
INTERNATIONAL STANDARD



3039

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Corrugated fibreboard — Determination of the grammage of the component papers after separation

Carton ondulé — Détermination du grammage des papiers composants après leur séparation

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3039 was drawn up by Technical Committee ISO/TC 6, *Paper, board and pulps*, and circulated to the Member Bodies in January, 1973.

It has been approved by the Member Bodies of the following countries :

Belgium	Hungary	ISO 3039:1975
Bulgaria	India	South Africa, Rep. of
Canada	Ireland	Spain
Czechoslovakia	Israel	Sweden
Egypt, Arab Rep. of	New Zealand	Switzerland
Finland	Norway	Thailand
France	Poland	Turkey
Germany	Romania	United Kingdom

The Member Body of the following country expressed disapproval of the document on technical grounds :

U.S.A.

Corrugated fibreboard – Determination of the grammage of the component papers after separation

1 SCOPE

This International Standard specifies a method for determining the grammage of the individual papers from which corrugated fibreboard has been made.

2 FIELD OF APPLICATION

This method is applicable to all types of corrugated fibreboard.

3 REFERENCES

ISO/R 186, *Method of sampling paper and board for testing.*

ISO 187, *Paper and board – Conditioning of test samples.*¹⁾

ISO 536, *Paper and board – Determination of grammage.*²⁾

4 PRINCIPLE

Treatment of test specimens of corrugated fibreboard so that the individual components can be separated. Drying and conditioning of the component papers followed by determination of their grammage in accordance with ISO 536.

5 APPARATUS

5.1 Tank, of sufficient size for immersion of the corrugated fibreboard test pieces, to contain cold or hot water.

5.2 Means for drying the test pieces when separated. (An apparatus similar to the type of drier used for drying photographic prints is suitable.)

5.3 Cutting instrument having a circularly guided knife to cut test pieces with an area of 100 cm² (diameter 113 ± 0,5 mm) should preferably be used.

5.4 Balance, with sensitivity of 0,01 g or better over the entire measuring range. This will make it possible to determine the grammage of papers from test pieces of 100 cm² area to a precision of 1 g.

6 SAMPLING

Sampling shall be carried out in accordance with ISO/R 186.

Individual specimens of sufficient size to provide the test pieces shall be cut from the samples. The surfaces of the corrugated fibreboard shall be free from any damage that may affect the test results. The specimens should preferably be taken from non-printed and non-coated fibreboard.

ISO 3039:1977 CONDITIONING

The specimens shall be conditioned in accordance with ISO 187.

8 PREPARATION OF TEST PIECES

Cut circular or square test pieces each of not less than 100 cm² area, using preferably a cutting device as described in 5.3. The cut edges shall be clean and perpendicular to the faces of the corrugated fibreboard.

9 PROCEDURE

9.1 Separation of component papers

Immerse the test pieces in water long enough to cause the component sheets of paper to separate spontaneously or with an extremely light pull. Care shall be taken, in separating the papers, that no fibres are removed from a surface and adhere to the adjoining one. To accelerate the process and to separate corrugated fibreboard in which the adhesive is more or less moisture resistant, hot water may be used.

1) At present at the stage of draft. (Revision of ISO/R 187.)

2) At present at the stage of draft. (Revision of ISO/R 536.)

9.2 Removal of adhesive

Adhesive showing on the surface of the paper, which has not been absorbed by the paper, may be removed, while wet, by lightly scraping the surface.

NOTE — Complete removal of the absorbed adhesive cannot be expected, but removal of the paper fibre is to be avoided.

9.3 Drying of the separated papers

Dry the individual papers at a temperature not exceeding 105 °C and condition them in accordance with ISO 187.

9.4 Fluting medium

After cleaning and conditioning, flatten the fluting medium and re-cut to give an area of 100 cm².

9.5 Determination of grammage

Unless otherwise agreed between the interested parties, the grammage of the component papers of five test pieces of corrugated fibreboard shall be determined in accordance with ISO 536.

Each component paper of each test piece shall be weighed individually to the nearest 0,01 g. The weighing shall be carried out in the conditioning atmosphere (see 9.3).

10 EXPRESSION OF RESULTS

For each determination, calculate and express the grammage, in grams, per square metre, to the nearest whole number (weighing to 0,01 g). Calculate the mean of the results.

For each paper composing the corrugated fibreboard, the arithmetic mean of the results given by each test piece constitutes the grammage of the lot.

NOTE — By its nature, this test is capable of only very limited accuracy, but it can give useful information concerning the component papers used.

11 TEST REPORT

The test report shall include the following particulars

- a) a reference to this International Standard;
- b) the date and place of testing;
- c) a description and identification of the corrugated fibreboard tested;
- d) a description and identification of the individual papers;
- e) the conditioning atmosphere used;
- f) the temperature of the water used for the separation of the component papers;
- g) the number of test pieces;
- h) the results of the individual tests, in grams per square metre;
- i) the arithmetic mean of the individual tests;
- j) details of any deviation from this International Standard;
- k) any other information which may be useful for the interpretation of the test results.

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