

# American National Standard

*for Photography –  
Photographic Materials –  
Determination of Safelight Conditions*

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**American National Standards Institute**

11 West 42nd Street  
New York, New York  
10036

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**ANSI/PIMA IT2.26-1998**

Revision and redesignation of  
ANSI PH2.22-1988

American National Standard  
for Photography –

**Photographic Materials –  
Determination of Safelight Conditions**

Secretariat

**Photographic & Imaging Manufacturers Association, Inc.**

Approved April 15, 1998

**American National Standards Institute, Inc.**

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**Foreword** (This foreword is not part of American National Standard ANSI/PIMA IT2.26-1998.)

This standard is based upon an ISO Committee Draft of the revision of ISO 8374:1986, and it is considered to be a significant improvement over the existing national standard, ANSI PH2.22-1988. Once the work on the revision of ISO 8374 reaches the FDIS stage, Technical Committee IT2 will submit it to ballot for adoption as a joint ANSI/ISO standard.

This standard contains two annexes. Annex A is normative and is considered part of this standard. Annex B is for information only.

Suggestions for improvement of this standard will be welcome. They should be sent to the Photographic & Imaging Manufacturers Association, Inc., 550 Mamaroneck Avenue, Suite 307, Harrison, NY 10528-1612, e-mail: natlstds@pima.net.

This standard was processed and approved for submittal to ANSI by PIMA Technical Committee on Image Evaluation, IT2. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time this standard was approved, the IT2 Committee had the following members:

Michael R. Goodwin, Chairman  
 Jack Holm, Vice-Chairman  
 James E. Harvey, Secretary

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## Introduction

The term "safelight" in photography is used to describe a light source that offers the user sufficient time to perform an operation without producing a detectable change in the photographic characteristics of a sensitized material. Because most sensitized materials are handled under safelight conditions by the manufacturers or users, or both, it was considered desirable to specify a standard method for determining working conditions that are safe for sensitized materials.

It is usually assumed, often incorrectly, that lighting conditions are safe if the density in a simple "fog test" is not changed by these conditions. This is untrue for many materials, particularly for black-and-white and color papers, where an image area may be more sensitive than an unexposed area. Therefore, an unsafe lighting condition may go undetected if one looks for changes in unexposed areas only. Furthermore, the sensitivity of a sensitized product to a safelight may differ according to whether the safelight exposure is received before or after the practical exposure, and the magnitude or even the direction of this difference may in some cases vary from batch to batch of a given film or paper type.

An additional consideration is the cumulative effect of successive exposures. Depending on the types of exposures and the emulsion formulation of the particular sensitized product, these exposures may be subadditive, additive, or superadditive.

Generally, the spectral quality for a safelight is selected as a compromise between the visual response of a partially dark adapted operator and the spectral response (of the product) to this light. This standard is not concerned with this selection.

The object of this standard is to define when the exposure (the product of intensity and time) from a safelight has a detectable effect on the image-forming characteristics of a sensitized material. Since virtually all exposures are cumulative, exposure of a material to safelights should be kept to a minimum at all stages of handling (i.e., manufacturing, inspection, camera loading, splicing, processing, printing, etc.).

This standard provides a means to isolate and evaluate any given single exposure to safelight irradiation among the several exposures likely to be incurred in the manufacturing and use cycle.

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## American National Standard for Photography –

# Photographic Materials – Determination of Safelight Conditions

## 1 Scope

This standard specifies methods for determining the maximum exposure time that a given sensitized material can receive from a given safelight without affecting the quality of the final image. It also specifies the records that shall be maintained for the components of a safelight and its operating environment.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ANSI/ISO 5-2-1991, ANSI/NAPM IT2.19-1994, *Photography – Density measurements – Part 2: Geometric conditions for transmission density*

ANSI/ISO 5-3-1995, ANSI/NAPM IT2.18-1996, *Photography – Density measurements – Part 3: Spectral conditions*

ANSI/ISO 5-4-1995, ANSI/NAPM IT2.17-1995, *Photography – Density measurements – Part 4: Geometric conditions for reflection density*

## 3 Definitions

For the purposes of this standard, the following definitions shall apply.

**3.1 additivity:** Condition wherein the effect of successive exposures received by a sensitized product produces a net photographic effect that is precisely that which would be predicted by a mathematical summation of the individual exposures.

**3.2 dot value:** Apparent percentage of an area covered by halftone dots, which is calculated from the relative transmission densities of the area of dots, the solid area, and the area between dots.

**3.3 geometric mean:**  $n$ th root of the product of  $n$  quantities. In this standard, the term refers to the square root of the product of two adjacent safelight exposure values.

**3.4 halftone image:** Image composed of dots at a given screen frequency (number of dots per cm) that are varied in size (value) and shape to provide visual tonal gradations.

**3.5 hard-dot:** Halftone dot with sufficiently steep edge gradient such that the dot reproduces reliably in film duplication and in the production of a printing plate.