglass Low Pressure Pipe
Insulation as manufactured by Owens-Corning Fiberglas Cor-
poration.

2. Application

All cold water lines shall be insulated with Fiberglass
Low Pressure Pipe Insulation. The insulation shall be
applied in a continuous covering of efficient insulation. High
efficiency permits the use of 1/2" thick covering in-
stead of 2" of low pressure pipe insulation for cold water
lines.

On cold line applications the universal jacket is
applied in a continuous covering of efficient insulation. High
efficiency permits the use of 1/2" thick covering in-
stead of 2" of low pressure pipe insulation for cold water
lines.

3. Fittings

Fittings shall be insulated with O-C 110 Insulating C
Cold water fittings shall be additionally vapor-sealed
with a standard vapor sealant.

The foregoing is a summary of general instructions. Appli-
cation of this product should be made in accordance with the
requirements of the design engineer to meet specific
requirements.

application details

for cold lines—universal jacket



Cover the 1/2" top of the universal
jacket with a vapor
sealant. The sealant
shall be applied in a
continuous covering of
efficient insulation.



Insulate the flange with the
universal jacket. The
jacket shall be applied
in a continuous covering
of efficient insulation.



Insulate the valve with the
universal jacket. The
jacket shall be applied
in a continuous covering
of efficient insulation.

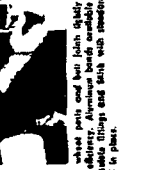
for hot lines—universal



Insulate the pipe with the
universal jacket. The
jacket shall be applied
in a continuous covering
of efficient insulation.



Insulate the flange with the
universal jacket. The
jacket shall be applied
in a continuous covering
of efficient insulation.



Insulate the valve with the
universal jacket. The
jacket shall be applied
in a continuous covering
of efficient insulation.

ERGLAS heavy density sectional low temperature pipe insulation



differs. Low Temperature Pipe Isolation cuts sharply with a knife for precise fitting and completion of pipe and tubing of any length. Simplicity of design, rugged construction and accurate dimensions permit easy installation.



Although low temperature pipe insulation is costly and difficult to install, it is essential for the standard combustion methods.

.....

**for brine, heavy brine or
refrigerant lines down to
minus 120 F**

Flameless low temperature air burners are a proven design, based on a thermoelectric heater and fan, accurately pre-formed fuel/air mixers and waxes that fit all standard pipe and tubing sizes. Three foot long no time of installation permit easy application.

1/201

Use pipe die HPII - $3\frac{1}{2}''$ to $33''$
copper tubing (Ch. 11, p. 2) in 61°
inclination thickness - $1\frac{1}{2}''$, $2''$, and $2\frac{1}{2}''$ in single layer.
Any thickness possible with multiple layers depending on
pipe sizes. See table on page 16. Made to simplified di-
mensional standards for seating.

Jack:

Two black, neat appearing and functional jockeys are available factory applied to 12" H₂N and under. When recommended application specifications are followed, they provide effective and lasting control.

The **Flame Retarded Jacket (FRJ)** is a laminate of aluminum foil and a special reinforced kraft paper with a flame retardant and a special reinforced adhesive, and reinforced with flame retardant-sandier type adhesive, and reinforced with glass fibers for high puncture resistance. The special reinforced jacket exterior surface gives a satisfactory finished appearance; and to maintain the flame retardant characteristic, it is recommended that no further finish be applied.

The Low Temperature Jacket consists of asphalt saturated kraft paper laminated by aluminum foil. The black vapor barrier jacket makes a neat and pleasing appearance without additional finishing. If desired, it may be painted.

Limitatio

Temperature limits For use on piping below minus 130°F, contact the following representatives for recommendations: Aysun boron carbide limits the use to areas with ambient temperatures below 130°F unless temperature resistant linings are specified.

port jacket can be fit unaided under normal ambient conditions, but should be initiated where needed or very hot conditions exist. All limbs must be carefully sealed and fully completely until to insure contamination control.

Supplemental Appendix 1

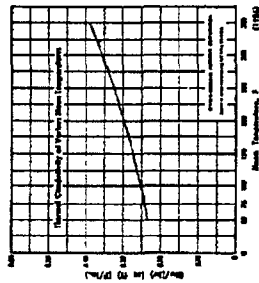
samples record 7% for per capita food
 consumption; scientists less than 0.1% of sample
 samples indicate less than 0.1% by volume, 94 for, at 100.9
 and 15% of

specimens heated 0.20 hr./hr. at thermal diffusivity 0.019 sq. cm. hr. at 75° c mean temperature. Thermal stability is used when both thermal conductivity and heat capacity are limited and may be defined as thermal conductivity divided by the weight.

The property of thermal diffusivity is important in the choice of an insulating material. Thermal diffusivity is the property of a material of conducting heat when a temperature difference is maintained between its two sides. For materials of equal thickness the heating time is inversely proportional to diffusivity. For materials of the same diffusivity heating time is divided by the specific heat and density.

Compare permeance ratings (paper barrier listed 0.02 impervious/in sq ft. of covering)

1



• Despite Low Temperature Also London presents a negative, and that accounts for this other building classification.



Abstract

pipe insulations
from 34 to 120 f

specifications

ଅଧ୍ୟାପକ ଶ୍ରୀ ଶ୍ରୀ ରାମଚନ୍ଦ୍ର

HH-1-362 Invention. Ferrel, Mineral Wood, Start
and Fire Invention (welded type)
Type B, Class 1 and 2

1. Insulating material

All cold pipes shall be insulated to the extent on drawings or in accordance with the manufacturer's thickness recommendations with Fibertemp Temperature Pipe Insulation as manufactured by Owens-Corning Fiberglas Corporation.

2. Application

Florida Low Temperature Pipe Insulation:
 be applied over clean dry surfaces. For complete protection, low temperature pipe insulation should be applied in two coats. For complete protection, low temperature pipe insulation should be applied in two coats. For complete protection, low temperature pipe insulation should be applied in two coats.

Each of pipe installation shall be sealed. Erection barrier straps applied with Fiberglass Cap shall be applied at intervals of not more than 22 feet on center of pipe.

All straps, valves and fittings shall be installed in accordance with the manufacturer's instructions. The location of the fastening on the adjoining pipe, as required in place.

When in direct contact with the pipe, clamp lugs shall be fastened separately to the case not directly to the pipe. The fastenings shall be applied upstream to the vertical hanger rod to a point not less than 12 inches from the pipe. Installation thickness from the adjacent hanger rod shall be 1/2 inch. Installation on hangers shall maintain a 1/2 inch installation thickness. (See page 10)

3. Surface Finish

Pipeline located indoors, used to be painted with a lead-based paint. The paint was removed by sandblasting with factory-formulated beads in the manner of sandblasting. One final batch of sandblasting was done with a dry sandblasting media. The sandblasting media was applied over one coat of primer and one coat of paint. The sandblasting media was applied over one coat of primer and one coat of paint. The sandblasting media was applied over one coat of primer and one coat of paint.

The foregoing is necessarily general in nature, and the selection of the design procedure and material applied in all subsequent design work is the responsibility of the design engineer for the specific job requirements.

free pipe dies	single layer . . .
temper rolling	

[illegible]

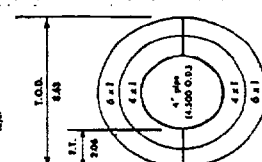
Material	Temperature, °C	Time, sec	Weight loss, %	Residual weight, %
W	200	25	2.00	97.99
W	200	50	2.00	97.99
W	200	75	2.00	97.99
W	200	100	2.00	97.99
W	200	125	2.00	97.99
W	200	150	2.00	97.99
W	200	175	2.00	97.99
W	200	200	2.00	97.99
W	200	225	2.00	97.99
W	200	250	2.00	97.99
W	200	275	2.00	97.99
W	200	300	2.00	97.99
W	200	325	2.00	97.99
W	200	350	2.00	97.99
W	200	375	2.00	97.99
W	200	400	2.00	97.99
W	200	425	2.00	97.99
W	200	450	2.00	97.99
W	200	475	2.00	97.99
W	200	500	2.00	97.99
W	200	525	2.00	97.99
W	200	550	2.00	97.99
W	200	575	2.00	97.99
W	200	600	2.00	97.99
W	200	625	2.00	97.99
W	200	650	2.00	97.99
W	200	675	2.00	97.99
W	200	700	2.00	97.99
W	200	725	2.00	97.99
W	200	750	2.00	97.99
W	200	775	2.00	97.99
W	200	800	2.00	97.99
W	200	825	2.00	97.99
W	200	850	2.00	97.99
W	200	875	2.00	97.99
W	200	900	2.00	97.99
W	200	925	2.00	97.99
W	200	950	2.00	97.99
W	200	975	2.00	97.99
W	200	1000	2.00	97.99
W	200	1025	2.00	97.99
W	200	1050	2.00	97.99
W	200	1075	2.00	97.99
W	200	1100	2.00	97.99
W	200	1125	2.00	97.99
W	200	1150	2.00	97.99
W	200	1175	2.00	97.99
W	200	1200	2.00	97.99
W	200	1225	2.00	97.99
W	200	1250	2.00	97.99
W	200	1275	2.00	97.99
W	200	1300	2.00	97.99
W	200	1325	2.00	97.99
W	200	1350	2.00	97.99
W	200	1375	2.00	97.99
W	200	1400	2.00	97.99
W	200	1425	2.00	97.99
W	200	1450	2.00	97.99
W	200	1475	2.00	97.99
W	200	1500	2.00	97.99
W	200	1525	2.00	97.99
W	200	1550	2.00	97.99
W	200	1575	2.00	97.99
W	200	1600	2.00	97.99
W	200	1625	2.00	97.99
W	200	1650	2.00	97.99
W	200	1675	2.00	97.99
W	200	1700	2.00	97.99
W	200	1725	2.00	97.99
W	200	1750	2.00	97.99
W	200	1775	2.00	97.99
W	200	1800	2.00	97.99
W	200	1825	2.00	97.99
W	200	1850	2.00	97.99
W	200	1875	2.00	97.99
W	200			

design data

This table presents the actual thicknesses in which the design Temperature-Through Insulation is available, and should be used in the selection of thin insulation for pipe-to-atmosphere and the lower insulating thicknesses for multiple layers for design conditions other than ambient work conditions. The *Temperature-Through Insulation Data Book* is available from the following sources:

Mathematics for the 21st Century

multiple layer . . . combinations of single layers

[illegible]

new to order
on pipe
multiple-layer combination
described in table are sup-
plied in the same car-
bon when ordered as multiple-
layer thickness. See 1024 M.L.
should other combinations be
ordered. The order must be
supported by individual layer
order sheet

multiple layer insulation on
copper tubing is available
in all sizes be ordered and
shipped separately.

the most suitable buyers in
house use pipe actual diam-
eter which is equal to outside
diameter of copper tubing
used. See table for sizes and
weights. For Example:
1 1/2" N.P. (TT) and 1 3/4"

physical properties

density: 4 lbs. per cu. ft. (approx.)

solubility: solubility 0.5% by volume in hex. at 130 F and 95% RH

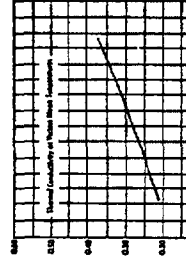
specific heat: 0.30 Btu/lb. F

dielectric: none

thermal diffusivity. DSA eq. 3, per cm. at 75 F mean temperature. It may be defined as thermal conductivity divided by the specific heat and density. Whenever a condition of steady-state heat flow exists, the property of thermal diffusivity is important in the choice of a pipe insulation. With the materials of equal thickness, facing line is inversely proportional to the diffusivity with materials of the same diffusivity, facing line is directly proportional to the square of the thickness.

A line graph showing Thermal Conductivity (k) on the y-axis versus Volume Percent Suspensions on the x-axis. The y-axis ranges from 0.00 to 0.10 with major grid lines every 0.02 and minor grid lines every 0.01. The x-axis ranges from 0 to 100 with major grid lines every 20 and minor grid lines every 10. Two data series are plotted: 100% suspensions (represented by open circles) and 200% suspensions (represented by open squares). Both series show a linear increase in thermal conductivity with increasing volume percent. The 200% suspension series has a steeper slope than the 100% suspension series.

Volume Percent Suspensions	Thermal Conductivity (k) - 100% Suspensions	Thermal Conductivity (k) - 200% Suspensions
0	0.00	0.00
20	0.01	0.02
40	0.02	0.04
60	0.03	0.06
80	0.04	0.08
100	0.05	0.10



One place where success is quick, even phenomenal, is in the area of lighting. The market is growing in three areas: first, exports up to 20%. Unfettered by government regulations, the lighting industry has been able to make dramatic gains in the last few years. Second, the lighting industry has been able to make dramatic gains in the last few years. Third, the lighting industry has been able to make dramatic gains in the last few years.

[illegible]

1. **Insulating Materials**
All piping shall be insulated with One-Flow Phenolic Pipe Insulation as manufactured by One-Flow Phenolics Corporation to the thickness as noted on drawings.
2. **Applications**
 - a. Hot Water, Cold Water and Low Pressure Steam Lines: 30 to 200° (See page 4).
 - b. Heated Lines: up to 400° (See page 5).
 - c. Cold and Fresh Temperature Piping: 36 to 200° F. (See page 11).
 - d. Low Temperature Lines: 34 to -300° F. (See page 12).

specification compliance

- Hot Water, Cold Water and Low Pressure Steam Lines 30 to 250 °
- Insulation: HH-452 Insulation: Pipe Covering, Thermal, and Insulation: Thermal, Pipe Covering Type 1, Class A and B
- Insulated Lines up to 400 °
- HH-452 Insulation: Thermal, Moist! Weat. Bark or Bond and Insulation: Thermal, Moist! Weat. Bark or Bond and 2
- Active Specifications 281-381
- Cold and Hot Temperature Type 33 to 300 °
- HH-452

IP: beam pipe

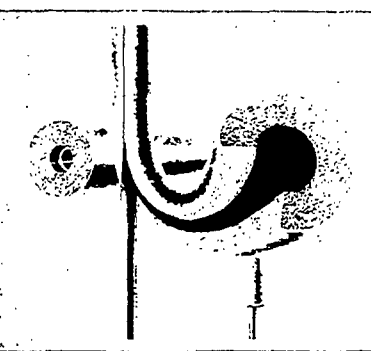
[illegible]

médias de ar. d. f.					
	1907	1908	1909	1910	1911
1	100	100	100	100	100
2	100	100	100	100	100
3	100	100	100	100	100
4	100	100	100	100	100
5	100	100	100	100	100
6	100	100	100	100	100
7	100	100	100	100	100
8	100	100	100	100	100
9	100	100	100	100	100
10	100	100	100	100	100
11	100	100	100	100	100
12	100	100	100	100	100
13	100	100	100	100	100
14	100	100	100	100	100
15	100	100	100	100	100
16	100	100	100	100	100
17	100	100	100	100	100
18	100	100	100	100	100
19	100	100	100	100	100
20	100	100	100	100	100
21	100	100	100	100	100
22	100	100	100	100	100
23	100	100	100	100	100
24	100	100	100	100	100
25	100	100	100	100	100
26	100	100	100	100	100
27	100	100	100	100	100
28	100	100	100	100	100
29	100	100	100	100	100
30	100	100	100	100	100
31	100	100	100	100	100
32	100	100	100	100	100
33	100	100	100	100	100
34	100	100	100	100	100
35	100	100	100	100	100
36	100	100	100	100	100
37	100	100	100	100	100
38	100	100	100	100	100
39	100	100	100	100	100
40	100	100	100	100	100
41	100	100	100	100	100
42	100	100	100	100	100
43	100	100	100	100	100
44	100	100	100	100	100
45	100	100	100	100	100
46	100	100	100	100	100
47	100	100	100	100	100
48	100	100	100	100	100
49	100	100	100	100	100
50	100	100	100	100	100
51	100	100	100	100	100
52	100	100	100	100	100
53	100	100	100	100	100
54	100	100	100	100	100
55	100	100	100	100	100
56	100	100	100	100	100
57	100	100	100	100	100
58	100	100	100	100	100
59	100	100	100	100	100
60	100	100	100	100	100
61	100	100	100	100	100
62	100	100	100	100	100
63	100	100	100	100	100
64	100	100	100	100	100
65	100	100	100	100	100
66	100	100	100	100	100
67	100	100	100	100	100
68	100	100	100	100	100
69	100	100	100	100	100
70	100	100	100	100	100
71	100	100	100	100	100
72	100	100	100	100	100
73	100	100	100	100	100

Date of collection	Site	201		202		203		204		205		206		207		208		209		210		211		212		213		214		215		216		217		218		219		220		221		222		223		224		225		226		227		228		229		230		231		232		233		234		235		236		237		238		239		240		241		242		243		244		245		246		247		248		249		250		251		252		253		254		255		256		257		258		259		260		261		262		263		264		265		266		267		268		269		270		271		272		273		274		275		276		277		278		279		280		281		282		283		284		285		286		287		288		289		290		291		292		293		294		295		296		297		298		299		300		301		302		303		304		305		306		307		308		309		310		311		312		313		314		315		316		317		318		319		320		321		322		323		324		325		326		327		328		329		330		331		332		333		334		335		336		337		338		339		340		341		342		343		344		345		346		347		348		349		350		351		352		353		354		355		356		357		358		359		360		361		362		363		364		365		366		367		368		369		370		371		372		373		374		375		376		377		378		379		380		381		382		383		384		385		386		387		388		389		390		391		392		393		394		395		396		397		398		399		400		401		402		403		404		405		406		407		408		409		410		411		412		413		414		415		416		417		418		419		420		421		422		423		424		425		426		427		428		429		430		431		432		433		434		435		436		437		438		439		440		441		442		443		444		445		446		447		448		449		450		451		452		453		454		455		456		457		458		459		460		461		462		463		464		465		466		467		468		469		470		471		472		473		474		475		476		477		478		479		480		481		482		483		484		485		486		487		488		489		490		491		492		493		494		495		496		497		498		499		500	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

FIBERGLAS

O-C flexible tubing insulation



for dual temperature, chilled
ice water or refrigerant
lines from 0 F to 200 F

physical properties

- thermal conductivity (in./ft.°F.) (4 in. thick) 0.014
- 1 in. 24 ft. min. 0.014
- 1 in. 100 ft. min. 0.014
- water vapor transmission less than 0.1 Perv. (Graham's)
- 14. 8.4-10.4 in.
- water absorption 50 days immersion—3.5% by volume
- density 7.5 pcf
- fire ratings self-extinguishing

advantages

- flexible**
O-C Flexible Tubing Insulation is designed for exceptional flexibility. It is flexible enough to be bent around elbows, and it is strong enough to be bent around elbows when used. Fast application to both pipe and fittings means that total installed cost of this superior quality insulation usually runs no higher than for conventional type materials—frequently less.
- conforms readily**
O-C Flexible Tubing Insulation conforms to gradual bends before installation, so it can be applied with a knife and applied in place over lines already connected. Fittings are also easy to cover. O-C Flexible Tubing Insulation conforms to irregular shapes and can be applied over irregular fittings or fittings on pipes that are irregular. It will conform to the shape of the pipe. This makes a faster, easier and more job on fittings than any other type insulation or insulating material.

vaporproof application

O-C Flexible Tubing Insulation, being vaporproof, also saves the extra step of applying a vapor barrier finish. Cold lines, hot steam, refrigerant joints and rail joints are joined with vapor resistant O-C-200 Adhesive. No other insulating material is needed for these lines.

O-C Flexible Sheet Insulation is adhered with complete coverage of the surface to be insulated with O-C-200 Adhesive. Apply a thin coat of adhesive to the surface to be insulated and then the sheet insulation. Allow the adhesive to dry where the insulation is applied.

limitations

temperature limit Recommended for piping from 0 F to 200 F.

outside lines A protective finish is required as outlined in specifications on page 21.

O-C Flexible Tubing Insulation is a bonded sheet insulation for iron pipe and copper tubing cooling and heating lines, chilled water, and refrigerant lines. It is black, self-extinguishing, and exceptionally clean in appearance. It is suitable for use in areas where it is subject to fire. It is also suitable for use in areas where it is subject to fire. It is also suitable for use in areas where it is subject to fire.

The ease of high insulating efficiency and vapor resistance will prevent condensation under customer's design conditions. On the heating cycle, O-C Flexible Tubing Insulation will withstand temperatures as high as 200 F. Under these regular weather protection applied over the insulation.

This product is also made in sheet form, O-C Flexible Sheet Insulation, for insulations of equipment, hot surfaces, and pipes that are too large for tubing covering.

sizes

iron pipe size (OD) — 1/2" to 7"

copper tubing (OD) — 1/2" to 7"

insulation thickness — 1/2", 1", 1 1/2", 2", 3", 4", 5", 6", 8", 10", 12", 14", 16", 18", 20", 22", 24", 26", 28", 30", 32", 34", 36", 38", 40", 42", 44", 46", 48", 50", 52", 54", 56", 58", 60", 62", 64", 66", 68", 70", 72", 74", 76", 78", 80", 82", 84", 86", 88", 90", 92", 94", 96", 98", 100"

Sheet form (for larger tubing and flat surfaces) — 1/2" to 7" in 1/2" increments

section length — 5' tubing 20' x 20' sheet

pipe insulations

from 0 to 200 F

recommended thicknesses

DESIGN CONDITIONS	PIPE SIZE	C. S. PIPES, STEEL AND STEEL LINED PIPE MATERIALS FOR LOW TEMPERATURES			
		50 F	60 F	70 F	80 F
STEEL	Operation at 0 F to 100 F and 200 F and above with 100% impact strength and 100% Charpy with these conditions: most de-aerated gases and liquids.	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
STAINLESS	Operation at 0 F to 100 F and 200 F and above with 100% impact strength and 100% Charpy with these conditions: most de-aerated gases and liquids.	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
ALUMINUM	Operation at 0 F to 100 F and 200 F and above with 100% impact strength and 100% Charpy with these conditions: most de-aerated gases and liquids.	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
COPPER	Operation at 0 F to 100 F and 200 F and above with 100% impact strength and 100% Charpy with these conditions: most de-aerated gases and liquids.	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10
		Over 2" (24" max) x 10	1/2" to 36" x 10	1/2" to 36" x 10	1/2" to 36" x 10

KAYLO pipe insulation

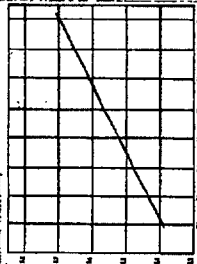


only. The incubation is designed for temperatures up to 120°F and is not recommended when operating temperatures of boiling exceed this limit.

... of application . . .
the Pipe Industries supplies
it quickly and easily with standard
methods.

high temperature insulation and

density: approximately 12 lbs. per cu. ft.
 Sustained strength (ASTM C-200)
 90 lbs. per sq. in.
 compressive strength (ASTM C-160)
 120 lbs. per sq. in. at 5% deformation
 Compressive stability:
 1 hour change after loading for 24 hours in water
 at 100° F. 0.2%
 at 160° F. 1.6%



These are average figures and may be adjusted to meet special conditions encountered on specific jobs. Raylo heat loss data is available for use where plant operating economies and other conditions demand greater insulation thicknesses. Design surface temperatures are approx. 150 F.

[illegible]

Limitations

Kaylo-20 material is designed for temperatures up to 2800 F. It should not be used when operating temperatures of piping exceed this limit.

Kaylo-20 products are presently available on a made-to-order basis only. Properties and characteristics have been determined from laboratory tests only. Data is subject to change without notice and is subject to normal manufacturing testing tolerances.

**for large high pressure steam lines
up to 1000 F operating temp.**



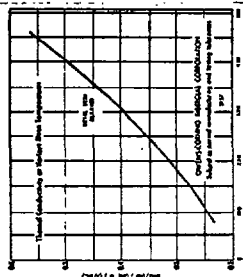
physical properties

[illegible]

the subject to normal vibrations) as dependent on temperature in the range of 100-200°C.

Temperature 1000 F.

the rural community



A galvanized sheet metal jacket acts as a protective finish on this application of Fiberglas Reinforced Plastic Laminates.

[illegible]

Wielas Hblanket Type Pipe Insulation offers the perfect solution to the insulation problems of many high pressure steam lines operating at temperatures up to 1000 °F. Its flexible inner surface conforms with its high thermal efficiency makes it ideal for insulating pipes of irregular shape and dimension. The noncombustible blanket type pipe insulation reduces the danger under normal operating conditions.

sizes
 two 60- $\times$ 3" to 36" in diameter in blanked barrels
 12" through 180" in increments of 6" holding upon
 pile size
 weights—21" nominal blank with
 other diameters—18", 24", 30", 36", 42", 48", 54", 60", 66", 72", 78", 84", 90", 96", 102", 108", 114", 120", 126", 132", 138", 144", 150", 156", 162", 168", 174", 180"

Analysis

shock-mold jacket...Both indoor and outdoor piping applications of Vibraflex Blanket Type Insulation are recommended finished with shock-mold, jacketed systems are tapered 2 inches for further protection and secured in place with short metal screws on 6-inch centers. An alternative method for securing the system is the use of a short channel or strap 3-5 steel metal bands. A short metal screw attached at each lap of jacket sections with precast slippers (see diagram) is also an option.

References

Fiberglass Blanket Type 115 insulation should not be used on piping where operating temperatures exceed 1000°F.

All values given are subject to normal rounding.

pipe insulations

Specification

TM-1-552 **Insulation Pipe Covering, Thermal, and Insulation Blanket Thermal Pipe Covering**

1. Insulating materials

All piping 3 inches in diameter and over, where noted in the drawings or listed in the schedule, shall be installed to the thickness shown in the table with Fluegas Jacket Type Pipe Insulation, as manufactured by Owens Corning Fiberglas Corporation. (Add 1/2" to all thicknesses for all lines located outdoors.)

1. Application:

Fiberglass Blanket Type Pipe Insulation shall be applied over clean dry surfaces with all edges tightly fitted to the pipe. The longitudinal where edges shall be bonded together. All cut edges shall be bonded together with 10 ga. galvanized soft annealed wire.

1. Surface Finish

The fields for outdoor piping shall be a 24 gauge and galvanized steel jacket. Seams shall be lap-jointed and welded. The jacket shall be secured in place with short metal straps or 6-inch casters at 4' each galvanized steel bands at a not over 12-inch centers. Vertical runs of pipe shall have a short metal strap attached at all laps between sec-

The foregoing is necessarily general in nature. Application procedure and material approval is at the discretion and responsibility of the design engineer to meet specific requirements.

Application details



On heads, the strings are tied together on the outside neck of the head. The wire mesh on the inside neck of the head is shortened to conform to the contour of the skin.

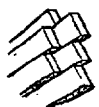
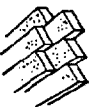
The longitudinal splice edges were tied together with No. 16 gauge wire. An alternate method is the use of a banding tool.

Blanket Type Pipe Insulation is installed over clean dry piping. Blanket is neatly wrapped around pipe. All joints are tightly fitted together as following.

OTHER FIBERGLAS

requirements	service* temperature	product	available thickness	standard sizes
FOR WARM AIR DUCTS				
for external application on exposed or concealed warm air ducts	up to 250 F	 rigid duct insulation	$\frac{1}{8}$ " - $\frac{1}{2}$ " $\frac{1}{2}$ " - 2"	24" x 48"
for external application on all exposed round and concealed rectangular hot air ducts	up to 250 F	 flexible duct insulation	$\frac{1}{8}$ " - 1" $\frac{1}{2}$ " - 2"	width—24", 36", 48" length—200', 100'
FOR AIR CONDITIONING AND DUAL SYSTEM				
for external application on exposed or concealed dual or cold air ducts	55 up to 130 F if up to 250 F	 rigid vapor-seal duct insulation	$\frac{1}{8}$ " - 1" $\frac{1}{2}$ " - 2"	24" x 48" 48" x 48" 48" x 72"
for external application on all concealed and exposed round and cold air ducts	up to 250 F	 flexible vapor-seal duct insulation	$\frac{1}{8}$ " - 1" $\frac{1}{2}$ " - 2"	width—24", 36", 48" length—100', 50'
FOR DUCT LINING, ACOUSTICAL				
for internal application on cold and hot air ducts	up to 250 F	 rigid coated duct liner	$\frac{1}{8}$ " - 1" $\frac{1}{2}$ " - 2"	24" x 48"
for internal application on all rectangular and round cold and hot air conditioning ducts	up to 150 F	 metal-faced flexible duct liner	$\frac{1}{8}$ " - 1"	width—36", 48" length—100', 200'

INDUSTRIAL INSULATIONS

requirements	service* temperature	product	available thickness	standard sizes
FOR EQUIPMENT				
for heated or cooled equipment	up to 450 F	 rigid equipment insulation	PF 614— $\frac{3}{8}$ " - $\frac{1}{2}$ " PF 615— $\frac{1}{2}$ " - 3" PF 617— $\frac{1}{2}$ " - 3" $\frac{1}{2}$ " - 3"	width—24" length—48"
for condenser, evaporator coils and other medium temperature equipment	up to 450 F	 block insulation	$\frac{3}{8}$ " - 1", $1\frac{1}{2}$ " $1\frac{1}{2}$ " - 2"	width—5", 12" length—24"
for boiler, pipes and other high temperature equipment	up to 1000 F	 metal mesh blankets	1" - 6" to $\frac{1}{2}$ " increments	width—12" to 24" length—24" to 64"
for very high temperature equipment	up to 1200 F	 Kaptan block insulation	1", $1\frac{1}{2}$ " - 2", 2 1/2", 3", 3 1/2", 4"	width—3", 6", 12" & 18" length—18" & 36"
for extremely high temperature equipment	up to 1800 F	 Kaptan-20 block insulation	1", $1\frac{1}{2}$ " - 2", 2 1/2", 3", 3 1/2", 4"	width—3", 6", 12" & 18" length—18" & 36"

Where to buy Fiberglas Pipe Insulations

Available from authorized distributors located in principal cities. Consult the yellow pages of your classified directory for their location or call your nearest Fiberglas Branch Office listed below.

Albuquerque, New Mexico	CH	3-4593	Miami, Florida	FR	7-2671
Anchorage, Alaska		5-8344	Milwaukee, Wisconsin	DI	4-3811
Atlanta, Georgia	JA	3-6491	Minneapolis, Minnesota	FR	7-1730
Baltimore, Maryland	SA	7-0234	Mobile, Alabama	HE	6-1556
Birmingham, Alabama	TR	1-2723	Nashville, Tennessee	AL	4-9210
Boise, Idaho		2-3102	New Orleans, Louisiana	MA	2821
Boston, Massachusetts	HU	2-1937	New York, New York	PL	9-3810
Buffalo, New York	MA	4123	Omaha, Nebraska	GI	3291
Charleston, West Virginia	DI	3-7094	Philadelphia, Pennsylvania	LO	4-3133
Charlotte, North Carolina	ED	4-6864	Phoenix, Arizona	AL	8-4341
Chicago, Illinois	BA	6-0102	Pittsburgh, Pennsylvania	AT	1-7191
Cincinnati, Ohio	AV	1-1173	Portland, Oregon	CA	2-1378
Cleveland, Ohio	MA	1-6451	Richmond, Virginia	EL	5-5703
Columbus, Ohio	HU	6-9418	Rochester, New York	BR	1-1888
Dallas, Texas	U	1-3983	Rock Island, Illinois		8-1190
Dayton, Ohio	AX	3-3155	North Sacramento, California	WA	2-5467
Denver, Colorado	AC	2-3126	St. Louis, Missouri	MA	1-6822
Des Moines, Iowa	AT	8-4273	Salt Lake City, Utah	EL	9-5247
Detroit, Michigan	U	7-8000	San Antonio, Texas	CA	4-7673
Evansville, Indiana	MA	5-5124	San Diego, California	BE	2-7613
Fort Wayne, Indiana	EA	4635	San Francisco, California	UN	1-4721
Fresno, California	AM	6-0607	San Jose, California	CY	5-0321
Grand Rapids, Michigan	CH	3-3697	Seattle, Washington	MA	2-4335
Greenville, South Carolina	CE	9-4279	Spokane, Washington	KE	5-3575
Hartford, Connecticut	CH	7-1301	Syracuse, New York	GR	4-4646
Houston, Texas	JA	6-1851	Tampa, Florida	TA	8-0183
Indianapolis, Indiana	ME	5-1417	Toledo, Ohio	CH	1-8149
Jacksonville, Florida	PL	9-7491	Tulsa, Oklahoma	DI	3-9123
Kansas City, Missouri	GR	1-7725	Washington, D. C.	NA	8-0724
Knoxville, Tennessee	KN	5-4421	Wichita, Kansas	HO	4-6711
Los Angeles, California	SA	3-9781	Western Division, N. Y. City	PL	9-3810
Louisville, Kentucky	ME	4-8384			
Memphis, Tennessee	PA	7-6116	Caracas, Venezuela		33-41-53

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General Offices, Toledo 1, Ohio. Pacific Coast Division, Santa Clara, Calif.

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