



ANSI E1.14 – 2018 (R2023)
Entertainment Technology —
Recommendations
for Fog Equipment Manuals

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The Fog and Smoke Working Group, which authored this standard, consists of a cross section of entertainment industry professionals representing a diversity of interests. ESTA is committed to developing consensus-based standards and recommended practices in an open setting.

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Marnie Styles; Ultratec Special Effects Inc.; MP
Colin Waters; TMB; G

Key to Interest Categories

CP	Custom-market Producer
MP	Mass-market Producer
DE	DEsigner
DR	Dealer/Rental company
U	User
G	General interest

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1 Scope

This standard shall apply to the instruction manuals for fog equipment manufactured for use in the entertainment industry to create atmospheric effects.

This standard sets minimum requirements for the information manufacturers need to supply in fog equipment manuals and for the distribution of this information. This standard does not remove or negate any requirements imposed by other standards, laws, or government regulations.

2 Purpose

There are several technologies used for the production of fog effects today, with each technology creating a specific type of effect. For every technology there are several manufacturers designing fog-making systems that are unique in and of themselves. In order to facilitate the safe and effective use of fog, the user must have some general knowledge of the technology, have a clear understanding of how to operate the fog making system, and be aware of the potential hazards related to the use of fog, and particularly the system that he is using.

This standard is designed to establish guidelines for manufacturers to provide to the user by way of an instruction manual the necessary information required for the safe and responsible use of their fog equipment. This standard sets minimum requirements and does not limit the amount of additional information that a manufacturer can include in the manual. It is encouraged that the manual developed in accordance with this standard be part of a comprehensive product stewardship program.

Atmospheric effects are visual effects; users of fog equipment are therefore assumed to have functional eyesight. The fog equipment manuals that are the subject of this standard are documents intended to be read and are published in Hard-Copy or are made available in Electronic Format on a website or some other visual medium.

3 Definitions

3.1 Electronic Format: Any printed format that requires an electronic device to be made legible. Common examples would include a website page or a PDF document that must be read on a computer or electronic tablet.

3.2 Hard-Copy: Any printed format that is on a durable substrate and that does not require an electronic device to be made legible.

3.3 PDF: a computer data file format that provides an image of text or text and graphics that looks like a printed document and that can be viewed, printed, and electronically transmitted. It is defined by ISO 32000-1:2008.

3.4 Portable Memory Device: A device for storing a machine-readable file, such as a CDROM, floppy disk, or a USB memory stick.

3.5 Shall: Indicates a mandatory requirement.

3.6 Should: Indicates a recommendation or that which is advised but not required.

4 Document media and distribution

The fog equipment manual shall be permitted to be published in Hard-Copy or Electronic Format. However, if published in Electronic Format, a selection of the Inclusions listed in this standard shall be published in Hard-Copy with information about where the reader can access the rest of the equipment manual.

The fog equipment manual should be published in a language that is likely to be understood by the intended users of the equipment.

4.1 Hard-copy distribution

The format of the Hard-Copy equipment manual shall be selected so that it can be distributed with the fog equipment. The manual shall be with the fog equipment when shipped to the dealer, and it shall be included with the equipment when shipped to the end-user. It should be in a format convenient for the end-user to read and to retain with the equipment.

4.2 Electronic format distribution

A fog equipment manuals shall be permitted to be published in Electronic Format, such as a website page; a PDF file on a website or portable memory device; or an image or word processing file on a website or portable memory device. However, if the fog equipment manual is published in Electronic Format, the Warnings specified in this standard shall be published in Hard-Copy and distributed with the fog equipment. This Hard-Copy of the warnings also shall include information about how the entire fog equipment manual can be accessed.

5 Inclusions

5.1 Introduction

The introduction shall include a brief explanation of the technology used in the fog making system and shall describe the type of fog that will be created through the proper use of the machine.

5.1.1 An explanation of how this particular fog making system works shall be given, stressing that it is a fog system designed to work within certain parameters.

5.1.2 A list of the fluids and/or gases that are recommended by the equipment manufacturer for use in this particular fog equipment shall be included.

5.2 Warnings

Warnings and safeguards shall be listed in order to reduce the potential dangers associated with working with, or around, the fog equipment. The warnings and safeguards shall address hazards associated with the normal operation of the fog equipment. The warnings and safeguards also shall address hazards associated with the reasonably foreseeable misuse of the equipment, and shall warn against this misuse. Warnings should include, but not be limited to, the following:

5.2.1 Areas of extreme temperature

5.2.2 Electrical shock hazards

5.2.3 Chemical use precautions

5.2.4 Slick area warnings

5.2.5 Vaporized substance warnings

5.2.6 Other warnings against reasonably foreseeable hazards to the equipment operator, performers, audience members, or bystanders as a result of use of the equipment, including improper use.

5.3 Public notifications

If the manufacturer deems it necessary, sample statements or suggestions alerting the audience, performers, crew, and musicians to the use of fog in the production should be included for reprinting in a playbill or on signs located in the backstage and lobby areas, or for publication in both playbills and posters. The manual shall instruct the reader that signs shall be clearly legible when viewed at a distance

of six feet (1.8 meters) and that the appropriate facility personnel shall be instructed to take action consistent with the notification on the sign.

A sample notification could be as follows:

"This production includes an AEROSOL SIMULATED FOG EFFECT. This fog is intended for public performance, but persons who are asthmatic or who suffer from allergies should identify themselves to house personnel so that they may be seated where there is the least possibility of discomfort."

5.4 Manufacturing standards and regulatory compliance

A listing of any and all manufacturing standards adhered to by the manufacturer, as well as any regional or local regulations that the equipment complies with, should be included. These include, but are not limited to: UL, CUL, CSA, ETL, CE, GSA.

5.5 Operating instructions

Clearly written operating instructions with reference drawings or illustrations, or both, shall be included.

5.5.1 Operational requirements for the fog equipment shall be included.

5.5.2 Complete cleaning instructions shall be included.

5.5.3 Routine maintenance instructions and a maintenance schedule shall be included.

5.6 Explanation of results

An explanation of the results of using the fog system shall be included.

5.6.1 This section should describe the type of effect the fog equipment will produce when properly used.

5.6.2 This section should include an explanation of the fog's dissipation and suggestions on how to best clear the air of the fog when the desired effect is complete.

5.6.3 This section should explain how the fog created is affected by the environment in which it is produced, such as temperature and air movement.

5.6.4 This section should explain how the fog can be enhanced, such as by lighting the fog with colored light or by moving it with directed airflow.

5.6.5 A list of additional information that might be helpful to the user should be included.

5.7 Contact information

A list of pertinent contact information shall be provided including, but not limited to:

5.7.1 A 24-hour emergency phone number for information needed by physicians or stage technicians.

5.7.2 A list of dealers, with locations and phone numbers, who can supply additional fluid.

5.7.3 A list of authorized service centers, with locations and phone numbers, that can repair the fog equipment.

5.7.4 An email address and a website that may be consulted for additional information.

5.8 Technical specification

A technical specification with reference drawings and illustrations should be provided.

5.9 Warranty

Warranty information should be included, if there is a warranty offered by the manufacturer.

5.10 Statement of responsibility

A statement of responsibility that defines the roles of the manufacturer and the user with respect to the safe production of fog effects shall be included.

6 Updates

As new information regarding the fog-making technology, the performance of the fog equipment, or potential hazards related to the fog system is obtained, it shall be made available to the machine owner at no additional charge.