Deutsche Akkreditierungsstelle

Annex to the Accreditation Certificate D-PL-11272-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: **13.06.2023**

Date of issue: 26.06.2023

Holder of accreditation certificate:

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

The testing laboratory meets the requirements of DIN EN ISO/IEC 17025:2018 to carry out the conformity assessment activities listed in this annex. The testing laboratory meets additional legal and normative requirements, if applicable, including those in relevant sectoral schemes, provided that these are explicitly confirmed below.

The management system requirements of DIN EN ISO/IEC 17025 are written in the language relevant to the operations of testing laboratories and confirm generally with the principles of DIN EN ISO 9001.

Tests in the fields:

mechanical and climatic environmental simulation tests on loading units, packages, packaging materials (packaging aids) and technical products as well as climatic, shock, vibration and shock tests and their combination

Within the given testing 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.

This certificate annex is only valid together with the written accreditation certificate and 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.

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 flexible category 1 accreditation applies to the test areas defined in the table:

test item	type of testing	test parameter	exemplary test methods
packaging, packages, packaging materials, devices, components and technical products	pressure test compression test batch check	force	DIN EN ISO 2234 DIN EN ISO 12048 DIN 55440-1 ASTM D 642-20 ASTM D 4169-16
		compression path	
		strain	
	vibration test shock test bouncing	force vector	DIN EN 60068-2-6 DIN EN 60068-2-27 DIN EN 60068-2-31 DIN EN 60068-2-64 DIN EN ISO 8318 DIN EN ISO 13355 ASTM D 4169-16 ASTM D 4728-06
		displacement amplitude tip to tip	
		vibration velocity	
		acceleration	
		frequency range	
	horizontal shock	velocity	DIN EN ISO 2244 ASTM D 880-92 ASTM D 4169-16
	drop test	height of fall	DIN EN 60068-2-32 DIN EN 22248 ASTM D 5276-98 ASTM D 4169-16
	Climate and temperature test	temperature	DIN EN 60068-2-1 DIN EN 60068-2-2 DIN EN 60068-2-30 DIN EN 60068-2-78 DIN EN ISO 2233 ASTM D 4332-14
		relative humidity	
	vacuum test	low air pressure	DIN EN 60068-2-13 DIN EN ISO 2873 ASTM D 6653-13

1 Compression test, crush test and stack test ***

DIN EN ISO 2234 2002-12	Packaging - Complete, filled transport packages and unit loads - Stacking tests using a static load
DIN EN ISO 3037 2013-12	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 55440-1 2019-10	Packaging test - Determination of compression resistance - Part 1: Test with constant conveyance speed
ASTM D 642-20 2015	Standard Test Method for Determining Compressive Resistance of Shipping Containers, Components, and Unit Loads
ASTM D 4169-16 2016	Standard Practice for Performance Testing of Shipping Containers and Systems

2 Vibration test, shock test, bounce test, horizontal impact and drop test ***

DIN EN 60068-2-6 2008-10	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)
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 2020-09	Environmental testing - Part 2-64: Tests - Test Fh: Vibration, broadband random and guidance
DIN EN ISO 13355 2017-03	Packaging - Complete, filled transport packages and unit loads - Vertical random vibration test
DIN EN ISO 8318 2002-12	Packaging - Complete, filled transport packages and unit loads - Sinusoidal vibration tests using a variable frequency
DIN EN ISO 2247 2002-12	Packaging - Complete, filled transport packages and unit loads - Vibration tests at fixed low frequency

DIN ISO 10531 2000-03	Packaging - Complete, filled transport packages - Stability testing of unit loads
ASTM D 3332-99 2016	Standard Test Methods for Mechanical-Shock Fragility of Products, Using Shock Machines
ASTM D 999-08 2015	Standard Test Methods for Vibration Testing of Shipping Containers
ASTM D 4728-06 2012	Standard Test Method for Random Vibration Testing of Shipping Containers
ASTM D 4169-16 2016	Standard Practice for Performance Testing of Shipping Containers and Systems
ASTM D 5276-98 2017	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 5487-16 2016	Standard Test Method for Simulated Drop of Loaded Containers by Shock Machines
ASTM D 880-92 2015	Standard Test Method for Impact Testing for Shipping Containers and Systems
ASTM D 5265-09 2016	Standard Test Method for Bridge Impact Testing
ASTM D 6179-07 2014	Standard Test Methods for Rough Handling of Unitized Loads and Large Shipping Cases and Crates
ASTM D 7386-16 2016	Standard Practice for Performance Testing of Packages for Single Parcel Delivery Systems
DIN EN 14149 2003-11	Packaging - Complete, filled transport packages and unit loads - Impact test by rotational drop
DIN EN ISO 2244 2002-12	Packaging - Complete, filled transport packages and unit loads - Horizontal impact tests
DIN EN 22248 1993-02	Packaging; complete, filled transport packages; vertical impact test by dropping

3 Climate and temperature testing ***

DIN EN 60068-2-1 2008-01	Environmental testing - Part 2-1: Tests - Test A: Cold
DIN EN 60068-2-2 2008-05	Environmental testing - Part 2-2: Tests - Test B: Dry heat
DIN EN 60068-2-30 2006-06	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)
DIN EN 60068-2-78 2014-02	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state
DIN EN ISO 2233 2001-11	Packaging - Complete, filled transport packages and unit loads - Conditioning for testing
ASTM D 4332-14 2014	Standard Practice for Conditioning Containers, Packages, or Packaging Components for Testing

4 Low pressure test ***

DIN EN 60068-2-13 2000-02	Environmental testing - Part 2: Tests; test M: Low air pressure
DIN EN ISO 2873 2002-12	Packaging - Complete, filled transport packages and unit loads - Low pressure test
ASTM D 6653-13 2013	Standard Test Methods for Determining the Effects of High Altitude on Packaging Systems by Vacuum Method

5 Other test methods ***

VDI 2700 Paper 14 2011-09	Load securing on road vehicles - Determination of coefficients of friction
DIN EN ISO 4180 2020-03	Packaging - Complete, filled transport packages - General rules for the compilation of performance test schedules
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 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: *5.2 visual inspection* *5.4 dimensional stability* *5.5 weight* *5.6 static tests* *5.7 dynamic tests* *5.8 material testing*)
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)
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 6344-04 2017	Standard Test Method for Concentrated Impacts to Transport Packages

6 Tests according to the International Safe Transit Association (ISTA)

ISTA 1A 2016-01	Non-Simulation Integrity Performance Test Procedure - Packaged-Products 150 lb (68 kg) or Less
ISTA 1B 2016-01	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
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 2012-01	Partial Simulation Performance Test Procedure - Packaged-Products 150 lb (68 kg) or Less
ISTA 2B 2012-10	Partial Simulation Performance Test Procedure - Packaged-Products over 150 lb (68 kg)
ISTA 2C 2012-01	Partial Simulation Performance Test Procedure - Furniture Packages
ISTA 2D 2014-03	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 2018	General Simulation Performance Test Procedure - Packaged-Products for Parcel Delivery System Shipment 70 kg (150 lb) or Less
ISTA 3B 2013-01	General Simulation Performance Test Procedure - Packaged-Products for Less-Than-Truckload (LTL) Shipment
ISTA 3E 2017-04	General Simulation Performance Test Procedure - Unitized Products of Same Product
ISTA 3F 2012-01	General Simulation Performance Test Procedure - Packaged-Products for Distribution Center to Retail Outlet Shipment 100 lb (45 kg)
ISTA 3H 2014-01	General Simulation Performance Test Procedure - Products or Packaged-Products in Mechanically Handled Bulk Transport Containers
ISTA 3K 2013-01	General Simulation Performance Test Procedure - Fast Moving Consumer Goods in the European Retail Supply Chain
ISTA 6-AMAZON.COM-Over Boxing 2018-03	e-Commerce Fulfillment for Parcel Delivery Shipment
ISTA 6-AMAZON.COM-SIOC 2018-03	Ships in Own Container (SIOC) for Amazon.com Distribution System Shipment

Abbreviations used:

ASTM	American Society for Testing and Materials
DIN	German institute for standardization
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
ISTA	International Safe Transit Association
VDI	Association of German Engineers