
International Standard



801/2

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Pulps — Determination of saleable mass in lots — Part 2 : Pulps (such as flash-dried pulp) baled in slabs

*Pâtes — Détermination de la masse marchande des lots —
Partie 2 : Balles de pâte en plaques (pâte séchée en flocons)*

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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 801/2 was developed by Technical Committee ISO/TC 6, *Paper, board and pulps*, and was circulated to the member bodies in March 1978.

It has been approved by the member bodies of the following countries :

Austria	India	Romania
Belgium	Iran	South Africa, Rep. of
Canada	Ireland	Spain
Chile	Israel	Sweden
Czechoslovakia	Italy	Switzerland
Egypt, Arab Rep. of	Kenya	Turkey
Finland	Mexico	United Kingdom
France	Netherlands	USSR
Germany, F. R.	Norway	
Hungary	Poland	

The member body of the following country expressed disapproval of the document on technical grounds :

USA

This International Standard cancels and replaces ISO Recommendation R 801-1968 of which it constitutes a technical revision.



TLP

INTERNATIONAL STANDARD ISO 801/2-1979 (E)/AMENDMENT

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**Pulps – Determination of saleable mass in lots – Part 2 : Pulps (such as flash-dried pulp)
baled in slabs**

AMENDMENT

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MODIFICATION TO FOREWORD (*Inside front cover*) **ISO 801-2:1979**

The ISO member body for the USA has now withdrawn its disapproval of this International Standard. The USA should therefore be included in the list of countries whose member bodies have approved the document.

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Pulps — Determination of saleable mass in lots — Part 2 : Pulps (such as flash-dried pulp) baled in slabs

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0 Introduction

This International Standard is complementary to ISO 801/1, which concerns the determination of saleable mass of pulp baled in sheet form.

For the time being, the working group ISO/TC 6/SC 5/WG 1 is considering possibilities to recommend a method which would be applicable to determining of saleable mass of pulp in unitized bales.

The extreme difficulty encountered in the cutting of wedges from thick slabs of pulp, such as flash-dried pulp, for which this test method has been designed, has led to the adoption of a disc sampling procedure, following an extensive investigation (practical and statistical) of the problem. A brief statement of this investigation is given in annex B, which does not belong to the body of this International Standard.

It is recognized that, although the wedge system of sampling is, in theory, more accurate than the disc system, the drilling procedure specified in this International Standard may be regarded as satisfactory because, in practice, the moisture variation from place to place is relatively small (for example in flash-dried pulps).

1 Scope and field of application

This International Standard specifies a method for determining the dryness of a lot of pulp baled in slabs and for calculating its saleable mass.

This method is applicable to most kinds of pulp, in bales of approximately 200 kg, and made up of 4 to 6 slabs or wads, of fairly uniform and similar thickness. It may also be applicable to

bales not composed of individual layers, but which are naturally delaminatable. It does not apply to pulp baled in sheet form or to pulp in unitized bales.

The method is not applicable if the drilling device becomes appreciably hot because of frictional heat evolved during drilling; this may occur with some strong chemical or semi-chemical pulps.

An example of a full certificate of analysis and related calculations is given in annex A.

2 Reference

ISO 801/1, *Pulps — Determination of saleable mass in lots — Part 1 : Pulp baled in sheet form.*

3 Definitions

For the purpose of this International Standard, the definitions in ISO 801/1 apply.

4 Principle

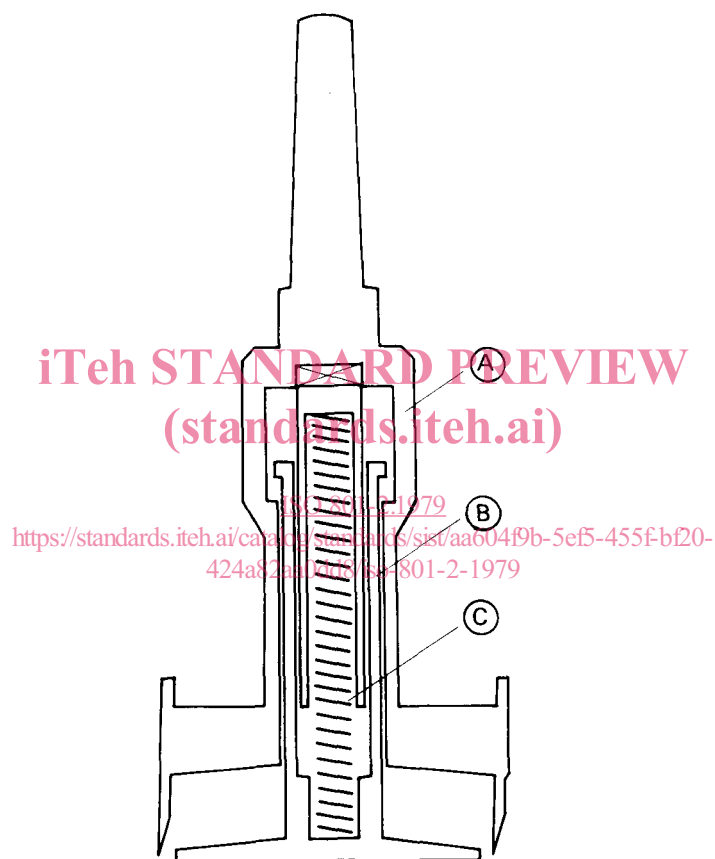
Sample bales are taken from the lot in number which is a function of the total number of bales and slabs in the complete lot and in accordance with a sliding scale. The sample bales are weighed individually and collected in groups containing equal numbers of bales. A disc-shaped test piece is cut from every lap or wad. The test pieces are weighed and dried to constant mass to determine their oven-dry mass. The saleable mass of the lot is then calculated.

5 Apparatus

5.1 Scale, suitable for weighing the bales to an accuracy of at least 1/1 000.

5.2 Balance, of sensitivity suitable for weighing the test pieces to an accuracy of at least 1/5 000.

5.3 Equipment, for cutting the disc-shaped test pieces, comprising a commercial drill of about 1 kW, a drill stand, and a cutting tool. (See figures 1 and 2).



- (A) Outer rotating part, consisting of a cone, an outer casing with four arms holding two cutting knives, and two chip breakers.
- (B) Inner stationary part, consisting of a circular footplate, and an inner casing with spring holder and ball bearing.
- (C) Coil spring, which expands between the rotating and the stationary parts.

Figure 1 — Cutting tool (see 5.3)

5.4 Series of 35 cards, to show the complete sequence of sampling positions in each lap or wad from which the discs are to be cut. (See clause 7, and figures 3 and 4.)

One sample is taken from every wad, in the position indicated by the sampling cards, which have one corner clipped to ensure

correct orientation. Thirty-five cards are prepared and one sampling position is marked on each, so that each card represents the surface of one slab. A card size of 100 mm × 75 mm is found suitable. The cards are divided into 7 strips of equal width in one direction, and 5 in the other, thus giving 35 sampling positions over the whole surface of the lap.



Figure 2 — Cutting tool in use

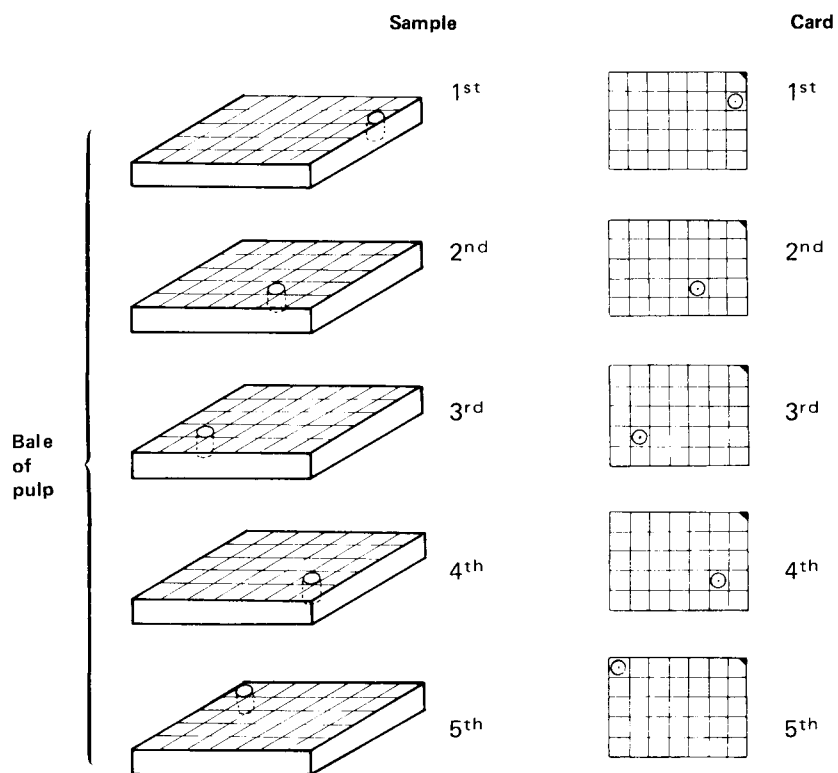


Figure 3 – The random card system (see 5.4)

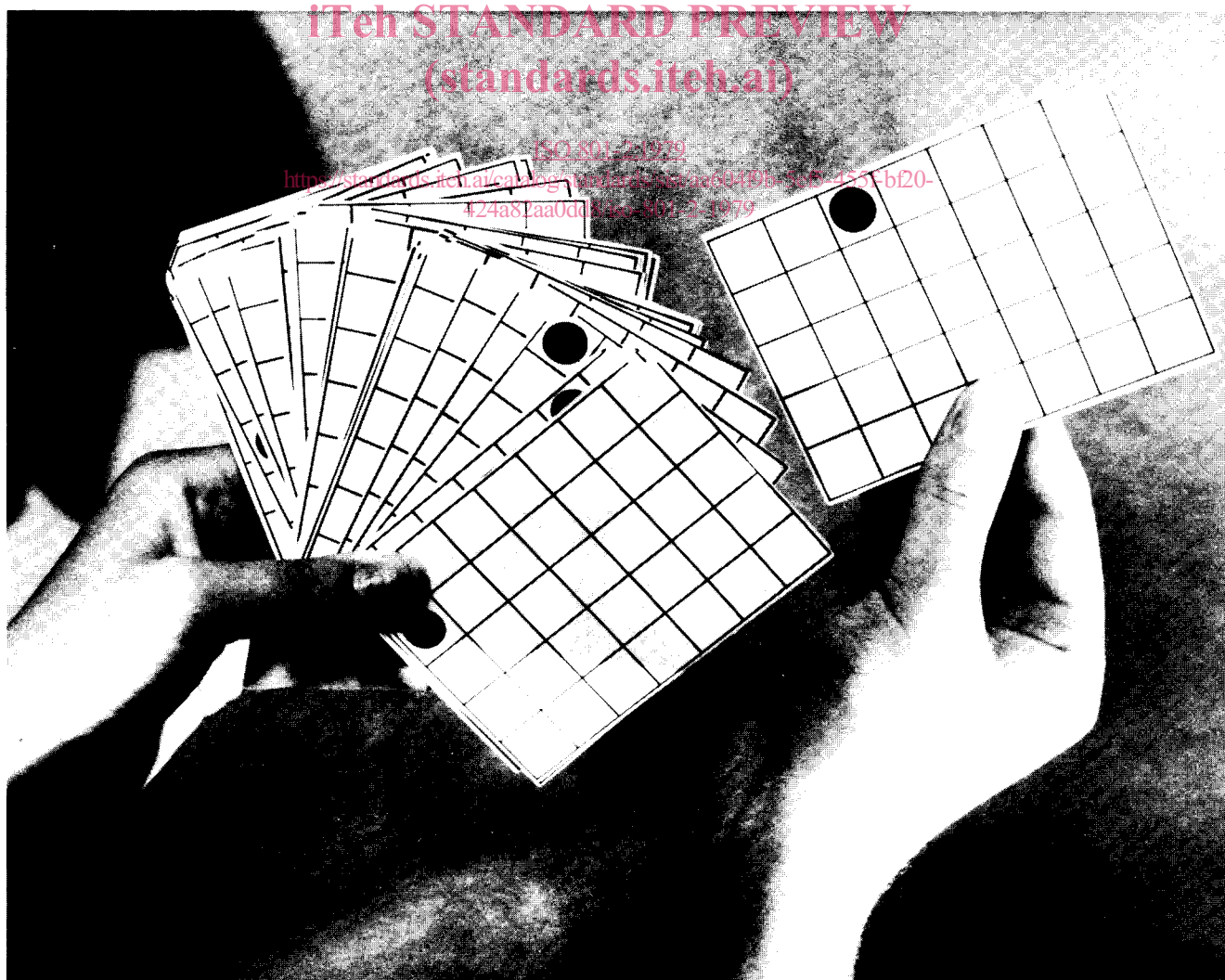


Figure 4 – Sample selection by the random card system

5.5 Equipment, for storing the test pieces to prevent them from gaining or losing mass before weighing.

5.6 Drying oven, with good ventilation, and capable of being controlled at 105 ± 2 °C.

5.7 Drying containers, fitted with wire mesh.

6 Sample bales

For instructions concerning sample bales and sampling, see ISO 801/1. The number of sample bales is governed by table 1 of ISO 801/1; however, the total number of slabs in the bales taken shall be as close as possible to a whole multiple of 35. The application of this principle to the most common cases (4, 5 or 6 slabs per bale) is illustrated in table 1 of this International Standard.

TABLE 1 — Number of sample bales to be taken

Total number of bales in lot	Number of sample bales for					
	4 slabs/bale		5 slabs/bale		6 slabs/bale	
	min.	max.	min.	max.	min.	max.
Up to 100	18	36	14	28	12	24
101 to 200	27	54	21	42	18	36
201 to 300	36	72	28	56	24	48
301 to 400	36	72	28	56	24	48
401 to 500	36	72	28	56	24	48
501 to 600	45	90	35	70	30	60
601 to 700	45	90	35	70	30	60
701 to 800	54	108	42	84	36	72
801 to 900	54	108	42	84	36	72
901 to 1 000	63	126	49	98	42	84
1 001 to 2 000	72	144	56	112	48	96
2 001 to 3 000	90	180	70	140	60	120
3 001 to 4 000	108	216	84	168	72	144
4 001 to 5 000	144	288	112	224	96	192

Above 5 000, the minimum or maximum number is that given in table 1 for 5 000 bales, plus 1 % of the bales in excess of 5 000. The total number of slabs taken shall be as close as possible to a multiple of 35.

7 Procedure

7.1 Weighing of sample bales

Determine the gross mass of each sample bale separately and record it to the nearest 0,5 kg.

If the moisture content of the wrappers obviously differs from that of the rest of the bale, or if the wrappers are invoiced separately, test them separately in accordance with 8.2.

7.2 Selection of specimen slabs or wads

Sample every slab or wad in the bale.

7.3 Cutting the test pieces (see figures 1 and 2)

From each slab or wad of pulp comprising the complete base, cut a disc-shaped test piece, of diameter 100 ± 2 mm, with the cutting tool (see 5.3, and figures 1 and 2) or a suitable modification of it. The test pieces when detached shall be of equal thickness, approximately 20 mm. Place the test pieces in the storing equipment (5.5) to prevent gain or loss of moisture, until the desired quantity has been accumulated for weighing as a batch. The positions of the discs to be taken from each slab are those indicated by the random card system (5.4). Drill each slab once only and collect the drillings in batches preferably containing samples from each individual bale.

The discs taken from the peripheral positions shall be taken at a distance of 5 to 10 mm from the edges of the slab.

7.4 Sampling using the random card system (see figures 3 and 4)

Shuffle the 35 cards and then, with reference to the top card, show the position of the first sample to be taken from the top slab. Sample the second slab in a similar way and in accordance with the position indicated on the second card.

Continue this procedure through each slab of the bales to be sampled until 35 positions have been sampled. Reshuffle the pack of cards, and take the next sample as indicated by the top card. Use this procedure continuously, irrespective of the number of slabs contained in the bale.

NOTE — It is easily practicable to make accurate judgement of the sampling position by reference to the marked sample card. However, if desired, a procedure which will assist the operator is found in the construction of a lattice of the same dimensions as the slabs in the bale, and with the same number of squares as that shown on the 100 mm × 75 mm cards. The lattice is then placed on the surface of the slab to be drilled, and the disc can be cut while it is still in position.

7.5 Weighing and drying of the test pieces

Collect the test pieces obtained, preferably in batches containing those from a group of sample bales combined in such a way that the number of slabs tested is as close as possible to a multiple of 35. Weigh to an accuracy of at least 1/5 000.

NOTE — It is essential that test pieces be prevented from losing or gaining mass before weighing.

Ensure that the wire mesh at the bottom of the individual drying containers (5.7) is sufficiently fine to retain small pieces of pulp, which may break away from some friable dry pulps, such as flash-dried groundwood.

Dry the test pieces in the ventilated oven (5.6), controlled at 105 ± 2 °C, until the mass is constant. This mass is considered to have been reached when two consecutive weighings, at an interval of at least 1 h, do not differ by more than 1 part in 5 000.

If the batches of test pieces need to be removed from the oven for weighing, the interval between their removal and their weighing shall be less than 1 min.