

# Deutsche Akkreditierungsstelle GmbH

## Annex to the Accreditation Certificate D-PL-19253-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 04.10.2021

Date of issue: 05.07.2022

Holder of certificate:

**BFSV Verpackungsinstitut Hamburg GmbH**  
**Ulmenliet 20, 21033 Hamburg**

Tests in the fields:

**Physical and mechanical tests of packaging materials, packaging media and packaging articles from paper, cardboard, pulp, plastics, wood, metal and glass as well as ready for dispatch unit loads; Climatic, salt spray, shock, vibration and vacuum tests as well as combination of environmental simulation tests of technical products**

**Within the scope of accreditation marked with \*, the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, to use standards or equivalent testing methods listed here with different issue dates.**

**The testing laboratory maintains a current list of all testing procedures within the flexible scope of accreditation.**

**1 Physical and mechanical tests of packaging materials, packaging media and packaging articles from paper, cardboard, pulp, plastics and wood (flexible scope category I) \***

DIN ISO 3039  
2011-06

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

*The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories. Laboratories that conform to the requirements of this standard, operate generally in accordance with the principles of DIN EN ISO 9001.*

*The certificate together with the annex reflects the status as indicated by the date of issue.  
The current status of any given scope of accreditation can be found in the directory of accredited bodies maintained by Deutsche Akkreditierungsstelle GmbH at <https://www.dakks.de/en/content/accredited-bodies-dakks>.*

Abbreviations used: see last page

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**This document is a translation. The definitive version is the original German annex to the accreditation certificate.**

## Annex to the accreditation certificate D-PL-19253-01-00

|                              |  |
|------------------------------|--|
| DIN ISO 3689<br>1994-07      | Paper and board; determination of bursting strength after immersion in water   |
| DIN EN ISO 186<br>2002-08    | Paper and board - Sampling to determine average quality  |
| DIN EN ISO 527-1<br>2019-12  | Plastics - Determination of tensile properties - Part 1: General principles  |
| DIN EN ISO 527-3<br>2019-02  | Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets  |
| DIN EN ISO 1924-2<br>2009-05 | Paper and board - Determination of tensile properties - Part 2: Constant rate of elongation method (20 mm/min)   |
| DIN EN ISO 2233<br>2001-11   | Packaging - Complete, filled transport packages and unit loads - Conditioning for testing  |
| DIN EN ISO 2759<br>2014-10   | Board - Determination of bursting strength   |
| DIN EN ISO 3037<br>2013-12   | Corrugated fibreboard - Determination of edgewise crush resistance (unwaxed edge method)   |
| DIN EN ISO 12048<br>2001-04  | Packaging - Complete, filled transport packages - Compression and stacking tests using a compression tester  |
| DIN EN 868-5<br>2019-03      | Packaging for terminally sterilized medical devices - Part 5: Sealable pouches and reels of porous materials and plastic film construction - Requirements and test methods |
| DIN EN 20187<br>1993-11      | Paper, board and pulps; standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples                           |
| DIN EN ISO 535<br>2014-06    | Paper and board - Determination of water absorptiveness - Cobb method  |
| DIN EN 22248<br>1993-02      | Packaging; complete, filled transport packages; vertical impact test by dropping (free Fall)   |
| DIN EN ISO 3035<br>2012-02   | Corrugated fibreboard - Determination of flat crush resistance   |

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| DIN 53121<br>2014-08           | Testing of paper and board - Determination of the bending stiffness by the beam method                         |
| DIN 53133<br>2015-12           | Testing of board - Determination of water resistance of glue bond of corrugated fibreboard                     |
| DIN 53142-1<br>2014-12         | Testing of board - Puncture test - Part 1: Puncture test with a pendulum punching device                       |
| DIN 55440-1<br>1991-11         | Packaging test - Determination of compression resistance - Part 1: Test with constant conveyance speed         |
| DIN 55468-1<br>2015-06         | Packaging materials - Corrugated board - Part 1: Requirements, testing   |
| DIN 55530<br>2011-05           | Films for packaging - Barrier materials made of low density polyethylene (PE-LD) films and recyclates          |
| DIN 55531<br>2011-05           | Films for packaging - Composite aluminium films  |
| ASTM D 642-00<br>2020-11       | Standard Test Method for Determining Compressive Resistance of Shipping Containers, Components, and Unit Loads |
| ASTM D 4577-05<br>2019-05      | Standard Test Method for Compression Resistance of a Container Under Constant Load                             |
| ASTM F 88/F 88M-15<br>2015     | Standard Test Method for Seal Strength of Flexible Barrier Materials   |
| ASTM F 1886/F 1886M-16<br>2016 | Standard Test Method for Determining Integrity of Seals for Flexible Packaging by Visual Inspection            |
| ASTM F 1929-15<br>2015         | Standard Test Method for Detecting Seal Leaks in Porous Medical Packaging by Dye Penetration                   |
| ASTM D 4332-14<br>2014         | Standard Practice for Conditioning Containers, Packages, or Packaging Components for Testing                   |
| RAL-GZ 492<br>2015             | Corrugated fibreboard - quality assurance  |

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The above listed test methods in the field “physical and mechanical tests of packaging materials, packaging media and packaging articles from paper, pulp, cardboard, plastics and wood” are defined within the flexible scope of accreditation in terms of test parameters, type of test and test range as indicated in the following table:

| Measurand / test parameters  | type of test             | test range               | characteristic test methods                  |
|--|--------------------------|--------------------------|--|
| Pressure test,<br>Compression test,<br>stacking test   | force                    | max. 200 kN              | DIN 55440-1<br>DIN EN ISO 12048<br>ASTM D642 |
|  | Compression displacement | 0,01 to 1.900 mm         |  |
| Tensile test,<br>tensile properties of plastics,<br>properties of paper and pulp with respect to tensile load, fracture force of paper | force                    | max. 500 N<br>max. 20 kN | DIN EN ISO 527-3<br>DIN EN ISO 1924-2        |
|  | Strain                   | 0,001 to 1.200 mm        |  |
| Opening and closing of closures of packagings  | torque                   | 2,6 to 10,0 Nm           | ASTM D 3198-97                               |

**1.1 Physical and mechanical tests of packaging materials, packaging media and packaging articles from paper, cardboard, pulp, plastics and wood (without flexible scope)**

TL 8135-0003  
2018-11                      Technical suppliers’ specifications - packaging materials – composite sheets

TL 8135-0019  
2019-08                      Technical suppliers’ specifications – packaging materials, Polyethylene sheets of low density (LDPE)

**2 Climatic, salt spray, shock, vibration and vacuum tests as well as in combination of environmental tests of technical products \***

**2.1 Shock and vibration tests**

DIN EN 60068-2-6  
2008-10                      Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)

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| DIN EN 60068-2-27<br>2010-02 | Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock                                  |
| DIN EN 60068-2-64<br>2009-04 | Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance            |
| DIN EN ISO 2247<br>2002-12   | Packaging - Complete, filled transport packages and unit loads - Vibration tests at fixed low frequency |
| DIN EN ISO 13355<br>2017-03  | Packaging - Complete, filled transport packages and unit loads - Vertical random vibration test         |
| ASTM D 4728-17<br>2017-09    | Standard Test Method for Random Vibration Testing of Shipping Containers                                |
| ASTM D 999-08<br>2008-08     | Standard Test Methods for Vibration Testing of Shipping Containers                                      |
| ASTM D 5276-98<br>1999-02    | Standard Test Method for Drop Test of Loaded Containers by Free Fall                                    |

### 2.2 Climatic tests

|                              |   |
|------------------------------|---|
| ASTM F 1980-16<br>2016       | Standard Guide for Accelerated Aging of Sterile Barrier Systems for Medical Devices       |
| DIN EN 60068-2-1<br>2008-01  | Environmental testing - Part 2-1: Tests - Test A: Cold                                    |
| DIN EN 60068-2-2<br>2008-05  | Environmental testing - Part 2-2: Tests - Test B: Dry heat                                |
| DIN EN 60068-2-14<br>2010-04 | Environmental testing - Part 2-14: Tests - Test N: Change of temperature                  |
| DIN EN 60068-2-30<br>2006-06 | Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle) |
| DIN EN 60068-2-78<br>2014-02 | Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state              |

### 2.3 Corrosion tests

|                              |   |
|------------------------------|---|
| DIN EN 60068-2-11<br>2000-02 | Environmental testing - Part 2: Tests; test Ka: Salt mist |
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DIN EN 60068-2-52  
2018-08                      Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)

**2.4 Vacuum tests / low pressure tests**

DIN EN 60068-2-13  
2000-02                      Environmental testing - Part 2: Tests; test M: Low air pressure

ASTM D 6653 / D 6653M-01  
2013                      Standard Test Methods for Determining the Effects of High Altitude on Packaging Systems by Vacuum Method

ASTM D 3087-02  
2002                      Standard Test Method for Operating Performance of Anion-Exchange Materials for Strong Acid Removal

**2.5 High pressure test**

ASTM F1140-13/F1140M-13(2020)e1  
2020                      Standard Test Methods for Internal Pressurization Failure Resistance of Unrestrained Packages

ASTM F 2054-13  
2013                      Standard Test Method for Burst Testing of Flexible Package Seals Using Internal Air Pressurization Within Restraining Plates

ASTM F 2096-11  
2011                      Standard Test Method for Detecting Gross Leaks in Medical Packaging by Internal Pressurization (Bubble Test)

| measurand / test parameter              | type of test                     | test range                                | characteristic test methods  |
|---|----------------------------------|---|--|
| Vibration test,<br>Shock test<br>Bounce | Force vector                     | Sinus: max. 67 kN<br>Rauschen: max. 62 kN | DIN EN 60068-2-6<br>DIN EN 60068-2-27<br>DIN EN 60068-2-64<br>DIN EN 60068-2-55<br>DIN EN ISO 2247<br>MIL STD 810<br>ASTM D 4728<br>ASTM D 999 |
|   | Vibration displacement amplitude | max. 50,8 mm                              |  |
|   | Vibration velocity               | max. 2,0 m/s                              |  |
|   | Acceleration                     | max. 1.470 m/s <sup>2</sup>               |  |

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| <b>measurand / test parameter</b> | <b>type of test</b>                 | <b>test range</b> | <b>characteristic test methods</b>              |
|-----------------------------------|-------------------------------------|-------------------|---|
|                                   | Frequency range                     | 1 Hz to 2.000 Hz  |   |
| Drop test                         | Height of fall                      | 10 to 2.000 mm    | DIN EN 22248<br>DIN EN 60068-2-32<br>ASTM D5276 |
| Climatic and temperature test     | Temperature                         | +5 °C to +90 °C   | DIN EN 60068-2-30<br>DIN EN 60068-2-78          |
|                                   | Relative humidity                   | 30 % to 98 %      |   |
| Salt spray test                   | Temperature                         | 20 to 65 °C       | DIN EN 60068-2-11<br>DIN EN 60068-2-52          |
|                                   | Brine concentration                 | 5 % NaCl          |   |
| Temperature test                  | Temperature                         | -70 °C to + 90°C  | DIN EN 60068-2-1<br>DIN EN 60068-2-2            |
| Vacuum / Low pressure test        | Low pressure (absolute pressure)    | max. 200 hPa      | DIN EN 60068-2-13<br>ASTM D6653<br>ASTM D3078   |
| High pressure test                | High pressure (Pressure difference) | max. 2.000 hPa    | ASTM F1140<br>ASTM F2054<br>ASTM F2096          |

**Abbreviations used:**

|         |   |
|---------|---|
| ASTM    | American Society for Testing and Materials  |
| DIN     | German Institute for Standardisation  |
| EN      | European standard   |
| IEC     | International Electrotechnical Commission   |
| ISO     | International Organisation for Standardisation  |
| MIL-STD | Military Standard, USA  |
| RAL     | German Institute for Quality Assurance and Labelling  |
| TL      | Technical suppliers' specifications of the Federal Agency for Defence Engineering and Procurement |

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