

TAPPI ROUTINE CONTROL METHODS

RC-19, RESISTANCE OF PAPER OR PAPERBOARD TO PRINTING INK (K&N INK)

This test shows the rate of printing-ink varnish absorption at the surface of paper or paperboard. The K&N test ink* is made from a non-drying varnish such as used in most black inks. Unlike ordinary printing ink, an oil-soluble dye has been dissolved in the varnish. The ink is standardized not just to produce a uniform gray color, but to give the correct stain when absorbed in the paperboard or paper.

The apparatus consists of the standard ink in jar or can, a small spatula, stop-watch and a clean soft cloth.

The test specimen is a flat un-creased sample of any convenient size.

Several samples can be tested at the same time. Place them, with the surface to be tested uppermost, so that the edges overlay each other 1 or 2 inches. The test ink should be mixed a little with a spatula; then smear a thick film about 1 inch wide over the overlapping samples and at the same instant start the stop-watch. The amount of ink smeared on the sample is not important as long as the film remains glossy on the top. If the film becomes dull, the test should be repeated, using more ink.

After exactly 2 minutes, quickly remove most of the ink with the spatula, then wipe the remainder away with the clean soft cloth. The varnish which has penetrated the paperboard or paper will be shown by a blue stain of varying depth.

Deep discoloration or stain indicates high rate of varnish absorption, while light discoloration indicates low absorption or good gloss-ink properties. Such results may be reported as deep, medium and light discoloration or stain. An examination of the stained area will be found helpful in solving such problems as ink lay, ink consumption, off-set, smear, and rate of set.

Since the degree of ink absorption is measured by the depth of the blue stain, standard samples of the test ink should be made on board of known commercial ink properties and these standard samples compared with test ink results on unknown samples or mill runs.

Notes: (1) The test ink can be boiled in water without dye dissolving in the water, but it has been found that a strongly alkaline paper will turn the dye slightly purple.

(2) It will be found that the stain from the ink will show up all surface defects on the paper, but after 5 or 10 minutes the varnish will be blended into the fibers and not be so prominent.

*Obtainable from the K&N Laboratories, Inc., P.O. Box 7226, Deerfield, IL 60015
Telephone (708) 482-3240 Facsimile (847) 205-1400 E-Mail orders@knlaboratories.com

These RC Methods have been gathered from various sources by the Technical Association. They offer procedures that are claimed by their users to be satisfactory. They are not TAPPI Standards.

Technical Association
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Pulp and Paper Industry