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TIP Category: Automatically Periodically Reviewed (Five-year review)

TAPPI

Statistical process control pin adhesion

Scope

The purpose of this Technical Information Paper is to provide a basic understanding of using statistical process control techniques in determining the strength of bond formed during the corrugating process.

Introduction

The pin adhesion strength of corrugated board is a method used to measure the adhesive bond strength between the flute tips of the corrugating medium and its linerboard facings. The test provides a means of determining the strength of the bond formed during the combining process and can be used to detect some manufacturing defects such as poor adhesive penetration and spotty adhesive application. Good adhesion of the

medium to its facings is necessary in obtaining high quality corrugated board. It is this property more than any other

that allows the components to work together to create corrugated board.

Safety precautions

No safety precautions apply.

Content

Test method

The preferred test method for pin adhesion is TAPPI T 821 “Pin Adhesion of Corrugated Board by Selective Separation” since this method allows for the selective measurement of the bond strength of both the inside

and outside liners. This procedure describes the test instrument, calibration, sampling requirements and the proper

reporting procedures.

For some process control purposes it may not be practical to properly condition the samples in accordance with T 821; however, it is recommended that all samples be taken to a conditioned test lab immediately after being

collected and conditioned for some fixed length of time before testing.

While T 821 is the preferred test method, UM 802 “Pin Adhesion Test of Corrugated Fiberboard” can be handled in the same manner, statistically, as described in this TIP. In addition to the pin adhesion value being

recorded, the side failing would have to be noted along with the percent fiber failure to provide complete information for interpretation.