



Standard Practice for Preparing Prints of Paste Printing Inks with a Printing Gage¹

This standard is issued under the fixed designation D 6846; 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 procedure for preparing laboratory prints of paste inks using a printing gage in conjunction with a flat-bed proof press.

1.2 This practice is applicable to the preparation of solid-area prints by direct letterpress or by dry offset on a flat substrate such as paper, paperboard, or metal.

1.3 This practice is applicable primarily to lithographic and letterpress inks that dry by oxidation or penetration. With the addition of appropriate drying or curing equipment, it is also applicable to other paste ink systems such as heat-set or energy-curable.

1.4 The instructions in this practice are intended to minimize the within-print and among-operator variability inherent in hand operations.

1.5 This practice features built-in ink film thickness control. It does not measure the film thickness transferred to the print; however, film thickness equivalence may be evaluated by visual or instrumental comparisons of optical density.

1.6 Values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.7 *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 precautions are given in Section 7.

2. Referenced Documents

2.1 ASTM Standards:

D 1316 Test Method for Fineness of Grind of Printing Inks by the NPIRI Grindometer²

D 6073 Test Method for Relative Setting of Heatset Printing Inks by the Sinvatrol Tester²

D 6487 Practice for Preparing Prints of Paste Printing Inks with an Offset Color Proofing Press²

3. Summary of Practice

3.1 The printing gage is inked by a drawdown technique; a double drawdown is recommended to minimize scratches and improve print appearance.

3.2 The inked gage is placed in the bed of the proof press from which the regular printing plate has been removed.

3.3 To make a letterpress print, the appropriate stock is attached to the impression (blanket) cylinder, which is rolled once over the inked gage. To make a dry offset print, the stock is clipped onto the impression plate and the blanket cylinder is rolled over the inked printing gage two to four times followed by once over the stock.

3.4 Two-color prints may be prepared by utilizing two inked gages in the bed of an offset proofing press.

4. Significance and Use

4.1 Laboratory proofing of inks is necessary to establish a reproducible prediction of print appearance and performance properties, most of which are highly sensitive to ink film thickness. The apparatus described in this practice has found wide use for routine control proofing because it provides an economical method for producing reasonably large prints at film thicknesses comparable to those obtained on production presses.

4.2 A unique advantage of printing gages is that, depending on the design selected, prints can be produced at a range of tapered film thicknesses or at several levels of uniform thicknesses in a single proofing. Because of the built-in film thickness control, ink metering is not necessary. Relatively small quantities of test samples are used, and less than two minutes are required to ink a gage, pull a letterpress print, and clean up. In addition, problems due to ink distribution systems are eliminated, two inks may be proofed at the same time, and multi-color printing is possible.

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.

Current edition approved Dec. 10, 2002. Published February 2003.

² *Annual Book of ASTM Standards*, Vol 06.02.