Assessment
No. 7077B/24

Assessment of suitability of the corrugated board „2.91 BC“ for overseas shipment

Client:	**Big Box, s.r.o.** Priemyselná zóna c.1960 023 02 Krásno nad Kysucou Slowenien
Date of order:	02 April 2024
Customer reference:	Mr. Peter Žák
Test samples:	Double wall corrugated board samples: „2.91 BC “
Received on:	28 March 2024
Test reference:	The corrugated board was to be tested for suitability for overseas shipment based on the necessary strength parameters according to Appendix 3, Table 1.
Date of testing:	02 - 04 April 2024
Official in Charge:	Udo Lüder
Text pages:	3
Appendices:	3
Date of issue:	05 April 2024

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Summarising result:

On the basis of the strength parameters determined, the corrugated board **„ 2.91 BC “** is suitable as packaging material for overseas shipment (see Appendices 1-3, Test Report No. 7077B/24).

The client is entitled to stamp packages made from this corrugated board with the BFSV Test Seal for **Class 3** (see Assessment, Page 3).

The following marginal requirements and comments should be observed.

If packages made of the corrugated board tested are used for **conventional overseas shipment**, the recommended values for Class 3 for these packing units should not be exceeded (see Appendix 3, Table 1).

For other types of shipment - with lower mechanical and climatic stress factors - the recommended values to be met may be set higher.

If the corrugated board is used in composite systems - e.g. for corrugated board/wood composite structures - higher gross weights and larger dimensions may also be possible.

In case the products to be packaged for overseas shipment are not part of the load-bearing system (i.e. the product in the package cannot and must not be subjected to the pressure of the cargo stacked on top of it), the compression strength of the packages used and made of the corrugated board tested must be taken into account.

Provided the information above is observed and the cases are adequately sealed, packages made of the tested corrugated board **„ 2.91 BC “** are suitable for overseas shipment.

Overseas shipment here means:

- transport and storage under cover
- in the case of seagoing vessels, stowage in containers or as conventional tween deck cargo, respectively in the upper layers in case of high stacks and mixed cargoes.

Official in Charge

i.A.

Signiert im Auftrag
Udo Lüder
05.04.2024
10:22:22 GMT

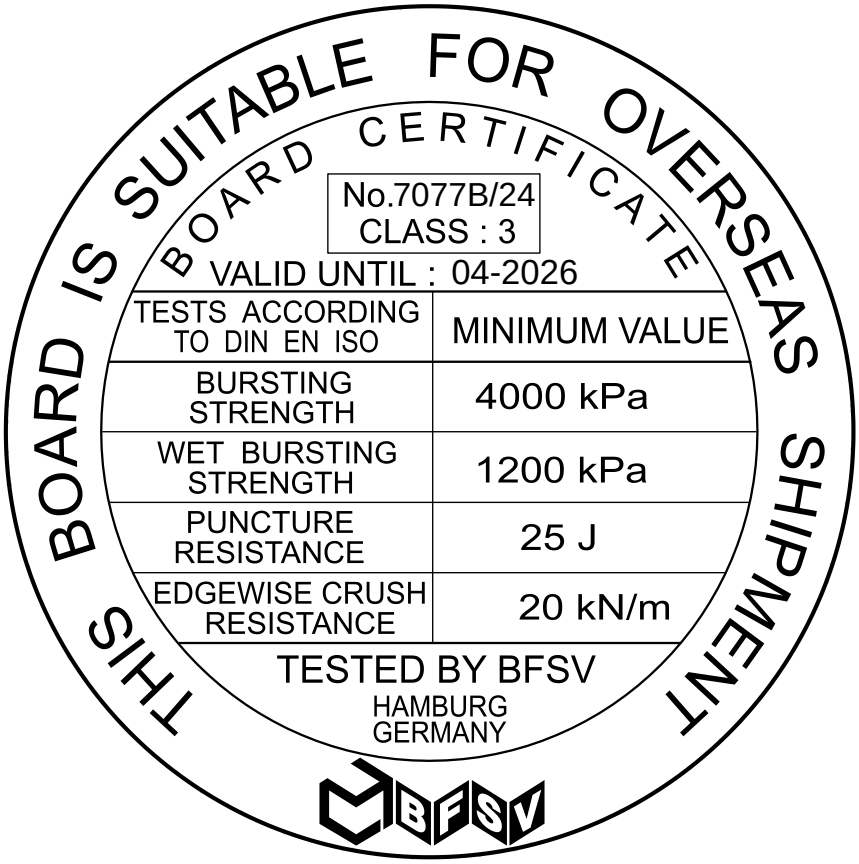
Udo Lüder

Verpackungsinstitut BFSV Hamburg GmbH

Entitlement to use Test Seal according to BFSV

By virtue of the findings of Test Report **No. 7077B/24**, the company **Big Box, s.r.o.** is entitled to furnish packages made of the corrugated board **„ 2.91 BC “** with the Test Seal in the form shown below.

Period of validity: 2 years



We reserve the right to perform a production check. Every user of this corrugated board may have one check performed by us, free of charge.

Director of the Institute

i.A. Signiert im Auftrag
Udo Lüder
05.04.2024
10:22:37 GMT

per pro.
Prof. Dr.-Ing. B. Sadlowsky

Verpackungsinstitut BFSV Hamburg GmbH

Test Report No. 7077B/24

Testing of the corrugated board “2.91 BC”

1 Pre-treatment of specimens

The specimens obtained from the sample material supplied were subjected to preliminary treatment according to DIN EN ISO 187 "Paper, board and pulps; Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples" at a climate of 23 °C / 50 % RH and tested in this climate.

2 Tests performed

The following strength parameters of the corrugated board were tested:

- Bursting strength in accordance with DIN EN ISO 2759: 2014-10
- Wet bursting strength in accordance with DIN ISO 3689: 1994-07
  (time of immersion in water: 24 h)
- Puncture resistance in accordance with DIN 53142-1: 2014-12
- Edgewise crush resistance in accordance with DIN EN ISO 3037: 2023-03 (ECT)
- Water resistance of glue bond after immersion in water following TAPPI
  T 812 (period: 24 h)

3 Test results

The means, standard deviations and the required minimum values are listed in Appendix 2.

Official in Charge

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Udo Lüder
05.04.2024
10:22:51 GMT

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Test of corrugated board

Test Results

Designation of corrugated board: **„ 2.91 BC “**

Flute combination: BC

Thickness of corrugated board: 8.1 mm

Basis weight of corrugated board: 1739 g/m²

Strength Parameters		Test results		Required Minimum Mean Value for Class 3
		Mean Value	Standard Deviation	
Bursting strength DIN EN ISO 2759	kPa	**4005**	335	4000
Wet bursting strength DIN ISO 3689	kPa	**1644**	174	1200
Puncture resistance DIN 53142-1	J	**25.0**	0.8	25
Edgewise crush resistance (ECT) DIN EN ISO 3037	kN/m	**25.03**	0.35	20
Water resistance of glue bond TAPPI T 812		No separation of layers after 24 h in water		

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Table 1: Required Strength Parameters of Corrugated Board for Overseas Shipment							
	Strength Parameters of Corrugated Board					**Recommended Values of Packages**	
Class	**Bursting Strength** in accordance with DIN EN ISO 2759	**Wet Bursting Strength** in accordance with DIN ISO 3689	**Puncture Resistance** in accordance with DIN 53142-1	**Edgewise Crush Resistance (ECT)** in accordance with DIN EN ISO 3037	**Water resistance of glue bond** in accordance with TAPPI T 812	**Gross Weight**	**Maximum sum of inside dimension** (Sum of length, width and height)
1	2500	750	14	13	No separation of layers after 24 h in water	up to 50	2000
2	3500	1050	20	17		up to 75	2500
3	4000	1200	25	20		up to 100	3000
4	5000	1500	30	23		up to 150	3000