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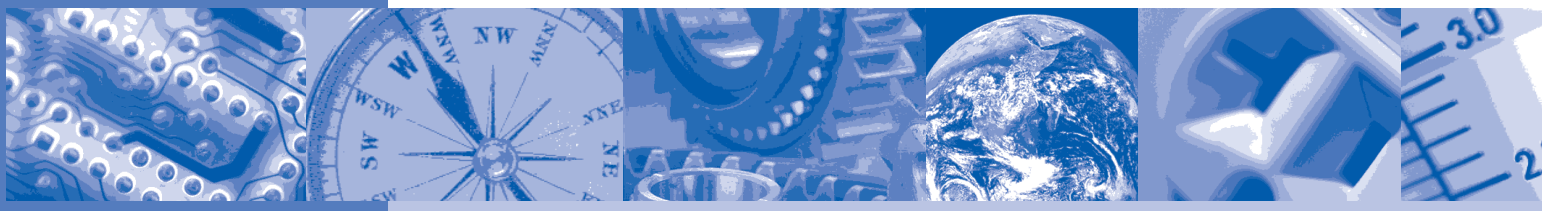

Definitions and Information Pertaining to Electrical Apparatus in Hazardous (Classified) Locations

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1 Purpose

This Standard provides definitions and information pertaining to protection techniques, terminology, and the installation of electrical apparatus in hazardous (classified) locations and provides an introduction and basic background to the ISA-SP12, Electrical Safety, series of publications and committee activities. It replaces ISA-S12.1, *Definitions and Information Pertaining to Electrical Instruments in Hazardous Atmospheres*, published in 1991.

This document provides a general review of applicable codes and standards, and it should not be used in lieu of those codes and standards for equipment design, manufacture, installation, maintenance and test criteria.

2 Scope

2.1 This Standard provides general guidance for safe design, installation, and maintenance of electrical apparatus in hazardous (classified) locations using appropriate means to prevent ignition of flammable gases and vapors, flammable liquids, combustible dusts, or ignitable fibers or flyings.

2.2 This Standard covers only locations made hazardous, or potentially hazardous, due to the presence of flammable gases or vapors, flammable liquids, combustible dusts, or ignitable fibers or flyings. The Standard is not necessarily relevant to the hazards posed by pyrophoric materials such as explosives or propellants containing their own oxidizers.

2.3 This Standard is concerned only with design, manufacture, installation, maintenance, and test criteria related to arcs, sparks, or hot surfaces produced by electrical apparatus that may cause ignition of flammable gas or vapor-in-air mixtures, clouds or blankets of combustible dust, or easily ignitable fibers or flyings. Apparatus should also comply with the applicable ordinary location requirements (e.g., ISA-S82.01 and ISA-S82.03).

2.4 This Standard does not cover mechanisms of ignition from external sources, such as static electricity or lightning. Some apparatus may produce static electricity. The materials of construction of parts in such apparatus will be an important consideration for application in hazardous locations. The extra precautions necessary for this are beyond the scope of this Standard.

2.5 This Standard does not consider the effects of installation in corrosive atmospheres and the resulting deleterious conditions to the original design integrity of the apparatus. The additional precautions necessary for these conditions are outside the scope of this document.

2.6 This Standard is not an instruction manual for untrained persons. However, it is intended to provide guidance to those involved with the design, manufacture, installation, and maintenance of apparatus used in hazardous (classified) locations. It is also intended to promote uniformity of practice among those skilled in the art. Nothing contained in this Standard is to be construed as a fixed rule without regard to sound engineering judgment.

2.7 For hazardous location apparatus, atmospheric conditions are generally considered to be

a) an ambient temperature range of -20 °C (-4 °F) to 40 °C (104 °F);

b) an oxygen concentration of not greater than 21 percent by volume;

c) a pressure of 86 kPa (12.5 psia) to 108 kPa (15.7 psia); and

d) a relative humidity of 5 percent to 95 percent.