

Entertainment Services and Technology Association



American National Standard E1.14 - 2001 (R2007) Entertainment Technology Recommendations for Inclusions in Fog Equipment Manuals F&S/1999-3006r3

This edition of ANSI E1.14 is a reaffirmation of ANSI E1.14 - 2001, and was approved by the American National Standards Institute on March 7, 2007.

© 2007 Accredited Standards Committee E1, Safety And Compatibility Of Entertainment Technical Equipment And Practices, and its secretariat, the Entertainment Services and Technology Association. All rights reserved. No part of this publication may be reproduced in any material form (including photocopying or storing by electronic means) without the written permission of the copyright holder. Any parties wishing to translate and publish this document in another language must receive permission from the copyright holder.

Notice and Disclaimer

ESTA and ANSI Accredited Standards Committee E1 (for which ESTA serves as the secretariat) do not approve, inspect, or certify any installations, procedures, equipment or materials for compliance with codes, recommended practices or standards. Compliance with an ESTA standard or recommended practice, or an American National Standard developed under Accredited Standards Committee E1 is the sole and exclusive responsibility of the manufacturer or provider and is entirely within their control and discretion. Any markings, identification or other claims of compliance do not constitute certification or approval of any type or nature whatsoever by ESTA or Accredited Standards Committee E1.

ESTA and ANSI Accredited Standards Committee E1 (ASC E1) neither guaranty nor warrant the accuracy or completeness of any information published herein and disclaim liability for any personal injury, property or other damage or injury of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on this document.

In issuing and distributing this document, ESTA and ASC E1 do not either (a) undertake to render professional or other services for or on behalf of any person or entity, or (b) undertake any duty to any person or entity with respect to this document or its contents. Anyone using this document should rely on his or her own independent judgement or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstance.

Published By:

**Entertainment Services and
Technology Association**

875 Sixth Avenue, Suite 1005
New York, NY 10001 USA
Phone: +1-212-244-1505
Fax: +1-212-244-1502
Email: standards@esta.org

For additional copies of this document con-
tact:

The ESTA Foundation

875 Sixth Avenue, Suite 1005
New York, NY 10001 USA
Phone: +1-212-244-1505
Fax: +1-212-244-1502
www.estafoundation.org

The ESTA Technical Standards Program

The ESTA Technical Standards Program was created to serve the ESTA membership and the entertainment industry in technical standards related matters. The goal of the Program is to take a leading role regarding technology within the entertainment industry by creating recommended practices and standards, monitoring standards issues around the world on behalf of our members, and improving communications and safety within the industry. ESTA works closely with the technical standards efforts of other organizations within our industry including USITT, PLASA, and VPLT as well as representing the interests of ESTA members to ANSI, UL, and the NFPA. The Technical Standards Program is accredited by the American National Standards Institute as Accredited Standards Committee E1, Safety and Compatibility of Entertainment Technical Equipment and Practices.

The Technical Standards Committee (TSC) was established by ESTA's Board of Directors to oversee and coordinate the Technical Standards Program. Made up of individuals experienced in standards-making work from throughout our industry, the Committee approves all projects undertaken and assigns them to the appropriate working group. The Technical Standards Committee employs a Technical Standards Manager to coordinate the work of the Committee and its working groups as well as maintain a "Standards Watch" on behalf of members. Working groups include: Camera Cranes, Control Protocols, Electrical Power, Floors, Fog and Smoke, Photometrics, and Rigging.

ESTA encourages active participation in the Technical Standards Program. There are several ways to become involved. If you would like to become a member of an existing working group, as have over two hundred people, you must complete an application which is available from the ESTA office. Your application is subject to approval by the working group and you will be required to actively participate in the work of the group. This includes responding to letter ballots and attending meetings. Membership in ESTA is not a requirement. You can also become involved by requesting that the TSC develop a standard or a recommended practice in an area of concern to you.

The Fog & Smoke Working Group, which authored this standard, consists of a cross section of entertainment industry professionals representing manufacturers, consultants, dealers, and end-users. ESTA is committed to developing consensus-based standards and recommended practices in an open setting. Future Fog & Smoke Working Group projects will include updating this publication as changes in technology and experience warrant, as well as developing new standards and recommended practices for the benefit of the entertainment industry.

Contents

1	Scope	1
2	Purpose	1
3	Inclusions.....	1
	3.1 Introduction	1
	3.2 Warnings	1
	3.3 Public notifications	2
	3.4 Manufacturing standards and regulatory compliance	2
	3.5 Operating instructions	2
	3.6 Explanation of results	2
	3.7 Contact information	3
	3.8 Technical specification	3
	3.9 Warranty	3
	3.10 Statement of responsibility.....	3
4	Updates	3

1 Scope

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

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.

3 Inclusions

3.1 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.

3.1.1

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.

3.1.2

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.

3.2 Warnings

Warnings and safeguards shall be listed in order to reduce the potential dangers associated with working with, or around, the fog equipment. Warnings shall include, but not be limited to, the following:

3.2.1

Areas of extreme temperature

3.2.2

Electrical shock hazards

3.2.3

Chemical use precautions

3.2.4

Slick area warnings

3.2.5

Vaporized substance warnings

3.3 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 shall 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.”

3.4 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, shall be included. These include, but are not limited to: UL, CUL, CSA, ETL, CE, GSA.

3.5 Operating instructions

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

3.5.1

Operational requirements for the fog equipment shall be included.

3.5.2

Complete cleaning instructions shall be included.

3.5.3

Routine maintenance instructions and a maintenance schedule shall be included.

3.6 Explanation of results

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

3.6.1

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

3.6.2

This section shall 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.

3.6.3

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

3.6.4

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

3.6.5

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

3.7 Contact Information

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

3.7.1

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

3.7.2

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

3.7.3

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

3.8 Technical specification

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

3.9 Warranty

Warranty information shall be included.

3.10 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.

4 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.

Contact Information

E1 Secretariat

Entertainment Services and Technology Association (ESTA)

Karl G. Ruling

Technical Standards Manager

875 Sixth Avenue, Suite 1005

New York, NY 10001

Phone: 1-212-244-1505

FAX: 1-212-244-1502

email: kruling@esta.org

Technical Standards Committee Chair

Mike Garl

President

James Thomas Engineering, Inc.

10240 Caneel Drive

Knoxville, TN 37931

Phone: 1-865-692-3060

FAX: 1-865-692-9020

email: mikeg@jthomaseng.com

Fog & Smoke Working Group Chairs

Larry Schoeneman

Designlab Chicago, Inc.

328 N. Albany

Chicago, IL 60612

Phone: 1-773-265-0600

FAX: 1-773-265-0700

email: Larry@dlabchicago.net

Brad Dittmer

Downhome Productions

1112 Eaglecrest Street

Nixa, MO 65714

Phone: 1-417-724-8778

FAX: 1-417-724-8777

email: bdittmer@downhomeproductions.com

Acknowledgments:

Fog & Smoke Working Group

Principal voting members at the time this document was approved by the Working Group:

Ron Bonner; PLASA [G]
M. Brad Dittmer; Downhome Productions [U]
Nathan Kahn; Look Solutions USA Ltd. [MP]
Edwin S. Kramer; I.A.T.S.E. Local 1 [U]
Greg Meeh; Jauchem & Meeh, Inc. [DR]
Martin Michaud; MDG Fog Generators Ltd. [MP]
Larry Schoeneman; Designlab Chicago, Inc. [DR]
Adrian Segeren; Le Maitre Special Effects [MP]
Eric Tishman; Rosco Laboratories [MP]
Timothy Wade; IATSE Local 600 [U]
Mike Wood; Mike Wood Consulting LLC [G]

Alternate voting members:

Lowell Fowler; High End Systems Inc. [P]
Patrick Boyd; Jauchem & Meeh, Inc. [DR]
Don Phillips; Le Maitre Special Effects [MP]
Marnie Styles; Le Maitre Special Effects [MP]

Observer members:

Robert Barbagallo; Solotech Inc. [U]
Jim Cooper; Palomar College, representing USITT [U]
Thomas Costello; TJC and Associates [G]
Gary Crawford; C I T C [MP]
Mark Elliott; Walt Disney Company [U]
Gary Fails; City Theatrical, Inc. [MP]
Lowell Fowler; High End Systems Inc. [MP]
Douglas Franz; QVC Network [U]
Jim Gill; Reel EFX [MP]
Reuben Goldberg; Technic Services [U]
Jerry Gorrell; Theatre Safety Programs [G]
Beverly Huggins; SFX Design, Inc. [MP]
F. Lee Iwanski; Big Apple Lights [DR]
Kent H. Jorgensen; IATSE Local 80 [G]
Stephanie Kelly; Phoenix Stages/Convention Center (City of Phoenix) [G]
Thomas V. Korder; Krannert Center for the Performing Arts (University of Illinois) [U]
Peggy Lee Martindale; University of Texas, Austin [G]
Patrick O'Rourke; Big Apple Lights [DR]
Julie Rogers; City of Phoenix Civic Plaza (City of Phoenix) [G]
Monona Rossol [G]
Gunther Schaidt; Safex Chemie, representing VPLT [G]
Heinz Siller; RST Präsentationssysteme [G]
Eckart Steffens; SOUNDLIGHT, representing VPLT [G]
Jack Suesse; J.R. Clancy, Inc. [G]
Stephen Vanciel; [U]
Florian von Hofen; VPLT [G]
Colin Waters; TMB [G]
Norman Wright; Group One [DR]

[MP] = mass-market producer [CP] = custom-market producer [DR] = dealer or rental company
[U] = user [G] = general interest