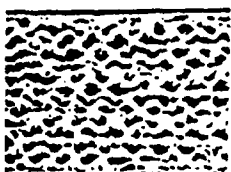


DESCRIPTIONS OF CAREY HEAT INSULATIONS



CAREY CAROCEL

For temperatures up to 300° F. Furnished in semi-cylindrical sections for pipe sizes up to 36 in., also in flat block and sheets. A firm structure comprising alternate layers of corrugated and flat asbestos paper firmly cemented together. Corrugations are $\frac{1}{8}$ in. deep—8 plies per inch of thickness. Gives good efficiency, and is the strongest and most rugged of all corrugated asbestos structures. Recommended for heating-system piping and equipment.



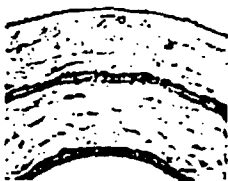
CAREY CAREYCEL

For temperatures up to 300° F. Furnished in semi-cylindrical pipe covering sections for pipe sizes up to 16 in., also in flat blocks and sheets. A firm structure comprising 12 to 14 layers of asbestos paper per inch thickness. The asbestos paper is processed with innumerable small indentations which space the layers, prevent internal convection, reduce conduction by contact and create high efficiency. Incombustible, non-corrosive, rugged, low heat shrinkage and inexpensive. Its unusually low heat shrinkage makes it particularly desirable—minimizing unsightly cracks and conserving high efficiency. Recommended for heating systems and low pressure process piping and equipment.



CAREY PERFECTO

For cold-water pipes to 55° F. Furnished only in semi-cylindrical pipe covering sections for pipe sizes up to 36 in. Not furnished in blocks or sheets. A semi-rigid structure comprising alternate layers of flat and indented organic insulating felt (sometimes termed "wool felt") firmly cemented together. Inner surface is lined with asphalt-saturated asbestos paper. Gives very high insulating value. Gives good results in preventing sweating and protecting from freezing. Recommended for service water piping carrying water down to 55° F.



CAREY IMPERVO

For cold and ice-water pipes to 35° F. Furnished only in 3 ft. long semi-cylindrical pipe covering sections for pipe sizes up to 36 in. Not furnished in blocks or sheets. A semi-rigid structure comprising layers of insulating felt (sometimes termed "wool felt") firmly cemented together, and with moisture-proof felts applied to both inner and outer surfaces. Telescopic double-layer construction recommended to provide staggered-joint installation and prevent air infiltration. Gives very high insulating value. Is specifically designed to prevent sweating and is the best type of material for this purpose. Recommended in double-layer construction for all cold-water and ice-water piping (to 35° F.).



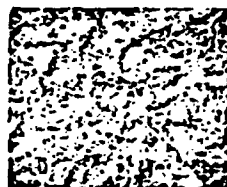
CAREY PROTECTO

Protection against freezing temperatures. Furnished only in 3 ft. long semi-cylindrical pipe covering sections for pipe sizes up to 36 in. Not furnished in blocks or sheets. A semi-rigid structure, consisting of an inner portion of cattle hair felt and an outer reinforcing structure of insulating felt (sometimes termed "wool felt"). Total thickness is approximately $1\frac{1}{4}$ ". Inner surface is lined with asphalt-saturated felt. Gives very high insulating value and is specifically designed for protecting water pipes from freezing, being superior to other types of insulation for this purpose. Recommended for water pipes, gas pipes, oil lines or any other pipes to be protected from freezing.



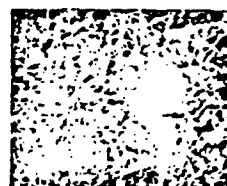
No. 303 ASBESTOS CEMENT

A general utility insulating cement. Furnished in 100-lb. bags. Composed of a dry mixture of asbestos fibers and bonding clays. To use it is mixed with water to a mortar consistency for application with a trowel. It adheres well to iron surfaces or to insulating materials, and trowels to a smooth finish. Covering capacity is approximately 18 sq. ft. 1 in. thick per 100 lbs. of dry cement. Recommended for pointing up joints in block insulation, for insulating small fittings in low-pressure systems and primarily for a smooth-finish coat over block insulation.



No. 707 ASBESTOS CEMENT

For temperatures up to 500° F. Furnished in 100-lb. bags. Composed of a dry mixture of asbestos fibers and bonding clays. To use it is mixed with water to a mortar consistency for application with a trowel. It adheres well to iron or insulation surfaces, and trowels to a semi-smooth finish. Covering capacity is approximately 25 sq. ft. 1 in. thick per 100 lbs. of dry cement. Recommended for pointing up joints in block insulation, for insulating small fittings and for a finish coat over block insulation where high efficiency rather than smooth finish is desired.



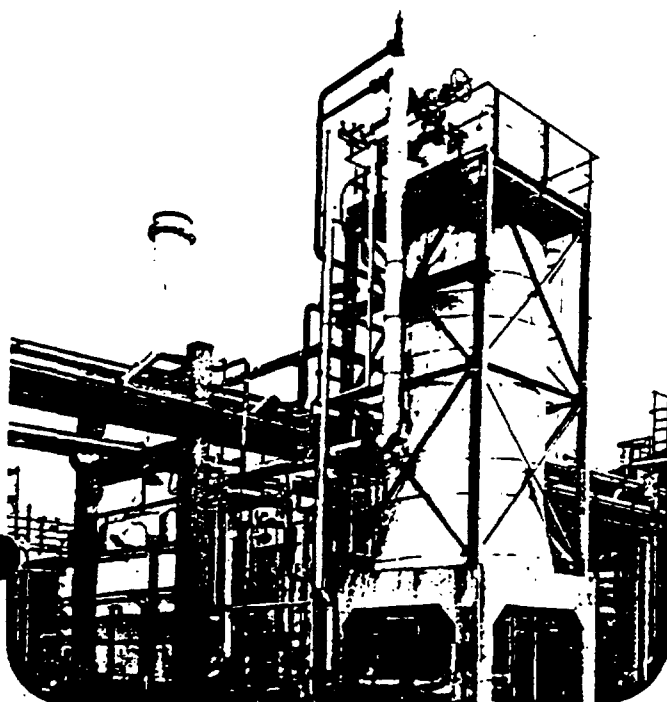
CAREY MW-50 CEMENT

For temperatures up to 1600° F. Furnished in 50-lb. bags. Composed of a dry mixture of springy pellets of mineral wool, asbestos fiber and bonding clay. To use it is mixed with water and applied with a trowel. Covering capacity is approximately 50 sq. ft. 1 in. thick per 100 lbs. of dry cement. Combines high insulating efficiency, toughness, reasonable hardness, excellent sticking properties and relative freedom from shrinkage cracks. Recommended as monolithic insulation for stills, tanks, furnace walls, etc. particularly where temperatures of 600° F. or higher are encountered.

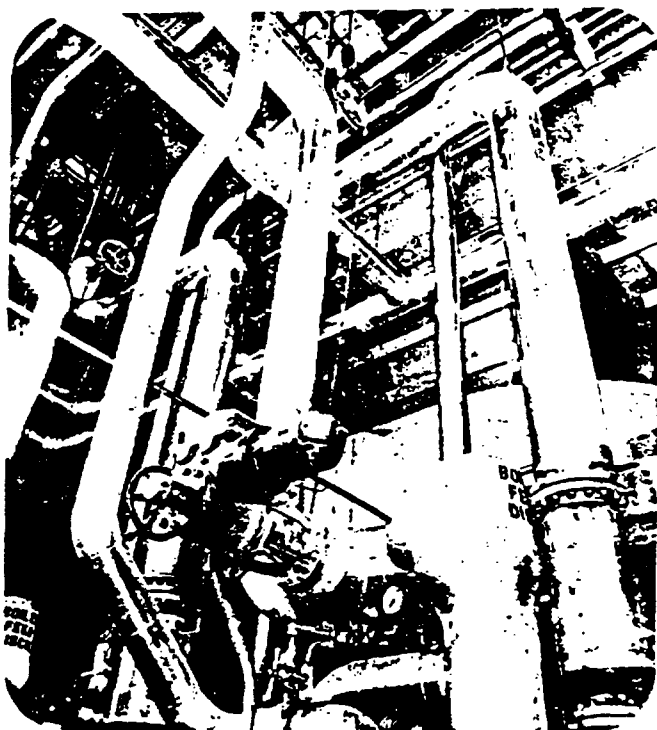
ST0035397

PHILIP *Carey* INSULATION

the complete line of industrial insulations for every temperature range... from 35° F. to 2000° F.



Careytemp Insulation at Ohio Oil Co. Refinery, Robinson, Ill.



Careytemp Insulation Indianapolis Power & Light Co., Indianapolis, Ind.

● Insulation selection guide

temperature	uses	product	page	surface	uses	product	page
(up to 2000° F.)	For furnaces, ovens, kilns, lahres, breechings, etc. Block form.	Careytemp 2000	4	Air-Conditioning Ducts and Equipment	Insulation for metal duct work, and air-conditioning equipment.	Thermoglas Roll Form	4
(up to 1600° F.)	For superheated steam and hot oil lines, oil stills, ovens, boiler breechings, etc. Pipe covering, curved or flat block form.	Careytemp	2-3		Acoustical and thermal insulation of fine glass fiber.	Thermoglas Board Thermoglas Duct Liner	5 5
(up to 1200° F.)	For ovens, ducts, flues, tanks, etc., requiring large, flexible sheets.	Mineral Wool Blankets	5	● cement selection guide			
(200° F. to 700° F.)	For furnace walls, hot gas ducts, breechings, vessels to 700° F.	7CF Mineral Wool Insulation	5	uses	product		page
(100° F. to 350° F.)	For pipes, boilers, ovens, etc. Unusually low conductivity, resilient, negligible shrinkage. Pipe covering and blankets.	Thermoglas	4	Pointing up Careytemp Pipe and block.	No. 303 Asbestos Careytemp Asbestos Cement and MW-One only on Careytemp Insulation.		6 6
(35° F. to 350° F.)	For pipes carrying hot, cold or alternating liquids. Jacket prevents sweating. Pipe covering.	Dual Careytemp	3	Insulating all fittings.	No. 303 applied directly on fitting.		6
(35° F. to 350° F.)	For ice water and cold water pipes to keep water cold and prevent sweating. Pipe covering sections.	Thermoglas (with vapor barrier jacket)	4	Refractory coating and patching.	MW-80 or MW-One. For a smooth final coat apply No. 100. Carey Vitrical Cement.		6 6
				Finishing over molded insulations.	No. 100 for hard finish. No. 303 Utility Grade. LF20 Long Fiber. For a smooth outer finish use 7M80 (Mine Asbestos Shorts).		6 6
				Bonding insulation to metal surface.	Carey Fibrous Adhesive.		6
				Waterproofing	Thermotex "B" Insulation Seal P.V.A. No. 100 Emulsion Coating.		7

THE PHILIP CAREY MFG. COMPANY • CINCINNATI, OHIO

CAREYTEMP PIPE AND BLOCK INSULATION

PHILIP
Carey

CAREYTEMP PIPE AND BLOCK INSULATION

For temperatures up to 1600°F.

Careytemp was designed and formulated to include the most important thermal, physical, chemical and moisture resistant properties demanded by industrial users of thermal insulation.

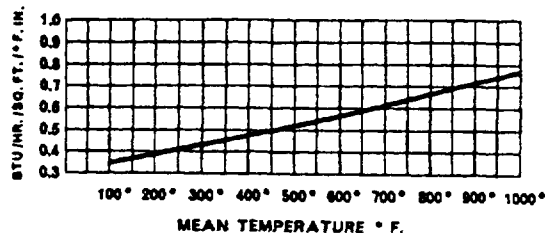
Careytemp is composed of expanded Silica with specially developed binders and is reinforced with inorganic fibers. Expanded Silica Insulation is a structure consisting of millions of individual glassed-in vitrified air cells permanently bonded together to resist water penetration.

Careytemp is recommended for the insulation of piping, vessels and equipment operating from ambient to 1600° F. in temperature, either continuous or cyclic operation. It is also recommended for fire protection of piping, equipment, vessel and structural steel. Its moisture resistance is particularly advantageous for these applications which normally operate at ambient temperature.

Careytemp's exceptional strength and light weight reduce application costs. Non-crumbling, precision-molded Careytemp is superior in those properties most responsible for longer-lasting, more efficient insulation—it has practically no linear shrinkage, exceptional water resistance (lowest absorption rate of any high temperature insulation), low thermal conductivity up to 1600° F. and is highly acid-resistant.

PHYSICAL PROPERTIES

Thermal Conductivity



Careytemp's thermal conductivity is low for a material of such widespread temperature range. This means that it is now possible to obtain highly efficient heat conservation over a wide range of temperatures with a single material—Careytemp.

Temperature Limits:	Maximum	1600° F.
	Continuous	1600° F.
	Cyclic	1600° F.

Density (dry) 10 lbs./cu. ft.

Compressive Strength 5% deformation 81 psi

Linear Shrinkage		
a. 500° F. for 24 hours		.22
b. 1000° F. for 24 hours		.45
c. 1500° F. for 24 hours		1.20

Moisture Absorption by Volume @ 90% Relative Humidity		
a. 24 Hours		0.45
b. 1 Week		0.90
c. 4 Weeks		1.30

Water Absorption by Volume

a. 2 Hours Immersion	.80
b. 24 Hours Immersion	2.70
c. 72 Hours Immersion	5.00

Acid Resistance After 24 Hour Immersion

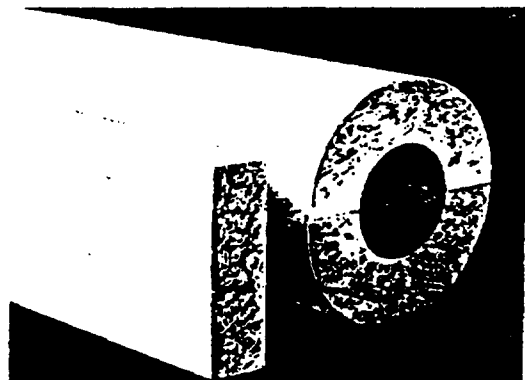
a. 25% Sulfuric Acid	No Effect
b. 25% Hydrochloric	No Effect
c. 25% Aqua Regia	No Effect

Thermal Conductivity

300° F. Mean	.42
500° F. Mean	.51
1000° F. Mean	.77

Conductivity expressed as BTU/Hr./Sq. Ft./°F./1" Thickness.

*All tests were conducted according to standard test methods.



Copper Tubing— $\frac{1}{4}$ " O.D. through $3\frac{1}{2}$ " O.D., half sections
 Iron Pipe— $\frac{1}{4}$ " through 24" IPS, half sections
 Thickness—1" through 3", single layer
 Segmental—12 $\frac{1}{2}$ " wide curved sections, through 60" O.D.

Block Insulation

Standard Widths—6", 12" and 24"
 Standard Lengths—18" and 36"
 Standard Thickness—1" through 6" in $\frac{1}{2}$ " increments

GOVERNMENT SPECIFICATION COMPLIANCE

Pipe Covering MIL-I-2781D
 Grade I - Class b
 Grade II - Class d
 Grade III - Class e, Type I & II
 Block MIL-I-2819D
 Class I, II & III

**CAREYTEMP PREMOLDED ELBOW.
ALUMINUM JACKETED AND
TRACED PIPE INSULATION**

**CAREYTEMP 2000
BLOCK INSULATION**

**CAREYTEMP PREMOLDED
ELBOW INSULATION**

Careytemp Premolded Elbows insure total Careytemp insulating efficiency throughout entire systems when specified and used with Careytemp pipe insulation. They are recommended for use on piping systems operating from atmospheric temperature to 1800°F. Easily applied, Careytemp Premolded Elbows eliminate mitering segments, voids and also cut application costs.

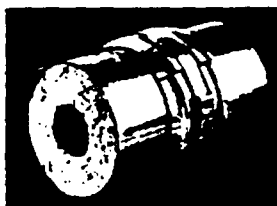
Careytemp Elbows are available in many iron pipe and copper tubing sizes and in thicknesses to match other ad-



jacent insulations, including low pressure coverings, fibrous glass, calcium silicates, 85% magnesia and others. Both 45° and 90° long and short radius ellis are available for welded, screwed and sweat elbows. Iron pipe sizes range from 1/2" to 14", 1" to 4" thick. Careytemp ellis are furnished for steam tracing purposes.

**ALUMINUM JACKETED
CAREYTEMP**

Careytemp pipe insulation is now available pre-jacketed at the factory with aluminum .016" thick. Aluminum jacketed Careytemp has a fine embossed finish that will not catch dust and dirt, prevents glare and minimizes surface scratches. Along the longitudinal seam, special interlocking lips snap together to form a weather-tight seal. Butt joints are sealed with a matching aluminum band having an integral sealing compound which resists direct contact temperatures to 400° F. A built-in vapor barrier is between the jacketing and the insulation avoiding electrolytic corrosion of the aluminum.



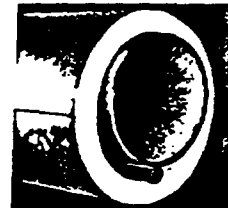
The inherent water resistance of Careytemp combined with the weather seal seam and special sealing band of aluminum jacketing provide an unequalled weather protected insulation.

Also available in .010 stainless steel factory applied jacket.

**CAREYTEMP TRACED
PIPE INSULATION**

Careytemp Traced Pipe Insulation is available to reduce the cost of insulating traced lines. Straight extended legs beyond the 180° point on half sectional. Covering provides space for 1/2" and 3/4" I.P.S. Tracers.

Available sizes and thicknesses 3", 4" and 6" I.P.S. by 1", 1 1/2" and 2" thick and 8", 10" and 12" I.P.S. by 1 1/2" and 2" thick all having 1 1/4" legs.



**CAREYTEMP 2000
BLOCK INSULATION**

For temperatures from 1000°F. to 2000°F.

Careytemp 2000 is composed of calcined diatomaceous silica with a specially developed binder reinforced with inorganic fibre. It is produced in precision molded insulation blocks for equipment operating at high temperatures such as boiler furnaces, hot blast stoves, petroleum cracking furnaces, metallurgical furnaces and ceramic kilns. These light weight blocks will withstand temperatures up to 2000°F with negligible shrinkage.



PHYSICAL PROPERTIES

Density	24 lbs. /cu. ft.
Thermal Conductivity	BTU /Hr. /Sq. Ft. /°F. /inch
500°F. Mean	.70
750°F. Mean	.76
1000°F. Mean	.84
Linear Shrinkage	
a. 1500°F. for 24 hours	0.5%
b. 1800°F. for 24 hours	2.3%
c. 1900°F. for 24 hours	2.7%
d. 2000°F. for 24 hours	2.9%
Compressive Strength	5% deformation 163 psi 10% deformation 209 psi
Transverse Modulus	
Dried at 220°F. for 24 hours	100 psi
Moisture Absorption by Volume @ 95% Relative Humidity	
24 Hours	1.8%
Water Absorption by Volume	
24 Hours Immersion	20.0%

GOVERNMENT SPECIFICATION COMPLIANCE
MIL-I-2819D
Class IV

ST0035400

**FIRECLAD JACKETING
WEATHERPROOF
JACKETING
ASBESTOS PAPER
AND ROLLBOARD
MILLBOARD**

PHILIP
Carey

FIRECLAD JACKETING

Carey Fireclad is a durable, weather-resistant jacketing specifically designed for the protection of outdoor pipe lines where the danger of fire must be minimized. Carey Fireclad consists of a tough, substantial sheet of asphalt saturated asbestos felt, over which is cemented on one side an unsaturated asbestos sheet. The complete sheet is reinforced with a fabric of tough, flexible glass threads. Fireclad Jacketing will not drip asphalt in the presence of fire and is highly resistant to combustion.

Carey Fireclad is recommended for use in the process industries and in oil refineries, where it affords maximum resistance to the spread of fire—and further protects the insulated surface from weather damage. Furnished in approximately 45 lb. rolls 38" wide by 34'6" long, containing 108 sq. ft.



ASBESTOS ROOFING FELT

Asbestos felts in various weights are used to protect insulated piping and equipment from weather damage. The asbestos base of these felts is highly resistant to weather damage and provides long lasting protection.

**ASBESTOS PAPER
AND ROLLBOARD**

Asbestos Paper and Rollboard are strong, flexible, fire-resistant sheets composed of pure Canadian asbestos

fiber and free from hard, rocky particles. 6-lb. and 8-lb. Commercial Grade Asbestos Papers are used extensively in the manufacture of various pipe insulation and electrical insulation. The 10-lb. and 12-lb. papers are used for wrapping hot air furnace pipes. Heavier weights are used for lining stoves, ovens, gas ranges and for making gaskets, filters and discs. Furnished in standard widths of 18", 24", 36" and 37 1/2" rolls. Special sizes can be made to order.

ASBESTOS MILLBOARD

Asbestos Millboard is made from pure Canadian asbestos fiber pulp mixed with binding materials and formed in sheets. Asbestos Millboard is used extensively in the electric heating field and glass industry. It is recommended for use in fire screens and partitions, as a fire-proof lining for ceilings, walls, floors, elevator shafts, moving picture machine booths, ranges, stoves, grates, electric ovens, sterilizers and roasters. No. 7 grade withstands temperatures up to 800° F.; No. 1 grade withstands temperatures up to 1000° F. Furnished in 42" x 48" sheets in thicknesses from 1/4" to 1".

ORGANIC ROOFING FELTS

Organic roofing felts are available for economical weather-proofing of piping and equipment. They do not have the aging characteristics of asbestos felts but will provide years of satisfactory protection.

WARRANTY:

We warrant our materials to be of good quality and will replace material proved defective. This warranty is in lieu of all others express or implied and may not be extended by representatives, written sales information or drawings. While we recommended uses for our material based on tests believed reliable, we in no way guarantee particular methods of use or application or performance under special conditions.

THE PHILIP CAREY MFG. COMPANY • CINCINNATI, OHIO 45215

DISTRICT OFFICES AND WAREHOUSES

ATLANTA
251 Armour Drive
Atlanta, Georgia 30309
404—875-8121

BOSTON
7630 Concord Avenue
Cambridge, Mass. 02138
617—875-7700

CHICAGO
25th & Warren Avenue
Bellwood, Illinois 60104
312—287-4063

CINCINNATI
316 South Wayne Avenue
Cincinnati, Ohio 45215
513—821-3000

CLEVELAND
4525 W. 160th Street
Cleveland, Ohio 44135
216—671-6270

DETROIT
14420 Livernois Avenue
Detroit, Michigan 48238
313—898-2600

HOUSTON
1400 North Post Oak Road
Houston, Texas 77024
713—686-3761

INDIANAPOLIS
1432 Kentucky Ave.
Indianapolis, Indiana 46221
317—635-1314

MEMPHIS
1510 Orinda Road
Memphis, Tennessee 38107
901—526-6861

MONTREAL
The Philip Carey Co., Ltd.
95 Stinson Boulevard,
Ville St. Laurent
Montreal 9, P.Q., Canada
514—748-6331

NEW YORK
Smith Street & Victory Bridge
Perth Amboy, N.J. 08862
201—826-6881

PHILADELPHIA
24th and Sedgley Ave.
Philadelphia, Pa. 19132
215—225-6430

PROVIDENCE
40 Patton Road
East Providence, R.I. 02916
401—434-0250

ST. LOUIS
307 N. Theresa Avenue
St. Louis, Missouri 63103
314—631-1930

SAN FRANCISCO
2350 Ingalls Street
San Francisco, Calif. 94124
415—648-4400

SEATTLE
506 Dexter Horton Building
Seattle, Washington 98104
206—424-2351

WASHINGTON
10710 Hanna Street
Beltsville, Maryland 20705
301—474-8822

ST0035401