PLAINTIFF'S EXHIBIT

DUP-104A

105

DESIGN

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED APRIL 1955

SN 100 M

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 bonc 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe mec 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% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Calsherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pebco Products, Inc.		

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.

DUP 0990029 — 048054

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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
Resistance to breakage in handling	Good	Good	Good
Dimensions	To Specification		
Other Qualifications		Formed on a mandrel to a predetermined wt. Pressed to obtain the desired density, and baked.	Formed on a mandrel 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.			
	Tempchex Philip Carey Mfg. Co.	Unibestos 750 Union Asbestos & Rubber Co.	Unibestos 1200 Union Asbestos & Rubber Co.

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority instituting the use of this Specification.

DUP 0990030

273

REV. ____ SUP. BY ____

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICAT

ISSUED OCT 1954
REVISED SEPTEMBER 1955

SN 100 M
Page 1 of 5

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous e
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with 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. – 0.55 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 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.	*Calalite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endura Hi-Temp.* Ehret Mag. Mfg. Co., Ir
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales C
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Trianlite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

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 19

DUP 0990031

848856

Case	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 lbs. 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 mandrel to a predetermined wt. Pressed to obtain the desired density, and baked.	Formed on a mandrel 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.			
	Temp-a-fleck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUP 0990032

273

REV. ____ SUP. BY ____

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED SEPTEMBER 1955

SN 100 M

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ear
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with bc 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe n 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% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endure Hi-Temp.* Ehret Mag. Mfg. Co., Inc
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*I/M Superex* Johns-Manville Sales Co.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

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 25

DUPONT

R-98

DUP 0990180

040285

MATERIAL SPECIFICATION - SERIES 100

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.			
	Tempchecx Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUP 0990181

948286

105

d-0-37 II

DESIGN MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE		THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION ISSUED OCT 1954 REVISED APRIL 1955	SN 100 M Page 1 of 5
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 bond 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. – 0.55 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
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.	*85% Mag.* Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J. M. Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pabco Products, Inc.		

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.

DUPONT

R-99

DUP 0990182

048287

MATERIAL SPECIFICATION – SERIES 100

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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
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.			
	Tempacheck Philip Carey Mfg. Co.	Asbestos 730 Union Asbestos & Rubber Co.	Asbestos 1200 Union Asbestos & Rubber Co.

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

106

DUP 0990183

848288

113

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954
REVISED APRIL 1956

SN 100 M
Page 1 of 11

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ear
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with bo 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 – 0.56 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe m 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.	85% Mag. Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 1°* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pebco Products, Inc.		

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 25

R-179

DUP 0990295

048329

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954

Rev. July 1956

Code		105	106
Material		Asbestos molded	Asbestos and diatomaceous earth molded
Material Description		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		100°F to 700°F	700°F to 1000°F
K Factor		500°F - 0.56 max.	500°F - 0.58 max.
Density		14 lbs. per cu. ft.	14 lbs. per cu. ft.
Compressive Strength			
Manufacturing Process		Formed and comp. on mandril. Pipe mach. cut on die.	Formed and comp. on mandril. Pipe mach. cut on die.
Resistance to Breakage in Handling		Good	Good
Dimensions			
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.			
		Unibestos 750 Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

REV. SUP. E

DUP 0990296

848321

273

REV. ___ SUP. BY ___

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICAT

ISSUED OCT 1954
REVISED SEPTEMBER 1955

SN 100 M

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ea
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endure Hi-Temp.* Ehret Mag. Mfg. Co., Inc
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*I/M Superex* Johns-Manville Sales Co
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Trialite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pebco Products, Inc.		

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 0990297

R-180

848322

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954
Rev. April 1956

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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7. Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

REV. JUL 1956 SUP. BY

DUP 0990298

848323

105

SUP. 55

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE	THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION ISSUED OCT 1954 REVISED APRIL 1955	SN 100 M Page 1 of 5

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 bon 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe mec 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 10* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Exduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Trialite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pebco Products, Inc.		

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.

DUP 0990299

R-181

048324

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954
Rev. Sept. 1955

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 mandrel to a predetermined wt. Pressed to obtain the desired density, and baked.	Formed on a mandrel 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.			
	Temp-Block Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUP 0990300

840325

125

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATIC

ISSUED OCT 1954
REVISED JULY 1954

SN 100 M
Page 1 of 12

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ea
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with b 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 – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe m 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kayle* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Calsherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Cor
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Triaslite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pebco Products, Inc.		

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 25

DUP 0990380

R-227

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1956

Rev. July 1956

Code		105	106
Material		Asbestos molded	Asbestos and diatomaceous earth molded
Material Description		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		100°F to 700°F	700°F to 1000°F
K Factor		500°F - 0.56 max.	500°F - 0.58 max.
Density		14 lbs. per cu. ft.	14 lbs. per cu. ft.
Compressive Strength			
Manufacturing Process		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
Dimensions			
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.			
		Unibestos 750 Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

REV. SUP. BY

DUP 0990381

848485

113

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATIO

ISSUED OCT 1954

REVISED APRIL 1956

SN 100 M

Page 1 of 11

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ea
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with b 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 – 0.56 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe 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 proved 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% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endure Hi-Temp.* Ehret Mag. Mfg. Co., Inc
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Co
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Trialite* Mundet Cork Corp.	
	Precision-molded Pebco Products, Inc.		

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 25

DUP 0990382

R-228

848487

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954
Rev. April 1956

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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos 47. Armstrong Cork Co.	*Armabestos 412* Armstrong Cork Co.

REV. JUL 1956 SUP. BY

DUP 0990383

848488

273

REV. ____ SUP. BY ____

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICAT

ISSUED OCT 1954
REVISED SEPTEMBER 1955

SN 100 M
Page 1 of 5

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe 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% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endure Hi-Temp.* Ehret Mag. Mfg. Co., In
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales C
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Triaxlite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

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

R-229

DUP 0990384

848489

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954

Rev. Sept. 1955

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.			
	Tempeheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUP 0990385

848418

DESIGN

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATIO

ISSUED OCT 1954
REVISED APRIL 1955

SN 100 M
Page 1 of 5

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ear
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with bo 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. - 0.55 max.	500°F. - 0.56 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe mc 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.	85% Mag. Philip Carey Mfg. Co.	Calolite The Ruberoid Co.	High Temp. No. 19 Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	Kaylo Owens-Illinois Glass Co.	Endure High Temp. Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	Calsbestos Pabco Products, Inc.	J-M Super Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	High Temp. Keasbey & Morrison Co.
	Featherweight Keasbey & Morrison Co.	Kaylshera Keasbey & Morrison Co.	
	85% Mag. Mundet Cork Corp.	Insulite Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	Pressure-molded Pabco Products, Inc.		

Vendors and manufacturers designations are given to describe materials and may not include all acceptable products. Substitutions are to be made only on approval of the authority governing the use of this specification.

R-230

DUP 0990386

MATERIAL SPECIFICATION – SERIES 100

OCTOBER 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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
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.

	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUP 0990387

848412

113

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954
REVISED APRIL 1956

SN 100 M

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 bond 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 – 0.56 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 mac 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pabco Products, Inc.		

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 0990466

R-276

848491

MATERIAL SPECIFICATION - SERIES 100

Code		105	106
Material		Asbestos molded	Asbestos and diatomaceous earth molded
Material Description		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		100°F to 700°F	700°F to 1000°F
K Factor		500°F - 0.56 max.	500°F - 0.58 max.
Density		14 lbs. per cu. ft.	14 lbs. per cu. ft.
Compressive Strength			
Manufacturing Process		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
Dimensions			
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.			
		Unibestos 750 Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

REV. SUP. CY

DUP 0990467

848492

273

REV. ___ SUP. BY ___

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATIO

ISSUED OCT 1954
REVISED SEPTEMBER 1955

SN 100 M
Page 1 of 5

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ea
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Staple, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with b 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe 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% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endure Hi-Temp.* Ehret Mag. Mfg. Co., Inc
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*I/M Superex* Johns-Manville Sales Co
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pebco Products, Inc.		

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 38

DUP 0990468

R 277

848493

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954
Rev. April 1956

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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7. Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

REV. JUL 1956 SUP. BY

DUP 0990469

848494

105

DESIGN

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954
REVISED APRIL 1955

SN 100 M
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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 ban 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe mec 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Feathersweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Trialite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pebco Products, Inc.		

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.

DUP 0990470

R-278

848495

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.			
	Temp-check Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUP 0990471

105

C D

DESIGN

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED APRIL 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	Calciline The Ruberoid Co.	High Temp. No. 19 Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	Kaylo Owens-Illinois Glass Co.	Enduro Hi-Temp. Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	Caltherm Pabco Products, Inc.	J-M Superex Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	High Temp. Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	Kaytherm Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	Tricalite Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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.

DUPONT

DUP 0990585

090219

AFCL

SN 100 M
Page 2

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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DUPONT

106

DUP 0990586

090220

A B C D E F

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.			
* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUPONT

197

REV. SUP. BY

DUP 0990587

090221

MATERIAL SPECIFICATION – SERIES 100

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	-200°F. to 100°F.	-200°F. to 100°F. (-300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. – 0.29 max.	100°F. – 0.43 max.	100°F. – 0.21 to 0.26
Density		10 – 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF–M–1. Available with factory-applied vapor barrier finish, specify as "dual temp."	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

DUPONT

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REV. OCT 1955 SUP. BY

DUP 0990588

090222

BCDEF

OCTOBER 1954 Rev. Feb. 1955	MATERIAL SPECIFICATION – SERIES 100		SN 100 M Page 5
Code	**113**	**114**	**115**
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

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.
		Koldboard Baldwin Hill Co.

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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.

DUPONT

SUP. BY

REV.

81

DUP 0990589

090223

273

REV. ___ SUP. BY ___

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED SEPTEMBER 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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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.

DUPONT

SUBCOMMITTEE NO 20

DUP 090590

090224

E F G

SN 100 M
Page 2

MATERIAL SPECIFICATION – SERIES 100

OCTOBER 1954
Rev. Sept. 1955

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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

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DUPONT

274

DUP 0990591

090225

ABCDEF

OCTOBER 1954

MATERIAL SPECIFICATION – SERIES 100

SN 100 M

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 plai 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.			
* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales C.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Rubereid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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REV. SUP. BY

202

DUPONT

DUP 0990592

090226

DE

MATERIAL SPECIFICATION - SERIES 100

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	-200°F. to 100°F.	-200°F. to 100°F. (-300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. - 0.29 max.	100°F. - 0.43 max.	100°F. - 0.21 to 0.26
Density		10 - 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF-M-1. Available with factory-applied vapor barrier finish, specify as "dual temp."	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monacover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

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REV. OCT 1955 SUP. BY
DUP 0990593
090227

BCDEF

OCTOBER 1954
Rev. Feb. 1955

MATERIAL SPECIFICATION – SERIES 100

SN 100 M
Page 5

Code	113	114	115
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

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.
		Koldboard Baldwin Hill Co.

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.

DUPONT

SUP. BY

REV.

DUP 0990594

204

090228

E.F.G

273

REV. ___ SUP. BY ___

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED SEPTEMBER 1955

SN 100 M

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. – 0.55 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% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

DUP 0990595

205

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 20

090229

EFG

SN 100 M
Page 2

MATERIAL SPECIFICATION – SERIES 100

OCTOBER 1954
Rev. Sept. 1955

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 mandrel to a predetermined wt. Pressed to obtain the desired density, and baked.	Formed on a mandrel 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.

Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
	Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUPONT

DUP 0990596

090230

ABCDEF

OCTOBER 1954

MATERIAL SPECIFICATION – SERIES 100

SN 100 M

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.			
* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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REV. SUP. BY

DUP 0990597

207

DUPONT

090231

F G

SN 100 M Page 4	MATERIAL SPECIFICATION – SERIES 100		OCTOBER 1954 Rev. Oct. 1955
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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	–200°F. to 100°F.	–200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. – 0.29 max.	100°F. – 0.43 max.	100°F. – 0.21 to 0.26
Density		10 – 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic		Bonded with a suitable binder.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.			
* Available with factory-applied glass cloth jacket, specify as PF–M–1. Available from all manufacturers listed in various other factory finishes to be specified on the order.	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monacover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

REV. SUP. BY
DUP 0990598
090232

BCDEF

MATERIAL SPECIFICATION – SERIES 100

Code	113	114	115
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

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.
		Koldboard Baldwin Hill Co.

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.

DUPONT

REV. SUP. BY 81

209

DUP 0990599

090233

EFG

273

REV. SUP. BY

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED SEPTEMBER 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Endura Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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.

210

SUBCOMMITTEE NO 28

DUPONT

DUP 090600

090234

EFG

SN 100 M
Page 2

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 1954
Rev. Sept. 1955

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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

211

DUPONT

274

DUP 0990601

990235

OCTOBER 1954

MATERIAL SPECIFICATION - SERIES 100

SN 100 M

Code	107	108	109
Material	Asbestos sponge		Corrugated asbestos preshrunk
Material Description	Asbestos sheets separated by finely ground sponged material banded 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. - 0.56 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.

* Aircell - 4-ply Excel - 6-ply Cavocel - 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M - Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B-H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUPONT

177

SUP. BY

REV.

DUP 0990602

090236

FG

MATERIAL SPECIFICATION - SERIES 100

193

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	-200°F. to 100°F.	-200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. - 0.29 max.	100°F. - 0.43 max.	100°F. - 0.21 to 0.26
Density		10 - 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF-M-1. Available from all manufacturers listed in various other factory finishes to be specified on the order.	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

REV. SUP. BY

DUP 0990603

090237

G

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OCTOBER 1954 Rev. Mar. 1956	MATERIAL SPECIFICATION – SERIES 100		SN 100 M Page 5
Code	113	114	115
Material	Glass fiber – neoprene coated	Mineral wool (Block only)	Mineral wool – asphalt impregnated
Meterial 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. – .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.

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.
	Armatemp Block Armstrong Cork Co.	*Koldboard* Baldwin Hill Co.

REV. SUP. BY

DUP 090604

214

090238

105

DESIGN

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED APRIL 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J-M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kartherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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.

DUPONT

DUP 0990628

090214

AECD

SN 100 M
Page 2

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
Resistence 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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.

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Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUPONT

106

DUP 0990629

090215

A B C D E F

Code	107	108	109
Material	Asbestos sponge		Corrugated asbestos preshrunk
Material Description	Asbestos sheets separated by finely ground sponged material banded 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.

* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUPONT

177

REV. SUP. BY

192

DUP 0990630

090216

E C

MATERIAL SPECIFICATION – SERIES 100

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	–200°F. to 100°F.	–200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. – 0.29 max.	100°F. – 0.43 max.	100°F. – 0.21 to 0.26
Density		10 – 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF–M–1. Available with factory-applied vapor barrier finish, specify as "dual temp."	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.

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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.

DUPONT

80

REV. JUN 1955 SUP. BY

DUP 0990631

090217

B C D E+

OCTOBER 1954
Rev. Feb. 1955

MATERIAL SPECIFICATION – SERIES 100

SN 100 M
Page 5

Code	113	114	115
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

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.
		Koldboard Baldwin Hill Co.

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.

194

DUPONT

REV. SUP. BY

DUP 0990632

090218

105

DESIGN

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED APRIL 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	*Calciliste* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermaliste 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J-M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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.

DUPONT

DUP 0990633

090219

AFCL

SN 100 M
Page 2

MATERIAL SPECIFICATION – SERIES 100

OCTOBER 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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
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.

Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

196

DUPONT

106

DUP 0990634

090220

A B C D E F

OCTOBER 1954

MATERIAL SPECIFICATION – SERIES 100

SM 100 M

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.

* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUPONT

090221

DUP 0990635

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REV. SUP. BY

197

MATERIAL SPECIFICATION – SERIES 100

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	–200°F. to 100°F.	–200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. – 0.29 max.	100°F. – 0.43 max.	100°F. – 0.21 to 0.26
Density		10 – 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF–M–1. Available with factory-applied vapor barrier finish, specify as "dual temp."	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

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REV. OCT 1955 SUP. BY
DUP 0990636
090222

BCDEF

Code	113	114	115
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

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.
		Koldboard Baldwin Hill Co.

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.

DUPONT

REV. SUP. BY

DUP 0990637

090223

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REV. ___ SUP. BY ___

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED SEPTEMBER 1955

SN 100 M

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 bentonite 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. – 0.55 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% Ehret Mag. Mfg. Co., Inc.	*Kayle* Owens-Illinois Glass Co.	*Endura Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

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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.

DUPONT

SUBCOMMITTEE NO 25

DUP 0990638

090224

E F G

SN 100 M
Page 2

MATERIAL SPECIFICATION – SERIES 100

OCTOBER 1954
Rev. Sept. 1955

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.

Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
	Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

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DUPONT

DUP 090039

090225

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OCTOBER 1954

MATERIAL SPECIFICATION – SERIES 100

SN 100 M

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.

* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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REV. SUP. BY

DUP 0990640

202

DUPONT

090226

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SN 100 M Page 4	MATERIAL SPECIFICATION – SERIES 100		OCTOBER 1954 Rev. June 1955
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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	–200°F. to 100°F.	–200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. – 0.29 max.	100°F. – 0.43 max.	100°F. – 0.21 to 0.26
Density		10 – 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.			
* Available with factory-applied glass cloth jacket, specify as PF–M–1. Available with factory-applied vapor barrier finish, specify as "dual temp."	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

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REV. OCT 1955 SUP. BY

DUP 0990641

203

090227

BCDEF

OCTOBER 1954 Rev. Feb. 1955	MATERIAL SPECIFICATION – SERIES 100		SN 100 M Page 5
Code	**113**	**114**	**115**
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

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.
		Koldboard Baldwin Hill Co.

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.

DUPONT

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REV. SUP. BY

DUP 0990642

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REV. ____ SUP. BY ____

MATERIALS

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954

REVISED SEPTEMBER 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pabco Products, Inc.	*J/M Superex* Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Tricalite* Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

DUP 0990648

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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.

DUPONT

SUBCOMMITTEE NO 58

090234

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SN 100 M
Page 2

MATERIAL SPECIFICATION – SERIES 100

OCTOBER 1954
Rev. Sept. 1955

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.

Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
	Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

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DUPONT

DUP 0990649

090235

A B C D E F

Code	107	108	109
Material	Asbestos sponge		Corrugated asbestos preshrunk
Material Description	Asbestos sheets separated by finely ground sponged material banded 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. – 0.56 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.

* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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DUPONT

DUP 0990650

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MATERIAL SPECIFICATION - SERIES 100

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	-200°F. to 100°F.	-200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. - 0.29 max.	100°F. - 0.43 max.	100°F. - 0.21 to 0.26
Density		10 - 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF-M-1. Available from all manufacturers listed in various other factory finishes to be specified on the order.	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine "Snap-on"* Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.
			Armaglas * Armstrong Cork Co.

DUPONT

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REV. SUP. BY
DUP 0990651
090237

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G

OCTOBER 1954 Rev. Mar. 1956	MATERIAL SPECIFICATION - SERIES 100		SN 100 M Page 5
Code	**113**	**114**	**115**
Material	Glass fiber - neoprene coated	Mineral wool (Block 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. - .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.

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.
	Armatemp Block Armstrong Cork Co.	*Koldboard* Baldwin Hill Co.

REV. SUP. BY

DUP 0990652

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REV. ___ SUP. BY ___

MATERIALS

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATIO

ISSUED OCT 1954
REVISED SEPTEMBER 1955

SN 100 M
Page 1 of 5

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous ea
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Stable, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with b 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. – 0.55 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe 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.	*85% Mag.* Philip Carey Mfg. Co.	*Calcilite* The Ruberoid Co.	*High Temp. No. 19* Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	*Kaylo* Owens-Illinois Glass Co.	*Enduro Hi-Temp.* Ehret Mag. Mfg. Co., Inc
	85% Mag. Johns-Manville Sales Corp.	*Caltherm* Pebco Products, Inc.	*J/M Superex* Johns-Manville Sales Co
		Thermobestos Johns-Manville Sales Corp.	*High Temp.* Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	*Kaytherm* Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	*Trialite* Mundet Cork Corp.	
** New Simplified Dimensional System sponsored by ASTM	*Precision-molded* Pebco Products, Inc.		

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 20

DUP 0990553

D 224

848580

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 mech. cut on diameter.	Formed and comp. on mandril. Pipe mech. cut on dia.	Formed and comp. on mandril. Pipe mech. cut on dia.
Resistance to breakage in handling	Good	Good	Good
Dimensions	To Specification		
Other Qualifications		Formed on a mandrel to a predetermined wt. Pressed to obtain the desired density, and baked.	Formed on a mandrel 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.			
	Temp-check Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.
		Armabestos A7 Armstrong Cork Co.	*Armabestos A12* Armstrong Cork Co.

DUP 0990554

105

DESIGN

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954
REVISED APRIL 1955

SN 100 M

Code	101*	102*	103
Material	85% Magnesia	Calcium silicate	Diatomaceous earth
Material Description	Hydrated basic magnesium carbonate 80% by weight minimum	Stable, cellular, calcined fire clay base	Diatomaceous earth, asbestos fiber, with bond 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. – 0.55 max.	500°F. – 0.56 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 mech. cut on diameter.	Machine extruded. Pipe mech. cut on diameter.	Machine molded. Pipe mec 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.

	85% Mag. Philip Carey Mfg. Co.	Calsilite The Ruberoid Co.	High Temp. No. 19 Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	Kaylo Owens-Illinois Glass Co.	Endure Hi-Temp. Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	Calsilam Pabco Products, Inc.	J-M Superex Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	High Temp. Keasby & Morrison Co.
	Featherweight Keasby & Morrison Co.	Kaylam Keasby & Morrison Co.	
	85% Mag. Mundet Cork Corp.	Triosilite Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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 approving the use of this specification.

DUPONT

DUP 0990555

R-226

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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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
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.			
-	*Temacheck* Philip Carey Mfg. Co.	*Calsbestos 730* Union Asbestos & Rubber Co.	*Calsbestos 1200* Union Asbestos & Rubber Co.

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

DUP 0990556

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DESIGN

MATERIAL SPECIFICATION SERIES 100 PREFORMED BLOCK AND PIPE

THERMAL INSULATION STANDARD ENGINEERING SPECIFICATION

ISSUED OCT 1954
REVISED APRIL 1955

SN 100 M

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. – 0.55 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.

	85% Mag. Philip Carey Mfg. Co.	Calcilite The Ruberoid Co.	High Temp. No. 10 Philip Carey Mfg. Co.
	Thermalite 85% Ehret Mag. Mfg. Co., Inc.	Kaylo Owens-Illinois Glass Co.	Enduro Hi-Temp. Ehret Mag. Mfg. Co., Inc.
	85% Mag. Johns-Manville Sales Corp.	Caltherm Pabco Products, Inc.	J-M Superex Johns-Manville Sales Corp.
		Thermobestos Johns-Manville Sales Corp.	High Temp. Keasby & Mattison Co.
	Featherweight Keasby & Mattison Co.	Kavtherm Keasby & Mattison Co.	
	85% Mag. Mundet Cork Corp.	Tricalite Mundet Cork Corp.	
	Precision-molded Pabco Products, Inc.		

* 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

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.

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SN 100 M
Page 2

MATERIAL SPECIFICATION - SERIES 100

OCTOBER 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 diam.	Formed and comp. on mandril. Pipe mach. cut on diam.
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.			
	Tempcheck Philip Carey Mfg. Co.	*Unibestos 750* Union Asbestos & Rubber Co.	*Unibestos 1200* Union Asbestos & Rubber Co.

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Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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ABCDEF

MATERIAL SPECIFICATION – SERIES 100

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.

* Aircell – 4-ply Excel – 6-ply Cavocel – 8-ply	*Asbestos Sponge* Johns-Manville Sales Corp.		*Preshrunk Asbestocel* Johns-Manville Sales Corp.
	Asbestos Sponge Philip Carey Mfg. Co.		*Aircell* * Philip Carey Mfg. Co.
	Sponge Felt The Ruberoid Co.		*K & M – Aircell* Keasby & Mattison Co.
	Sponge Felt Ehret Mag. Mfg. Co., Inc.		*B–H Aircell* Baldwin-Hill Co.
	Sponge Felt Std. Asbestos Mfg. Co.		

Vendors and merchandise designations are given to describe the materials and may not include all acceptable products; however, no substitutions are to be made without the written approval of the authority initiating the use of this Specification.

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E C

MATERIAL SPECIFICATION – SERIES 100

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.	Textile type fine glass fiber, bonded.
Filler			
Binder	Natural resin in cork		Suitable
Temperature Range	–200°F. to 100°F.	–200°F. to 100°F. (+300°F. for dual temp.)	100°F. to 350°F.
K Factor	100°F. – 0.29 max.	100°F. – 0.43 max.	100°F. – 0.21 to 0.26
Density		10 – 11 lb. per cu. ft.	As specified
Compressive Strength	15 lb. per sq. in. min.	35 lb. per sq. in. min.	
Manufacturing Process	Machine comp. or molded. Baked at moderate temp.		Machine molded
Resistance to breakage in handling	Good		Very good
Dimensions			
Other Qualifications	Pipe covering shall be coated on the outside with heavy mastic.		Bonded with a suitable binder.

The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their product meets the above specifications.

* Available with factory-applied glass cloth jacket, specify as PF–M–1. Available with factory-applied vapor barrier finish, specify as "dual temp."	*Cork* Armstrong Cork Co.	*Foamglas* Pittsburgh Corning Corp.	*Fiberglas* * Owens-Corning Corp.
	Cork Mundet Cork Co.		*Ultrafine* "Snap-on" Gustin-Bacon Co.
			Monocover Baldwin-Hill
			Thermoglas Phillip Carey Mfg. Co.

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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.

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BCDEF

MATERIAL SPECIFICATION – SERIES 100

Code	113	114	115
Material	Glass fiber – neoprene coated	Mineral wool (Block 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. – .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.

	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.
			Koldboard Baldwin Hill Co.

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.

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