

STANDARD INFORMATION

Standard: UL 651A

Standard ID: High Density Polyethylene (HDPE) Conduit [UL 651A:2023 Ed.6]

Previous Standard ID: Schedule 40 and 80 High Density Polyethylene (HDPE) Conduit [UL 651A:2011 Ed.5+R:10Mar2017]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **May 10, 2025**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes: Modification to existing tests. Specific details of new/revise requirements are found in table below.

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined-out below.</i>
	Info	CONSTRUCTION
4	Info	General
4.1		All conduit shall be made and furnished with the degree of uniformity and quality of workmanship that are practicable in a well-equipped factory. The following materials shall be used as specified in the Standard Specification for Polyethylene Plastics Pipe and Fittings Materials, <u>ASTM D3350</u> and shall equal or exceed the cell classification PE334480C or E. The material property evaluation shall be <u>conducted on the final compound and include the evaluation of the Density, Melt Index, Flexural Modulus, Tensile Strength, Slow Crack Growth Resistance, Color and Ultraviolet (UV) Stabilizer (the carbon black content shall be in the range of 2 to 4 % for black conduit), Thermal Stability, and Brittleness Temperature properties as per ASTM D3350, with the exception that the minimum specified slow crack growth cell class 8 requirements is F10 > 96 hr per Test Method D1693, condition B, 10 % Igepal.</u>
5	Info	Dimensions
		Conduit Wall Thickness, Types EPEC-A and EPEC-13.5
Table 5.3		<i>Conduit Wall Thickness updated to include EPEC Type designations.</i> <i>See standard for details.</i>
		Conduit Wall Thickness, Types EPEC-9 and EPEC-11
Table 5.4		<i>Conduit Wall Thickness updated to include EPEC Type designations.</i> <i>See standard for details.</i>
		<i>New clause added;</i>
5.3		Measurements to establish dimensional conformance shall be done in accordance with ASTM Test Method D2122 and shall meet all the required dimensions and tolerances for the conduit type being manufactured. Instruments shall be calibrated to read directly at least ± 0.001 inch or ± 0.02 mm. All measurements and tests shall be conducted at 73 ± 3.6 °F or 23 ± 2.0 °C. In case of dispute, specimens shall be preconditioned for at least 24 hours in still air at a temperature of 73 ± 3.6 °F or 23 ± 2.0 °C. Humidity control is not required.



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
		The ovality for straight conduit shall not exceed 5 %. The ovality of nominal size 2 and smaller coiled conduit shall not exceed 7 % after removal from the coil. Coiled conduit larger than nominal size 2 through 3 shall not exceed 10 %. Kinks in a coil shall not be acceptable.
5.5		Note 1: Deformations within 5 ft of the ends of coiled products are due to packaging requirements and should not be considered. Conduit with deformation as noted above should not be utilized. Note 2: Ovality is a packaging condition that occurs when roundable conduit is wound into a coil. Conduit flattens out as it is coiled. Larger diameter conduit may have significant ovality. For example, the ovality of the inner coil layers of nominal sizes 4 – 6 coiled conduit may be 20 % or greater. Ovality is corrected when joining equipment is applied to roundable conduit, or by field processing roundable conduit through re-rounding and straightening equipment during installation
	Info	PERFORMANCE
7	Info	All Conduit Types
7.2	Info	Resistance to impact
		<i>New clause added;</i>
7.2.1		Conduit shall not fail when three specimens are tested at the low-temperature condition of -4 °F (-20 °C), in accordance with 7.2.2 or if one out of three specimen fails, then a retest of three additional specimen shall result in no failures. sFailure is determined by a crack or tear longer than 0.031 in. (0.8 mm) appearing on the inner or outer surface of the conduit.
		<i>New clause added;</i>
7.2.2		Test three specimens of conduit. Each specimen shall be cut from finished lengths of each trade size of conduit and shall exhibiting no cracks, tears, or other imperfections. sThe specimens shall be equal in length to the nominal outside diameter but not less than 6 in (152 mm) in length. sCondition the specimens at a temperature of -4 ± 3.6 °F (-20 ±2 °C) for a minimum of 5 h. sConduct the test within 30 seconds after removal from the cold chamber. In a case of disagreement, conduct the tests in a room maintained at 73.4 ±3.6 °F (23 ±2 °C). Note: sTo facilitate testing, it has been found that using an insulated box packed with freezer packs and conditioned at the conditioning temperature, can be used to transport specimens to the test equipment.



CLAUSE	VERDICT	COMMENT
7.2.3		<p><i>New clause added;</i></p> <p>The specimens are to be tested separately while resting on a solid, flat, steel plate that is at least 1/2 inch (13 mm) thick and is firmly anchored with its upper surface horizontal. A protective cage is to surround the plates and specimen to reduce the risk of injury from pieces of broken conduit in the event that the conduit flies apart. A steel weight of 20 lb (9.1 kg) in the form of a solid right-circular cylinder, with a diameter of 2 inches (51 mm) and a flat impact face having rounded edges, is to fall freely through a vertical guide from the height indicated in Table 7.2. The flat face of the weight is to strike the center of the specimen across the diameter and along the longitudinal axis once (provision is to be made for keeping the weight from striking the specimen more than once).</p>