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TAPPI

Evaluating glue lap adhesives

Scope

The scope of this technical information sheet is to outline the various tests one can use in evaluating the glue lap adhesives used in the corrugated boxplants for the containers manufacturer's joint.

These methods could be used to monitor the batch-to-batch quality of an adhesive or to evaluate a new proposal from an adhesive supplier and compare it to the grade used until then.

Safety precautions

None are applicable.

Content

Test Methods

TAPPI UM 512 “Glueability of Paperboard” describes a procedure to measure the glueability of paperboard expressed as the time required in joining two surfaces of the board, to reach a predetermined bond strength as measured by peeling.

The procedure outlined in UM 512 can be used with the provision that, rather than using a recommended adhesive to test various board substrates, a recommended linerboard is used to evaluate the behavior of various samples of glue lap adhesive.

The recommended linerboard to be used should be of the grade most representative or most commonly used at the user's boxplant.

This method allows the user to compare the set time as well as the green bond strength of the various adhesives tested and relate this to the actual conditions found on his folder gluer equipment.

Other tests have been found useful such as:

Viscosity of the adhesive: As per TAPPI T 666 “Viscosity of Adhesive Using a Low-Shear Rotating Apparatus.”

Ash content: As per TAPPI T 211 “Ash in Wood and Pulp.” This test enables one to detect the presence of mineral fillers in the adhesive. An ash content of more than 2% is generally a positive indication of fillers. Mineral fillers are abrasive and can wear or clog application equipment.

pH of the adhesive: Determined in accordance with TAPPI T 667 “pH of Filler and Pigment Slurries” but using a 100 mL sample of the adhesive instead of the mentioned slurry.

Solids content: Using a forced air oven to dry a small sample of adhesive, the amount of solids is determined gravimetrically. There are also some electronic moisture balances offered on the market that simplify and speed up the process.

Water resistance: A useful feature if a corrugated container is submitted to high humidity conditions. A quick test is to spread a known thickness of an adhesive on an inert and flat surface (like a melamine

board), preferably matte finish and dark colored. The film is oven-dried and conditioned as per TAPPI T 402