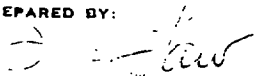


TECHNICAL SPECIFICATIONS

FORM 9927 8-62

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 535	PAGE 1
	SUPERSEDES:	DATE OF ISSUE: 4/20/66
APPLICABLE TO: Epoxy Lined Pipe	CLASSIFICATION: Purchasing Specification	
DESCRIPTION: Field Epoxy Kit		
A. <u>General</u> 1.0 <u>Description</u> The field epoxy kit is composed of a container holding the resin component and hardener. The components are separated by a retaining tray. The exact weights of the components necessary for proper mixing will be supplied. Stirring sticks (tongue depressors) will be supplied with each kit. Instructions for proper mixing will be on the label of the container. B. <u>Use</u> The epoxy kit is intended for use in the field to coat field cut CPC epoxy lined pipe, and to patch the epoxy lining where necessary. C. <u>Lot Size</u> For sampling and inspection purposes, a lot shall be defined as the quantity of field epoxy kits shipped on one order, received at one time, and identified by a code number. D. <u>Requirements</u> 1.0 <u>Special</u> The type resin, hardener, container, and label shall be approved by the R&D Department of Certain-teed Products Corporation (CPC) Pipe Division. After approval, no changes in the composition of the components, the container, or label may be made without authorization, in writing, from the R&D Department of the Pipe Division of CPC. When such a change is authorized, it shall be identified by a change in the vendor's identification. 2.0 <u>Manufacturer's Inspection</u> The manufacturer shall have sufficient control so that all defective material is removed prior to shipment. Each batch shall be identified by a number starting with No. 1. The numbers shall be consecutive and shall be placed on the label of each outside container.		
PREPARED BY: 	APPROVED BY:  CTD015088	

TECHNICAL SPECIFICATIONS

 CERTAIN-TEED PRODUCTS CORPORATION PIPE DIVISION	SPECIFICATIONS CLASSIFICATION:																	
	Standard Purchasing Specification																	
	T.C.O. REF. NO.	SPECIFICATION NO.	PAGE NO.:															
	2	535	2															
SUPERSEDES:			DATE OF ISSUE:															
April 20, 1966			MAR 25 1974															
DESCRIPTION:																		
Field Epoxy Kit																		
3.0 <u>Manufacturer's Data</u> On each new batch, or once a month, whichever is less frequent, the manufacturer shall supply to the Materials Laboratory Supervisor of CPC Pipe Division copies of their applicable control data, and a statement that the material meets the requirements of this specification. 4.0 <u>Components</u> A. <u>Resin Component</u> The resin component shall contain the following ingredients in their proper preparations and thoroughly mixed before placing in container. <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>% By Weight</u></th> </tr> </thead> <tbody> <tr> <td>Bakelite Epoxy ERL 2774</td> <td style="text-align: right;">67.50</td> </tr> <tr> <td>15 Micron Min-U-Sil</td> <td style="text-align: right;">31.00</td> </tr> <tr> <td>Cab-O-Sil</td> <td style="text-align: right;">1.35</td> </tr> <tr> <td>Glycerol</td> <td style="text-align: right;">0.15</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">100.00</td> </tr> </tbody> </table> This is the preferred formulation. Other resins that may be used are: 1. Ciba Araldite 9001 2. Jones-Dabney Epi-Rez 510 3. Shell Chemical Epon 8280 4. Reichhold Epotuf 37-140 If any of the above resins are used, they shall be proportional in the same quantities as the Bakelite ERL 2774. Any additives or extenders are not permitted. B. <u>Hardener Components</u> The hardener component shall contain the following ingredients in their proper preparations and thoroughly mixed before placing in container.						<u>% By Weight</u>	Bakelite Epoxy ERL 2774	67.50	15 Micron Min-U-Sil	31.00	Cab-O-Sil	1.35	Glycerol	0.15		100.00		
	<u>% By Weight</u>																	
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	100.00																	
CTD015089																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">PREPARED BY:</td> <td style="width: 20%;">APPROVED BY:</td> <td style="width: 10%;">R & D</td> <td style="width: 10%;">MFG.</td> <td style="width: 10%;">SALES</td> <td style="width: 10%;">I.E.</td> <td style="width: 30%;">OTHERS</td> </tr> <tr> <td style="text-align: center;">J.C. Taylor</td> <td style="text-align: center;">[Signature]</td> <td style="text-align: center;">[Signature]</td> <td></td> <td></td> <td></td> <td style="text-align: center;">[Signature]</td> </tr> </table>					PREPARED BY:	APPROVED BY:	R & D	MFG.	SALES	I.E.	OTHERS	J.C. Taylor	[Signature]	[Signature]				[Signature]
PREPARED BY:	APPROVED BY:	R & D	MFG.	SALES	I.E.	OTHERS												
J.C. Taylor	[Signature]	[Signature]				[Signature]												

TECHNICAL SPECIFICATIONS

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE		NUMBER: 535	PAGE 3
		SUPERSEDES:	DATE OF ISSUE: 4/20/66
APPLICABLE TO: Epoxy Lined Pipe		CLASSIFICATION: Purchasing Specification	
DESCRIPTION: Field Epoxy Kit			

	<u>% By Weight</u>
Bakelite Hardener ZZL-0814	58.80
Plastic Color Blue 23012	1.20
15 Micron Min-U-Sil	23.20
Zeolex 23	16.50
	100.00

5.0 Chemical Requirements

A. Resin

The resin shall be of a liquid bis-phenol A-epichlorohydrin type with an epoxide equivalent of 175-200, as determined by ASTM Method of Test D 1652.

B. Hardener

Low toxicity.

6.0 Physical Requirements

A. Resin

Brookfield Viscosity at 25°C, range 10,000 to 16,000 CP.

B. Hardener

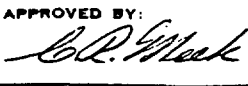
Viscosity @ 25°C (Brookfield) Max. 400 CP.

7.0 Coating Properties

A. Consistency - Must not sag or run on vertical surface when applied with a paint brush. Must be brushable between 60°F and 100°F, leaving a coating of 20 mils. minimum.

B. Pot Life (in can)

75°F, Min.	20 minutes
100°F, Min.	10 minutes

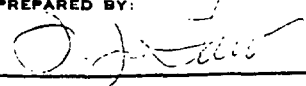
PREPARED BY: 	APPROVED BY: 
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CTD015090

TECHNICAL SPECIFICATIONS

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 535	PAGE 4				
	SUPERSEDES:	DATE OF ISSUE: 4/20/66				
APPLICABLE TO: Epoxy Lined Pipe		CLASSIFICATION: Purchasing Specification				
DESCRIPTION: Field Epoxy Kit						
C. <u>Drying Time 75°F (on Pipe)</u> <table border="0"> <tr> <td>Tack free, Max.</td> <td>2 hours</td> </tr> <tr> <td>Hard (fingernail) Max.</td> <td>6 hours</td> </tr> </table> D. <u>Color</u> Color shall be blue and of a shade and intensity as obtainable by the color paste to be supplied by CPC, when used in quantity specified in hardener component. E. <u>Adhesive Strength</u> The adhesive bond shall be strong enough to withstand 4 hours in boiling distilled water without any visible separation or pulling from an A/C pipe surface. 8.0 <u>Packaging and Marking</u> The Field Epoxy Kits shall be shipped in suitable cartons (275 lb. test) 12 to a carton; in addition 4 extra stirring sticks (tongue depressors) shall be included in the carton. Each carton shall be marked to show the vendor's name, Epoxy Field Kit and CPC's Order Number. Each individual Field Epoxy Kit shall consist of: (a) Outside Container - This container shall be a standard one pint, double friction tin can with lid. This container shall meet the dimensions as shown in Figure I of this specification. Into the large container shall be poured 180 grams to 186 grams of the Resin Component. (b) Retainer Tray - The retainer tray shall be a tin, or aluminum, cup with a flared lip that rests on the inner ledge of the top of the outside container. The retainer tray is to hold the hardener can and keep it separated from the epoxy resin. The retainer tray shall meet the dimensions as shown in Figure I. (c) Hardener Container (Kangaroo Container) - The hardener container shall be a screw cap tin or aluminum can (other materials may be used provided they do not react with the hardener.) This Kangaroo container shall fit into the			Tack free, Max.	2 hours	Hard (fingernail) Max.	6 hours
Tack free, Max.	2 hours					
Hard (fingernail) Max.	6 hours					
PREPARED BY: <i>J. Law</i>	APPROVED BY: <i>B.R. Meek</i>					

TECHNICAL SPECIFICATIONS

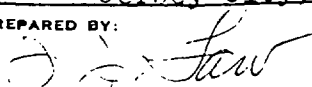
CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 535	PAGE 5
	SUPERSEDES:	DATE OF ISSUE: 4/20/66
APPLICABLE TO: Epoxy Lined Pipe		CLASSIFICATION: Purchasing Specification
DESCRIPTION: Field Epoxy Kit		
retaining tray and shall meet the dimensions as shown in Figure I. Into this container shall be poured 51 grams to 55 grams of the hardener component. (d) Labels - All labels shall be of a design and wording as specified by CPC. Approved labels will be attached to the outside container, and the lid of the hardener (Kangaroo) container. The batch number shall be on the outside container label. (e) Mixing Stick - The mixing stick shall be a tongue depressor 3/4" x 6" and shall be placed in the case in a bundle held by a rubber band or tape. 9.0 <u>Acceptance and Rejection</u> Certain-teed Products Corporation reserves the right to reject any lot or lots found not conforming to the requirements of this specification. Such rejection or acceptance of lot, lots, or portions thereof shall not be limited to the time of delivery but shall be accomplished within thirty (30) days from receipt date. In the event of rejection, the vendor shall be immediately advised and the reason for the rejection explained. The vendor shall be given the opportunity to inspect rejected material on representative samples of the rejected material in the Materials Laboratory, Ambler, Pennsylvania prior to final dispositions. The vendor must express his desire to inspect rejected material within seven (7) days after notification of the rejections and the physical inspection of rejected material must be performed within thirty (30) days after the notification of rejections.		
PREPARED BY: 	APPROVED BY: 	

CTD015092

TECHNICAL SPECIFICATIONS

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 535	PAGE 6
	SUPERSEDES:	DATE OF ISSUE: 4/20/66
APPLICABLE TO: Epoxy Lined Pipe		CLASSIFICATION: Purchasing Specification
DESCRIPTION: Field Epoxy Kit		
Figure I 5/16" $\pm$ 3" $\pm$ LID 1/2" $\pm$ LID 1 1/2" $\pm$ 2 7/8" $\pm$ HARDENER CAN 4" $\pm$ 2 3/8" $\pm$ 1 1/2" $\pm$ TRAY 3 3/8" $\pm$ EPOXY CAN		
PREPARED BY: <i>[Signature]</i>	APPROVED BY: <i>[Signature]</i>	

TECHNICAL SPECIFICATIONS

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE		NUMBER: 535 Addendum	PAGE 1																												
		SUPERSEDES:	DATE OF ISSUE: 4/20/66																												
APPLICABLE TO: Epoxy Lined Pipe		CLASSIFICATION: Purchasing Specification																													
DESCRIPTION: Field Epoxy Kit																															
<u>NOT TO BE DISTRIBUTED TO VENDORS</u>																															
1.0 <u>General</u> The packaging and final end use of this product makes sampling difficult. Many of the tests we are not equipped to run. Therefore, from each shipment, depending on size of shipment, select one field epoxy kit at random for testing. On the sample selected, mix the contents and observe the pot life time. Coat a small piece of A/C pipe and observe the time to become tack free, and the time to become hard. If any of these requirements do not meet specification requirements, the shipment shall be rejected. <table style="width: 100%; margin-top: 20px;"> <thead> <tr> <th style="text-align: center;"><u>No. of Kits In Shipment</u></th> <th style="text-align: center;"><u>No. of Kits In Sample</u></th> <th style="text-align: center;"><u>Acceptable Defectives</u></th> <th style="text-align: center;"><u>Rejection Basis</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 - 120</td> <td style="text-align: center;">1</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">120 - 240</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">240 - 360</td> <td style="text-align: center;">3</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">360 - 480</td> <td style="text-align: center;">4</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">480 - 600</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">Over 600</td> <td style="text-align: center;">6</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> </tbody> </table> 2.0 <u>Rejections</u> The following procedure shall be followed on all rejected shipments. A. The Headquarters Purchasing Department shall be notified. They will issue instructions on how and when the shipment is to be returned. B. Quality Control Headquarters and the Materials Laboratory Supervisor shall be notified and a sample from the rejected shipment shall be sent to the Materials Laboratory Supervisor. This sample will be an aid in discussing the rejection with the vendor. 3.0 <u>Approved Vendor</u> Smooth-On Manufacturing Company 572 Communipaw Avenue Jersey City, N. J. Approved mix is Mix No. 3.				<u>No. of Kits In Shipment</u>	<u>No. of Kits In Sample</u>	<u>Acceptable Defectives</u>	<u>Rejection Basis</u>	1 - 120	1	0	1	120 - 240	2	0	1	240 - 360	3	0	1	360 - 480	4	0	1	480 - 600	5	0	1	Over 600	6	1	2
<u>No. of Kits In Shipment</u>	<u>No. of Kits In Sample</u>	<u>Acceptable Defectives</u>	<u>Rejection Basis</u>																												
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240 - 360	3	0	1																												
360 - 480	4	0	1																												
480 - 600	5	0	1																												
Over 600	6	1	2																												
PREPARED BY: 		APPROVED BY: 