American National Standard

for Photography (Processing) –
Developers for Black-and-White Films and Plates – Method for Graininess Evaluation

ANSI/I3A IT4.14-2002

Approved American National Standard

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Secretariat

International Imaging Industry Association, Inc. (I3A)

Approved February 13, 2002

American National Standards Institute, Inc.

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Foreword (This foreword is not part of American National Standard ANSI/I3A IT4.14-2002.)

This American National Standard describes a test method for evaluating the graininess performance of a black-and-white film or plate developer.

The graininess of a black-and-white film or plate processed in a given developer can be evaluated in terms of the standard deviation of density, $\sigma(D)$, in the developed sample. However, the method described in this standard permits measurements that are meaningful in pictorial photography without the need for special equipment required to determine $\sigma(D)$ and is based on comparison with a reference developer.

It is recognized that judgment of the overall performance of a developer must include additional factors, such as: excessive loss of speed in negative materials with either the new or a partially exhausted bath; impairment of tone reproduction by contrast distortion or fogging; and formation of scums or uneven stains. The contrast obtained with the developer must also be sufficient to give a usable negative. Other concerns include the ability to produce sharp images, exhaustion characteristics, toxicity, and the tendency of the developer to sludge.

American National Standard ANSI/I3A IT4.14 was prepared by I3A Technical Committee IT4, *Photographic Processing*. This second edition cancels and replaces the first edition (ANSI/NAPM IT4.14-1996) of which it constitutes a technical revision.

This standard contains one annex which is for information only and is not considered part of this standard.

Suggestions for improvements of this standard will be welcome. They should be sent to the International Imaging Industry Association (I3A), 550 Mamaroneck Avenue, Suite 307, Harrison, NY 10528-1612, e-mail: i3astds@i3a.org.

This standard was processed and approved for submittal to ANSI by I3A Technical Committee IT4 on Photographic Processing. Committee approval of the standard does not necessarily imply that all committee members voted for its approval. At the time it approved this standard, the IT4 Committee had the following members:

Joseph M. Rao, Chairman
John Gignac, Secretary

Organization Represented	*Name of Representative*
International Imaging Industry Association (I3A)	Jan Carlock
	Linda Crosby
	Kunihiro Fujiwara
	Ronald A. Klein
	Laszlo Papai
	Anthony Jarkowski
General Chemical Corporation	Mark Dulik
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Photo Marketing Association International	Herb Stein

Individual Experts

Peter Krause
Norman Newman
Joseph M. Rao

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1 Scope

This standard describes a method for evaluating the graininess performance of a developer in comparison with a reference developer. It is applicable to black-and-white continuous-tone still-pictorial photography where the result is normally viewed as a reflection print.

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 and publications are subject to revision and are parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards and publications listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ANSI/PIMA IT4.31-1998, *Photography (Processing) – Photographic inertness of construction materials – Test method and specification*

ISO 5-3:1995, *Photography – Density measurements – Part 3: Spectral conditions*

ISO 6:1993 (R1998), *Photography – Black-and-white pictorial still camera negative film/process systems – Determination of ISO speed*

ISO 418:2001, *Photography – Processing chemicals – Specifications for anhydrous sodium sulfite*

ISO 422:1994 (R1999), *Photography – Processing chemicals – Specifications for p-methylaminophenol sulfate*

ISO 3298:1994 (R1999), *Photography – Processing chemicals – Specifications for glacial acetic acid*

ISO 3620:1994 (R1999), *Photography – Processing chemicals – Specifications for aluminium potassium sulfate*

ISO 3627:2001, *Photography – Processing chemicals – Specifications for sodium metabisulfite*

ISO 3628:1994 (R1999), *Photography – Processing chemicals – Specifications for boric acid, granular*

ISO 6353-1:1982, *Reagents for chemical analysis – Part 1: General test methods*

ISO 6353-2:1983, *Reagents for chemical analysis – Part 2: Specifications – First series*

ISO 6353-3:1987, *Reagents for chemical analysis – Part 3: Specifications – Second series*

ISO 7589:1984 (R1994), *Illuminants for sensitometry – Specifications for daylight and incandescent tungsten*

ISO 10636:1994 (R1999), *Photography – Processing chemicals – Specifications for anhydrous sodium thiosulfate and sodium thiosulfate pentahydrate*