

TECHNICAL SPECIFICATIONS

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536	PAGE 1
	SUPERSEDED: 5/6/66	DATE OF ISSUE: 10/27/66
APPLICABLE TO: Rubber Rings		CLASSIFICATION: Purchasing Specification
DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		
A. <u>General</u> 1.0 <u>Description</u> The rubber rings herein described consist of a properly vulcanized rubber of members of the "R" family. The "R" family is classified as "rubbers or elastomers having an unsaturated carbon chain; for example, natural rubber and synthetic rubbers derived at least partly from diolefins", as defined in ASTM Designation D 1418-61T. Natural rubber, natural rubber blended with synthetic elastomers, or synthetic elastomers which will meet the requirements of this specification may be used. No reclaim or scrap rubber is permitted. Polymers that are not members of the "R" family may also be considered, provided they perform the purpose intended and meet the requirements of this specification satisfactorily. 2.0 <u>Design</u> All rings shall be circular in form and cross section and shall be manufactured to the dimensions specified in Figure I of this specification. 3.0 <u>Conformance</u> The rubber rings as supplied under this specification shall also conform to the requirements of ASTM Specification D 1869, latest revision. B. <u>Use</u> Rubber rings as described in this specification are intended for use as an end plug for CPC Building Sewer Pipe, when used in conjunction with plastic spacers. The rubber ring separates the plastic spacers which are connected by a bolt and wing nut. When the wing nut is tightened, the spacers are drawn together causing the ring O.D. to enlarge, thus forming a seal. The end plugs are intended for use with Building Sewer Pipe as manufactured by the Mazza process only.		
PREPARED BY: <i>J. J. Law</i>	APPROVED BY: <i>W. M. F. Feltman</i>	

CTD015095

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CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536	PAGE 2
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APPLICABLE TO: Rubber Rings	CLASSIFICATION: Purchasing Specification	
DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		
C. <u>Lot Size</u> For sampling and inspection purposes, a lot shall be defined as the quantity of rings shipped on one order, received at one time, and identified by a code number and an elastomer designation. D. <u>Requirements</u> 1.0 <u>Special</u> All compounds shall be approved by the R&D Department of the Pipe Division of Certain-teed Products Corporation (CPC) in writing and referenced by Vendor Compound Number. After approval, no changes in compounds shall be made without authorization, in writing, from the R&D Department of the Pipe Division of CPC. The manufacturer shall notify the Purchasing Department and the Materials Laboratory Supervisor of the Pipe Division of CPC when such an authorized change is actually placed in effect. 2.0 <u>Manufacturer's Inspection</u> Each ring in each shipment of rings shall be inspected in its entirety at a circumferential elongation 50% in excess of the original circumference by the manufacturer before shipment to CPC. Defective rings shall be removed from each shipment before shipment is made. 3.0 <u>Appearance</u> The surface and cross section of the ring shall be smooth, clean, and free from porosity, blisters, pitting, and other imperfections. 4.0 <u>Splice</u> The splice (if any) shall be properly joined and sufficiently strong to withstand the manufacturer's inspection without separation of peeling.		
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CERTAIN-TELD PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536	PAGE 3
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APPLICABLE TO: Rubber Rings	CLASSIFICATION: Purchasing Specification	
DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		
5.0 <u>Dimensions</u> The dimensions shall be in accordance with the requirements of Figure I of this specification. 6.0 <u>Physical Characteristics</u> The physical characteristics shall be in accordance with the requirements as shown in Table A of this specification. E. <u>Test Methods</u> 1.0 <u>Appearance</u> (a) <u>Surface and Body</u> All tests are made visually on the ring, as the ring is received. 2.0 <u>Splice</u> Visually. 3.0 <u>Dimensions</u> All dimensional measurements shall be made on rings that are conditioned at room temperature, $75^{\circ}\text{F} \pm 5^{\circ}$ for at least four (4) hours. (a) <u>Ring Outside Diameter</u> Measurements by direct reading flexible outside diameter tape, accurate to plus or minus 0.01 inch. (Lufkin Model 146 PD tape with an estimated accuracy of plus or minus 0.005 inch is considered satisfactory.) Care must be exercised that the full O.D. be obtained. All O.D. measurements shall be made before the 50% stretch for visual examination is made. All rings in the sample shall be measured. Any ring not within the specification limit shall be considered a defect and form a part of the sample defect total. Note: The vendor must stretch all rings 50% for visual examination.		
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CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536	PAGE 4
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(b) <u>Height</u> The height dimension shall be checked with a Go-No-Go Gage. (In lieu of a Go-No-Go Gage a machinist micrometer shall be used by setting the locking to the minimum and to the maximum dimension.) The rings shall be measured at four points, 90 degrees apart. The points gaged shall be selected at random. Should two or more points be outside the specification limit, the ring shall constitute a defect; the defect forming a part of the sample defect total. All rings in the sample shall be measured. The height shall be considered as the distance between the top face and the bottom face, when the ring is lying flat. (c) <u>Width</u> Same as for height measurement. The width shall be considered the distance between the I.D. and the O.D. of the ring. 4.0 <u>Physical Characteristics</u> (a) <u>Tensile Strength, Elongation, and Modulus</u> Samples for tensile strength, elongation, and modulus shall be cut from circumferential sections of the ring itself and stamped into dumbbell specimens using a standard ASTM Type "C" dumbbell die. Any method that will allow circumferential strips to be cut from the ring is satisfactory, providing it does not affect the properties to be tested in any manner; i.e. overheating. (Lubricants such as Aquarex may be used provided they do not change any properties of the specimens.) These strips may be buffed lightly prior to cutting into dumbbells in order to bring them to a suitable uniform thickness for testing. Test Methods are in accordance with ASTM D 412. The average test results for modulus shall be used to determine conformance to the requirements. Conformance to other properties is based on specified requirements.		
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CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536	PAGE 5
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DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		
(b) <u>Hardness</u> A sample of 40% of the original sample or ten rings, whichever is greater, shall be employed in this test. The test shall be made in accordance with ASTM Specification D 1869-63T (Section 7, paragraph 2), Specification for Rubber Rings For Asbestos-Cement Pipe (tentative) and ASTM Specification D 2240T, Test For Indentation of Rubber By Durometer. The test is performed on the finished rings. The durometer is applied to the center of the round back of the ring with a total force of 1000 grams $\pm$ 5 grams. After firm contact has been made between the ring and the presser foot of the durometer, the position is held for five seconds before the reading is taken. Five readings shall be made on each ring, (at different locations on the ring) and the median reading recorded. All tests are to be carried out at a temperature of 75°F $\pm$ 5°F. The rings and durometer are to be conditioned at this temperature at least 30 minutes before the readings are obtained. The durometer to be used is the Shore Durometer Type A or A₂, with the indentor point extension of 0.100 inch $\pm$ 0.003 inches from the base. (c) <u>Water Immersion</u> The water immersion shall be in accordance with Methods of Test, paragraph c of ASTM Specification D 1869. The extraction apparatus shall be the 3 liter ASTM extraction apparatus (Fisher 9-626 or equivalent). Three specimens, 2" $\pm$ 1/8", cut from separate finished rings shall be tested. The weight and volume increase shall be in accordance with Method of Test for Change in Properties of Elastomeric Vulcanizates Resulting from Immersion in Liquids, ASTM D 471. Average the values obtained for the three specimens.		
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CERTAIN-TEED PRODUCTS CORPORATION ADDICTOS CEMENT PIPE	NUMBER: 536 SUPERSEDES: 578/66	PAGE: 6 DATE OF ISSUE: 10/21/66
APPLICABLE TO: Rubber Rings	CLASSIFICATION: Purchasing Specification	
DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		
(d) <u>Compression Set</u> Method B of the Methods of Test for Compression Set of Vulcanized Rubber (ASTM D 395-61) except three specimens, three inches long, shall be cut from separate finished rings and measured for thickness. The specimens shall be compressed to one-half their nominal face to back thickness between two inch width anvil plates, with spacers. Oven age specimens for 22 hours at $70^{\circ} \pm 1^{\circ}\text{C}$. ($158^{\circ} \pm 1.8^{\circ}\text{F}$). The samples shall then be removed from the compressing device, allowed to cool, and their thickness remeasured at the center of the compressed area within 30 minutes. The compression set is calculated as follows: $C = \frac{t_0 - t_1 \times 100}{t_0 - t_s}$ Where: C = Compression set, record to nearest 0.1%. t_0 = Original thickness, to nearest 0.001". t_1 = Thickness after compression released. t_s = Thickness of spacers. (e) <u>Ozone Resistance</u> Three specimens $10" \pm 1/8"$ shall be cut from separate rings. Mark each specimen with crayon $1\frac{1}{4}"$ from ends. Form the specimens into a loop by butting the two marks together and tying securely with wires at the marks. Slip the complete loop over the 2" diameter aluminum mandrel. After specimens are mounted, allow them to rest for a minimum of 48 hours at room temperature in a relatively ozone free atmosphere. Then expose to 50 pphm of ozone at 100°F. for 48 hours. When the specified exposure period is completed, examine the specimens after removal from the mandrel, follow paragraph 4 (c) of ASTM D 1171-61 and evaluate the degree of cracking by comparison with the reference standards shown in Figure 3 ASTM D 1171-61. Specimens must also be free of any splits. The average test results of the specimens tested shall comply with the requirements.		
PREPARED BY: <i>J. J. Law</i>	APPROVED BY: <i>W. M. McKee & E. Hawkins</i>	

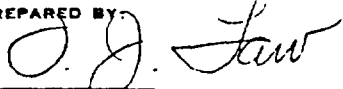
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(f) <u>Low Temperature Flexibility</u> Five specimens shall be prepared for the low temperature flexibility test in accordance with ASTM Specification D 746-57T, Test For Brittleness Temperature of Plastics. Procedure B under Routine Inspection and Acceptance shall be followed. (g) <u>Shrinkage</u> A sample of 10% of the original sample or three rings, whichever is greater, shall be employed in this test. The test shall be made on finished rings which have passed the visual examination and hardness requirements of this specification. The specimen in the sample shall be conditioned for at least four hours at room temperature $75^{\circ} \pm 5^{\circ}\text{F}$. and the outside diameter measured with an outside diameter tape. The specimens shall then be submerged in tap water (at $75^{\circ}\text{F} + 5^{\circ}\text{F}$) for 20 hours, removed and allowed to air dry for four hours at room temperature $75^{\circ}\text{F} \pm 5^{\circ}\text{F}$ and the outside diameter measured using the same tape as mentioned above. This procedure shall be repeated for seven days, using clean tap water each day. Over weekends, the specimens shall remain in the water. At the end of seven days the specimen shall be placed in an aging oven at a temperature of $70^{\circ}\text{C} \pm 1^{\circ}\text{C}$ ($158^{\circ}\text{F} \pm 1.8^{\circ}\text{F}$) for 166 hours ± 1 hour. At the end of the aging period the specimens shall be removed and set aside to condition for not less than 4 hours nor more than 8 hours at room temperature before measuring the final outside diameter. The change in outside diameter or shrinkage shall be calculated as follows: Shrinkage, per cent - $\frac{D - E}{D} \times 100$ Where: D - is the original outside diameter before water immersion. E - is the final outside diameter.		
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DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		CLASSIFICATION: Purchasing Specification
The shrinkage shall be recorded to the nearest 0.01% and shall be reported as the shrinkage for the specimens tested. The shrinkage shall be calculated after water immersion also. Note: The oven used in this test shall be an air circulating oven as prescribed in Federal Test Method Standard No. 601, Method 7221, Air Heat Test, Air Heating Medium, Section 3, except automatically recording of Temperature during the aging period is optional. An alternate method for the shrinkage test is to allow the specimens to remain in the water for 7 days providing they are completely submerged in running tap water. At the end of seven days (166 hours $\pm$ 1 hour) remove the specimens from water and allow to air dry for not less than four hours nor more than eight hours before measuring. Then place in the aging oven as described above (166 hrs. $\pm$ 1 hr.; 70°C $\pm$ 1.0°C).		
F. <u>Acceptance and Rejection</u> Certain-teed Products Corporation reserves the right to reject any lot, or lots, 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 shipment, but shall be made within 30 days of receipt of the shipment. In the event of a rejection, the vendor shall be immediately advised and the reason for the rejections explained. The vendor shall be given the opportunity to inspect representative samples of the rejected materials in the Materials Laboratory, Ambler, Pennsylvania prior to final dispositions. The vendor must express his desire to inspect rejected material within seven days after notification of the rejections and the physical inspection of rejected material must be performed within 30 days after the notification of rejections. G. <u>Packaging and Marking</u> Rings shall be shipped in suitable cartons to insure safe delivery. Only one size ring shall be packaged in individual cartons. Each carton shall be marked to show the vendor's name, size of the rings,		
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CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536	PAGE 9		
	SUPERSEDES: 515 406	DATE OF ISSUE: 12/1/62		
APPLICABLE TO: Rubber Rings	CLASSIFICATION: Purchasing Specification			
DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs				
ring elastomer, number of rings in the carton, and Certain-teed Products Corporation order number. No more than 300 rings shall be packed in a carton. H. When the assembler receives the rings, they shall select ten (10) rings of each size at random from separate cartons and forward to the Materials Laboratory Supervisor, Ambler, Pennsylvania for testing. The dimensional measurements shall be performed as soon as the rings are received in the Materials Laboratory. The rings shall be considered accepted by the Assembler unless notified by the Materials Laboratory within five days of receipt of shipment. <u>ADDENDUM</u> As a correlary to the stated requirements of this specification, the manufacturers are entreated to become reasonably knowledgeable as to the conditions of successful usage of the rings so that they may employ their best technology to assist in providing rubber rings which will perform satisfactorily the usage intended.				
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TECHNICAL SPECIFICATIONS

MANUFACTURED PRODUCTS CORPORATION
ADAPTOR RINGS FOR USE WITH BUILDING SEWER END PLUGS

NUMBER 536

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APPLICABLE TO:

Rubber Rings

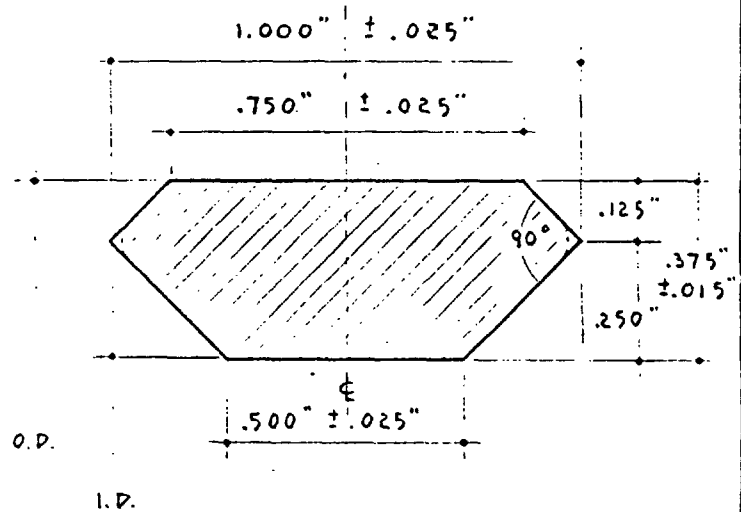
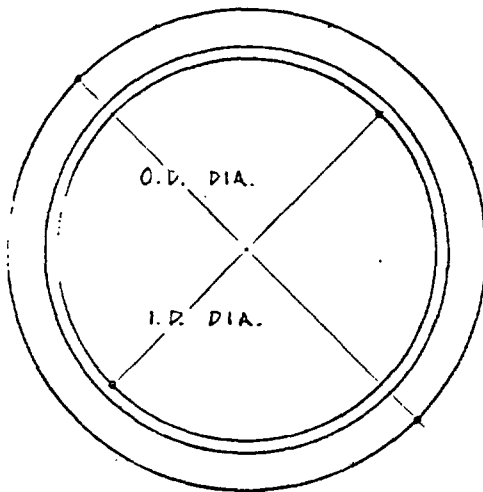
CLASSIFICATION:

Purchasing Specification

DESCRIPTION:

Adaptor Rings For Use With Building Sewer End Plugs

FIGURE 1



SECTION

<u>Size</u>	<u>I.D.</u> <u>±.050"</u>	<u>O.D.</u> <u>±.050</u>
4"	3.050"	3.800"
5"	4.110"	4.860"
6"	5.070"	5.820"

*Obsolete
use Fig 2*

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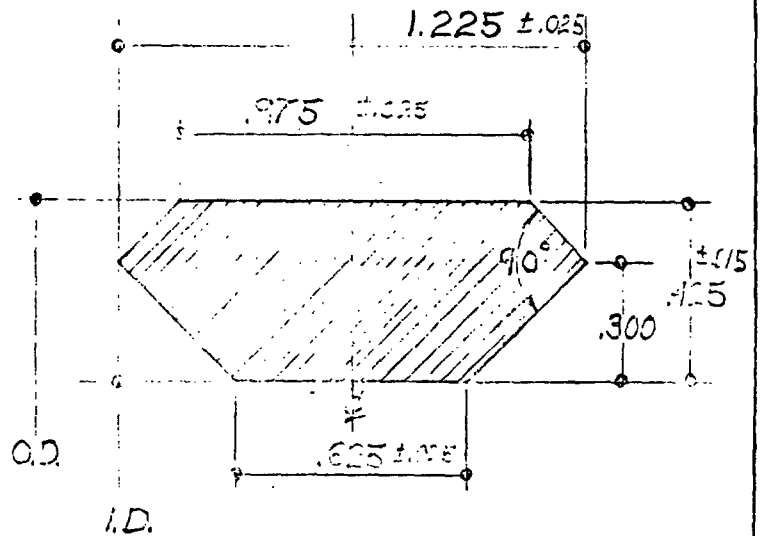
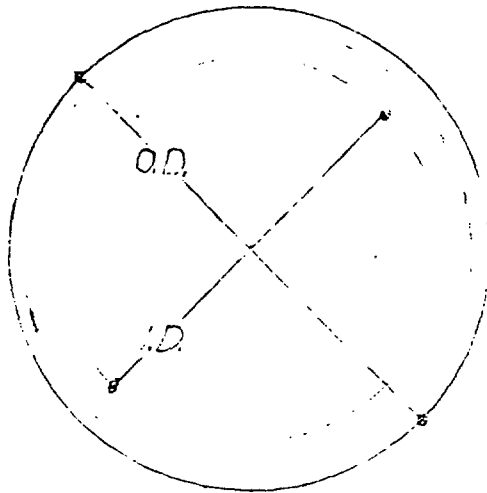
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CTD015104

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CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER 536	PAGE 11
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APPLICABLE TO: Building Sewer End Plugs	CLASSIFICATION: Purchasing Specification	
DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		

FIGURE 2SECTIONSize

4"
5"
6"

O.D.
 $\pm .050$

3.93"
4.93"
5.93"

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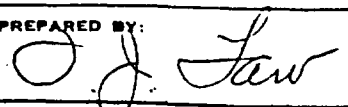
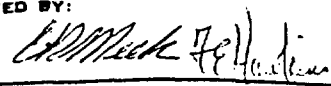
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CTD015105

TECHNICAL SPECIFICATIONS

CERTAIN-TEED PRODUCTS CORPORATION ASBESTOS CEMENT PIPE	NUMBER: 536 SUPERSEDES: 5/6/66	PAGE 12 DATE OF ISSUE:
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DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs		
TABLE A <u>Physical Characteristics</u>		
<u>Property</u>	<u>Requirement</u>	
Tensile Strength, Min. psi		
Average	2000	
Lowest Individual	1800	
Aged Tensile, Oven Aged,		
Per Cent Decrease from Orig. Max.		
70°C ± 1°; 168 ± 1 hrs.	15	
Original Elongation at Rupture, Per Cent		
Average	350	
Lowest Individual	325	
Aged Elongation, Oven Aged		
Per Cent Decrease From Orig. Max.		
70°C ± 1°; 168 hrs. ± 1 hr.	25	
Original Modulus at 300% elongation, psi		
Min.	1200	
Max.	2300	
Original Hardness, Shore Durometer		
Type A or A ₂	53 ± 5	
Preferred	50 - 55	
Aged Hardness, Oven Aged		
Points Increase Over Orig. Max.		
70°C ± 1°; 168 ± 1 hrs.	7	
Compression Set, 50% Compression		
Per Cent, Max.		
70°C ± 1°; 22 ± ½ hrs.	15	
Water Immersion		
100°C ± 1°; 20 days		
Per Cent Increase, Max.		
Volume	12	
Weight	15	
PREPARED BY: 	APPROVED BY: 	
CTD015106		

TECHNICAL SPECIFICATIONS

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APPLICABLE TO Rubber Rings	CLASSIFICATION: Purchasing Specification
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DESCRIPTION: Adaptor Rings For Use With Building Sewer End Plugs

TABLE A
(Continued)

Physical Characteristics

<u>Property</u>	<u>Requirement</u>
Appearance Change	No Surface Degradation
Per Cent Decrease, Max.	
Volume	0
Weight	0
Low Temperature Flexibility	
Minus 25°C, Min.	No Cracks
Ozone Resistance, 50 pphm	
100°F ± 2°; 48 ± 1 hrs.	
Max. Rating	1
Shrinkage, Per Cent of Orig O.D.	
166 ± 2 hrs. H ₂ O Max.	0
166 ± 2 hrs. 70°C ± 1° Max.	
Average	.50
Individual Specimen	.75

CTD015107

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C. M. Mark 78 H. J. Kim

TECHNICAL CHANGE ORDER



CERTAIN-TEED PRODUCTS CORPORATION
PIPE DIVISION

APPLICABLE TO:

*A/C Standard Product Specification
Spec 536 A*

DATE OF ISSUE:

NOV 8 1976

T.C.O. NO.:

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PAGE NO.:

1

DESCRIPTION:

Adaptor Rings for Use with Small Diameter Sewer End Plugs

Purpose:

To revise the rings used with Small Diameter End Plugs. To get a better seal in our end plugs, the ring has been redesigned with ridges which will help seal on irregularities on the pipe I.D.

Effective Date:

When vendors are approved, old stocks depleted and inventory levels of this new design filled, an issue date will be established.

Disposition of Superseded Pages:

No pages are to be destroyed at this time. Add this spec (536A) behind existing Spec 536 in your A/C Standard Purchasing Spec Book. 536 will be removed when inventory levels dictate.

Note: Addendum will follow when approved vendors are known.

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