Approval Standard for Combustible Gas Detectors

Class Number 6310/6320

January 2018

Foreword

The FM Approvals certification mark is intended to verify that the products and services described will meet stated conditions of performance, safety and quality useful to the ends of property conservation. The purpose of Approval Standards is to present the criteria for FM Approval of various types of products and services, as guidance for FM Approvals personnel, manufacturers, users and authorities having jurisdiction.

Products submitted for certification by FM Approvals shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing shall ensure a consistently uniform and reliable product. Approval Standards strive to be performance-oriented. They are intended to facilitate technological development.

For examining equipment, materials and services, Approval Standards:

a) must be useful to the ends of property conservation by preventing, limiting or not causing damage under the conditions stated by the Approval listing; and

b) must be readily identifiable.

Continuance of Approval and listing depends on compliance with the Master Agreement, satisfactory performance in the field, on successful re-examinations of equipment, materials, and services as appropriate, and on periodic follow-up audits of the manufacturing facility.

FM Approvals LLC reserves the right in its sole judgment to change or revise its standards, criteria, methods, or procedures.

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Purpose

1.1.1 This standard states Approval requirements for combustible gas detection instruments.

1.1.2 Approval criteria may include, but are not limited to, performance requirements, marking requirements, examination of manufacturing facility(ies), audit of quality assurance procedures, and a follow-up program.

1.2 Scope

1.2.1 This standard is concerned with the details of construction, performance and testing of portable, mobile and stationary electrical instruments that sense the presence of combustible gas or vapor concentrations in air. This standard considers the suitability of the instruments or parts thereof for use in Class I, hazardous (classified) locations as defined by the National Electrical Code® (ANSI/NFPA 70).

NOTE: IT IS STRESSED THAT ALTHOUGH COMBUSTIBLE GAS DETECTORS WARN OF COMBUSTIBLE ATMOSPHERES THAT MAY LEAD TO AN EXPLOSION, THEY DO NOT NECESSARILY WARN OF TOXIC GAS RELEASES. IT IS ALSO STRESSED THAT FINAL AND LONG-TERM EFFECTIVENESS OF ANY COMBUSTIBLE GAS DETECTION EQUIPMENT DEPENDS HEAVILY UPON THE USER, WHO MUST BE RESPONSIBLE FOR ITS PROPER APPLICATION, INSTALLATION, USE, AND REGULAR MAINTENANCE.

1.2.2 This standard contains requirements for combustible gas detectors of the fixed, portable and transportable types. The following product categories and class numbers are included in the scope of this standard.

Table 1.2.2 – *Product Categories and Class Numbers*

Class	***Product Category***
6310	Portable and Transportable Gas Detectors
6320	Fixed Gas Detectors

1.2.3 This standard applies to line-voltage operated instruments rated at 250V nominal or less, and to portable, mobile, or stationary-type instruments supplied by battery of a non-rechargeable (primary) type or a rechargeable (secondary) type.

1.2.4 For intrinsically safe instruments, this standard applies only to systems which utilize defined associated intrinsically safe apparatus (protective barrier assemblies). ‘‘Entity’’ concept does not apply to the performance Approval of combustible gas detectors.

1.2.5 This standard addresses combustible gas detection instruments intended to provide an indication or alarm, the purpose of which is to give warning of potential hazard.

1.2.6 This standard does not address gas detection instruments of the laboratory or scientific type used for analysis or measurement, instruments used for process control and process monitoring purposes, open path (line of sight) area monitors, or instruments used for residential purposes.

1.2.7 This standard is written for gas detection instruments that are intended to detect gas concentrations in air in the range from zero up to the lower flammable limit (LFL), since this is the most commonly used range for instruments intended to measure or monitor the degree of explosion hazard. This does