PLAINTIFF'S
EXHIBIT
DUP-1487

137

MATERIAL SPECIFICATION
SERIES 100
PREFORMED BLOCK AND PIPE

THERMAL INSULATION
STANDARD ENGINEERING SPECIFICATION

ISSUED	OCT 1954	SN 100 M
THIS PAGE REVISED	MAY 1973	
STANDARD REAFFIRMED	MAY 1973	Page 1 of 6

Code	102	102.1	
Material Material Description	Calcium silicate Reacted hydrous calcium silicate reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	Calcium silicate – inhibited * Reacted hydrous calcium silicate with inhibitor for chloride stress corrosion cracking and reinforced with mineral fibers. All vendor's materials listed below are asbestos free.	
Recommended Temperature Range	1200 F max		
K Factor, Max Btu/(hr) (sq ft)(°F/in.)	0.38 at 200 F, 0.46 at 400 F, and 0.57 at 600 F		
Density	14 lb per cu ft min		
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	60 lb per sq in. min at 5% deformation	50 lb per sq in. min at 5% deformation	
Dimensions	See SN3D		
Qualifications and Limitations	Not recommended for use on austenitic stainless steel at or above 140 F, see SN102D. Where used on aluminum, cover the latter with Code 709, fibered asphalt cutback (200 F temp limit). All materials listed under Code 102.1 are approved where Code 102 is specified.	Recommended for use on austenitic stainless steel. For an alternate to patented inhibited calcium silicate, see SN102.1D. Where used on aluminum, cover the latter with Code 709, fibered asphalt cutback (200 F temp limit). Stressed Type 304 stainless steel U-bend specimens at 100 C, when in contact with this insulating material in the Du Pont wick test with 1500 ppm chloride as NaCl in the test water, shall show no cracking at the end of 144 hours exposure.	

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

For 12" IPS and larger, there is an additional charge for 2-ms canvas cover. Material should be specified "without 2-ms canvas" to avoid extra charge	*Thermasil* – Asbestos Free Ind Insul Div, Kaiser Corp	*Thermasil* – Asbestos Free Ind Insul Div, Kaiser Corp	
	Thermo-12 ** Johns-Manville Sales Corp		
	Kaylo – 10AF Owens – Corning	*Super Calsamp, Type NA* Fibreboard Corp	
	Super Calsamp, Type NA ** Fibreboard Corp		
	Caroyamp 1200 ** Celotex Corp		

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

** Molded preformed fitting covers are available in screened, welded, and sewed types

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

SUPERSEDES SPEC. NO. 25

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DUP 0990089 _048114

DU 045908

Code	111	112	112.6
Material	Cellular glass or ceramic	Glass fiber	Glass fiberboard
Material Description	Cellular glass or ceramic foamed and fused into unicellular form.	Glass fiber, bonded insulation for pipe and fittings. Pipe sections, one piece, hinged. Plain, without jacket.	Glass fiber bonded board, plain, without covering.
Binder		Thermosetting resin	
Recommended Temperature Range	−200 F to +100 F (+300 F for dual temp)	40 F to 375 F	40 F to 375 F
K Factor, Max Btu/(hr) (sq ft) (°F/in.)	0.25 at 50 F 0.27 at 75 F 0.29 at 100 F	0.23 at 100 F 0.27 at 200 F 0.33 at 300 F	0.24 at 100 F 0.30 at 200 F 0.37 at 300 F
Density	7 to 9 lb per cu ft	Nominal 4 lb per cu ft	Nominal 3 lb per cu ft
Compressive Strength Specimen size 6" x 6" x 2"; load rate 0.10" per min	50 lb per sq in. min at 5% deformation	Nonload bearing. Inserts required where pipe is supported by insulation.	Nonload bearing
Dimensions	See SN3D		Standard is 24" x 48", in thicknesses 1", 1½", 2"
Qualifications and Limitations		Not recommended for pre-insulation because it is easily damaged in handling. Has poor resistance to abuse. Specify whether for pipe or tubing on order. Available with factory-applied finishes and lap adhesives. When specified, consult vendors' catalogs and include on order. Available as molded fittings as noted below ♦. For field fabrication of fittings, it is recommended that glass fiber insulation with nominal 7¼ lb per cu ft density be used. Molded fittings will be lower cost in most cases and are preferred. Do not use on austenitic stainless steel at or above 140 F or unprotected aluminum.	Available with factory-applied finishes. When specified, consult vendor's catalogs and include on order. Nominal 4¼ lb per cu ft density material is available and is recommended for fabrication involving considerable shaping and fitting. Not recommended for use on austenitic stainless steel at or above 140 F or unprotected aluminum.
The following materials have proven satisfactory in field tests and proof has been furnished by the manufacturers that their products meet the above specifications. These manufacturers' materials also are acceptable under other vendor's labels upon certification as to their identity.			
? Molded fitting covers only	*Foamglas* Pittsburgh Corning Corp	*Snap-on Pipe Covering* Certain-road St. Gobain Insulation Corp	*K-230-3* Certain-road St. Gobain Insulation Corp
	Ceramic Foam Dow Chemical Co	*Micro-Lok* Johns-Manville Sales Corp	*No. 814 Spun-Glas* Johns-Manville Sales Corp
		1-Piece Pipe Covering Owens-Corning Corp	*Type 703* Owens-Corning Corp
		PPG Pipe Insulation Pittsburgh Plate Glass Co	*Type 5 Rigid Board* Pittsburgh Plate Glass Co
		? ♦ Insul-Sure Insul-Caustic Div, Birma Prod	

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