

Approval Standard for Electric Flashlights and Lanterns for Use in Class I, II, and III, Division 2, Hazardous (Classified) Locations

Class Number 3613

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Foreword

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 Approvals Standards is to present the criteria for 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 Approvals 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, Approvals 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 or service/application.

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

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1. INTRODUCTION

1.1 Purpose

- 1.1.1 This standard states Approval requirements for electric flashlights and lanterns for use in Class I, II and III, Division 2 hazardous (classified) locations as defined in the National Electrical Code[®], ANSI/NFPA-70 (NEC[®]).
- 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 applies to flashlights and lanterns that employ primary (non-rechargeable) and secondary (rechargeable) cells or batteries.
- 1.2.2 Electrical apparatus intended for use in Class I, Division 2 hazardous (classified) locations is apparatus in which any spark or thermal effect, produced under normal conditions, is incapable of causing ignition of a specified mixture of flammable or combustible material in air.
- 1.2.3 Electric flashlights and lanterns intended to be used in Class II (combustible dusts) or Class III (flying and fibers) hazardous (classified) locations are those which contain a dust-tight enclosure and are incapable of causing ignition of a specified dust or fiber.
- 1.2.4 The requirements of this standard are based on consideration of ignition in locations made hazardous by the presence of flammable or combustible material under normal atmospheric conditions. For the purposes of this standard, normal atmospheric conditions are generally considered to be:
- 1) an ambient temperature of -20°C to +40°C;
 - 2) an oxygen concentration of not greater than 21 percent by volume; and
 - 3) a barometric pressure in the range 0.8 atmosphere to 1.1 atmosphere.

Note: Equipment specified for atmospheric conditions beyond the above limits is subject to special investigation.

1.3 Basis for Requirements

- 1.3.1 The requirements of this standard are based on experience, research and testing, and/or the standards of other organizations. The advice of manufacturers and users was also considered.
- 1.3.2 The requirements of this standard reflect tests and practices used to examine characteristics of electrical equipment for the purpose of obtaining Approval. Electrical equipment having characteristics not anticipated by this standard may be FM Approved if performance equal, or superior, to that required by this standard is demonstrated, or if the intent of the standard is met. Alternatively, electrical equipment which meet all of the requirements identified in this standard may not be FM Approved if other conditions which adversely affect performance exist or if the intent of this standard is not met.