THE EAGLE-PICHER COMPANY
INSULATION DIVISION

MANUFACTURING SPECIFICATION

PLANT PRODUCTION MUST FOLLOW THIS SPECIFICATION.

Emergency Change may be made but shall be promptly reported to the Production Manager and may not extend beyond the Emergency. Permanent Change must be submitted to and be approved by the Production Manager before use by any Plant.

Product PV Supertemp Block

Plant Joplin

Page 1 of 5

Effective June 14, 1958

Supersedes Spec. dated 3-4-52

Revised Items Entire Specification

Prepared By D. A. Schmalal

Approved:

Production Mgr. CONFIDENTIAL Alton L. Jones

Division Mgr. Glen J. Christine

I. PRODUCT DESCRIPTION

1.1 Eagle-Picher PV Supertemp Block is a dark gray mineral wool insulating block composed of Eagle-Picher Mineral Wool and suitable binding agents. The block is relatively dust free, water repellant and formed into semi-rigid rectangular shapes having square corners and parallel faces.

II. PRODUCT INFORMATION

2.1	Density	16 to 18 lbs./cu. ft.
2.2	Service temperature	Up to 1900 F, one face
2.3	Fire resistance	Incombustible
2.4	Corrosion on steel	None
2.5	Performance @ 1900 F, one face	
	Volumetric shrinkage	2%
	Linear shrinkage	2%
	Loss in weight	2%
2.6	Compressive strength at 10% deformation	18 psi
2.7	Breaking strength 1" x 6" on 10" span	23 lbs
2.8	Thermal conductivity (k) in BTU in./sq. ft./hr./deg. F.	0.37 @ 200 F M.T. 0.53 @ 500 F M.T. 0.64 @ 700 F M.T.
2.9	Standard Block Sizes:	
	Length	18" and 36"
	Width	6" and 12"
	Thickness	1" thru 4" in 1/2" increments
2.10	Packages	Cartons
2.11	Net Weight per carton	63,68 and 72 lbs

FORM 1017 10-52 OP

III. RAW MATERIALS AND FORMULATION

	MATERIAL	FORMULATION LBS./MIX*	FORMULATION PERCENT
3.1	Eagle-Picher Supertemp Granulated Wool	180.0	90.77
3.2	Starch (Archer-Daniels-Midland "Adcol 105" Sorghum Starch)	4.0	2.02
3.3	Bentonite Clay 95% min. thru 200 mesh 70% min. thru 300 mesh ~~Imbibition Power, 8x0 min.~~	11.0	5.55
3.4	Aluminum Sulfate, powdered	2.7	1.36
3.5	Caustic Soda, Flakes	0.6	.30
	TOTAL	198.3	100.00

* NOTE: Weights and percentages are approximate. Slight deviations are made in formulation to secure proper draining of block in the wet molding process.

IV. PROCESSING - Pressure - vacuum molding and wet sawing method.

4.1 Approximately 35 gallons of water are run into the primary mix tank. Then the starch is added and cooked until the temperature of the starch solution is approximately 200 F. Constant agitation is maintained during this operation.

4.2 Sufficient water is added to bring level up to 145 gallons. Clay is added at the same time. Agitation is continued and this portion of the mixing cycle consumes approximately 1½ minutes. This permits clay to be adequately dispersed and expanded.

4.3 One pint of caustic solution is then added. Solution is made by adding 75 lbs. of caustic soda to 18½ gallons water. Agitation is continued for at least 1½ minutes to permit further expension of clay.

4.4 The aluminum sulfate is then added and agitation is continued for at least two minutes. This flocculates the clay and the mix is ready for transfer to the secondary mix tank.

IV. PROCESSING (Cont'd)

4.5 The wool is placed in a hopper which can transfer its contents into the secondary mix tank. Normally, small pieces of scrap block and trim from the wet sawing process are added here to salvage the value of material in them. This is equivalent to adding approximately one bag (30 lbs) of wool.

The wool and slurry are then transferred into the secondary mix tank and water is added to bring level up to 450 gallons of mix. A minimum of agitation is used to disperse the mix and to avoid breaking the wool fibers.

4.6 Once the mix is sufficiently agitated, it is transferred to the surge tank and is ready for the molding operation. The surge tank provides a minimum of agitation and only during the period of drawing off the mix to the scale box.

4.7 The scale box automatically measures the mix. Approximately 8½ master blocks are obtained from one mix.

4.8 The pressure vacuum equipment then drains the excess water from the mix and molds the semi-dry master block.

4.9 Each master block is positioned on a carrier pan and is then automatically moved through the wet sawing process to be cut to the proper width, length and thickness. (Note: The combination of thickness adds up to 5 inches.)

4.10 The master blocks are checked for dimensions and irregularities prior to loading onto drying carts. Substandard pieces are removed and fed back with the wet trim.

4.11 The blocks are dried in ovens at approximately 400 F for 70 hours.

4.12 After drying, the blocks are removed from the ovens and permitted to cool.

4.13 Blocks are removed from the carts and packaged. Final inspection is made just prior to inserting the blocks into cartons.

4.14 Cartons are identified to show contents and date of packing. They are then ready to ship or be palletized and put into the warehouse.

V. PRODUCT CONTROL

5.1 Product control tests shall be conducted as often as is necessary to maintain the quality limits set forth in the following table but with no less frequency than indicated.

V. PRODUCT CONTROL (Cont'd)

PROPERTY		VALUE	MIN. TEST FREQUENCY	TEST PROCEDURE
5.1.1	Dustiness	Relatively free	Continuous	Visual
5.1.2	Waterproofness	Sheds water	.5% Production	Apply water
5.1.3	Density			
	Minimum	16 lbs/cu. ft.	.5% Production	E-P I-136a
	Maximum	20 lbs/cu. ft.		
5.1.4	Breaking Strength 1" x 6" on 10" span	20 lb. min. ave. (None below 18 lb.)	.5% Production	Navy 32-I-3
5.1.5	Dimensional Tolerance		Continuous	Visual and gage
	Thickness	± 1/16"		
	Len. & Width	± 1/8"		

5.2 Substandard material shall be set aside for disposition as directed by the plant manager.

VI. PACKAGING

6.1 Packages shall be regular slotted cartons made from ~~275~~ 200 lb. test stock with C flute and tape closure. Standard carton sizes are as follows:

16" carton - 16-1/8" X 12-1/8" X 36-1/8"
15" carton - 15-1/8" X 12-1/8" X 36-1/8"
14" carton - 14-1/8" X 12-1/8" X 36-1/8"

6.2 Cartons shall be printed in accordance with E-P form layout D-147. The 14" cartons are plain except for "contents panel". Colors are GCMI #21 green ~~and #72 orange~~.

6.3 Cartons shall be filled in accordance with the following tables:

BLOCK THICKNESS	BD. FT. PER CTN.	CTN. SIZE	APPROX. GROSS WT. PER CTN. LBS.
1", 2", 4"	48	16"	74
1½", 2½", 3"	45	15"	69
3½"	42	14"	65

BLOCK THICKNESS	PIECES PER CARTON		
	6 X 18	6 X 36 or 12 X 18	12 X 36
1"	64	32	16
1½"	40	20	10
2"	32	16	8
2½"	24	12	6
3"	20	10	5
3½"	16	8	4
4"	16	8	4

VI. PACKAGING (Cont'd)

6.4 Cartons shall be closed by gluing top and bottom.

6.5 All cartons shall be marked with a code number that will permit complete manufacturing identification.

6.6 Cars or trucks shall be inspected and any wire, nails, or other protuberances which might tear cartons shall be removed. Cartons shall be suitably protected, if such hazards cannot be removed, to prevent damage in transit or when opening doors at destination.

6.7 This product shall be identified on shipping forms as ~~"Mineral Wool Blocks in Cartons"~~.
15# DEN or over.

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Supertemp 230