

Approval Standard

for

Liquefied Petroleum Gas Vaporizers, Gas-Air Mixers and Vaporizer-Mixers

Class Number 7151, 7156 & 7157

January 1990

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Foreword

FM Approvals are 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 FM 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 Approval shall demonstrate that they meet the intent of the Approval Standard, and that quality control in manufacturing and/or applications shall ensure a consistently uniform and reliable product or service. FM Approval Standards strive to be performance-oriented and to facilitate technological development.

For examining equipment, materials and services, FM 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 Approval 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 or service/application.

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I INTRODUCTION

1.1 Purpose

This Standard states FM Approval requirements for Approval of Liquefied Petroleum Gas (LP-Gas) Vaporizers (Class No. 7151), Gas-Air Mixers (Class No. 7157), and Vaporizer-Mixers (Class No. 7156).

1.2 Scope

1.2.1 This standard is concerned with the details of construction, operation and testing of LP-Gas vaporizers, gas-air mixers, and vaporizer-mixers. LP-Gas vaporizers are intended to aid vaporization of LP-Gas by supplying heat to liquefied LP-Gas. Mixers mix the resultant vapor with sufficient air to supply a mixture of the necessary heating content for the application, often as a substitute for natural gas. Vaporizer-mixers combine both functions in a single, integrally connected assembly. In vaporizers, heat may be provided by direct application of flame to the portion of the vaporizer containing the LP-Gas, by electrically heating the LP-Gas-containing portion, or by heating a transfer medium which is then used to heat the LP-Gas-containing-portion. Mixers may entrain atmospheric air or be connected to a compressed air source. This standard may consider, as necessary, the suitability of portions of the equipment for Class I, Division 2 hazardous (classified) locations and does consider the suitability of the equipment for outdoor use.

1.3 Basis for FM Approval

FM Approval is based upon satisfactory evaluation of the product and the manufacturer in the following major areas:

1.3.1 Examination and tests on production samples shall be performed to evaluate

- the suitability of the product; and
- the proper operation and performance of the product as specified by the manufacturer and required by FM Approvals; and, as far as practical,
- the durability and reliability of the product.

1.3.2 An examination of the manufacturing facilities and audit of quality control procedures shall be made to evaluate the manufacturer's ability to produce the product which is examined and tested, and the marking procedures used to identify the product. These examinations are periodically repeated as part of FM Approvals' product follow-up program.

1.4 Basis for Continued Approval

Continued Approval is based upon:

- production or availability of the product as currently Approved;
- the continued use of acceptable quality control procedures;
- satisfactory field experience;
- compliance with the terms stipulated in the Approval Agreement; and
- re-examination of production samples for continued conformity to requirements.