

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV

Signatory to the Multilateral Agreements of
EA, ILAC and IAF for Mutual Recognition

Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory

**VDZ GmbH - Kompetenz- und Prüfzentrum für Verpackung und Transport
Giselherstraße 34, 44319 Dortmund**

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

mechanical and climatic environment simulation tests on loading units, packages, packaging materials (packaging components) and technical products as well as climate-, shock-, vibration- and impact tests and their combination

The accreditation certificate shall only apply in connection with the notice of accreditation of 18.10.2017 with the accreditation number D-PL-11272-01 and is valid until 17.10.2022. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 6 pages.

Registration number of the certificate: **D-PL-11272-01-00**

Berlin,
18.10.2017

Dipl.-Ing. (FH) Ralf Egner
Head of Division

Translation issued:
01.11.2017


Head of Division

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

See notes overleaf.

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The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkKS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkKS.

DAkKS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:

EA: www.european-accreditation.org

ILAC: www.ilac.org

IAF: www.iaf.nu

Deutsche Akkreditierungsstelle GmbH

Annex to the Accreditation Certificate D-PL-11272-01-00 according to DIN EN ISO/IEC 17025:2005

Period of validity: 18.10.2017 to 17.10.2022

Date of issue: 01.11.2017

Holder of certificate:

**VDZ GmbH - Kompetenz- und Prüfzentrum für Verpackung und Transport
Giselherstraße 34, 44319 Dortmund**

Tests in the fields:

mechanical and climatic environment simulation tests on loading units, packages, packaging materials (packaging components) and technical products as well as climate-, shock-, vibration- and impact tests and their combination

Abbreviations used: see last page

Within the given examination field the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, the free choice of standard or equivalent testing methods.

The listed testing methods are exemplary. The testing laboratory maintains a current list of all testing methods within the flexible scope of accreditation.

DIN EN ISO 2233 2001-11	Packaging - Complete, filled transport packages and unit loads - Conditioning for testing
DIN EN ISO 2234 2002-12	Packaging - Complete, filled transport packages and unit loads - Stacking tests using a static load
DIN EN ISO 2244 2002-12	Packaging - Complete, filled transport packages and unit loads - Horizontal impact tests
DIN EN ISO 2247 2002-12	Packaging - Complete, filled transport packages and unit loads - Vibration tests at fixed low frequency
DIN EN ISO 8318 2002-12	Packaging - Complete, filled transport packages and unit loads - Sinusoidal vibration tests using a variable frequency

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DIN EN ISO 8611-1 2012-10	Pallets for materials handling - Flat pallets - Part 1: Test methods
DIN EN ISO 8611-2 2016-08	Pallets for materials handling - Flat pallets - Part 2: Performance requirements and selection of tests
DIN EN ISO 8611-3 2012-10	Pallets for materials handling - Flat pallets - Part 3: Maximum working loads
DIN EN ISO 2873 2002-12	Packaging - Complete, filled transport packages and unit loads - Low pressure test
DIN EN ISO 4180 2010-12	Packaging - Complete, filled transport packages - General rules for the compilation of performance test schedules
DIN ISO 10531 2000-03	Packaging - Complete, filled transport packages - Stability testing of unit loads
DIN EN ISO 3037 1996-02	Corrugated fibreboard - Determination of edgewise crush resistance (unwaxed edge method)
DIN EN ISO 12048 2001-04	Packaging - Complete, filled transport packages - Compression and stacking tests using a compression tester
DIN EN ISO 13355 2017-03	Packaging - Complete, filled transport packages and unit loads - Vertical random vibration test
DIN EN 14149 2003-11	Packaging - Complete, filled transport packages and unit loads - Impact test by rotational drop
DIN EN 60068-2-6 2008-10	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)
DIN EN 60068-2-13 2000-02	Environmental testing - Part 2: Tests - Test M: Low air pressure
DIN EN 60068-2-27 2010-02	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock
DIN EN 60068-2-31 2009-04	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens
DIN EN 60068-2-64 2009-04	Environmental testing - Part 2: Test methods - Test Fh: Vibration, broad-band random (digital control) and guidance

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DIN 60721-3-2 2016-06	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 2: Transportation and handling
DIN EN 22248 1993-02	Packaging - Complete, filled transport packages - Vertical impact test by dropping
DIN 55423-6 2017-01	Transportation chain for meat and meat products - Part 6: Pallet made from polyethylene, 800 mm × 1200 mm × 160 mm - Construction, requirements and test (here: <i>without para. 5.3 Colour</i>)
DIN 55440-1 1991-11	Packaging test - Compression test - Test with a constant conveyance-speed
ASTM D 642-00 2015	Standard Test Method for Determining Compressive Resistance of Shipping Containers, Components, and Unit Loads
ASTM D 880-92 2015	Standard Test Method for Impact Testing for Shipping Containers and Systems
ASTM D 999-08 2015	Standard Test Methods for Vibration Testing of Shipping Containers
ASTM D 3078-02 2013	Standard Test Method for Determination of Leaks in Flexible Packaging by Bubble Emission
ASTM D 3575-14 2014	Standard Test Methods for Flexible Cellular Materials Made from Olefin Polymers
ASTM D 3332-99 2016	Standard Test Methods for Mechanical-Shock Fragility of Products, Using Shock Machines
ASTM D 4169-16 2016	Standard Practice for Performance Testing of Shipping Containers and Systems
ASTM D 4332-14 2014	Standard Practice for Conditioning Containers, Packages, or Packaging Components for Testing
ASTM D 4728-06 2012	Standard Test Method for Random Vibration Testing of Shipping Containers
ASTM D 5265-09 2016	Standard Test Method for Bridge Impact Testing

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ASTM D 5276-98 2009	Standard Test Method for Drop Test of Loaded Containers by Free Fall
ASTM D 5277-92 2015	Standard Test Method for Performing Programmed Horizontal Impacts Using an Inclined Impact Tester
ASTM D 6344-04 2017	Standard Test Method for Concentrated Impacts to Transport Packages
ASTM D 5487-16 2016	Standard Test Method for Simulated Drop of Loaded Containers by Shock Machines
ASTM D 6179-07 2014	Standard Test Methods for Rough Handling of Unitized Loads and Large Shipping Cases and Crates
ASTM D 6653-13 2013	Standard Test Methods for Determining the Effects of High Altitude on Packaging Systems by Vacuum Method
ASTM F 88/F 88 M-15 2015	Standard Test Method for Seal Strength of Flexible Barrier Materials
ASTM F 1886-16 2016	Standard Test Method for Determining Integrity of Seals for Flexible Packaging by Visual Inspection
ASTM F 1929-15 2015	Standard Test Method for Detecting Seal Leaks in Porous Medical Packaging by Dye Penetration
ASTM F 2096-11 2011	Standard Test Method for Detecting Gross Leaks in Medical Packaging by Internal Pressurization (Bubble Test)
ISTA 1A 2014-03	Non-Simulation Integrity Performance Test Procedure - Packaged-Products 150 lb (68 kg) or Less
ISTA 1B 2014-03	Non-Simulation Integrity Performance Test Procedure - Packaged-Products over 150 lb (68 kg)
ISTA 1C 2014-03	Non-Simulation Integrity Performance Test Procedure - Extended Testing for Packaged-Products 150 lb (68 kg) or Less
ISTA 1D 2014-03	Non-Simulation Integrity Performance Test Procedure - Extended Testing for Packaged-Products over 150 lb (68 kg)
ISTA 1E 2014-03	Non-Simulation Integrity Performance Test Procedure - Unitized Loads of Same Product

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ISTA 1G 2014-03	Non-Simulation Integrity Performance Test Procedure - Packaged-Products 150 lb (68 kg) or Less (Random Vibration)
ISTA 1H 2014-03	Non-Simulation Integrity Performance Test Procedure - Packaged-Products over 150 lb (68 kg) (Random Vibration)
ISTA 2A 2011-01	Partial Simulation Performance Test Procedure - Packaged-Products 150 lb (68 kg) or Less
ISTA 2B 2011-01	Partial Simulation Performance Test Procedure - Packaged-Products over 150 lb (68 kg)
ISTA 2C 2011-01	Partial Simulation Performance Test Procedure - Furniture Packages
ISTA 2D 2010-01	Partial Simulation Performance Test Procedure - Flat Packaged-Products for Parcel Delivery System Shipment
ISTA 2E 2010-01	Partial Simulation Performance Test Procedure - Elongated Packaged-Products for Parcel Delivery System Shipment
ISTA 2F 2011-01	Partial Simulation Performance Test Procedure - Performance Testing of Shipping Containers for LTL Shipment, National Motor Freight Classification Item 180
ISTA 3A 2008-02	General Simulation Performance Test Procedure - Packaged-Products for Parcel Delivery System Shipment 70 kg (150 lb) or Less
ISTA 3B 2012-11	General Simulation Performance Test Procedure - Packaged-Products for Less-Than-Truckload (LTL) Shipment
ISTA 3E 2009-01	General Simulation Performance Test Procedure - Unitized Products of Same Product
ISTA 3F 2008-01	General Simulation Performance Test Procedure - Packaged-Products for Distribution Center to Retail Outlet Shipment 100 lb (45 kg)
ISTA 3H 2011-01	General Simulation Performance Test Procedure - Products or Packaged-Products in Mechanically Handled Bulk Transport Containers
ISTA 3K 2011-01	General Simulation Performance Test Procedure - Fast Moving Consumer Goods in the European Retail Supply Chain

Type of test	Measurand / Test parameters	Measurement and test range	Exemplary test methods
Pressure test Compression test Stacking test	Force	5 - 10 kN 2 - 200 kN	DIN 55440-1 DIN EN ISO 12048 DIN EN ISO 2234 ASTM D642-00 ASTM 4169-09 ISTA Series
	Indentation	1 to 1,650 mm	
	Elongation	1 to 1,650 mm	
Vibration test Shock test Bounce	Force vector	Sinus: max. 56 kN Noise: max. 56 kN Shock: max. 53 kN	DIN EN 60068-2-6 DIN EN 60068-2-27 DIN EN 60068-2-64 DIN EN ISO 8318 DIN EN ISO 13355 ASTM 4169-09 ISTA Series
	Vibration amplitude Peak-to-peak	max. 48.0 mm	
	Vibration velocity	Standard max. 1.6 m/s	
	Acceleration	max. 300 m/s ²	
	Frequency range	3 Hz to 2,000 Hz	
Climatic test	Temperature	-10 °C to +60 °C	DIN EN 60068-2-30 DIN EN 60068-2-78 ISTA Series
	Relative humidity	10 % to 95 %	
Temperature test	Temperature	-40 °C to +60 °C	DIN EN 60068-2-1 DIN EN 60068-2-2 ISTA Series
Horizontal impact	Velocity	to 2.5 m/s	DIN EN ISO 2244 ASTM D 880-92 ISTA Series
Drop test	Free fall	to 2,000 mm	DIN EN 60068-2-32 DIN EN 22248 ASTM D 5276-98 ISTA Series
Low pressure test	Pressure	1,000 to 500 mbar at 23 °C	DIN EN ISO 2873 ASTM D 6653

*) smallest achievable measurement uncertainty

abbreviations used:

ASTM American Society for Testing and Materials
ISTA International Safe Transit Association