

**SAUDI STANDARDS, METROLOGY AND
QUALITY ORGANIZATION**

Project No. 3348\ /2023

Duplex Board (Multilayers Board) - Uncoated

ICS 87.040.00

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Duplex Board (Multilayers Board) - Uncoated**1. Scope And Field of Application**

This Saudi standard is concerned with the requirements to be met in a uncoated multilayers carton (Duplex) used in the manufacturing boxes and carton packaging, which is used for packaging of food, beverages (not in direct contact with food or beverages), and other consumer durable goods, detergent, and other industrial goods.

2. Complementary References

- 2. 1 SASO-ISO-536 Paper and board - Determination of grammage
- 2. 2 SASO-ISO-534 Paper and board — Determination of thickness, density and specific volume
- 2. 3 SASO-ISO-2493-2 Paper and board — Determination of resistance to bending — Part 2: Taber-type tester
- 2. 4 SASO-ISO-16260 Paper and board -- Determination of internal bond strength
- 2. 5 SASO-ISO-8791-4 Paper and board - Determination of roughness/smoothness (air leak methods) – Part 4: Print-surf method
- 2. 6 SASO-ISO-2470-1 Paper, board and pulps - Measurement of diffuse blue reflectance factor – Part 1: Indoor daylight conditions (ISO brightness)
- 2. 7 SASO-ISO-535 Paper and board — Determination of water absorptiveness — Cobb method
- 2. 8 SASO-ISO-8254-1 Paper and board - Measurement of specular gloss – Part 1: 75 degree gloss with a converging beam, TAPPI method
- 2. 9 SASO-GSO-ISO-287 Paper and board — Determination of moisture content of a lot — Oven-drying method
- 2. 10 SASO-ISO-3783 Paper and board - Determination of resistance to picking - Accelerated speed method using the IGT-type tester (electric model)
- 2. 11 SASO-ISO-187 Paper, board and pulps - Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples

3. Definitions**3. 1 Uncoated Multilayers Board (Uncoated Duplex)**

It is a reinforced cardboard consisting of several layers used in the manufacture of boxes, and carton packaging of many products. The top layer is made of white pulp (virgin pulp or recycled fibers) which created a white layer on the top of the carton and the other layers are made of recycled fibers. The uncoated multilayers cardboard is produced in the form of rolls and/ or sheets placed on a pallet and gsm ranging from 180 to 450 g/m².

4. Technical requirements

Uncoated Multi-layer carton must meet the following requirements:

- 4.1 The product shall be free from any physical defects and the white layer must be free of defects and impurities.
- 4.2 The carton surface should be flat and free of wrinkles and has a homogeneous thickness across the full deckle.
- 4.3 Characteristics of uncoated multilayers carton shall be according the following tables:

Table No. 1

Grammage (g/m ²)	Caliper (μm)	Bulk (cm ³ /g)	Stiffness Taber 15 °		Geometric Mean
			MD (mNm)	CD (mNm)	$\sqrt{md \times cd}$
Tol. ± 3 %	Tol. ± 5 %		Tol. - 15% min	Tol. - 15% min	Tol. - 15% min
180	216	1.20	2.10	1.00	1.45
250	320	1.28	6.50	2.95	4.38
280	365	1.30	9.10	4.14	6.14
300	395	1.32	11.70	5.10	7.72
320	420	1.31	14.40	5.84	9.17
350	460	1.31	18.80	7.52	11.89
380	505	1.33	23.80	9.60	15.12
400	520	1.30	26.00	10.40	16.44
450	590	1.31	34.10	13.64	21.57

Table No. 2

Ply bond	J/m ²	150 min
Cobb- 60 (Top)	g/m ²	50 max
Cobb- 60 (Back)	g/m ²	200 max
Moisture	%	6.0 ± 1.0
Test Climate	23°C±1/ 50 %±2 RH	
Conditioning of sample as per TAPPI T402 sp-08		

5. Sampling

The samples shall be taken randomly from rolls or pallets to do the required tests, and then shall be cut according test requirements. Sample of A4 size shall reserve from the rolls after testing. The samples shall be conditioned according clause 2.11.

6. Tests Methods

The following tests shall be carried out on the samples withdrawn according to clause (2).

- 6.1 Visual inspection
- 6.2 Basis Weight according to clause 2.1
- 6.3 Measurement of carton thickness according to clause 2.2
- 6.4 Measurement of the Stiffness according to clause 2.3
- 6.5 Conditioning of samples in accordance with clause 2.11
- 6.6 Measurement of plybond strength in accordance with clause 2.4
- 6.7 Measurement of the roughness of the upper surface of the carton according to clause 2.5
- 6.8 Measurement of brightness of the carton according to clause 2.6
- 6.9 Measurement of the Cobb of carton in accordance with clause 2.7
- 6.10 Measurement of the gloss of the carton according to clause 2.8
- 6.11 Measurement of humidity of carton according to clause 2.9
- 6.12 Measurement of the IGT according to clause 2.10

7. Packaging

The product shall be covered and packed completely in proper way that guaranty its safety during the transpiration and storage.

8. Marking

Each roll of the product shall be legibly and indelibly marked with the following information in Arabic or both Arabic and English languages.

- 8. 1 Product Name and Type
- 8. 2 Factory name and/or brand name
- 8. 3 Country of origin
- 8. 4 Manufacturing Date or batch number (can be in English only).
- 8. 5 Dimensions and Weight
- 8. 6 Customer Name

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