Designation: F1033 – 00 (Reapproved 2010)

Standard Test Method for Comparing Lift-Off Correction Media[1]

This standard is issued under the fixed designation F1033; 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 information and test procedures for evaluating several performance qualities of typewriter or printer lift-off correction tapes and tabs on a comparative basis for general office use.

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.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D3460 Specification for White Watermarked and Unwatermarked Bond, Reprographic, and Laser Printer Cut-Sized Office Papers

E97 Method of Test for Directional Reflectance Factor, 45-Deg 0-Deg, of Opaque Specimens by Broad-Band Filter Reflectometry

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

2.2 *ANSI Standard:*

PH2.36 Terms, Symbols, and Notation for Optical Transmission and Reflection Measurements (Optical Density)[3]

PH2.17 Density Measurements—Geometric Conditions for Reflection Density[3]

PH2.18 Density Measurements—Spectral Conditions[3]

3. Definitions

3.1 For definitions of terms used in this test method, refer to Terminology F221.

4. Summary of Test Method

4.1 This test method consists of testing typewriter and printer lift-off correction tapes and tabs under actual and simulated use conditions, using several techniques generally accepted in the inked ribbon industry. All tests should be performed under the same conditions so that comparative results may be obtained.

5. Significance and Use

5.1 This test method may be used to evaluate several performance characteristics of typewriter and printer lift-off correction media on a comparative basis.

5.2 This test method is suitable for comparative service evaluation and research and development.

5.3 This test method is suitable for manufacturing control on a limited basis, due to the length of time required for some tests.

6. Interferences

6.1 The capability of the typewriter or printer to register properly in initial impact and correction mode will affect the results of this test procedure. A properly adjusted machine is necessary to obtain reproducible results.

6.2 Different typewriters and printers with varying type fonts may give different results. For the widest range of acceptability, use different typewriters and printers with various type fonts. Similarly, a variety of test papers may be used to increase the applicability of this procedure.

7. Apparatus and Materials

7.1 *Electric or Electronic Typewriter*—Calibrate and adjust in accordance with the manufacturer's suggestions and Practice F497.

7.2 *Reflection Densitometer,* meeting the geometric conditions of PH2.17 and the spectral conditions of PH2.18 and

[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.

measuring reflection density as defined in ANSI PH2.36. Aperture size to be approximately 3⁄16-in. (4.75-mm) diameter.

7.3 *Environmental Chambers:*

7.3.1 Device shall be capable of maintaining 120 ± 2°F (49 ± 1°C) at 40 ± 5 % relative humidity for 48 h. This condition is used in 11.3 to determine the effects of high temperature.

7.3.2 Device shall be capable of maintaining 120 ± 2°F (49 ± 1°C) at 83 ± 3 % relative humidity for 48 h. This condition is used in 11.4 to determine the effects of high humidity. It should be noted that at these conditions, even a slight temperature change could cause the percent of relative humidity to go outside the specified range.

7.4 *Magnifier,* 4×.

7.5 *Paper*—A white bond paper conforming to Specification D3460, Grade 4, Type I, having a basis weight of 20 lb for 17 by 22 in. (432 by 559 mm) by 500 sheets (75 g/m^2). The felt side of the paper shall be used for the test. All tests shall be made along the machine direction of the paper.

7.5.1 Other papers may be used within laboratories for comparison purposes. Unless otherwise agreed upon, the paper specified in 7.5 shall be used.

7.6 *Control Correctable Ribbon*—A ribbon of known quality and performance.

8. Test Specimen

8.1 The test specimen shall be a portion of the tape or tab not previously used or marred by handling.

9. Calibration

9.1 Calibrate the electric typewriter or printer in accordance with manufacturer's instructions and Practice F497.

9.2 Calibrate and standardize the reflectometer for 45° reflectance of opaque specimens, in accordance with Test Method E97.

10. Conditioning

10.1 Conduct testing in an environment with stable conditions of temperature and humidity. Condition papers, control ribbon, and test samples for 24 h in the area in which the test will be conducted. If possible, use standard ambient conditions.

11. Procedure

11.1 *Cleanliness of Lift-Off:*

11.1.1 Type 15 lines of asterisks or other suitable characters, 15 characters long. Index one half line between typed lines.

11.1.2 Using either lift-off tape or tab, remove characters 2 through 14 of lines 2 through 14; leaving an enclosed corrected area of approximately 1-in. square.

11.1.3 Measure the reflectance of the corrected area and that of the paper in accordance with Test Method E97, and record. Call the optical reflectance of the corrected area *C* and that of the bond paper *B*.

11.1.4 Visually examine the corrected area with and without aid of the 4× magnifier. Look for evidence of incomplete lift-off, extraneous particles, torn paper fibers, and coating residue.

11.2 *General Quality*—Simultaneously perform evaluations for salient characteristics of splices, skips, holes, or tears in the base film or coating, off-setting (to back of tape or tab), and transfer to fingers.

11.3 *Effects of High Temperature on Aging:*

11.3.1 Place test specimen, in its end-use condition, in an environmental chamber stabilized as specified in 7.3.1 for 48 h.

11.3.2 Remove specimen from the chamber and stabilize for at least 6 h to the original conditions of Section 10.

11.3.3 Repeat 11.1.1 through 11.1.4 for each specimen tested.

11.4 *Effects of High Humidity:*

11.4.1 Place a test specimen, in the end-use condition, in an environmental chamber stabilized as specified in 7.3.2 for 48 h.

11.4.2 Remove specimen from the chamber and stabilize for at least 6 h to the original conditions of Section 10.

11.4.3 Repeat 11.1.1 through 11.1.4 for each specimen tested.

11.4.4 Examine each test specimen for coning, increase in tack, and offsetting.

12. Identification

12.1 For identification of test specimens, the following information is suggested:

12.1.1 Tape or tab (name) and lot number, if known,
12.1.2 Manufacturer's name and address,
12.1.3 Base material (substrate),
12.1.4 Color,
12.1.5 Nominal length, width, and thickness,
12.1.6 Actual length, width, and thickness,
12.1.7 Core outside and inside diameter (tape supply core),
12.1.8 Tape diameter (supply core),
12.1.9 Leader material, seal, and length (tapes),
12.1.10 End warning signal, nature, and length (tapes),
12.1.11 Trailer material, seal, and length (tapes), and
12.1.12 Package description (configuration, box, identification).

13. Calculation

13.1 Make calculations as follows:

$$\text{Percent lift} - \text{off} = C/B \times 100$$

The optimum percent lift-off is 100 %.

14. Report

14.1 Due to the subjective nature of the tests involved, with the exception of the units obtained in 11.1.3 and 13.1, only comparative results can be reported.

15. Precision and Bias

15.1 Repeatable ranking order results or a repeatable relationship to a control can be obtained with this test method provided that:

15.1.1 The same printer or typewriter in the same condition is operated with constant voltages,
15.1.2 Sample conditioning procedures are similar, and
15.1.3 Ambient conditions are similar.

15.2 Reproducible ranking order between laboratories is possible with proper correlation of test equipment and procedures.

16. Keywords

16.1 correction tabs; correction tapes; lift-off correction; typewriter