

METROPOLITAN UTILITIES DISTRICT OF OMAHA
OMAHA, NEBRASKA

SPECIFICATIONS FOR
HIGH DENSITY POLYETHYLENE (HDPE) PIPE
AND FITTINGS FOR WATER DISTRIBUTION SERVICE

Section 1.1 - Scope

HDPE pipe and fittings shall conform to the current revision of AWWA C906, *Standard for Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 65 In. for Waterworks*, except as superseded and/or supplemented herein. If these specifications and AWWA C906 differ, these specifications shall govern.

HDPE pipe and fittings shall not be manufactured more than one year prior to the date of delivery to the job site or the District's storage yard.

Unless otherwise stated in the contract documents, HDPE pipe and fittings shall be ductile iron pipe size (DIPS) and SDR 11

The District approves the following manufacturers of HDPE pipe and fittings:

Performance Pipe (a Division of Chevron Phillips Chemical Company LP)
J-M Eagle
WL Plastics (pipe only)
Georg Fischer Central Plastics Company (fittings only)
Friatec (fittings only)

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Section 4.2 - Materials

4.2.3 *Properties*. HDPE pipe and fittings shall be made from HDPE having a material designation of PE4710 meeting ASTM D3350 cell classification 445574C-CC3. Refer to PPI TN-44 for CC3 calculations. The material shall be listed in PPI (Plastics Pipe Institute) TR-4 with a standard grade HDB rating of 1600 psi at 73°F, and shall be listed and approved for potable water use in accordance with NSF/ANSI 61.

4.2.7 *Colored Materials used for Pipe Identification*. HDPE water pipe shall be black and have a minimum of three (3) permanent blue stripes extending the length of the pipe being equally spaced around the circumference of the pipe. The blue stripe shall be a minimum of 1" wide.

Section 4.5 - Joining Methods

4.5.1 *General*. Unless otherwise specified in the contract documents, all HDPE joints shall be thermally butt fused.

Section 6.1 - Marking

6.1.2 *Required Markings*. Pipe shall be marked in accordance with ASTM F714 and AWWA C906. This includes at a minimum the following information:

- a. Nominal size and diameter base (such as 16-in DIP)
- b. Standard material code designation (such as PE 4710)
- c. Dimension ratio (such as SDR11)
- d. Pressure Rating and/or Pressure Class (such as PR200)
- e. AWWA and ASTM designation (such as PE4710 ASTM F714)

* Denotes Change

f. Manufacturer's production code to include day, month, year

Section 6.2 - Handling, Shipping, and Storage

- 6.2.1 *Handling.* All piping and related materials shall be handled with care. Pipe shall be handled by use of slings, hoists, skids, or other standard means. Handling shall not be conducted with chains or cables. Pipe and related materials shall not be dropped or rolled as a means of handling.
- 6.2.2 *Shipping.* Care shall be taken during shipment to prevent cuts, scratches and other damage. Blocking and hold-downs shall be used during transportation to prevent shifting and movement. Chains or cables shall not be used for hold-downs. During transportation, the leading edge of the pipe shall be covered to prevent exhaust, debris and insects from entering the pipe. Small pipe shall not be transported inside larger pipe.
- 6.2.3 *Storage.* PE pipe and fittings shall be stored in a manner as to prevent damage to the pipe and fittings. The storage area shall be a relatively smooth, level surface free of stones, debris or other materials that could damage the pipe or fittings. Small pipe shall not be stored inside larger pipe. If pipe is stored in piles, piles shall be oriented such that the thickest pipe is on the bottom of the pile and progresses with the thinnest pipe on the top of the pile. Piles shall be constructed in a pyramidal fashion and shall follow the Plastics Pipe Institute's Material Handling Guide.

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Section 6.3 - Affidavit of Compliance

If requested by the District, the manufacturer shall provide an affidavit with each pipe/fitting shipment that all materials comply with the requirements of AWWA C906 and this specification. The affidavit shall include the manufacturer's production code, including the day, month, and year of production, and all testing results required by AWWA C906 for each shipped item.

Section 7.1 - Warranty

The manufacturer shall warrant pipe and/or fittings for a minimum period of five (5) years after delivery to the jobsite or the District's storage yard. Within this period of time, costs accrued by the District for replacement or repair of pipe and/or fittings found to have defects in material and workmanship and/or not complying with AWWA C906, these specifications and/or the manufacturer's documents shall be the responsibility of the manufacturer.