

113

CONFIDENTIAL

MATERIALS		THERMAL INSULATION	
MATERIAL SPECIFICATION		STANDARD ENGINEERING SPECIFICATION	
SERIES 100		ISSUED OCT 1954	SN 100 M
PREFORMED BLOCK AND PIPE		REVISED APRIL 1956	Page 1 of 11
Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous earth
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with bonding clay and cementing materials
Filler	Asbestos or glass fiber		
Binder	Clay or other cementing materials 5% by weight		
Temperature Range	100°F to 500°F	100°F to 1200°F	500°F to 1800°F
K Factor	500°F - 0.35 max.	500°F - 0.54 max.	500°F - 0.77 max.
Density	11-14 lb. per cu. ft.	11 lb. per cu. ft.	24-27 lb. per cu. ft.
Compressive Strength			
Manufacturing Process	Machine molded or extru. Pipe mach. cut on diameter.	Machine extruded. Pipe mach. cut on diameter.	Machine molded. Pipe mach. cut on diameter.
Resistance to Breakage in Handling	Good	Good	Good
Dimensions	ASTM **	ASTM **	To Specification
Other Qualifications		Good mechanical strength with low shrinkage.	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.			
* Bands are supplied at extra cost. Order must state "without bands" if not required. For 11" 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. ** New Simplified Dimensional System sponsored by ASTM	85% Mag. Philip Carey Mfg. Co.	Calcilite The Ruberoid Co.	High Temp. No. 19 Philip Carey Mfg. Co.
	Thermalite 85% Ehrst Mag. Mfg. Co., Inc.	Kaylo Owens-Illinois Glass Co.	Enduro Hi-Temp. Ehrst Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	Celtherm Pabco Products, Inc.	J/M Superex Johns-Manville Sales Corp.
	Featherweight Keesby & Mattison Co.	Thermabestos Johns-Manville Sales Corp.	High Temp. Keesby & Mattison Co.
	85% Mag. Mundet Cork Corp.	Kaytherm Keesby & Mattison Co.	
	Precision-molded Pabco Products, Inc.	Incalite Mundet Cork Corp.	
Vendors and merchandise designations are given to describe materials and may not include all acceptable products. Substitutions are to be made only on approval of the authority initiating the use of this Specification.			

SUBCOMMITTEE NO 15



DUP 0960639

DU 040831

SH 100 M		MATERIAL SPECIFICATION - SERIES 100		OCTOBER 1954
Page 2		Rev. April 1954		
Code		104	105	106
Material		Diatomaceous silicas	Asbestos molded	Asbestos and diatomaceous earth molded
Material Description		Diatomaceous silicas and asbestos fibers	Compressed fluffy asbestos sprayed with sodium silicate	Compressed fluffy asbestos sprayed with sodium silicate and diatomaceous earth sprinkled on the asbestos mat
Filler				
Binder				
Temperature Range		500°F to 1500°F	100°F to 700°F	700°F to 1000°F
K Factor		1000°F - 0.77 max.	500°F - 0.56 max.	500°F - 0.58 max.
Density		20-24 lb. per cu. ft.	14 lbs. per cu. ft.	14 lbs. per cu. ft.
Compressive Strength				
Manufacturing Process		Machine extruded. Pipe mach. cut on diameter.	Formed and comp. on mandril. Pipe mach. cut on dia.	Formed and comp. on mandril. Pipe mach. cut on dia.
Resistance to Breakage in Handling		Good	Good	Good
Dimensions		To Specification		
Other Qualifications			Formed on a mandril to a predetermined wt. Pressed to obtain the desired density, and baked.	Formed on a mandril to a predetermined wt. Pressed to obtain the desired density, and baked.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
CONFIDENTIAL	Tempcheck	Asbestos 750	Asbestos 1200	
	Philip Carey Mfg. Co.	Union Asbestos & Rubber Co.	Union Asbestos & Rubber Co.	
		Armabestos A7	Armabestos A12	
		Armstrong Cork Co.	Armstrong Cork Co.	





DUP 0960640

DU 040832

REV. 10-1-57 SUP. 1-1-57

OCTOBER 1954		MATERIAL SPECIFICATION - SERIES 100		SM 100 M
Rev. April 1956				Page 3
Code	107	108	109	
Material	Asbestos sponge		Corrugated asbestos preshrunk	
Material Description	Asbestos sheets separated by finely ground sponged material bonded with adhesive strips.		Alternate layers of plain and corrugated asbestos sheets. Outer covering asbestos felt.	
Filler				
Binder				
Temperature Range	100°F to 700°F		100°F to 400°F	
K Factor	500°F - 0.60 max.		200°F - 0.58 max.	
Density	30 lb. max.			
Compressive Strength				
Manufacturing Process	Laminated - 38 to 42 layers per in. of thick.		3-ply laminate	
Resistance to Breakage in Handling	Very good		Good	
Dimensions	To Specification			
Other Qualifications	Must be a flexible product		Preshrunk	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
CONFIDENTIAL	Aircell - 4-ply	Asbestos Sponge Johns-Manville Sales Corp.	Preshrunk Asbestoscel Johns-Manville Sales Corp.	
	Excel - 6-ply	Asbestos Sponge Philip Carey Mfg. Co.	Aircell Philip Carey Mfg. Co.	
	Cavacel - 8-ply	Sponge Felt The Ruberoid Co.	K & W - Aircell Keesby & Morrison Co.	
		Sponge Felt Ehret Mfg. Mfg. Co., Inc.	B-H Aircell Baldwin Hill Co.	
		Sponge Felt Std. Asbestos Mfg. Co.		



DUP 0960641

H. C. K. L. 120

SN 100 M		MATERIAL SPECIFICATION - SERIES 100		OCTOBER 1954
Page 4		Rev. April 1954		
Code	110	111	112	
Material	Vegetable cork	Cellular glass	Glass fiber	
Material Description	Vegetable cork, granulated and compressed into cork-board or molded forms, from material of vegetable origin for low and medium temperature insulation.	Cellular glass foamed and fused into unicellular form.	See codes 112.01 through 112.81	
Filler				
Binder	Natural resin in cork			
Temperature Range	-200°F to 100°F	-200°F to 100°F (+300°F for dual temp.)		
K Factor	100°F - 0.29 max.	100°F - 0.43 max.		
Density		10 - 11 lb. per cu. ft.		
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.		
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.			
Resistance to Breakage in Handling	Good			
Dimensions				
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic			
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
CONFIDENTIAL	Cork Armstrong Cork Co.	Foamglas Pittsburgh Corning Corp.		
	Cork Mundel Cork Co.			



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REV. 100 SUP. BY

OCTOBER 1954		MATERIAL SPECIFICATION - SERIES 100		SM 100 M
Rev. April 1956				Page 5
Code	112.01	112.02		
Material	Glass fiber	Glass fiber		
Material Description	Textile type fine glass fiber pipe insulation, plain, with medium-temperature binder.	Textile type fine glass fiber pipe insulation, plain, with high-temperature binder.		
Filler				
Binder	*Phenol-formaldehyde or **Di-Cy	Di-Cy		
Temperature Range	80°F to 350°F	80°F to 450°F		
K Factor	100°F - 0.25	100°F - 0.25		
Density	3" and 6" lb. per cu. ft.	6 lb. per cu. ft.		
Compressive Strength				
Manufacturing Process	Machine molded	Machine molded		
Resistance to Breakage in Handling	Very good	Very good		
Dimensions				
Other Qualifications	Specify whether for iron pipe or copper tubing	Specify whether for iron pipe or copper tubing		
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
CONFIDENTIAL	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.	Fiberglas PF Pipe Insu. Owens-Corning Corp.		
	*Monocover Baldwin-Hill	Armoglas PF Pipe Insu. Armstrong Cork Co.		
	*Thermoglas Phillip Cary Mfg. Co.			
	**Fiberglas PF Pipe Insu. Owens-Corning Corp.			
	**Armoglas PF Pipe Insu. Armstrong Cork Co.			



DUP 0960643

DU 040835

SM 100 M		MATERIAL SPECIFICATION - SERIES 100		OCTOBER 1954
Page 6				Rev. April 1956
Code	112.11	112.12		
Material	Glass fiber	Glass fiber		
Material Description	Textile type fine glass fiber bonded pipe insulation with 30 lb. factory-applied roofing felt finish. Sizes 6" OD insulation and below.	Textile type fine glass fiber bonded pipe insulation with 45 lb. factory-applied roofing felt finish. Sizes over 6" OD insulation.		
Filler				
Binder	*Phenol-formaldehyde or **Di-Cy	*Phenol-formaldehyde or **Di-Cy		
Temperature Range	80°F to 300°F	80°F to 300°F		
K Factor	100°F - 0.25	100°F - 0.25		
Density	3" and 6" lb. per cu. ft.	3" and 6" lb. per cu. ft.		
Compressive Strength				
Manufacturing Process	Machine molded	Machine molded		
Resistance to Breakage in Handling	Very good	Very good		
Dimensions				
Other Qualifications	Specify whether for iron pipe or copper tubing 30 lb. felt used up to 6" OD of insulation	Specify whether for iron pipe or copper tubing 45 lb. felt used where OD of insulation is 6" or greater		
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
CONFIDENTIAL	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.		
	*Monocover Baldwin-Hill	*Monocover Baldwin-Hill		
	*Thermoglas Philip Carey Mfg. Co.	*Thermoglas Philip Carey Mfg. Co.		
	**Fiberglas PF Pipe Insu. Owens-Corning Corp.	**Fiberglas PF Pipe Insu. Owens-Corning Corp.		
	**Armoglas PF Pipe Insu. Armstrong Cork Co.	**Armoglas PF Pipe Insu. Armstrong Cork Co.		
				

DUP 0960644

DU 040836

OCTOBER 1954

Rev. April 1956

MATERIAL SPECIFICATION - SERIES 100

SM 100 M

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Code	112.16	112.17	
Material	Glass fiber	Glass fiber	
Material Description	Textile type fine glass fiber bonded pipe insulation with 4-oz. factory-applied canvas finish.	Textile type fine glass fiber bonded pipe insulation with 8-oz. factory-applied canvas finish.	
Filler			
Binder	*Phenol-formaldehyde or **Di-Cy	*Phenol-formaldehyde or **Di-Cy	
Temperature Range	80°F to 300°F	80°F to 300°F	
K Factor	100°F - 0.25	100°F - 0.25	
Density	3" and 6" lb. per cu. ft.	3" and 6" lb. per cu. ft.	
Compressive Strength			
Manufacturing Process	Machine molded	Machine molded	
Resistance to Breakage in Handling	Very good	Very good	
Dimensions			
Other Qualifications	Specify whether for iron pipe or copper tubing	Specify whether for iron pipe or copper tubing	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.			
CONFIDENTIAL	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.	
	*Monocover Baldwin-Hill	*Monocover Baldwin-Hill	
	*Thermoglas Philip Carey Mfg. Co.	*Thermoglas Philip Carey Mfg. Co.	
	**Fiberglas PF Pipe Insu. Owens-Corning Corp.	**Fiberglas PF Pipe Insu. Owens-Corning Corp.	
	**Armoglas PF Pipe Insu. Armstrong Cork Co.	**Armoglas PF Pipe Insu. Armstrong Cork Co.	



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DU 040837

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SN 100 M
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MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954
 Rev. April 1956

Code	112.21	112.22	
Material	Glass fiber	Glass fiber	
Material Description	Textile type fine glass fiber bonded pipe insulation with black factory-applied aluminum laminate vapor-barrier finish.	Textile type fine glass fiber bonded pipe insulation with white factory-applied aluminum laminate vapor-barrier finish.	
Filler			
Binder	*Phenol-formaldehyde or **Di-Cy	*Phenol-formaldehyde or **Di-Cy	
Temperature Range	40°F to 200°F	40°F to 200°F	
K Factor	100°F - 0.25	100°F - 0.25	
Density	3" and 6" lb. per cu. ft.	3" and 6" lb. per cu. ft.	
Compressive Strength			
Manufacturing Process	Machine molded	Machine molded	
Resistance to Breakage in Handling	Very good	Very good	
Dimensions			
Other Qualifications	Specify whether for iron pipe or copper tubing	Specify whether for iron pipe or copper tubing	
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.			
CONFIDENTIAL	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.	*Ultrafine Snap-on Gustin-Bacon Mfg. Co.	
	*Vonecover Baldwin-Hill	*Vonecover Baldwin-Hill	
	*Thermoglas Philip Carey Mfg. Co.	*Thermoglas Philip Carey Mfg. Co.	
	**Fiberglas PF Pipe Insu. Owens-Corning Corp.	**Fiberglas PF Pipe Insu. Owens-Corning Corp.	
	**Armoglas PF Pipe Insu. Armstrong Cork Co.	**Armoglas PF Pipe Insu. Armstrong Cork Co.	

REV. 11/57 1-56 SUP. BY

DUP 0960646

DU 040838

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OCTOBER 1954		MATERIAL SPECIFICATION - SERIES 100		SM 100 M
Rev. April 1956				Page 3
Code	112.61		112.66	
Material	Glass fiber		Glass fiber	
Material Description	Textile type fine glass fiber banded board insulation.		Textile type fine glass fiber insulation cut to lagging sizes and sanded on one side to form insulation blocks.	
Filler				
Binder	Phenol-formaldehyde		Phenol-formaldehyde	
Temperature Range	40°F to 350°F		40°F to 350°F	
K Factor	100°F - 0.25 to 0.30		100°F - 0.25	
Density	2 1/2 to 9 lb. per cu. ft.*		9 lb. per cu. ft.	
Compressive Strength				
Manufacturing Process	Machine molded		Machine molded	
Resistance to Breakage in Handling	Very good		Very good	
Dimensions	Std. 24" x 48"		Length - 36" Width - 6" or 12"	
Other Qualifications				
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
*Density must be specified. CONFIDENTIAL	Fiberglas PF Insulation Owens-Corning Corp.		Fiberglas PF 600 Insulation Owens-Corning Corp.	
	Armoglas PF Insulation Armstrong Cork Co.		Armoglas PF 600 Insulation Armstrong Cork Co.	

DUP 0960647

DU 040839

H. J. - 100

SM 100 M		MATERIAL SPECIFICATION - SERIES 100		OCTOBER 1954	
Page 10				Rev. April 1956	
Code	112.71		112.81		
Material	Glass fiber		Glass fiber		
Material Description	Textile type fine glass fiber bonded board insulation with asphalt and kraft paper vapor-barrier finish.		Textile type fine glass fiber bonded acoustical board with fire-resistant coating.		
Filler					
Binder	Phenol-formaldehyde		Phenol-formaldehyde		
Temperature Range	40°F to 150°F		40°F to 150°F		
K Factor	100°F - 0.26		100°F - 0.26		
Density	6 lb. per cu. ft.		6 lb. per cu. ft.		
Compressive Strength					
Manufacturing Process	Machine molded		Machine molded		
Resistance to Breakage in Handling	Very good		Very good		
Dimensions	24" x 48" boards 3/4" to 2" thickness		24" x 48" boards 3/8" to 2" thickness		
Other Qualifications			Neoprene coating on side of board exposed to air flow		
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.					
CONFIDENTIAL	Fiberglas Vapor Seal Duct Insu. Owens-Corning Corp.		Fiberglas Coated Duct Insu. Owens-Corning Corp.		
	Armoglas Vapor Seal Duct Insu. Armstrong Cork Co.		Armoglas Coated Duct Insu. Armstrong Cork Co.		

DUP 0960648

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SUP. BY

JUL 1953

REV.

OCTOBER 1954		MATERIAL SPECIFICATION - SERIES 100		SN 100 M
Rev. April 1954				Page 11
Code	113	114	115	
Material	Glass fiber - neoprene coated	Mineral wool (Black only)	Mineral wool - asphalt impregnated	
Material Description	Glass fiber coated with factory-applied neoprene finish.	Mineral slag wool	Mineral wool fibers homogeneously impregnated with an asphalt binder.	
Filler				
Binder	Phenolic resin	High temp. binder	Asphalt	
Temperature Range	40°F to 175°F	500°F to 1700°F	-200°F to 100°F	
K Factor	75°F - 0.24	500°F - 0.45 max.	100°F - 0.34 max.	
Density	6 lbs.	19.2 lb. per cu. ft.		
Compressive Strength		12 lb. per sq. in.		
Manufacturing Process	Machine molded	Machine molded	Machine molded	
Resistance to Breakage in Handling	Very good	Good	Good	
Dimensions	Std. 2 ft. x 4 ft.			
Other Qualifications				
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.				
CONFIDENTIAL	Fiberglas Owens-Corning Co.	Super Temp. Eagle-Picher	Rock Cork Johns-Manville Sales Corp.	
		Mono-Block Baldwin Hill Co.	Mineral Wool Board Armstrong Cork Co.	
		Armasemp Armstrong Cork Co.	Koldboard Baldwin Hill Co.	
				

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DU 040841