

COMMENTARY TABLE 501.1 Continued

Classification	Application	Location of Seal
Class I, Division 2	Multiconductor cables with a gastight/vaportight continuous sheath capable of transmitting gases or vapors through the cable core	Permitted to be considered a single conductor by sealing the cable in the conduit within 18 in. of the enclosure and the cable end within the enclosure by an approved means, to minimize the entrance of gases or vapors and prevent the propagation of flame into the cable core, or by other approved methods.
	For shielded cables and twisted pair cables	Removal of the shielding material or separation of the twisted pair is not required. Sealing the cable in the conduit and the cable end within the enclosure by an approved means to minimize the entrance of gases or vapors and prevent the propagation of flame into the cable core, or by other approved methods.
	Each multiconductor cable in conduit if the cable is incapable of transmitting gases or vapors through the cable core	Considered a single conductor. These cables are sealed in accordance with 501.15(A).
	Cables entering enclosures that are required to be explosionproof for Class I locations	Sealed at the point of entrance. These cables are sealed in accordance with the requirements of Division 1 locations.
	Multiconductor cables with a gastight/vaportight continuous sheath capable of transmitting gases or vapors through the cable core	Sealed in a listed fitting in the Division 2 location after removing the jacket and any other coverings, so that the sealing compound surrounds each individual insulated conductor.
	Multiconductor cables in conduit	Sealed in accordance with the requirements for Division 1 locations.
	Cables with a gastight/vaportight continuous sheath that will not transmit gases or vapors through the cable core in excess of the quantity permitted for seal fittings. The minimum length of such cable run is not less than that length that limits gas or vapor flow through the cable core to the rate permitted for seal fittings (0.007 ft ³ per hour of air at a pressure of 6 in. of water).	Not required to be sealed unless entering an enclosure that is required to be explosionproof.
	Cables with a gastight/vaportight continuous sheath capable of transmitting gases or vapors through the cable core	Not required to be sealed unless entering an enclosure that is required to be explosionproof or unless the cable is attached to process equipment or devices that may cause a pressure in excess of 6 in. of water to be exerted at a cable end, in which case a seal, barrier, or other means is provided to prevent migration of flammables into an unclassified area.
	Cables with an unbroken gastight/vaportight continuous sheath that pass through a Class I, Division 2 location	No seal required.
	Cables that do not have a gastight/vaportight continuous sheath	Sealed at the boundary of the Division 2 and unclassified location in such a manner as to minimize the passage of gases or vapors into an unclassified location.

Informational Note No. 1: Seals are provided in conduit and cable systems to minimize the passage of gases and vapors and prevent the passage of flames from one portion of the electrical installation to another through the conduit. Such communication through Type MI cable is inherently prevented by construction of the cable. Unless specifically designed and tested for the purpose, conduit and cable seals are not intended to prevent the passage of liquids, gases, or vapors at a continuous pressure differential across the seal. Even at differences in pressure across the seal equivalent to a few inches of water, there may be a slow passage of gas or vapor through a seal and through conductors passing through the seal. Temperature extremes and highly corrosive liquids and vapors can affect the ability of seals to perform their intended function.

Informational Note No. 2: Gas or vapor leakage and propagation of flames may occur through the interstices between the strands

of standard stranded conductors larger than 2 AWG. Special conductor constructions, such as compacted strands or sealing of the individual strands, are means of reducing leakage and preventing the propagation of flames.

Because the sealing compound used in conduit seal fittings is typically somewhat porous, gases, particularly those under slight pressure and those with small molecules such as hydrogen, could pass slowly through the compound. Because the seal is around the insulation on the conductor, gases can be transmitted slowly through the air spaces (the interstices) between strands of stranded conductors. Under normal conditions for smaller conductors with only normal atmospheric pressure differentials across the seal, the passage of gas through a seal is not sufficient to result in a hazard. For larger conductors, gas or vapor leakage and flame propagation can