

# SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS

## 4 MIL POLYETHYLENE WRAPPING MATERIAL REVISED NOVEMBER 2005

### 1. SCOPE

This specification covers polyethylene-wrapping material for use in encapsulating ductile and cast iron pipe.

### 2. GENERAL REQUIREMENTS

- a. Polyethylene wrapping for ductile and cast iron water mains shall consist of a 4 mil thick tubular section of cross-laminated high-density polyethylene, having a high dielectric and tensile strength, for use in protecting and insulating cast iron and cast iron and ductile iron pipe from the electrolytic action encountered in highly active soils.
- b. Polyethylene wrapping, shall consist of an opaque cross-laminated high-density polyethylene sheet continuously thermally bonded to form a tubular section. The tubes may be supplied in bulk length on rolls or in individual pre-cut lengths. See the attached size and length chart, in accordance with AWWA C105-99 (Table 1) for minimum requirements; greater widths and lengths can be used in lieu of the minimal list. When supplied for specified pipe lengths, the tubes shall contain a minimum of four feet additional material over the actual pipe length to allow for overlap.
- c. The sheet of polyethylene film utilized for the tubular wrapping shall be produced from *virgin resins meeting raw material and physical properties Of ASTM D-1248 and ANSI/AWWA C105, latest edition*. The material shall be *4-mil cross-laminated high-density polyethylene. The film shall* Be free of imperfections such as pinholes, tears, etc., after being thermally Seamed into tubular form. The finished product will have a nominal thickness of 4 mils, with a tolerance of minus ten percent.
- d. The polyethylene wrapping material shall have no volatile constituents, The loss of which may affect ductility. The material shall also have the Following properties

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1. **Mechanical:** The polyethylene film shall have a tensile strength per latest *ASTM D-882 test, of 6300psi min.* The film shall have an elongation of not less than *100%* of the test strip minimum per latest *ASTM D-882 test.* The film shall have an impact resistance *800 gram min. per (ATM D1709 Method B)* The film shall have a propagation tear resistance of *250 gf, minimum in machine and transverse direction (ASTM D1922).*
2. **Dielectric:** The film shall have a dielectric strength of *800 volts per mil of thickness per latest ASTM D-149.*

e. **Inspection and Certification by Manufacturer**

*Quality control and inspection.* The manufacturer shall establish the necessary quality control and inspection practice to ensure compliance with this standard.

*Manufacturer's statement.* The manufacturer shall, **provide a sworn statement on each lot purchased that the inspection and all applicable material requirements of Section 4.1 have been met and that all results comply with the requirements of this standard.**

*Freedom from defects.* All polyethylene film shall be clean, sound, and without defects that could impair service.

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3. **Marking Requirements**

The polyethylene film supplied shall be clearly marked, at a minimum of every 2-ft along its length, containing the following information.

- a. Manufacturer's name or trademark
- b. Year of manufacture
- c. ANSI/AWWA C105/A21.5
- d. Minimum film thickness and material type.
- e. Applicable range of nominal pipe diameter size(s).
- f. Warning-Corrosion Protection-Repair any Damage.

4. The San Antonio Water System may at no cost to the manufacturer, subject Random testing by an independent laboratory for compliance with this Specification. Any visible defect of failure to meet the quality standards Herein will be grounds for rejecting the entire order.

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**SIZE & LENGTH (All sizes lay flat size)**

<u>Pipe Size</u>	<u>Product Size</u> <u>Width x Length</u>
4", 6" & 8"	20" x 200/500
8", 10" & 12"	27" x 200/500
16" & 18"	37" x 200/500
20"	41" x 200/500
24"	54" x 200/500
30"	67" x 140/500
36"	81" x 120/500
48"	95" x 100/500
54"	108" x 100/500

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**APPROVED MANUFACTURER AND PRODUCTS LIST**

**Manufacturer**

**Product**

Van Leer Flexibles Inc.  
Manufactured Plastics and Distribution Inc.

Valeron  
Cross Tuff 450 Black

**Last revision:**

May 1998  
November 2002