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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 Testing²

E 746 Test Method for Determining Relative Image Quality Response of Industrial Radiographic Film²

E 1316 Terminology for Nondestructive Examinations²

2.2 ANSI Standards:

IT9.2 Processed Films, Plates, and Papers—Filing Enclosures and Containers for Storage³

IT9.1 Radiographic Films, Silver-Gelatin on Polyester Base—Specifications for Stability³

PH4.8 Residual Thiosulfate and Other Chemicals in Films, Plates, and Papers—Determination and Measurement³

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 reach room temperature. If the containers are opened too soon, condensation could cause the films to stick to whatever is touching their surfaces.

4.1.4 *Lower or Higher Storage Humidities*—If the relative humidity is below 30 % and the moisture in the films is reduced sufficiently, film emulsion cracking or damage can occur during handling after opening the sealed containers, and the films may be subjected to static electrical discharges.

¹ This guide is under the jurisdiction of ASTM Committee E-7 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.01 on Radiographic Method.

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

³ Available from American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036.