CRUSH TEST METHODS

Ring Crush Test (RCT)

To determine ring crush resistance.

A 152.4 x 12.7 mm paper or board sample, prepared with the strip punch (see page 207), is inserted, long edge uppermost, into the sample holder and placed in the crush tester. Different sample holders are available for different material thickness.

In the RCT test, the test strip is exposed to compression until it buckles. The force measured indicates how much force is required to finally break them.

Concora Crush Test (CCT)

To determine the crush resistance of flutes.

A 152 x 12.7 mm sample, prepared with the concora fluter (see page 144) is placed in the sample holder of the crush tester with the long edge uppermost. Different sample holders are available for different flute sizes (see pages 146 – 147).

In the CCT test, the flute is exposed to compression on the long edge until it buckles. The force measured indicates how much force is required to break the fibres.

Edge Crush Test (ECT)

To determine the edge crush resistance of corrugated board.

A 100 x 25 mm sample, prepared with the ECT sample saw (see pages 132 – 133) is placed long edge uppermost in the crush tester between two metal blocks. The two blocks prevent sideways slippage of the sample during the crush test.

In the ECT test, the corrugated board is exposed to compression until it buckles. The force measured indicates how much force is required to finally break them.
Score Quality Test (SQT) acc. TAPPI T829

To determine the score quality of corrugated board.

The prepared 25.4 mm sample is rilled, in MD or CD as required, and placed in the sample holder.

In the SQT test, a compression bar applies pressure to the rilling line in the middle of the corrugated boards until this is pushed downwards at least 12.7 mm, or the angle between the two sides reaches 90°. The force required is compared with force used in a test with uncorrugated board. This procedure allows the score quality to be determined.

Pin Adhesion Test (PAT)

To determine the adhesion bond strength of corrugated board.

The pins of the holder for the PAT test are inserted through the flutes of the corrugated board in such a way that the lower holder presses the flute upwards and the upper holder pushes the lower linerboard downwards. Sample holders are available for different flute sizes (see pages 146 – 147).

In the PAT test, force is applied to the inner side of the linerboard until the bond is broken between the board and the adhesive. The measured values indicate how much force must be applied to break the bond between linerboard and flutes.

Concora Medium Test (CMT)

To determine the crush resistance of concora flutes.

The 152 x 12.7 mm sample prepared with the concora fluter (see pages 144 – 145) is glued with the aid of the third hand and placed between the platens of the crush tester.

In the CMT test, the flutes are exposed to compression until they buckle. The force measured indicates up to which point the fibres recover or when they can no longer return to their original shape (meander point, see page 142) and how much force is required to finally break them.
The meander point is the point during compression testing when the fibres are compressed to such an extent that they no longer return to the start position when the load is removed.

In practice this means that:

- If, during the CMT test (see page 141), a sample is compressed in the range below the meander point, when the pressure platens are removed the sample can be returned to its original condition.

- If the sample is compressed beyond the meander point (meaning that some fibres are damaged without the sample collapsing), it is no longer possible to return to the start values by removing the pressure platens.

- Collapse of the sample occurs only when the force applied is far in excess of the meander point.