

PLAINTIFF'S EXHIBIT

DUP-1040

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

15MFB OCT 1954
THIS PAGE JUNE 1974
STANDARD JUNE 1974

SN 100 M

Page 1 of 6

Code	102	102.1
Material	Calcium silicate	Calcium silicate - inhibited *
Material Description	Reacted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Reacted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.
Recommended Temperature Range	1200 F max	
K Factor, Max Btu/(hr) (sq ft)(°F/in.)	0.28 at 200 F, 0.46 at 400 F, and 0.57 at 600 F	
Density	14 lb per cu ft max	
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	60 lb per sq in. min at 5% deformation	50 lb per sq in. min at 5% deformation
Dimensions	See SM30	
Qualifications and Limitations	Not recommended for use on austenitic stainless steel at or above 140 F, see SM102D. Where used on aluminum, coat the latter with Code 709, fibrous asphalt cutback (300 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternate to purchased inhibited calcium silicate, see SM102.1D. Where used on aluminum, coat the latter with Code 709, fibrous asphalt cutback (300 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the Du Pont test with 1300 ppm chloride as NaCl in the test water, shall show no cracking at the end of 144 hours exposure.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.

For 12" IPS and larger, there is an additional charge for 2-in. canvas cover. Material should be specified "without 2-in. canvas" to avoid extra charge.	Thermal - Asbestos Free Insul Div, Kewanee Corp	Thermal - Asbestos Free Insul Div, Kewanee Corp
	Thermal-12 Johns-Manville Sales Corp	
	Kaylo - 10AF Owens - Corning	Super Calump, Type NA ** Fibreboard Corp
	Super Calump, Type NA ** Fibreboard Corp	Pamelle ** Pamred, Inc
	Caroyang 1500 ** Celcor Corp	
	Pamelle ** Pamred, Inc	

* Passing the test in MIL-12424d specification does not qualify a material under Code 102.1

** Molded seamless fitting covers are available in covered, welded, and cover types

DUP 0990102

* A perlite-silicate, recommended temp limit of 1100 F.

Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority initiating the use of this specification.

REVISIONS NO. 10

0-50

040127

REV. JUL 1975

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Code	111	112	112.6
Material	Cellular glass	Glass fiber	Glass fiberboard
Material Description	Cellular glass, foamed and fused into unicellular form.	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, hinged. Plain, without jacket.	Glass fiber bonded board, plain, without covering.
Binder		Thermosetting resin	
Recommended Temperature Range	-200 F to +100 F (+300 F for dual temp)	40 F to 375 F	40 F to 375 F
K Factor, Max Btu/(hr) (sq ft) (°F/in.)	0.33 or 30 F 0.37 or 75 F 0.39 or 100 F	0.33 or 100 F 0.27 or 200 F 0.33 or 300 F	0.24 or 100 F 0.30 or 300 F 0.37 or 300 F
Density	7 to 9 lb per cu ft	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	50 lb per sq in.	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing
Dimensions	See 3N3D		Standard is 24" x 48", in thicknesses 1", 1 1/2", 2"
Qualifications and Limitations		Not recommended for pro-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lac adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below 6. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7 1/2 lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel or or above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4 1/2 lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel or or above 140 F or unprotected aluminum.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity..			
* Molded fitting covers only	Feamglas Pittsburgh Corning Corp	Snap-on Pipe Covering Covelandwood St. Gobain Insulation Corp	K-230-3 Covelandwood St. Gobain Insulation Corp
		Micron-Lab Johns-Manville Sales Corp	No. 814 Spin-Glas Johns-Manville Sales Corp
		I-Piece Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp
			Type S Rigid Board Pittsburgh Plate Glass Co
		T & Insul-Sure Insul-Coustic Div, Binks Prod	
			

DUP 0990103

REV. JUL 1975

040120

P-15-318

MATERIALS		THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION	
MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE		ISSUED	OCT 1954
		THIS PAGE REVISED	JUNE 1974
		STANDARD REAPPROVED	JUNE 1974
		SN 100 M	
		Page 1 of 6	
Code	102	102.1	
Material	Calcium silicate	Calcium silicate - inhibited *	
Material Description	Reacted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Reacted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	
Recommended Temperature Range	1200 F max		
K Factor, Max Btu/(hr) (sq ft)(°F/in.)	0.38 at 200 F, 0.46 at 400 F, and 0.57 at 600 F		
Density	14 lb per cu ft max		
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	40 lb per sq in. min at 5% deformation	50 lb per sq in. min at 5% deformation	
Dimensions	See SN30		
Qualifications and Limitations	Not recommended for use on austenitic stainless steel at or above 140 F, see SN102D. Where used on aluminum, coat the latter with Code 709, fibroed asphalt curbcoat (300 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternate to purchased inhibited calcium silicate, see SN102.1D. Where used on aluminum, coat the latter with Code 709, fibroed asphalt curbcoat (300 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the Du Pont leak test with 1500 ppm chloride as NaCl in the test water, shall show no cracking at the end of 144 hours exposure.	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
For 12" IPS and larger, there is an additional charge for 2-oz canvas cover. Material should be specified "without 2-oz canvas" to avoid extra charge. * Passing the test in MIL-1-24244 specification does not qualify a material under Code 102.1 ** Molded nonpieces firing covers are available in serrated, welded, and sweat types	Thermal - Asbestos Free Ind Insul Div, Keene Corp	Thermal - Asbestos Free Ind Insul Div, Keene Corp	
	Thermal-12 Johns-Manville Sales Corp		
	Keylo - 104F Owens - Corning	Super Calcamp, Type NA ** Fibreboard Corp	
	Super Calcamp, Type NA ** Fibreboard Corp	Pamelle ** Pamred, Inc	
	Caroyung 1500 ** Celcora Corp		
	Pamelle ** Pamred, Inc		
* A perlite-silicate, recommended temp limit of 1100 F.			

DUP 0990120

Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority initiating the use of this specification.

SUBCOMMITTEE NO. 25



R-128

968145

REV. JUL 1975

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SN 100 M		MATERIAL SPECIFICATION - SERIES 100		OCTOBER 1954
Page 2		PREFORMED BLOCK AND PIPE		This Page Rev June 1974
Code	111	112	112.6	
Material	Cellular glass	Glass fiber	Glass fiberboard	
Material Description	Cellular glass, foamed and fused into unicellular form.	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, hinged. Plain, without jacket.	Glass fiber bonded board, plain, without covering.	
Binder		Thermosetting resin		
Recommended Temperature Range	-200 F to +100 F (+300 F for dual temp)	40 F to 375 F	40 F to 375 F	
X Factor, Max Str/(hr) (sq ft) (°F/in.)	0.35 at 50 F 0.37 at 75 F 0.39 at 100 F	0.33 at 100 F 0.27 at 200 F 0.33 at 300 F	0.24 at 100 F 0.30 at 200 F 0.37 at 300 F	
Density	7 to 9 lb per cu ft	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft	
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	50 lb per sq in.	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing	
Dimensions	See SN30		Standard is 24" x 48", in thicknesses 1", 1 1/2", 2"	
Qualifications and Limitations		Not recommended for pre-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lap adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7 1/4 lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel at or above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4 1/4 lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel at or above 140 F or unprotected aluminum.	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.				
* Molded fitting covers only	Formglas Pittsburgh Corning Corp	Snap-on Pipe Covering Corrainwood St. Gabain Insulation Corp	K-230-3 Corrainwood St. Gabain Insulation Corp	
		Micron-Lok Johns-Manville Sales Corp	No. 816 Spin-Glas Johns-Manville Sales Corp	
		1-Piece Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp	
			Type S Rigid Board Pittsburgh Plate Glass Co	
		T-6 Insul-Sure Insul-Coastal Div. Birm Prod		

DUP 0990121



040146

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

DATE OCT 1954
THIS PAGE REVISION JUNE 1974
STANDARD REAPPROVED JUNE 1974

SN 100 M

Page 1 of 6

Code	102	102.1	
Material	Calcium silicate	Calcium silicate - inhibited *	
Material Description	Reconstituted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Reconstituted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	
Recommended Temperature Range	1200 F max		
K Factor, Max Btu/(hr) (sq ft)(K° F/in.)	0.28 at 200 F, 0.46 at 400 F, and 0.57 at 600 F		
Density	14 lb per cu ft max		
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	60 lb per sq in. min at 5% deformation	50 lb per sq in. min at 5% deformation	
Dimensions	See SM30		
Qualifications and Limitations	Not recommended for use on austenitic stainless steel or on above 140 F, see SM102.10. Where used on aluminum, coat the latter with Code 709, fibrous asphalt carbide (300 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternative to purchased inhibited calcium silicate, see SM102.10. Where used on aluminum, coat the latter with Code 709, fibrous asphalt carbide (300 F temp limit). Stressed Type 304 stainless steel Unbond specimens at 100 C, when in contact with this insulating material in the Du Pont wet test with 1300 ppm chloride as NaCl in the test water, shall show no cracking at the end of 168 hours exposure.	

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.

For 12" IPS and larger, there is an additional charge for 2-in. canvas cover. Material should be specified "without 2-in. canvas" to avoid extra charge.

Thermal - Asbestos Free
Insul Div., Keene Corp

Thermal - Asbestos Free
Insul Div., Keene Corp

Thermal-12
John-Manville Sales Corp

Kaylo - 10AF
Quincy - Corning

Super Calcium, Type NA **
Fibreboard Corp

Super Calcium, Type NA **
Fibreboard Corp

Panette **
Panred, Inc

Caraway 1300 **
Celcor Corp

Panette **
Panred, Inc

* Passing the test in MIL-24244 specification does not qualify a material under Code 102.1

** Matted nonwoven lining covers are available in standard, welded, and cover types

* A perlite-silicate, recommended temp limit of 1100 F.

Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority authorizing the use of this specification.

SUCCESSORS NO. 13



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DUP 0990233

REV. JUL 1975

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Code	112	112.6	114
Material	Glass fiber	Glass fiberboard	Mineral wool
Material Description	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, beveled. Plain, without locker.	Glass fiber bonded board, plain, without covering.	Mineral slag wool, with high-temperature binder. Block and pipe section insulation.
Binder	Thermosetting resin		
Recommended Temperature Range	40 F to 375 F		1800 F max
K Factor, Max Btu/(hr)(sq ft)(°F/in.)	0.23 at 100 F 0.27 at 200 F 0.33 at 300 F	0.24 at 100 F 0.30 at 200 F 0.37 at 300 F	0.36 at 200 F mean 0.51 at 600 F mean 0.74 at 1000 F mean
Density	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft	15 to 19 lb per cu ft.
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing	10 lb per sq in. min at 10% deformation
Dimensions	See SN3D	Standard is 24" x 48" in thickness 1", 1 1/2", 2"	Standard block sizes up to 24" x 24", 1" to 4" thickness. Standard pipe sizes, see vendor's literature.
Qualifications and Limitations	Not recommended for pre-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lap adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7 1/4 lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel or on above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4 1/4 lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel or on above 140 F or unprotected aluminum.	Not recommended for use on unprotected austenitic stainless steel or on above 140 F, or unprotected aluminum. Where used on aluminum, coat the latter with Code 709, Fiberglass Asphalt Carbach (300 F temperature limit).
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
1 Molded fitting covers only	Snap-on Pipe Covering Corrainwood St. Gobain Insulation Corp	K-230-J Corrainwood St. Gobain Insulation Corp	"Pyro" Supertemp (black only) Eglin-Picher Industries
17 Also available as pipe fitting covers			
18 Manufacturer does not inhibit insulation. Consult Energy and Materials Dept, Equipment Div (Purchasing) for vendors who supply inhibited material	Micron-Lok Johns-Manville Sales Corp	No. 814 Span-Glas Johns-Manville Sales Corp	Monoblock (black only) Keene Corp
	1-Piece Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp	K-Fee 11 10 (black and pipe sections) U. S. Gypsum
	1-Piece Insul-Save Insul-Covers Div, Birm Prod	Type 5 Rigid Board Pittsburgh Plate Glass Co	

DUP 0990234



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REV. JUL 1974

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MATERIALS		THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION	
MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE		DATE OCT 1954	SN 100 M
		THIS PAGE REVISED JUNE 1974	Page 1 of 1
		STANDARD SPECIFICATIONS JUNE 1974	
Code	102	102.1	
Material Description	Calcium silicate Reinforced hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Calcium silicate - inhibited* Reinforced hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	
Recommended Temperature Range	1200 F max		
Thermal Conductivity, Max Btu/(hr) (sq ft)(°F/ft.)	0.28 at 200 F, 0.44 at 400 F, and 0.57 at 600 F		
Density	14 lb per cu ft max		
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	40 lb per sq in. min at 5% deformation	35 lb per sq in. min at 5% deformation	
Dimensions	See SM20		
Qualifications and Limitations	Not recommended for use on austenitic stainless steel or on above 140 F, see SM102.10. Where used on aluminum, coat the latter with Code 709, fibrous asphalt enamel (200 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified. Recommended for use on austenitic stainless steel. For an alternative to purchased inhibited calcium silicate, see SM102.10. Where used on aluminum, coat the latter with Code 709, fibrous asphalt enamel (200 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the 0.5 M NaCl test with 1500 ppm chloride as NaCl in the test water, shall show no cracking or the end of 144 hours exposure.		
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
For 12" IPS and larger, there is an additional charge for 2-in. covers cover. Material should be specified "without 2-in. covers" to avoid extra charge. * Passing the test in MIL-24246 specification does not qualify a material under Code 102.1 ** Molded replacement fittings covers are available in covered, welded, and cover types	Thermal - Asbestos Free Insul Insul Div., Kewanee Corp	Thermal - Asbestos Free Insul Insul Div., Kewanee Corp	
	Thermal-12 John-Manville Sales Corp		
	Kaylo - 184F Owens - Corning	Super Calcium Type NA** Fiberglass Corp	
	Super Calcium Type NA** Fiberglass Corp	Pennello** Pennell, Inc	
	Caroyang 1500** Celanese Corp		
	Pennello** Pennell, Inc		
* A perlite-silicate, recommended temp limit of 1100 F.			
Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority authorizing the use of this specification.			

R-198

PREFORMED BLOCK AND PIPE

This Page Rev June 1974

Code	111	112	112.6
Material	Cellular glass	Glass fiber	Glass fiberboard
Material Description	Cellular glass, foamed and fused into unicellular form.	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, and pipe, hinged. Plain, without jacket.	Glass fiber bonded board, plain, without covering.
Binder		Thermosetting resin	
Recommended Temperature Range	-200 F to +100 F (+300 F for dual temp)	40 F to 375 F	40 F to 375 F
K Factor, Max Btu/(hr) (sq ft) (°F/in.)	0.25 at 50 F 0.37 at 75 F 0.39 at 100 F	0.23 at 100 F 0.37 at 200 F 0.33 at 300 F	0.34 at 100 F 0.30 at 200 F 0.37 at 300 F
Density	7 to 9 lb per cu ft	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	30 lb per sq in.	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing
Dimensions	See SNGD		Standard is 24" x 48", in thicknesses 1", 1 1/2", 2"
Qualifications and Limitations		Not recommended for pre-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and tie adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7 1/4 lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel or on above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4 1/4 lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel or on above 140 F or unprotected aluminum.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
7. Molded fitting covers only	Formglas Pittsburgh Corning Corp	Shapex Pipe Covering Corvairwood St. Gobain Insulation Corp	K-230-3 Corvairwood St. Gobain Insulation Corp
		Microlon Johnstonville Sales Corp	No. 814 Spin-Glas Johnstonville Sales Corp
		Jo-Pipec Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp
			Type S Rigid Board Pittsburgh Plate Glass Co
		T & Insul-Sure Insul-Coustic Div, Bima Prod	

DUP 0990323

MATERIALS

**MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE**

**THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION**

10078 OCT 1954
THIS PAGE
REVISED JUNE 1974
STANDARD
REAPPROVED JUNE 1974

SN 100 M

Page 1 of 6

Code	102	102.1
Material	Calcium silicate	Calcium silicate - inhibited *
Material Description	Reconstituted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Reconstituted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.
Recommended Temperature Range	1200 F max	
K factor, max Btu/ft ² (sq ft)(°F/in.)	0.38 at 200 F, 0.44 at 400 F, and 0.57 at 600 F	
Density	14 lb per cu ft max	
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	60 lb per sq in. min at 5% deformation	30 lb per sq in. min at 5% deformation
Dimensions	See SM30	
Qualifications and Limitations	Not recommended for use on austenitic stainless steel at or above 140 F, see SM102D. Where used on aluminum, coat the latter with Code 709, fibrous asphalt curbcoat (300 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternative to purchased inhibited calcium silicate, see SM102.1D. Where used on aluminum, coat the latter with Code 709, fibrous asphalt curbcoat (300 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the Du Pont test with 1500 ppm chloride as NaCl in the test water, shall show no cracking at the end of 144 hours exposure.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.

For 12" IPS and larger, there is an additional charge for 2ms covers cover. Material should be specified "without 2ms covers" to avoid extra charge. * Passing the test in MIL-STD-24344 specification does not qualify a material under Code 102.1 ** Molded non-plate lining covers are available in covered, welded, and street types	Thermasil - Asbestos Free Insul Div, Keene Corp	Thermasil - Asbestos Free Insul Div, Keene Corp
	Thermasil-12 John-Manville Sales Corp	
	Kaylo - 104F Owens - Corning	Super Calcamp, Type NA ** Fibreboard Corp
	Super Calcamp, Type NA ** Fibreboard Corp	Pamatis ** Pearce, Inc
	Caroying 1500 ** Caloria Corp	
	Pamatis ** Pearce, Inc	

* A perlite-silicate, recommended temp limit of 1100 F.

Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority initiating the use of this specification.

SUSCENET 7-72 NO. 23



R-246

DUP 0990406

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Code	112	112.4	114
Material	Glass fiber	Glass fiberboard	Mineral wool
Material Description	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, hinged. Plain, without jacket.	Glass fiber bonded boards, plain, without covering.	Mineral slag wool, with high-temperature binder. Block and pipe section insulation.
Binder	Thermosetting resin		
Recommended Temperature Range	40 F to 375 F		1800 F max
K Factor, Max Btu/(hr)(sq ft)(°F in.)	0.23 at 100 F 0.27 at 200 F 0.33 at 300 F	0.24 at 100 F 0.30 at 200 F 0.37 at 300 F	0.36 at 200 F mean 0.31 at 600 F mean 0.76 at 1000 F mean
Density	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft	15 to 19 lb per cu ft
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing	10 lb per sq in. min at 10% deformation
Dimensions	See SH3D	Standard is 24" x 48" in thickness 1", 1 1/2", 2"	Standard block sizes up to 24" x 36", 1" to 4" thickness. Standard pipe sizes, see vendor's literature.
Qualifications and Limitations	Not recommended for pipe insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lag adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7 1/4 lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel at or above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4 1/4 lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel at or above 140 F or unprotected aluminum.	Not recommended for use on unprotected austenitic stainless steel at or above 140 F, or unprotected aluminum. Where used on aluminum, coat the latter with Code 709, Fiberglass Asphalt Curbcoat (300 F temperature limit).
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
† Molded fitting covers only * Also available as pipe fitting covers †† Manufacturer does not inhibit insulation. Contact Energy and Materials Dept., Equipment Div (Purchasing) for vendors who supply inhibited material	Snap-on Pipe Covering Carverwood St. Gobain Insulation Corp	R-230-3 Carverwood St. Gobain Insulation Corp	"PV" Supertemp (black only) Eagle-Picher Industries
	Micro-Lok Johnsonville Sales Corp	No. 816 Spin-Glas Johnsonville Sales Corp	Mono-Block (black only) Keene Corp
	1-Piece Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp	R-Fac 11 16 (black and pipe sections) U. S. Gypsum
	Insul-Save Insul-Courier Div, Birma Prod	Type S Rigid Board Pittsburgh Plate Glass Co	



REV. JUL 1975

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NOTE

MATERIALS		THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION	
MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE		100-70 OCT 1954 THIS PAGE REVISED JUNE 1974 STANDARD REAPPROVED JUNE 1974	SN 100 M Page 1 of 6
Code	102	102.1	
Material	Calcium silicate	Calcium silicate - inhibited *	
Material Description	Reacted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Reacted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	
Recommended Temperature Range	1200 F max		
K Factor, Max Btu/(hr) (sq ft)(°F/in.)	0.38 at 200 F, 0.46 at 400 F, and 0.57 at 600 F		
Density	14 lb per cu ft max		
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	60 lb per sq in. min or 3% deformation	50 lb per sq in. min or 3% deformation	
Dimensions	See SN30		
Qualifications and Limitations	Not recommended for use on austenitic stainless steel at or above 140 F, see SN1020. Where used on aluminum, coat the latter with Code 709, fibrous asphalt curbcoat (200 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternative to purchased inhibited calcium silicate, see SN102.10. Where used on aluminum, coat the latter with Code 709, fibrous asphalt curbcoat (200 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the Du Pont salt test with 1500 ppm chloride as NaCl in the test water, shall show no cracking at the end of 144 hours exposure.	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
For 12" IPS and larger, there is an additional charge for 2oz canvas cover. Material should be specified "without 2oz canvas" to avoid extra charge. * Peening the test in MIL-1-24246 specification does not qualify a material under Code 102.1 ** Molded replacement fitting covers are available in covered, welded, and street types	Thermal - Asbestos Free Insul Div, Keene Corp	Thermal - Asbestos Free Insul Div, Keene Corp	
	Thermal-12 John-Manville Sales Corp		
	Kyle - 10AF Owens - Corning	Super Calcium, Type NA ** Fibreboard Corp	
	Super Calcium, Type NA ** Fibreboard Corp	Pemate ** Pawco, Inc	
	Coroyang 1500 ** Celotex Corp		
	Pemate ** Pawco, Inc		
* A perlite-silicate, recommended temp limit of 1100 F. Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority interpreting the use of this specification.			

MCC-2000-7-EE-10.15

MCC-2000-7-EE-10.15

R-294

DUP 0990491

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Page 1 PREFORMED BLOCK AND PIPE This Page Rev June 1974			
Code	111	112	112.4
Material	Cellular glass	Glass fiber	Glass fiberboard
Material Description	Cellular glass, foamed and fused into unicellular form.	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, hinged. Plain, without jacket.	Glass fiber bonded board, plain, without covering.
Binder		Thermosetting resin	
Recommended Temperature Range	-200 F to +100 F (+300 F for dual resin)	40 F to 375 F	40 F to 375 F
K Factor, max Btu (hr) (sq ft) (°F/in.)	0.25 at 50 F 0.37 at 75 F 0.39 at 100 F	0.23 at 100 F 0.37 at 200 F 0.33 at 300 F	0.24 at 100 F 0.30 at 200 F 0.37 at 300 F
Density	7 to 9 lb per cu ft	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft
Compressive Strength Specimen size 6" x 6" x 2"; load rate 3.10" per min	50 lb per sq in.	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing
Dimensions	See 3N3D		Standard is 24" x 48", in thicknesses 1", 1 1/2", 2"
Qualifications and Limitations		Not recommended for pre-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lap adhesives. When specified, consult vendors' catalogs and include on order. Available as welded fittings as noted below. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7 1/4 lb per cu ft density be used. Welded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel at or above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4 1/4 lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel at or above 140 F or unprotected aluminum.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
* Molten fitting covers only	Spanglas Pittsburgh Corning Corp	Seagor Pipe Covering Corrainwood St. Gebain Insulation Corp	K-230-MJ Corrainwood St. Gebain Insulation Corp
		Micro-Lok Johnstonville Sales Corp	No. 814 Spanglas Johnstonville Sales Corp
		1-Piece Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp
			Type 3 Rigid Board Pittsburgh Plate Glass Co
		T & Insul-Sure Insul-Covering Div, Birmo Prod	

DUP 0990492



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MATERIALS		THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION		
MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE		ISSUED	OCT 1954	SN 100 M Page 1 of 6
		THIS PAGE REVISED	JUNE 1974	
		STANDARD REAPPROVED	JUNE 1974	
Code	102	102.1		
Material Material Description	Calcium silicate Reacted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Calcium silicate - inhibited * Reacted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.		
Recommended Temperature Range	1200 F max			
K Factor, Max Btu/(hr) (sq ft)(°F/in.)	0.38 at 200 F, 0.46 at 400 F, and 0.57 at 600 F			
Density	14 lb per cu ft max			
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	60 lb per sq in. min or 5% deformation	50 lb per sq in. min or 5% deformation		
Dimensions	See SN3D			
Qualifications and Limitations	Not recommended for use on austenitic stainless steel at or above 140 F, see SN102D. Where used on aluminum, coat the latter with Code 709, fibreglass asphalt cutback (300 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternate to purchased inhibited calcium silicate, see SN102.1D. Where used on aluminum, coat the latter with Code 709, fibreglass asphalt cutback (300 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the Du Pont wet test with 1500 ppm chloride as NaCl in the test water, shall show no cracking at the end of 144 hours exposure.		
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.				
For 12" IPS and larger, there is an additional charge for 2-as canvas cover. Material should be specified "without 2-as canvas" to avoid extra charge * Passing the test in MIL-1-24244 specification does not qualify a material under Code 102.1 ** Molded two-piece fitting covers are available in screwed, welded, and sweat types	Thermal - Asbestos Free Ind Insul Div, Keene Corp	Thermal - Asbestos Free Ind Insul Div, Keene Corp		
	Thermal-12 Johns-Manville Sales Corp			
	Kayle - 10AF Owens - Corning	Super Caltemp, Type NA ** Fibreboard Corp		
	Super Caltemp, Type NA ** Fibreboard Corp	Pamsile ** Pamrad, Inc		
	Caretemp 1500 ** Celcor Corp			
	Pamsile ** Pamrad, Inc			
* A perlite-silicate, recommended temp limit of 1100 F.				
Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions by suppliers are to be made only on approval of the local authority initiating the use of this specification.				

DUP 0991330

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SUBCOMMITTEE NO. 28

DUPON



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090916

SN 100 M		MATERIAL SPECIFICATION - SERIES 100		OCTOBER 1954
Page 2		PREFORMED BLOCK AND PIPE		This Page Rev June 1974
Code	111	112	112.6	
Material	Cellular glass	Glass fiber	Glass fiberboard	
Material Description	Cellular glass, foamed and fused into unicellular form.	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, hinged. Plain, without jacket.	Glass fiber bonded board, plain, without covering.	
Binder		Thermosetting resin		
Recommended Temperature Range	-200 F to +100 F (+300 F for dual temp)	40 F to 375 F	40 F to 375 F	
K Factor, Max Btu/(hr) (sq ft) (°F/in.)	0.35 at 50 F 0.37 at 75 F 0.39 at 100 F	0.23 at 100 F 0.27 at 200 F 0.33 at 300 F	0.24 at 100 F 0.30 at 200 F 0.37 at 300 F	
Density	7 to 9 lb per cu ft	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft	
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	50 lb per sq in.	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing	
Dimensions	See SN3D		Standard is 24" x 48", in thicknesses 1", 1½", 2"	
Qualifications and Limitations		Not recommended for pre-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lap adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below §. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7¼ lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel at or above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4¼ lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel at or above 140 F or unprotected aluminum.	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.				
† Molded fitting covers only	Pyralglas Pittsburgh Corning Corp	Snap-on Pipe Covering Certain-teed St. Gobain Insulation Corp	K-230-3 Certain-teed St. Gobain Insulation Corp	
		Micro-Lok Johns-Manville Sales Corp	No. 816 Spin-Glas Johns-Manville Sales Corp	
		1-Piece Pipe Covering Owens-Corning Corp	Type 703 Owens-Corning Corp	
			Type S Rigid Board Pittsburgh Plate Glass Co	
		† Insul-Sure Insul-Coverie Div, Birmo Prod		

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DUP 0991331

090917

OCTOBER 1954

MATERIAL SPECIFICATION - SERIES 100
PREFORMED BLOCK AND PIPE

SM 100 M

This Page Rev June 1974

Page 3

Code	114	114.1	114.2
Material	Mineral wool	Mineral wool - inhibited	Mineral wool
Material Description	Mineral slag wool, with high-temperature binder. Block and pipe section insulation.	Mineral slag wool, with high-temperature binder. Block and pipe section insulation. Dipped, brushed, or sprayed with sodium silicate, Code 802.1, to the equivalent of 100 sq ft per gallon.	Mineral slag wool, with high-temperature binder. Block and pipe section insulation.
Recommended Temperature Range	1800 F max	900 F max - limited by sodium silicate	1200 F max
K Factor, Max Btu. in./hr. sq ft. °F	0.36 at 200 F mean 0.51 at 600 F mean 0.76 at 1000 F mean	0.36 at 200 F mean 0.51 at 600 F mean 0.76 at 1000 F mean	0.36 at 200 F mean 0.51 at 600 F mean 0.76 at 1000 F mean
Density	15 to 19 lb per cu ft	11 to 19 lb per cu ft	10 to 11 lb per cu ft
Water Vapor Permeability (Wat Cup)			
Compressive Strength 6" x 6" x 2" Specimen load rate 0.10"/min	10 lb per sq in. min at 10% deformation	5 lb per sq in. min at 10% deformation	5 lb per sq in. min at 10% deformation
Dimensions	Standard block sizes up to 24" x 36", 1" to 4" thick- ness. Standard pipe sizes, see vendor's literature.	Standard block sizes up to 24" x 36", 1" to 4" thick- ness. Standard pipe sizes, see vendor's literature.	Standard block sizes up to 24" x 36", 1" to 4" thick- ness. Standard pipe sizes, see vendor's literature.
Qualifications and Limitations	Not recommended for use on unprotected austenitic stain- less steel at or above 140 F, or unprotected aluminum. Where used on aluminum, coat the latter with Code 709, Fibred Asphalt Curbeck (300 F temperature limit).	Satisfactory for use on austenitic stainless steel to 900 F. Where used on alumi- num, coat the latter with Code 709, Fibred Asphalt Curbeck (300 F temperature limit).	Not recommended for use on unprotected austenitic stain- less steel at or above 140 F, or unprotected aluminum. Where used on aluminum, coat the latter with Code 709, Fibred Asphalt Curbeck (300 F temperature limit).
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
† Also available as pipe fitting covers	"PV" Supertemo (block only) Eagle-Picher Industries	K-Fac, Inhibited † † (block and pipe sections) U. S. Gypsum	N-1200 Block MF Pipe Insulation † † Ferry-Eight Insulations
‡ Manufacturer does not inhibit insulation. Con- tact Energy and Materials Dept, Equipment Div (Purchasing) for vendors who supply inhibited material	None-Block (block only) † Keeo Corp	Epitherm-1200 † (pipe sections) Eagle-Picher Industry	Epitherm-1200 Pipe Insulation Eagle-Picher Industries
§§ Pipe insulation in 2 ft lengths only	K-Fac † † (block and pipe sections) U. S. Gypsum	N-1200 Block † MF Pipe Insulation † † Ferry-Eight Insulations	

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SN 100 M		MATERIAL SPECIFICATION - SERIES 100	OCTOBER 1954
Page 4		PREFORMED BLOCK AND PIPE	This Page Rev June 1974
Code	116	118	
Material	Flexible foamed plastic	Polyurethane foam, rigid	
Material Description	Preformed, resilient, closed cell elastomer foam sheet and pipe (no 4-inch) insulation.	Preformed rigid urethane foam block, pipe, and fitting insulation manufactured with polyester or polyether resins with fluorocarbon blowing agent	
Recommended Temperature Range	- 40 to 180 F	- 100 to + 180 F	
K Factor, Max Btu/(hr) (sq ft) (°F/in.)	0.28 at 75 F 0.29 at 90 F	0.15 at 50 F 0.15 at 75 F 0.16 at 100 F	
Density	6.0 lb per cu ft (max)	1.8 to 2.5 lb per cu ft	
Water Vapor Permeability (Wat Cup)	0.15 perm-inches		
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min		Min 25 psi at 5% deformation, measured parallel to the direction in which the foam rose during manufacture or min 20 psi at 5% deformation in all directions.	
Dimensions	Sheet size is 36" x 48" in thicknesses 1/8" to 1". Pipe and tubing to 5" ID and 6" long in thicknesses 1/8", 1/2" and 3/4".	See SN3D. All dimensions to be ± 1/16" including straightness and squareness.	
Qualifications and Limitations	Flame spread rating per ASTM E 162 shall not exceed 75 uncoated. A protective coating is recommended for outdoor use only. Uniform cell structure with no voids having any dimension exceeding 1/8-inch. Not recommended for use on austenitic stainless steel at or above 140 F.	Uniform cell structure with max 10% open cells. No voids having any dimensions exceeding 1/4". Heat aging test: Block 1" square by 7" long, cut from near outer surface, on roasts 6" apart with 70 gm weight having 1" square base in middle of span shall not distort block more than 1/16" in 1 hour at 225 F. Flame-spread rating per ASTM E 162 shall not exceed 75 when coated with Hypalon [®] mastics 1/32" dry thickness reinforced by 10 x 10 mesh glass cloth, 10 lb per 100 sq yd. Water absorption max 4% by volume into a 2" x 2" x 1" skin-free piece, immersed in water just under the surface for 5 days and then wiped with a wet cloth and weighed, with no delay between steps. Not to be used in contact with unprotected austenitic stainless steel at or above 140 F.	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
(1) FR/Armaflex pipe covering is identified with inked blue lines. FR/Armaflex sheet material is identified with inked white lines (2) Pipe insulation sections only; 4 ft standard length with factory-applied vapor barrier jacket. For physical properties, see manufacturer's technical data sheet	FR/Armaflex Armstrong Cork Company (1)	Type 24 Urethane Owens-Corning Corp	
		Thursac Dow Chemical Co	
		U-Thane 200 The Upjohn Co	
		Armaflex Armstrong Cork Co	
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REV. JUL 1975

OCTOBER 1954		
MATERIAL SPECIFICATION - SERIES 100		
This Page Rev May 1973		
SN 100 M		
Page 5		
Code	120	130
Material	Polystyrene foam	Asbestos board
Material Description	Preformed polystyrene foam block, pipe, and fitting insulation cut from extruded polystyrene foam (pipe insulation available with a variety of different joint designs), or pipe and fitting insulation molded to final shape from expanded polystyrene beads with tongue-and-groove side longitudinal joints and ship lap butt joints.	Asbestos fibers, diatomaceous silica, and inorganic binder. Flame-spread rating 0. Weather-resistant.
Recommended Temperature Range	- 100 F to + 140 F	1200 max
K Factor, Max Btu/(hr) (sq ft) (°F/in.)	0.24 at 50 F 0.26 at 75 F 0.28 at 100 F	0.77 at 200 F 0.79 at 400 F 0.81 at 600 F
Density	1.5 lb per cu ft minimum	36 lb per cu ft
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	Min 25 lb per sq in. at 5% deformation	Compressive, ultimate - 14,000 psi; Tensile parallel to face - 420 psi; Shear normal to face - 700 psi; Shear parallel - 320 psi
Dimensions	SN3D. All dimensions to be $\pm 1/16$ " including straightness and squareness	Thickness, in. = 1/2, 3/4, 7/8, 1, 1 1/4, 1 1/2, 2 and 4 Sheet size, ft = 3, 3 1/2 or 4 x 8 and 4 x 10
Qualifications and Limitations	Uniform cell structure with max 10% open cells. No distortion or volume change, or loss of compressive strength after exposure at 140 F and 80% relative humidity for 15 days. Water absorption max 0.03% by volume after being subjected to 90 F, 90% relative humidity for 15 days and max 4% by volume into a 2" x 2" x 1" skin-free piece immersed in water just under the surface for 5 days, then wiped with a wet cloth and weighed, with no delay between steps. Not resistant to solvents other than alcohol.	Sanded both sides, may be used unpainted for interior use. When painted, use water base or epoxy coating.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.		
Available in the form of fitting covers (see Code 1T4.1) from fabricators	Styrofoam FR 6 Dow Chemical Co	Marinise 36 (Type A) Johns-Manville Sales Corp
	Vapo-Lock Insuldyne Corp	

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090920

SN 100 M

MATERIAL SPECIFICATION - SERIES 100
PREFORMED BLOCK AND PIPE

OCTOBER 1954

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OBSOLETE CODES

Code	Material	Date Cancelled	Superseded by Code
101	85% Magnesia	Feb 1964	102, 102.1
103	Diatomaceous earth	Feb 1964	102, 102.1
104	Inorganic silicates	Oct 1972	
105	Asbestos matted	Dec 1956	106
106	Asbestos fiber and sodium silicate	Feb 1972	
107	Asbestos sponge	Feb 1964	
109	Corrugated asbestos preshrunk	Feb 1964	
110	Vegetable cork	Jun 1966	111, 118, 120
111.1	Cellular glass	Jun 1966	111
111.2	Cellular glass	Jun 1966	111
111.3	Cellular glass	Jun 1966	111
112	Glass fiber	Apr 1956	Reinstated Sept 1969
112.01	Glass fiber	Sept 1969	112
112.02	Glass fiber	Oct 1956	112.01
112.11	Glass fiber	Sept 1969	112
112.12	Glass fiber	Mar 1959	112.11
112.16	Glass fiber	Sept 1969	112
112.17	Glass fiber	Sept 1969	112
112.21	Glass fiber	Jan 1961	
112.22	Glass fiber	Sept 1969	112
112.23	Glass fiber	Apr 1963	
112.61	Glass fiberboard	Sept 1969	112.6
112.66	Glass fiberboard	Feb 1964	
112.71	Glass fiberboard	Sept 1969	112.6
112.81	Glass fiberboard	Sept 1969	112.6
113	Glass fiber - neoprene coated	Apr 1956	
115	Mineral wool - asphalt impregnated	Apr 1956	
116	Flexible foamed plastic	Jun 1962	Reinstated May 1973
117	Urethane foam resilient	Jun 1963	
117.1	Urethane foam resilient	Dec 1960	
117.2	Urethane foam resilient	Feb 1960	
117.3	Urethane foam resilient	June 1963	
117.4	Urethane foam resilient	Feb 1960	
117.5	Urethane foam resilient	Apr 1960	
117.6	Urethane foam resilient	July 1963	

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The logo for DuPont, featuring the word "DUPONT" in a stylized, bold, sans-serif font, with "DELAWARE" written in a smaller font underneath.

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REV. JUL 1975

DUP 0991335

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