

## PPI STATEMENT AD

### Use of Pressure-Rated PE4710 Pipe for Conduit Applications

Published May 2, 2025

Conduit products are engineered and made from materials appropriate for their application. There are several standards for conduit based on end use of the conduit (i.e. electrical, fiber optic, coaxial cable, etc.) and installation location. These standards include, but are not limited to, ASTM F2160<sup>i</sup>, ASTM D3485<sup>ii</sup>, UL 651A<sup>iii</sup>, UL 1990<sup>iv</sup>, NEMA TC-7<sup>v</sup> and CSA C22.2 No. 327<sup>vi</sup>. Each provides a set of testing criteria, dimensions, and material requirements for making conduit that will be sufficient for the intended application.

Many of the material requirements are included within other standards, primarily ASTM D3350. The polyethylene materials, or mixture of materials, used must meet minimum cell requirements outlined in Table 1 of that standard, including density, melt flow, flexural modulus, and resistance to slow crack growth.<sup>1</sup>

For a variety of reasons, installers will sometimes use products meeting standards for pressure pipe applications, such as ASTM F714<sup>vii</sup> and ASTM D3035<sup>viii</sup>. This can be due to product availability, lead times, dimensions, or especially strenuous end use or installation (e.g. HDD) conditions. High density polyethylene products made to these standards, and using PE4710 compounds, should provide performance similar to conduit products because PE4710 compounds meet or exceed the requirements of HDPE compounds for conduit. It remains the end user's responsibility to determine the suitability of the product selected for their specific project. This position statement does not supersede or replace requirements for 3<sup>rd</sup> party certification, where required.<sup>2</sup> For example, if the conduit is to be installed in accordance with an electrical code (e.g., NFPA 70, CSA C22.1), the HDPE conduit must be listed as per the code, requiring the product to be third-party certified to a listed standard in that specific electrical code (e.g., UL651A, UL1990, CSA C22.2 No. 327).

Note: Products made from high density PE4710 compounds that meet ASTM D2513 also meet or exceed conduit material requirements. However, any product colored yellow or marked as a gas pipe should never be used for any other application due to the potential for misidentification. Installers are cautioned to refrain from using pipe that is specifically marked with colors per the APWA Uniform Color Code to avoid future misidentification of the pipe service (see [PPI Statement V - Recommended Color Code for Solid Wall Pipe and Conduit](#)).

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<sup>1</sup> ASTM F2160 uses a modified slow crack growth requirement outlined within that standard. Generally, material of a slow crack growth classification of 4 or higher are considered to meet the F2160 requirement.

<sup>2</sup> Note that conduit marked UL 651A, UL 1990 or CSA C22.2 No.327 requires certification by 3rd party certification agencies.

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- <sup>i</sup> ASTM F2160, *Standard Specification for Solid Wall High Density Polyethylene (HDPE) Conduit Based on Controlled Outside Diameter (OD)*, ASTM International, USA.
- <sup>ii</sup> ASTM D3485, *Standard Specification for Coilable High Density Polyethylene (HDPE) Cable in Conduit (CIC)*, ASTM International, USA.
- <sup>iii</sup> UL 651A, *High Density Polyethylene (HDPE) Conduit*, ULSE Inc., USA.
- <sup>iv</sup> UL 1990, *Nonmetallic Underground HDPE Conduit with Conductors*, ULSE Inc., USA.
- <sup>v</sup> NEMA TC-7, *Solid-Wall Coilable and Straight Electrical Polyethylene Conduit*, National Electrical Manufacturers Association, USA. (NEMA proposing designation change to BI 50064)
- <sup>vi</sup> CSA C22.2. No. 327, *HDPE Conduit, Conductors-in-Conduit, and fittings*, CSA Group, Canada.
- <sup>vii</sup> ASTM F714, *Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter*, ASTM International, USA.
- <sup>viii</sup> ASTM D3035, *Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter*, ASTM International, USA.