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**Requirements for Process Sealing Between  
Electrical Systems and Flammable or  
Combustible Process Fluids**

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Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids

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## 1 Scope

This document provides specific requirements for process sealing between electrical systems and flammable or combustible process fluids where a failure could allow the migration of process fluids directly into the electrical system. Examples of this type of seal include diaphragm seals, thermowells, and pump seals. The requirements of this document are not meant to apply to electrical conduit and cable seals as addressed in ANSI/NFPA 70 : 2002 Section 501.5 (C) and 505.16 (D).

Requirements for basic electrical safety and explosion protection are not addressed by this document, but may apply to equipment under investigation. The secondary effects of leakage to the environment are not addressed by this document.

## 2 Purpose

The purpose of this document is to provide construction and performance requirements for devices that incorporate process seals to eliminate the need for the additional sealing requirements included in ANSI/NFPA 70 : 2002 Sections 501.5(F)(3) and 505.16(E)(3)

## 3 Normative references

The following documents contain provisions that, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below.

ANSI/NFPA 70 : 2002      *National Electrical Code®*

## 4 Definitions

The following definitions specific to process sealing of electrical equipment are applicable to this document.

### 4.1 dual seal device:

a device which incorporates, along any single potential leakage path, a primary process seal and one or more secondary process seals such that the failure of two or more independent seals is required to allow migration of process fluids from their designed containment into the external electrical system.

### 4.2 process connected equipment:

electrical equipment that contains a process seal and is intended for connection to an external system that contains process fluids.

### 4.3 process fluid:

a liquid or vapor that is used in or is a byproduct of an industrial process.

### 4.4 process seal:

a device to prevent, in accordance with the provisions of this document, the migration of process fluids from the designed containment into the external electrical system.

