

## Deutsche Akkreditierungsstelle GmbH

### Annex to the Accreditation Certificate D-PL-11222-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 10.06.2022

Date of issue: 10.06.2022

Holder of certificate:

**Siebert und Knipschild GmbH Ingenieurbüro für Kunststofftechnik  
Bergstücken 25, 22113 Oststeinbek**

Tests in the fields:

**mechanical-technological and selected physical-chemical as well as rheological and thermomechanical examinations on moulding materials, semi-finished products, moulded parts made of thermoplastics and reinforced thermoset plastics as well as on thereof fabricated GRP-laminate sections, pipe sections, hose liners as well as thermoplastic sealing elements and their welded joints**

**Testing of construction products under Regulation (EU) No. 305/2011 laying down harmonized conditions for the marketing of construction products (Construction Products Regulation).**

**Within the test areas marked with \*, the testing laboratory is permitted to freely select standardized test methods or test methods that are equivalent to them without requiring prior information and approval from the DAkkS.**

**The testing laboratory has an up-to-date list of all test methods in the flexible accreditation area.**

*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.**

**1 Test procedure (minimum scope) of external testing bodies in the field of installation of plastic components in landfill sealing systems according to BAM third-party inspection guideline**

**Testing of weld seam quality**

DVS 2203-5 1999-08	Testing of welded joints of thermoplastics plates and tubes - Technological bend test
DVS 2226-2 1997-07	Testing of fused joints on liners of polymer materials - Lap shear test
DVS 2226-3 1997-07	Test of fusions on PE liners - Peeling test

**Testing of manufacturing and delivery quality**

DIN EN ISO 527-1 2012-06	Plastics - Determination of tensile properties - Part 1: General principles <i>(Deviation for PEHD sealing membranes: thickness up to 3 mm with test specimen 5 acc. to Part 3)</i>
DIN EN ISO 527-3 2019-02	Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets <i>(Limitation: applicability extended to cover thicknesses over 1 mm; only test specimen types 2 and 5; for serial tests 3 test specimens per direction; for PEHD sealing membranes with two smooth sides the test speed is increased from 50 to 100 mm/min once the yield limit has clearly been exceeded.)</i>
DIN EN ISO 1133-1 2012-03	Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 1: Standard method
DIN EN ISO 1183-1 2013-04	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method
DIN EN ISO 9863-1 2014-08	Geosynthetics - Determination of thickness at specified pressures - Part 1: Single layers <i>(Limitation: thickness measurement only at 2 kPa)</i>

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DIN EN ISO 9864 2005-05	Geosynthetics - Test method for the determination of mass per unit area of geotextiles and geotextile-related products
DIN EN ISO 12236 2006-11	Geosynthetics - Static puncture test (CBR test)
DIN EN 29073-3 1992-08	Textiles; test method for nonwovens; part 3: determination of tensile strength and elongation <i>(Limitation: for serial tests 3 test specimens per direction)</i>
BAM Methode B14 2015-11	Determination of the dimensional stability of geosynthetic geomembranes made of high-density polyethylene (PEHD)

**2 Mechanical-technological examinations\***

ISO 37 2017-11	Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties
ISO 2577 2007-12	Plastics - Thermosetting moulding materials - Determination of shrinkage
ISO 7684 1997-01	Plastics piping systems - Pipes made of glass fiber reinforced thermosetting plastics (GRP) - Determination of the creep factor in dry conditions <i>(withdrawn standard)</i>
ISO 7685 2019-07	Glass-reinforced thermosetting plastics (GRP) pipes - Determination of initial ring stiffness
ISO 8513 2016-02	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Test methods for the determination of the initial longitudinal tensile strength
ISO 8521 2020-07	Glass-reinforced thermosetting plastic (GRP) pipes - Test methods for the determination of the initial circumferential tensile wall strength <i>here: Method A</i>

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ISO 10466 1997-11	Glass-reinforced thermosetting plastics (GRP) pipes - Test method to prove the resistance to initial ring deflection
ISO 10468 2018-05	Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the ring creep properties under wet or dry conditions
ISO 10471 2018-05	Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the long-term ultimate bending strain and the long-term ultimate relative ring deflection under wet conditions
DIN EN ISO 75-2 2013-08	Plastics - Determination of temperature of deflection under load - Part 2: Plastics and ebonite
DIN EN ISO 178 2019-08	Plastics - Determination of flexural properties
DIN EN ISO 179-1 2010-11	Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test
DIN EN ISO 527-1 2012-06	Plastics - Determination of tensile properties - Part 1: General principles <i>(Deviation for PEHD sealing membranes: thickness up to 3 mm with test specimen 5 acc. to Part 3)</i>
DIN EN ISO 527-2 2012-06	Plastics - Determination of tensile properties - Part 2: Test conditions for moulding and extrusion plastics
DIN EN ISO 527-3 2019-02	Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets <i>(Limitation: applicability extended to cover thicknesses over 1 mm; only test specimen types 2 and 5; for serial tests 3 test specimens per direction; for PEHD sealing membranes with two smooth sides the test speed is increased from 50 to 100 mm/min once the yield limit has clearly been exceeded.)</i>
DIN EN ISO 527-4 1997-07	Plastics - Determination of tensile properties - Part 4: Test conditions for isotropic and orthotropic fibre-reinforced plastic composites
DIN EN ISO 527-5 2010-01	Plastics - Determination of tensile properties - Part 5: Test conditions for unidirectional fibre-reinforced plastic composites

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DIN EN ISO 604 2003-12	Plastics - Determination of compressive properties
DIN EN ISO 815-1 2016-09	Rubber, vulcanized or thermoplastic - Determination of compression set - Part 1: At ambient or elevated temperatures
DIN EN ISO 868 2003-10	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)
DIN EN ISO 899-1 2018-03	Plastics - Determination of creep behaviour - Part 1: Tensile creep
DIN EN ISO 899-2 2015-06	Plastics - Determination of creep behaviour - Part 2: Flexural creep by three-point loading
DIN EN ISO 1133-2 2012-03	Plastics - Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics - Part 2: Method for materials sensitive to time-temperature history and/or moisture
DIN EN ISO 4624 2016-08	Paints and varnishes - Pull-off test for adhesion
DIN EN ISO 6272-1 2011-11	Paints and varnishes - Rapid-deformation (impact resistance) tests - Part 1: Falling-weight test, large-area indenter
DIN EN ISO 11501 2004-10	Plastics - Film and sheeting - Determination of dimensional change on heating
DIN EN ISO 11296-1 2018-09	Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks - Part 1: General
DIN EN ISO 11296-4 2021-11	Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks - Part 4: Lining with cured-in-place pipes
DIN EN ISO 14125 2011-05	Fibre-reinforced plastic composites - Determination of flexural properties
DIN EN 59 2016-06	Glass reinforced plastics - Determination of indentation hardness by means of a Barcol hardness tester

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DIN EN 761 1994-08	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the creep factor under dry conditions
DIN EN 1107-2 2001-04	Flexible sheets for waterproofing - Determination of dimensional stability - Part 2: Plastic and rubber sheets for roof waterproofing
DIN EN 1228 1996-08	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of initial specific ring stiffness
DIN EN 1393 1996-12	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes; Determination of initial longitudinal tensile properties <i>(here: Method A)</i>
DIN EN 1447 2011-01	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes - Determination of long-term resistance to internal pressure
DIN EN 13566-4 2011-07	Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks - Part 4: Lining with cured-in-place pipes <i>(withdrawn standard)</i>
DIN EN 14130 1998-02	Fibre reinforced plastic composites - Determination of apparent interlaminar shear strength by short beam-method
DIN EN 14364 2013-05	Plastics piping systems for drainage and sewerage with or without pressure - Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) - Specifications for pipes, fittings and joints
E DIN EN 495-1 1991-12	Roofing and sealing membranes of plastics and elastomers - Determination of dimensional change on heating <i>(withdrawn standard)</i>
DIN CEN/TR 15729 2010-11 DIN SPEC 1188 2010-11	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) based on unsaturated polyester resin (UP) - Report on the determination of mean abrasion after a defined number of test cycles

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DIN 16868-2 2016-10	Glass fibre reinforced unsaturated polyester resin (UP-GF) pipes - Part 2: Wound, filled, general quality requirements, testing
DIN 16869-2 2014-12	Centrifugally cast filled glass fibre reinforced unsaturated polyester resin (UP-GF) pipes - Part 2: General quality requirements, testing
DIN 19523 2008-08	Requirements and test methods for determination of the jetting resistance of components of drains and sewers
DIN 19565-1 1989-03	Pipes and mouldings made of glass fibre reinforced polyester resin (UP-GF) for underground drains and sewers; Centrifugally cast pipes, filled; Dimensions, technical delivery requirements <i>(withdrawn standard)</i>
DIN 53370 2016-04	Testing of plastics films - Determination of the thickness by mechanical scanning <i>(Limitation: application extended to 10 mm thickness)</i>
DIN 53377 2015-04	Testing of plastic films - Determination of dimensional stability
DIN 53769-3 1988-11	Testing of glass fibre reinforced plastics pipes; determination of initial and long-term ring stiffness <i>(withdrawn standard)</i>
ASTM D638 2014	Standard Test Method for Tensile Properties of Plastics
ASTM D695 2015	Standard Test Method for Compressive Properties of Rigid Plastics
ASTM D790 2017	Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D2240 2015	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D2583a 2013	Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor
ASTM D2990 2017	Standard Test Methods for Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics
ASTM D5813 2004 (2018)	Standard Specification for Cured-In-Place Thermosetting Resin Sewer Piping Systems

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ASTM F1306 2021	Standard Test Method for Slow Rate Penetration Resistance of Flexible Barrier Films and Laminate
DVS 2203-1 2003-01	Testing of welded joints of thermoplastics sheet and pipes - Test methods – Requirements
DVS 2203-2 2010-08	Testing of welded joints between panels and pipes made of thermoplastics - Tensile test
DVS 2206-1 2011-09	Non-destructive tests on tanks, apparatus and piping made of thermoplastics - Dimensional checking and visual inspection
DVS 2206-4 2011-09	Non-destructive tests on tanks, apparatus and piping made of thermoplastics - Testing with electrical high voltage
DVS 2225-4 2019-10	Welding of lining membranes made of polyethylene (PE) for the sealing of landfill and contaminated sites

**3 Physico-chemical investigations \***

ISO 4901 2011-08	Reinforced plastics based on unsaturated-polyester resins - Determination of the residual styrene monomer content, as well as the content of other volatile aromatic hydrocarbons, by gas chromatography
ISO 5661 1983-10	Petroleum products; Hydrocarbon liquids; Determination of refractive index
ISO 10952 2014-03	Glass-reinforced thermosetting plastics (GRP) pipes and fittings - Determination of the resistance to chemical attack for the inside of a section in a deflected condition
DIN EN ISO 62 2008-05	Plastics - Determination of water absorption
q2011-03	Plastics - Methods of test for the determination of the effects of immersion in liquid chemicals
DIN EN ISO 584 1998-03	Plastics - Unsaturated polyester resins - Determination of reactivity at 80 °C (conventional method)

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DIN EN ISO 1172 1998-12	Textile-glass-reinforced plastics - Prepregs, moulding compounds and laminates - Determination of the textile-glass and mineral-filler content; calcination methods
DIN EN ISO 1183-1 2019-09	Plastics - Methods for determining the density of non-cellular plastics - Part 1: Immersion method, liquid pycnometer method and titration method <i>(here: Buoyancy method)</i>
DIN EN ISO 2114 2002-06	Plastics (polyester resins) and paints varnishes (binders) - Determination of partial acid value and total acid value
DIN EN ISO 2811-1 2016-08	Paints and varnishes - Determination of density - Part 1: Pycnometer method
DIN EN ISO 4628-2 2016-07	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering
DIN EN ISO 4628-3 2016-07	Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 3: Assessment of degree of rusting
DIN EN ISO 9514 2005-07	Paints and varnishes - Determination of the pot life of multicomponent coating systems - Preparation and conditioning of samples and guidelines for testing
DIN EN 295-3 2012-03	Vitrified clay pipe systems for drains and sewers - Part 3: Test methods
DIN EN 1120 1996-07	Plastics piping systems - Glass-reinforced thermosetting plastics (GRP) pipes and fittings - Determination of the resistance to chemical attack from the inside of a section in a deflected condition
DIN EN 1610 2015-12	Construction and testing of drains and sewers, <i>here:</i> Section 13.3: Test with water (method "W") <i>without: Test on pipe wall sections</i>

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<p>DIN EN 60811-4-1 (VDE 0473-811-4-1) 2005-04</p>	<p>Insulating and sheathing materials of electric and optical cables - Common test methods - Part 4-1: Methods specific to polyethylene and polypropylene compounds - Resistance to environmental stress cracking - Measurement of the melt flow index - Carbon black and/or mineral filler content measurement in polyethylene by direct combustion - Measurement of carbon black content by thermogravimetric analysis (TGA) - Assessment of carbon black dispersion in polyethylene using a microscope <u>here:</u> - <i>Stress crack resistance</i> - <i>Measurement of the melt index</i> - <i>Determination of the carbon black and/or filler content in polyethylene through direct combustion</i> - <i>Determination of the soot content by thermogravimetric analysis (TGA)</i> - <i>Evaluation of soot distribution in polyethylene using a microscope (withdrawn standard)</i></p>
<p>DIN 4102-1 1998-05</p>	<p>Fire behaviour of building materials and building components - Part 1: Building materials; concepts, requirements and tests <u>here:</u> <i>building material class B2 and B3, for wall thicknesses ≥ 3mm without frame)</i></p>
<p>DIN 50018 2013-05</p>	<p>Testing in a saturated atmosphere in the presence of sulfur dioxide</p>
<p>DIN 53394-2 1993-12</p>	<p>Testing of plastics; determination of the percentage of styrene in reaction moulding materials based on unsaturated polyester resins; gaschromatography method <i>(withdrawn standard)</i></p>
<p>ASTM D543 2014</p>	<p>Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents</p>
<p>ASTM D3681 2018</p>	<p>Standard Test Method for Chemical Resistance of "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin) Pipe in a Deflected Condition</p>
<p>ASTM D5576 2000 (2013)</p>	<p>Standard Practice for Determination of Structural Features in Polyolefins and Polyolefin Copolymers by Infrared Spectrophotometry (FT-IR)</p>
<p>APS testing guideline 2004-09</p>	<p>Watertightness of site samples on in-situ curing hose liners</p>

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**4 Rheological and thermomechanical examinations\***

ISO 2431 2019-06	Paints and varnishes - Determination of flow time by use of flow cups
ISO 5834-4 2019-02	Implants for surgery - Ultra-high-molecular-weight polyethylene - Part 4: Oxidation index measurement method
ISO 6721-4 2019-05	Plastics - Determination of dynamic mechanical properties - Part 4: Tensile vibration - Non-resonance method
ISO 6721-5 2019-04	Plastics - Determination of dynamic mechanical properties - Part 5: Flexural vibration - Non-resonance method
ISO 10466 1997-11	Glass-reinforced thermosetting plastics (GRP) pipes - Test method to prove the resistance to initial ring deflection
ISO 10468 2018-05	Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the ring creep properties under wet or dry conditions
ISO 10471 2018-05	Glass-reinforced thermosetting plastics (GRP) pipes - Determination of the long-term ultimate bending strain and the long-term ultimate relative ring deflection under wet conditions
DIN EN ISO 2555 2018-09	Plastics - Resins in the liquid state or as emulsions or dispersions - Determination of apparent viscosity using a single cylinder type rotational viscometer method
DIN EN ISO 3219 1994-10	Plastics - Polymers/resins in the liquid state or as emulsions or dispersions - Determination of viscosity using a rotational viscometer with defined shear rate
DIN EN ISO 11357-2 2020-08	Plastics - Differential scanning calorimetry (DSC) - Part 2: Determination of glass transition temperature and step height
DIN EN ISO 11357-3 2018-07	Plastics - Differential scanning calorimetry (DSC) - Part 3: Determination of temperature and enthalpy of melting and crystallization

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DIN EN ISO 11357-4 2021-05	Plastics - Differential scanning calorimetry (DSC) - Part 4: Determination of specific heat capacity
DIN EN ISO 11357-6 2018-07	Polyethylene (PE) pipes - PE 80, PE 100 - General quality requirements, testing
DIN EN ISO 11358-1 2014-10	Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles
DIN 53019-1 2008-09	Viscometry - Measurement of viscosities and flow curves by means of rotational viscometers - Part 1: Principles and measuring geometry
DIN 53752 1980-12	Testing of plastics; determination of the coefficient of linear thermal expansion (withdrawn standard)
DIN 53765 1994-03	Testing of plastics and elastomeres; thermal analysis; DSC-method (withdrawn standard)

**5 Testing of drainage objects**

DIN EN 124-1 2015-09	Gully tops and manhole tops for vehicular and pedestrian areas - Part 1: Definitions, classification, general principles of design, performance requirements and test methods
DIN EN 124-5 2015-09	Gully tops and manhole tops for vehicular and pedestrian areas - Part 5: Gully tops and manhole tops made of composite materials
DIN EN 1433 2005-09	Drainage channels for vehicular and pedestrian areas - Classification, design and testing requirements, marking and evaluation of conformity
DIN 19580 2010-07	Drainage channels for vehicular and pedestrian areas - Durability, mass per unit area and evaluation of conformity

**6 Testing of separators**

DIN EN 858-1 2005-02	Separator systems for light liquids (e. g. oil and petrol) - Part 1: Principles of product design, performance and testing, marking and quality control
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**7 Testing of construction products under Regulation (EU) No. 305/2011 laying down harmonized conditions for the marketing of construction products (Construction Products Regulation)**

Decision / Resolution of the commission	System <sup>1)</sup>	Technical specification
<b>1997/464/EC</b> <b>2004/663/EC</b> Products for wastewater disposal and treatment outside buildings	3	<b>EN 1433:2002+A1:2005</b> Drainage channels for vehicular and pedestrian areas - Classification, design and testing requirements, marking and evaluation of conformity

<sup>1)</sup> System for evaluation and verification of constancy of performance

*The requirements for a testing laboratory according to Article 43 of the Construction Products Regulation are fulfilled. Test methods that are required for the determination of the product type and cannot be carried out by the certificate holder itself are included in the list of subcontractors.*

*The testing laboratory is permitted to apply different revisions of the harmonized technical specifications without requiring prior approval by the Deutsche Akkreditierungsstelle GmbH.*

**Abbreviations used:**

APS	Arbeitskreis Prüfinstitute Schlauchliner (Work Group Testing Institutes hose liners)
ASTM	American Society for Testing and Materials
BAM	Bundesanstalt für Materialforschung und –prüfung (Federal Institute for Materials Research and Testing)
CEN/TR	Comité Européen de Normalisation /Technical Report
DIN	Deutsches Institut für Normung e. V. (German Standards Institute)
DVS	Deutscher Verband für Schweißen und verwandte Verfahren e.V. (German Association for Welding and Related Methods)
E	Draft standard
EG	Europäische Gemeinschaft (European Community)
EN	Europäische Norm (European Standard)
ETAG	Guideline for a European Technical Approval
ISO	International Organization for Standardization
SPEC	Specification according to the PAS method of DIN e. V.
VDE	Verband der Elektrotechnik Elektronik Informationstechnik e. V. (Association for Electrical, Electronic & Information Technologies e. V.)