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Standard Guide for Storage of Radiographs and Unexposed Industrial Radiographic Films¹

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1. Scope

1.1 This guide may be used for the control and maintenance of industrial radiographs and unexposed films used for industrial radiography.

1.2 The values stated in inch-pound units are to be regarded as the standard. SI units are provided for information only.

NOTE 1—For information purposes, refer to Terminology E 1316. The terms stated therein, however, are not specifically referenced in the text of this document.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

E 94 Guide for Radiographic Examination²

E 746 Test Method for Determining Relative Image Quality Response of Industrial Radiographic Film Systems²

E 1316 Terminology for Nondestructive Examinations²

2.2 ISO Standards:³

ISO 14523:1999 Processed Photographic Materials—Photographic activity test for enclosure materials

ISO 18901:2002 Imaging Materials—Processed silver-gelatin type black-and-white films - Specifications for stability

ISO 18902:2001 Imaging Materials—Processed photographic films, plates, and papers - Filing enclosures and storage containers

ISO 18917:1999 Photography—Determination of residual thiosulfate and other related chemicals in processed pho-

tographic materials - Methods using iodine-amylose, methylene blue and silver sulfide

3. Significance and Use

3.1 The provisions of this guide are intended to control the quality of industrial radiographs and unexposed films only and are not intended for controlling the acceptability of the materials or products radiographed. It is further intended that this guide be used as an adjunct to Guide E 94.

3.2 The necessity for applying specific control procedures such as those described in this guide is dependent to a certain extent, on the degree to which a user adheres to good processing and storage practices as a matter of routine procedure.

4. Unexposed Film Storage

4.1 Unopened Containers:

4.1.1 *Storage Recommendations*—Any films in containers sealed by the manufacturer and not opened should be stored with the films on edge, whenever possible, to avoid container damage and possible film damage. Storage temperature should be between 40°F [4.4°C] and 75°F [24°C] at a relative humidity range of 30 to 60 %.

4.1.2 *Higher Storage Temperatures*—When temperatures exceed 90°F [32°C] for 30 days, some unexposed films may be processed under normal existing conditions to test for fogging. The outside sheets in a pack of cut films or the ends of rolled films are most affected by heat. If excessive fogging is found on these samples, subsequent sampling may be done on inner sheets or further in on the rolls to avoid unnecessary scrap. A limit of 0.30 density units total for the base density and fog is acceptable (see 4.3) for industrial radiographic films.

4.1.3 *Lower Storage Temperatures*—The temperature can be lower than 40°F [4.4°C] as lower temperatures reduce the rate of heat and age fogging. However, lower temperatures will have no effect on background radiation fogging. Films stored at these lower temperatures in unopened containers should be allowed to stabilize at room temperature before opening the containers. The stabilization time varies with the bulk of the stored films and the temperature stored at. The lower the temperature and greater the bulk the longer the time required to

¹ This guide is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.01 on Radiology (X and Gamma) Method.

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² *Annual Book of ASTM Standards*, Vol 03.03.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, or <http://www.iso.ch>.