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Designation: D6688 – 11

Standard Practice for Relative Resistance of Printed Matter to Liquid Chemicals by a Sandwich Technique[1]

This standard is issued under the fixed designation D6688; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice covers the evaluation of the relative resistance of printed matter to liquid chemicals, as evidenced by lack of discoloration, bleeding, or loss of gloss.

1.2 This practice utilizes a sandwich procedure similar in principle to ISO/TC 130 N 589. Spotting or immersion procedures are covered in Test Methods D1308, D1647, and D2248.

1.3 This practice is applicable to prints on any flat substrate including paper, paperboard, metallic foil, metal plate, and plastic films, and produced by any printing process including letterpress, offset lithography, flexography, gravure, silk screen, and non-impact.

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 *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.* For specific hazard statements, see Section 7.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes

D1647 Test Methods for Resistance of Dried Films of Varnishes to Water and Alkali (Withdrawn 2004)[3]

D2248 Practice for Detergent Resistance of Organic Finishes

2.2 *Other Standards:*

ISO/TC 130 N 589 Graphic Technology-Prints and Printing Inks-Assessment of Resistance to Various Agents[4]

3. Summary of Practice

3.1 Prints of the test and reference printing inks are each sandwiched between filter paper, which has been saturated with the specified liquid. After the agreed upon contact times, the prints and filter paper are dried and then examined for objectionable changes such as discoloration, bleeding, or loss in gloss. The test print is then rated as better, equal, or worse than the reference print.

4. Significance and Use

4.1 Many types of printed matter, notably container labels, packaging materials, magazine and book covers, must be resistant to liquid materials that may contact them advertently or inadvertently. This practice permits an assessment of resistance of printed matter to several types of liquids.

4.2 The requirement that a reference print be run at the same time as the test print minimizes effects of atmospheric conditions (humidity and temperature) and other variations which may develop.

4.3 This practice can be used to determine whether new formulations are suitable for the end-use purpose and for specification acceptance between producer and user.

5. Apparatus

5.1 *Glass Plates,* 60 by 90 mm, two for each printed specimen (minimum four per test).

5.2 *Petri Dish,* at least 100 mm in diameter.

5.3 *Weight,* 1 kg.

5.4 *Timer,* calibrated in minutes up to 24 h.

5.5 *Oven,* capable of maintaining 50°C.

6. Materials

[1] This practice is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.56 on Printing Inks.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, http://www.ansi.org.

*A Summary of Changes section appears at the end of this standard

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