



Designation: F843 – 98(Reapproved 2008)

Standard Test Method for Assessing the Color Strength and Dispersibility of Alkali Blue Pigment in Hot Melt Carbon Copy Paper Ink¹

This standard is issued under the fixed designation F843; 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 test method provides a procedure to determine the color strength of dry or flushed alkali blue pigment in hot melt carbon copy paper ink compared to an alkali blue control mutually agreed upon by the purchaser and supplier.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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.* Specific warning statements are given in 9.1 and 9.2.1.

2. Referenced Documents

2.1 *ASTM Standards:*²

[D1210 Test Method for Fineness of Dispersion of Pigment-Vehicle Systems by Hegman-Type Gage](#)

[D3460 Specification for White Watermarked and Unwatermarked Bond, Reprographic, and Laser Printer Cut-Sized Office Papers](#)

[F129 Practice for Amount of Ink Deposit on Carbon Paper and Inked Ribbons, Other Than Fabric Type](#)

[F149 Terminology Relating to Optical Character Recognition](#)

[F221 Terminology Relating to Carbon Paper and Inked Ribbon Products and Images Made Therefrom](#)

[F497 Practice for Use of the Electric and Electronic Typewriter as a Test Instrument](#)

[F597 Practice for Evaluation of One-Time Carbon Paper in](#)

[Carbon-Interleaved Business Forms by Use of an Electric Typewriter](#)

2.2 *ANSI Standards:*³

[PH2.17 Density Measurements—Geometric Conditions for Reflection Density](#)

[PH2.18 Density Measurements—Spectral Conditions](#)

3. Terminology

3.1 *Definitions:*

3.1.1 *steel scraper, n*—also referred to as a drawdown knife (see Fig. 1).

3.1.2 *drawdown, n*—a film of ink deposited on paper by a smooth edged blade to evaluate the characteristics of the ink (see Fig. 2).

4. Summary of Test Method

4.1 Samples of the control and the test material(s) are dispersed in a hot melt carbon paper ink, utilizing a laboratory batch-type heated shot mill apparatus or a heated ball mill. Resultant inks produced are compared by making drawdowns on grease proof translucent paper or by coating on carbonizing tissue in a proper and reasonable coating weight range. These are evaluated visually, with a densitometer or by use of the electric typewriter as a test instrument.

5. Significance and Use

5.1 This test method is intended to provide a means of evaluating the comparative color strength and dispersibility of alkali blue dry pigment or flushed color in hot melt carbon paper inks.

6. Interferences

6.1 Temperature limits must be maintained during dispersion and test sample preparation for reproducibility of test results.

6.2 Dispersion time must be carefully timed to a dispersion level agreed upon between supplier and consumer. For guidance, the following grind levels on the fineness of grind gage may be considered sufficient:

¹ This test method is under the jurisdiction of ASTM Committee F05 on Business Imaging Products and is the direct responsibility of Subcommittee F05.02 on Inked Transfer Imaging Products.

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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 Available from American National Standards Institute, 25 W. 43rd St., 4th Flr., New York, NY 10036.



Grind Level	Gage Scale
5.5 to 6.0	Hegman (North Standard)
7.0 to 8.0	Production Club (PC)
1.25 to 0.75	Mils (0.001 in.)
32.0 to 25.0	Micrometres
12.5 to 7.5	NPIRI (2 mil gage)

6.3 In making the drawdowns for visual or densitometer assessments, or both, care must be exercised in holding the metal scraper in the same position each time and applying the same pressure. The control must always be included on each draw down.

6.4 Color hue differences between control and test material can introduce errors in visual strength estimates.

7. Apparatus

7.1 *Drill Press*, or similar drive capable of turning a $\frac{5}{16}$ -in. (8.0-mm) shaft at variable speeds with a maximum constant speed of 2000 r/min. Should have provisions for securing a 600-mL heating mantle beneath the drive mechanism.

7.2 *Three-Blade Stirring Propeller*, 2-in. (51.0-mm) diameter mounted on 12 by $\frac{5}{16}$ -in. (305 by 8.0-mm) shaft, stainless steel.

7.3 *Heating Mantle*, 600-mL.

7.4 *Autotransformer*, voltage range 0 to 120 V or other equivalent voltage controller.

7.5 *Metal Cans*, $\frac{1}{4}$ -pt (118-mL), 1-pt (473-mL), 1-qt (946-mL) and 1-gal (3.8-L), unlined with lids.

7.6 *Lids*, for pint cans with $\frac{5}{16}$ -in. (8.0-mm) hole in center (for use with shot mill).

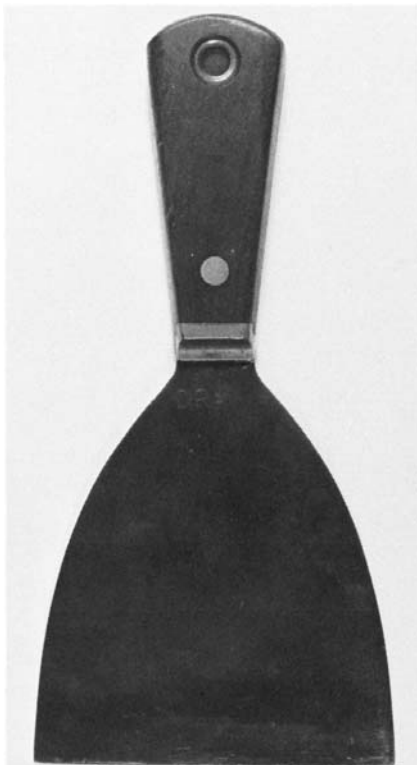


FIG. 1 Drawdown Knife



FIG. 2 Drawdown

7.7 *Stainless Steel Shot*, diameter size as mutually agreed upon by supplier and manufacturer.

7.8 *Strainer*, with mesh smaller than diameter of steel shot used.

7.9 *Ring Stand*, to support strainer.

7.10 *Metal Stem Thermometer*, dial-type 5° divisions, 0 to 300°F (2° divisions, -22 to 149°C).

7.11 *Two Surface Thermometers*, dial, 5° divisions, 0 to 300°F (2° divisions, -22 to 149°C).

7.12 *Laboratory Ball Mill*, having the following equipment:

7.12.1 *Jacket*, connected to a steam or hot water supply maintained at a specified temperature, $\pm 5^\circ\text{F}$ ($\pm 3^\circ\text{C}$). This specified temperature should be in the range of 190 to 235°F (88–113°C).

7.12.2 *Abrasion-Resistant Interior*.

7.12.3 *Vent Plug*.

7.12.4 *Grinding Cover and a Slotted Discharge Cover*, or a grinding cover with a discharge valve.

7.12.5 *Steel or Iron Balls*—Charge of $\frac{1}{4}$ to $\frac{5}{8}$ -in. (6 to 16-mm) steel or iron balls occupying 50 % of the mill's interior volume. Different ball sizes, a mixture of balls of different sizes, and different ball charge levels can only be used when agreed upon by the purchaser and supplier.

7.12.6 *Motor Drive*, with provision for mill speed adjustment so that mill can be set at its critical speed.

7.13 *Laboratory Oven*, capable of maintaining a constant temperature comparable to the ball mill operating temperature, $\pm 5^\circ\text{F}$ ($\pm 3^\circ\text{C}$).

7.14 *Stop Watch or Timer*.

7.15 *Gloves*, insulated heat resistant.