COATINGS

H-4 SPECIAL
STEAM BLOWN
SUPERGLAS - FIBER



For temperatures down to −600 F.

meets these specifications
Federal Spec. [illegible] Type [illegible].
Specifically designed for use in Tunnel Oxygen and Kelvin Production Plants, and in all other industries where maximum importance is placed on efficiency, low combustible (oil) content, optimum packing density and ability to hold shape when "bounding through for inspection and any needed equipment repairs." One bag provides 2 cu ft of coverage of optimum density at [illegible] per cu ft. Thermal Conductivity at 32 F and a density of [illegible] lb per cu ft—[illegible] Btu per sq ft per ft per hr per degree Fahr.

packaging
Packed in approx. [illegible] Kraft paper bags.

STALASTIC



For temperatures to 600 F or 700 F.

meets these specifications
Military Spec. [illegible].
A heavy, semi-electric paste boiler coating to prevent air infiltration through boiler wall settings and stack bases. Excellent vapor barrier and protects steel from rust and corrosion. Stays [illegible] and pliable when used at recommended temperatures.
Available in two grades:
Standard and High Temperature.
Wet coverage [illegible] per gal applied [illegible] in thick.

packaging
[illegible] and [illegible] gal drums. Stalastic weighs [illegible] per gal.

Manufactured by
[illegible]-PICHER COMPANY
[illegible] Fibers and Minerals Division
[illegible] Cincinnati, Ohio [illegible]

MEMBER:
[illegible]ONAL INSULATION
[illegible]TURERS ASSOCIATION

[illegible]

APPLICATION SPECIFICATIONS

for

EAGLE-PICHER INSULATING MATERIALS

on

TUNNEL KILNS

EAGLE
EP
PICHER

354415

PLAINTIFF'S
EXHIBIT
Y-91

APPLICATION SPECIFICATIONS
for
EAGLE-PICHER INSULATING MATERIALS
on
TUNNEL KILNS

1. SCOPE

These specifications cover an efficient and proven method for installing Eagle-Picher PV Supertemp Insulating Blocks and Eagle-Picher Insulating and Finishing Cements to provide proper thermal protection for tunnel kilns crown and side walls. Insulation as applied according to these specifications will greatly reduce the high heat losses and fuel costs from the kilns allowing greater ease of temperature control within the firing chamber and more comfortable working conditions around the kiln.

2. MATERIALS

Eagle-Picher PV Supertemp Insulating Block
Eagle-Picher Super "66" Insulating Cement
Eagle-Picher "43" Finishing Cement
1" Galvanized Hexagonal Wire Mesh
No. 9 Gauge Iron Wire
1/2" x .020" Steel Banding

3. APPLICATION DESCRIPTION

The insulation of a tunnel kiln crown involves special application procedures for installing insulating materials because of the large expansion in area of the brick work when heated from room temperature to operating temperatures.

If insulation were to be applied over the brick work according to standard methods and procedures it would be damaged and cracked from the expansion of the brick work beneath it when the high operating temperatures were reached.

It is impractical, of course, from standpoint of working conditions, to apply the insulation over the hot crown after the kiln has been fired and expansion taken place; therefore by necessity the insulation must be applied at room temperature by a simple method which will allow the expansion to occur without damaging the insulation. The following specifications with accompanying photographs outline the easy steps involved for such an application.

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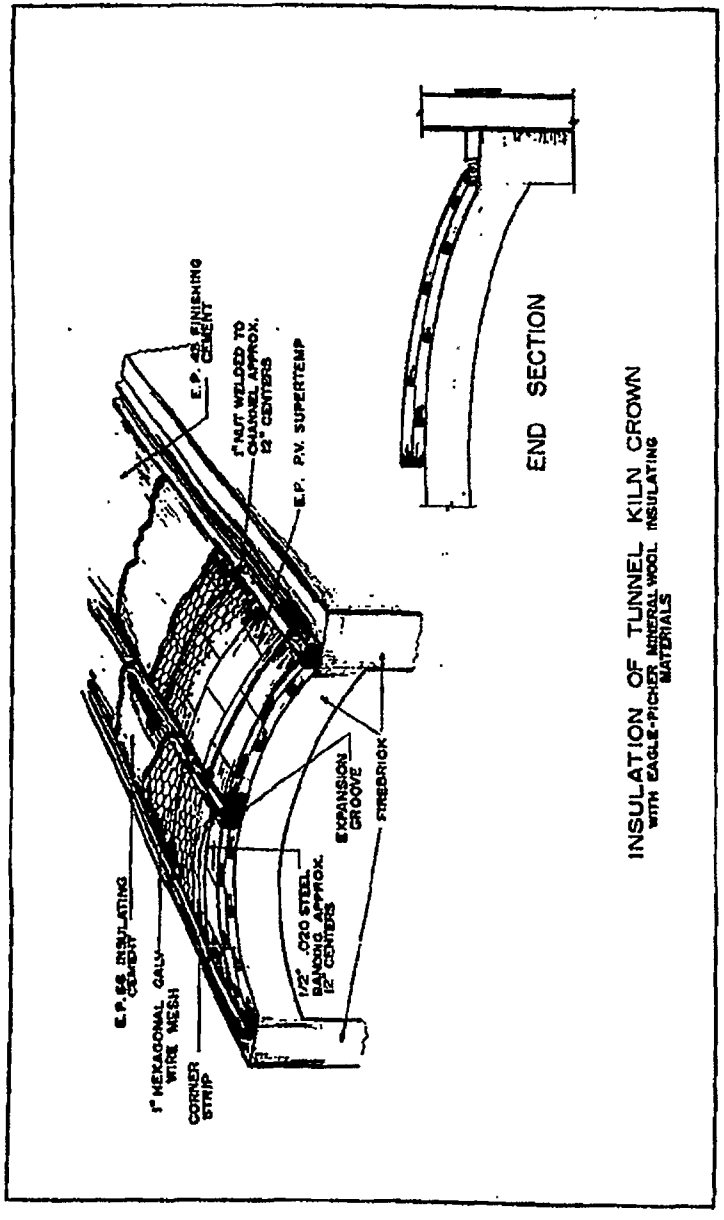


Drawing No. 1

4. ANCHOR INSTALLATION

4.1 ANCHOR INSTALLATION

4.2 Firmly secure a channel iron to the tops of the kiln walls or on top of the screw blocks. This channel piece may rest against the jackstays or be anchored in the brick work or any other means for which a particular kiln design may be suited.

This channel should extend along the entire kiln length to be insulated.

4.3 Weld nuts (approximately 1" size) in the channel on 12" centers. (See Drawing No. 1.)

5. BLOCK INSTALLATION

5.1 Attach 1/2" x .020" steel bands to the nuts welded in the channel iron. These steel bands should be long enough so they extend across half the arch and can be looped back and tied to the nut, thus forming a loop around the block.

5.2 Lay the Eagle-Picher PV Supertemp Block to the proper thickness over one side of the crown only; (See Photos No. 1 and 2) the block should be butted snuggly against the channel iron. The block thus laid in place should cover the steel bands; however, the free end of the band should not be covered.

Photo No. 1



5. BLOCK INSTALLATION (Continued)

5.3 The insulation block should be butted snuggly and all joints staggered.

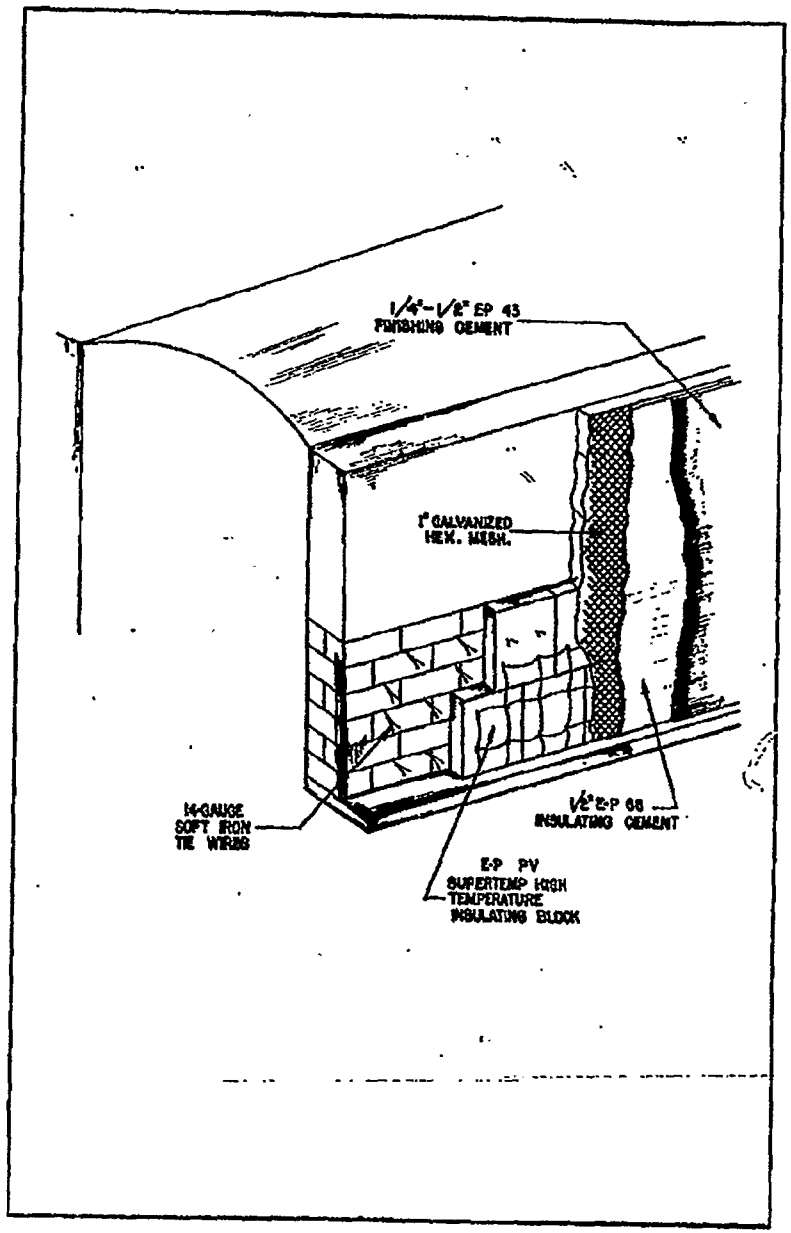
5.4 Loop the free end of the 1/2" x .020" steel bands back across the block and fasten to the same nut. The band should be tightened enough so that it conforms to all the block surfaces. (See Photos No. 3 & 4.) The crown will now move independently beneath the layer of block which is tied into the side wall.

5.5 After the blocks have been securely fastened they should be covered with 1" hexagonal galvanized wire mesh (See Photo No. 5 and Drawing No. 1) the mesh is fastened to the block by means of hairpins driven into the block. The mesh should be applied rather loosely so that the subsequent application of insulating cement will be anchored firmly to the mesh.

5.6 The application of insulating block to the other half of the crown may now be commenced.

Photo No. 2





Drawing No. 2

6. CEMENT APPLICATION

6.1 To the block installations on both halves of the kiln crown trowel a 1/2" deep layer of Eagle-Picher Super "66" Insulating Cement into the hexagonal netting applied in 5.5. (See Drawing No. 1 and Photos No. 6 and 7.).

6.2 At this point the kiln may be fired up and when operating temperatures are reached the second 1/2" layer of E-P Super "66" may be applied over the previous layer.

6.3 While the last layer of Super "66" Cement is still wet a final coat of Eagle-Picher "43", "99", or "20" Finishing Cement should be applied over it to a depth of 1/4" to 1/2".

Dampen the last layer of Super "66" if it should dry out before the finishing cement is applied.

Photo No. 3



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7. JOB COMPLETION

7.1 The crown of the kiln since it is now at operating temperatures will now have expanded whereas the insulation application because it is tied as a unit independently to the side walls will remain in its original position. Because the kiln arch has grown in size and the insulation has not, there will be an expansion gap extending down the center of the kiln over which there is not insulation. Although the kiln is at operating temperatures, the insulation already in place will keep temperatures above the kiln low enough that workman can comfortably complete the job by filling the expansion gap with block cut to proper size and cemented over with Eagle-Picher Super "66" Insulating Cement. This work can be easily done from catwalks supported from the jackstays.

7.2 The steel bands used to keep the PV Block in place when the kiln was fired up will of course burn out but this is of no consequence since the insulation is already firmly in place.

INSULATION OF KILN SIDEWALLS

8. SIDEWALLS

8.1 Steel pins should be imbedded in the brick sidewalls during their construction, over which the PV Block insulation may be impaled. These pins should be about No. 8 gauge stock. After the pins are in place their length should exceed the block thickness by about 1/2".

Photo No. 4

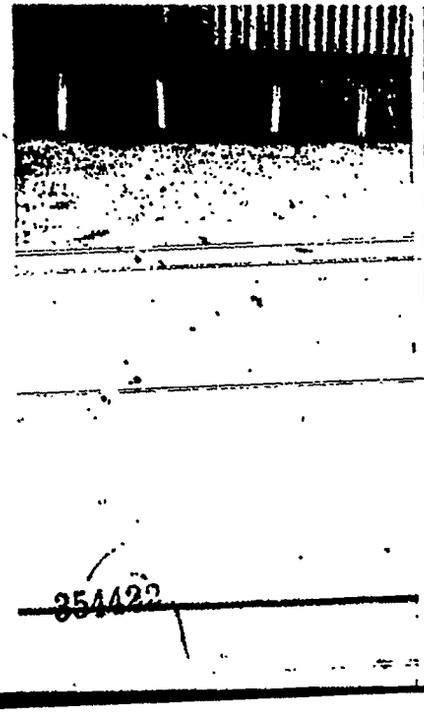

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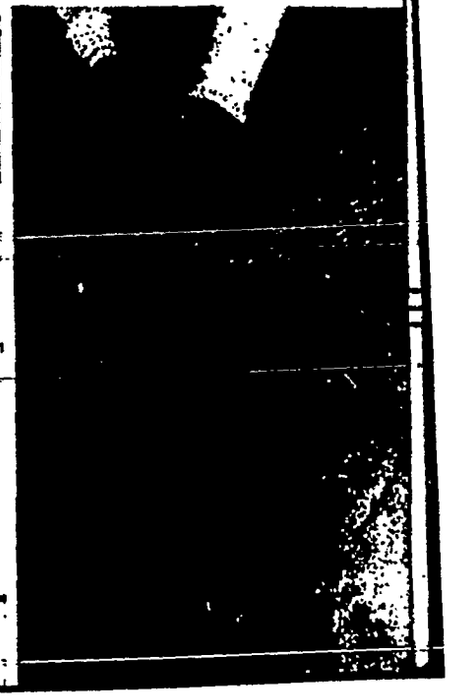
Photo No. 5



2.
SIDEWALLS
(Continued)

8.2 The spacing of these steel pins depends upon the size and thickness of the insulating blocks which they support, the thickness of the block of course being dependent on the kiln temperature. Under average conditions these pins should be spaced on 8" to 12" centers.

8.3 The blocks may now be permanently secured in place with speed clips or by lacing 14 - 16 gauge galvanized wire across the block from pin to pin in a criss-cross fashion.

8.4 When the blocks are thus secured in place 1" hex galvanized wire mesh should be pinned loosely to the block as described in 5.5.

8.5 A 1/2" layer of Eagle-Picher Super "66" Insulating Cement should then be troweled securely into the mesh.

8.6 If desired a 1/2" layer of either Eagle-Picher "99", "43" or One-Cote Cement may be applied for a finish. If damage from kiln cars or loading operations present a hazard to the insulating materials a sheet metal cover of 20 gauge galvanized, Monel steel, or aluminum may be installed as a finish cover.

Photo No. 6



Photo No. 7



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