

Underwriter Laboratories, Inc. (UL)
333 Pfingsten Road, Northbrook, IL 60062

UL 6-1993 Safety Standard for Rigid Metal Conduit

UL 1242-1992 Safety Standard for Intermediate Metal Conduit

SECTION 3 – EXTERNAL COATINGS

3.1 Thickness

The thickness of polyvinyl chloride (PVC) coatings shall be a nominal 0.040 in. (1.02 mm). The tolerance on the coating thickness shall be +0.010 in. (0.25 mm) or -0.005 in. (0.13 mm).

3.2 Coating Material

The PVC coating shall have the properties specified in Table 3-1.

Properties of PVC Coatings **Table 3.1**

Property	Minimum Requirement	ASTM Test Method
Hardness:		
Shore A	75	D 2240
Shore D	25	D 2240
Tensile Strength, psi	2000	D 638
Elongation, percent	200	D 638
Dielectric strength, volts per mil	325	D 149
Brittleness temperature, degrees F	5	D 1790

3.3 Application of Coating

3.3.1 Cleaning

The exterior surface that is to receive the coating shall be free of grease, oil, dirt, and other extraneous matter. **The surface shall be cleaned in such a manner that the galvanized surface of the conduit is not harmed or eroded.**

3.3.2 Priming

The cleaned exterior surface shall be primed with an adhesive suitable for use with the PVC coating material to be applied.

3.3.3 Coating

The PVC material shall be applied in powder, plastisol, or pellet form by a manufacturing method which will produce a finished product conforming to these standards.

3.4 Elbows

Coated elbows shall be used with coated conduit. The thickness of the coating on elbows shall be in accordance with Section 3.1.

3.5 Couplings

Coated couplings shall be used with coated conduit. The thickness of the coating on couplings shall be at least equal to the thickness of the coating on the conduit.

Each coated coupling shall have a flexible PVC sleeve which extends from each end of the coupling and which will overlap the PVC coating on the conduit when the coupling has been installed on the conduit. The length of the sleeve extension(s) shall be at least equivalent to the nominal conduit size for sizes up through NPS 2 (53). For sizes NPS 2-1/2 (63) through NPS 6 (155), the length of the sleeve extension(s) shall be at least 2 inches (50.8 mm).

The PVC sleeve shall be a nominal thickness of 0.040 in. (1.02 mm). The inside diameter (id) of the overlapping sleeve shall be less than the outside diameter (od) of the PVC-coated conduit.

3.7 Performance Requirements

Typical physical requirements for PVC-coated conduit are given in Table 3-2.

Typical Physical Properties of PVC-Coated Rigid Conduit and IMC **Table 3.2**

Property	Requirement*	Test Method
Abrasion resistance, hours	200, no failure	ASTM G 6
Bendability, radius in inches at 73.4° ± 1.8° F	9 (228.6 mm)	ASTM G 10
Artificial weathering, hours	Minimum 1000, no adverse effect	ASTM G 23

*The above requirements are based on testing a 0.040 in. (1.02 mm) PVC coating applied over NPS 3/4 inch (21) galvanized rigid steel conduit. See Section 1 for information on the ASTM test methods.

3.8 Adhesion

The adhesion of the PVC coating to the conduit shall be greater than the strength of the coating itself. This shall be determined by making two circumferential cuts, above 1/2 in. (12.7 mm) apart, through the plastic to the substrate. A third cut shall be made perpendicular to and crossing the circumferential cuts. The edge of the plastic shall be carefully lifted with a knife to form a plastic tab. This tab shall be pulled perpendicular to the conduit with a pair of pliers. The plastic tab shall tear rather than any additional coating film separating from the substrate.