

Accreditation



The Deutsche Akkreditierungsstelle attests with this **Accreditation Certificate** that the testing laboratory

Minz Prüf + Test GmbH

Rübsangerstraße 52, 65551 Limburg an der Lahn

meets the requirements according to DIN EN ISO/IEC 17025:2018 for the conformity assessment activities listed in the annex to this certificate. This includes additional existing legal and normative requirements for the testing laboratory, including those in relevant sectoral schemes, provided they are explicitly confirmed in the annex to this certificate.

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

This accreditation was issued in accordance with Art. 5 Para. 1 Sentence 2 of Regulation (EC) 765/2008, after an accreditation procedure was carried out in compliance with the minimum requirements of DIN EN ISO/IEC 17011 and on the basis of a review and decision of the appointed accreditation committees.

This accreditation certificate only applies in connection with the notices of 16.06.2022 with accreditation number D-PL-18566-01.

It consists of this cover sheet, the reverse side of the cover sheet and the following annex with a total of 15 pages.

Registration number of the accreditation certificate: **D-PL-18566-01-00**

Berlin, 31.03.2025

Dr.-Ing. Tobias Poeste
Head of Technical Unit

Translation issued:
22.04.2025



Dr.-Ing. Tobias Poeste
Head of Technical Unit

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 (www.dakks.de).

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

See notes overleaf

Deutsche Akkreditierungsstelle GmbH

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10117 Berlin

Office Frankfurt am Main
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60327 Frankfurt am Main

Office Braunschweig
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The Deutsche Akkreditierungsstelle GmbH (DAkkS) is the entrusted national accreditation body of the Federal Republic of Germany according to § 8 section 1 AkkStelleG in conjunction with § 1 section 1 AkkStelleGBV. DAkkS is designated as the national accreditation authority by Germany according to Art. 4 Para. 4 of Regulation (EC) 765/2008 and clause 4.7 of DIN EN ISO/IEC 17000.

Pursuant to Art. 11 section 2 of Regulation (EC) 765/2008, the accreditation certificate shall be recognised as equivalent by the national authorities within the scope of this Regulation as well as by the WTO member states that have committed themselves in bilateral or multilateral mutual agreements to recognise the certificates of accreditation bodies that are members of ILAC or IAF as equivalent.

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 Co-operation (ILAC).

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

Annex to the Accreditation Certificate D-PL-18566-01-00 according to DIN EN ISO/IEC 17025:2018

Valid from: 31.03.2025

Date of issue: 22.04.2025

Holder of accreditation certificate:

Minz Prüf + Test GmbH
Rübsangerstraße 52, 65551 Limburg an der Lahn

with the location

Minz Prüf + Test GmbH
Rübsangerstraße 52, 65551 Limburg an der Lahn

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 they conform to the principles of DIN EN ISO 9001.

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>.

Annex to the Accreditation Certificate D-PL-18566-01-00

Tests in the fields:

mechanical-technological and physical testing of material properties and examinations of resistance to environmental stress on plastics, elastomeric materials, thermoplastic elastomers, thermoplastics and duroplastic polymers

Flexible Scope of Accreditation:

Within the indicated test areas the testing laboratory is permitted without being required to prior inform and obtain approval from DAkkS

[Flex B] to have the free choice from standardised or equivalent test methods.

The test methods listed are examples. The testing laboratory has an up-to-date list of all test methods within the flexible scope of accreditation. The list is publicly available on the website of the testing laboratory/published in the Official Journal.

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1 Mechanical-technological Tests

1.1 Tensile and Flexural Properties [Flex B]

ASTM D412 2016 (Reapproved 2021)	Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
ASTM D624 2000 (Reapproved 2020)	Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
ASTM D638 2022	Standard Test Method for Tensile Properties of Plastics
ASTM D790 2017	Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
DIN 53504 2017-03	Testing of Rubber – Determination of Tensile Strength at Break, Tensile Stress at Yield, Elongation at Break and Stress Values in a Tensile Test
DIN 53507 1983-03	Testing Rubber and Elastomers; Determination of the Tear Strength of Elastomers; Trouser Test Piece
DIN 53515 1990-01	Determination of Tear Strength of Rubber Elastomers and Plastic Film Using Graves Angle Test Piece With Nick
DIN 53530 1981-02	Testing of Organic Materials; Separation Test on Fabric Plies Bonded Together
DIN EN ISO 178 2019-08	Plastics – Determination of Flexural Properties
DIN EN ISO 527-1 2019-12	Plastics – Determination of Tensile Properties – Part 1: General Principles
DIN EN ISO 527-2 2012-06	Plastics – Determination of Tensile Properties – Part 2: Test Conditions for Moulding and Extrusion Plastics
DIN ISO 34-1 2024-12	Rubber, vulcanized or thermoplastic – Determination of tear strength – Part 1: Trouser, Angle and Crescent Test Pieces

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DIN ISO 6133 2017-04	Rubber and Plastics – Analysis of Multi-peak Traces Obtained in Determinations of Tear Strength and Adhesion Strength
DIN 53539 1979-09	Testing of Elastomers; Evaluation of Tear Propagation, Adhesion and Peel Tests
ISO 34-1 2022-06	Rubber, Vulcanized or Thermoplastic – Determination of Tear Strength – Part 1: Trouser, Angle and Crescent Test Pieces
ISO 34-2 2022-06	Rubber, Vulcanized or Thermoplastic – Determination of Tear Strength – Part 2: Small (Delft) Test Pieces
ISO 36 2020-03	Rubber, Vulcanized or Thermoplastic – Determination of Adhesion of Textile Fabrics
ISO 37 2024-05	Rubber, Vulcanized or Thermoplastic – Determination of Tensile Stress-Strain Properties
ISO 178 2019-04	Plastics – Determination of Flexural Properties – Amendment
ISO 527-1 2019-07	Plastics – Determination of Tensile Properties – Part 1: General Principles
ISO 527-2 2012-02	Plastics – Determination of Tensile Properties – Part 2: Test Conditions for Moulding and Extrusion Plastics
ISO 6133 2015-08	Rubber and Plastics – Analysis of Multi-Peak Traces Obtained in Determinations of Tear Strength and Adhesion Strength
JIS K 6251 2023-11	Rubber, Vulcanized or Thermoplastic – Determination of Tensile Stress-strain Properties
JIS K 6252-1 2015-02	Rubber, Vulcanized or Thermoplastic – Determination of Tear Strength – Part 1: Trouser, Angle and Crescent Test Pieces
JIS K 6252-2 2015-02	Rubber, Vulcanized or Thermoplastic – Determination of Tear Strength – Part 2: Small (Delft) Test Pieces
VDA 675-205 1992-12	Elastomer-Components in Motor Vehicles – Test Method to Determine Properties of the Stress-Strain Behavior – Tensile Test

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VDA 675-210 1992-12	Elastomer-Components in Motor Vehicles – Test Method to Determine Properties of the Stress-Strain Behavior – Tear Resistance (Graves)
VDA 675-211 1992-12	Elastomer-Components in Motor Vehicles – Test Method to Determine Properties of the Stress-Strain Behavior – Tear Resistance (Trouser Specimen)
VDA 675-226 1992-12	Elastomer Components in Motor Vehicles – Test Method to Determine Properties – Adhesion Test – Adhesion Test Fabric Elastomer

1.2 Impact Tests [Flex B]

ASTM D256 2024	Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
DIN EN ISO 179-1 2023-10	Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test
DIN EN ISO 180 2023-09	Plastics – Determination of Izod Impact Strength
ISO 179-1 2023-06	Plastics – Determination of Charpy Impact Properties – Part 1: Non-Instrumented Impact Test
ISO 180 2023-06	Plastics – Determination of Izod Impact Strength

1.3 Hardness Tests [Flex B]

ASTM D1415 2018	Standard Test Method for Rubber Property – International Hardness
ASTM D2240 2015 (Reapproved 2021)	Standard Test Method for Rubber Property – Durometer Hardness
DIN 53519-2 1972-05	Testing of Elastomers – Determination of Indentation Hardness of Soft Rubber (IRHD) – Hardness Testing on Specimens of Small Dimensions, Micro-testing

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DIN EN ISO 868 2003-10	Plastics and Ebonite – Determination of Indentation Hardness by Means of a Durometer (Shore Hardness)
ISO 868 2003-03	Plastics and ebonite – Determination of Indentation Hardness by Means of a Durometer (Shore Hardness)
DIN ISO 48 2016-09	Rubber, Vulcanized or Thermoplastic – Determination of Hardness (hardness between 10 IRHD and 100 IRHD)
DIN ISO 48-2 2021-02	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 2: Hardness Between 10 IRHD and 100 IRHD
DIN ISO 7619-1 2012-02	Rubber, Vulcanized or Thermoplastic – Determination of Indentation Hardness – Part 1: Durometer Method (Shore Hardness)
DIN 53505 2000-08	Testing of Rubber – Shore A and Shore D Hardness Test
DIN ISO 48-4 2021-02	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 4: Indentation Hardness by Durometer Method (Shore Hardness)
ISO 48-1 2018-08	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 1: Introduction and Guidance
ISO 48-2 2018-08	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 2: Hardness Between 10 IRHD and 100 IRHD
ISO 48-4 2018-08	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 4: Indentation Hardness by Durometer Method (Shore hardness)
JIS K 6253-1 2012-03	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 1: General Guidance
JIS K 6253-2 2012-03	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 2: IRHD Method (Hardness Between 10 IRHD and 100 IRHD)
JIS K 6253-3 2023-02	Rubber, Vulcanized or Thermoplastic – Determination of Hardness – Part 3: Durometer Method

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VDA 675-101 2020-11	Elastomer Components in Motor Vehicles – Test Method to Identify Hardness – Micro Hardness Test (IRHD Method M)
VDA 675-102 1992-12	Elastomer Components in Motor Vehicles – Test Method to Identify Hardness – Shore A
VDA 675-202 1992-12	Elastomer Components in Motor Vehicles – Test Method to Determine Properties – Shore A and D

2 Test of Physical Properties [Flex B]

ASTM D792 2020	Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
DIN 53479 1976-07	Testing of Plastics and Elastomers; Determination of Density
DIN 53512 2000-04	Testing of rubber – Determination of Rebound Resilience (Schob Pendulum)
DIN 53568-1 1974-07	Testing of Plastics, Rubber and Elastomers – Determination of Residue on Ignition Without Chemical Pretreatment of the Specimen
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 Pyknometer Method and Titration Method
ISO 1183 2019-03	Plastics – Methods for Determining the Density of Non-cellular Plastics
DIN EN ISO 3451-1 2019-05	Plastics – Determination of Ash – Part 1: General methods
ISO 3451 2019-02	Plastics – Determination of Ash

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DIN ISO 4649 2021-06	Rubber, Vulcanized or Thermoplastic – Determination of Abrasion Resistance Using a Rotating Cylindrical Drum Device
ISO 247-1 2018-07	Rubber – Determination of ash – Part 1: Combustion Method
ISO 1172 2023-08	Textile-Glass-Reinforced Plastics, Peepregs, Moulding Compounds and Laminates – Determination of the Textile-glass and mineral-filler content using calcination methods
ISO 2781 2018-06	Rubber, Vulcanized or Thermoplastic – Determination of Density
ISO 4649 2024-08	Rubber, Vulcanized or Thermoplastic – Determination of Abrasion Resistance Using a Rotating Cylindrical Drum Device
ISO 4662 2017-06	Rubber, Vulcanized or Thermoplastic – Determination of Rebound Resilience
JIS K 6264-1 2005-03	Rubber, Vulcanized or Thermoplastic – Determination of Abrasion Resistance – Part 1: Guide
JIS K 6264-2 2005-03	Rubber, Vulcanized or Thermoplastic – Determination of Abrasion Resistance – Part 2: Testing Methods
JIS Z 8807 2012-05	Methods of Measuring Density and Specific Gravity of Solid
VDA 675-106 1992-12	Determination of Density (Method A)
VDA 675-130 2016-05	Determining the Ash Content Without Chemical Pretreatment of the Specimen
VDA 675-219 1992-12	Determination of the Rebound Resilience
VDA 675-235 1992-12	Determination of Abrasion

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3 Determination of Compression Set [Flex B]

ASTM D395 2018	Standard Test Methods for Rubber Property-Compression Set
DIN ISO 815-1 2022-04	Rubber, Vulcanized or Thermoplastic – Determination of Compression Set – Part 1: At Ambient or Elevated Temperatures
DIN ISO 815-2 2022-04	Rubber, Vulcanized or Thermoplastic – Determination of Compression Set – Part 2: At Low Temperatures
DIN ISO 2285 2022-11	Rubber, Vulcanized or Thermoplastic – Determination of Tension Set Under Constant Elongation, and of Tension Set, Elongation and Creep Under Constant Tensile Load
ISO 815-1 2019-11	Rubber, Vulcanized or Thermoplastic – Determination of Compression Set – Part 1: At Ambient or Elevated Temperatures
ISO 815-2 2019-11	Rubber, Vulcanized or Thermoplastic – Determination of Compression Set – Part 2: At Low Temperatures
ISO 2285 2019-07	Rubber, Vulcanized or Thermoplastic – Determination of Tension Set under Constant Elongation, and of Tension Set, Elongation and Creep under Constant Tensile Load
JIS K 6262 2013-09	Rubber, Vulcanized or Thermoplastic – Determination of Compression Set at Ambient, Elevated or Low Temperatures
VDA 675-216 1992-12	Elastomer Components in Motor Vehicles – Test Method to Determine Properties – Creep and Relaxation – Compression Set
VDA 675-217 1992-12	Elastomer Components in Motor Vehicles – Test Method to Determine Properties – Creep and Relaxation – Tension Set
VDA 675-220 1992-12	Elastomer Components in Motor Vehicles – Test Method to Determine Properties – Resilience After Constant Deformation
VDA 675-222 2020-10	Elastomer: Testprocedure – Compression Set

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4 Durability of Elastomers to Environmental Conditions [Flex B]

ASTM D471a 2016 (Reapproved 2021)	Standard Test Method for Rubber Property-Effect of Liquids
ASTM D573 2004 (Reapproved 2019)	Standard Test Method for Rubber-Deterioration in an Air Oven
ASTM D865 2022	Standard Test Method for Rubber – Deterioration by Heating in Air (Test Tube Enclosure)
ASTM D2000 2018	Standard Classification System for Rubber Products in Automotive Applications
ASTM D4289a 2024	Standard Test Method for Elastomer Compatibility of Lubricating Greases and Fluids
ASTM D1149 2018	Standard Test Methods for Rubber Deterioration-Cracking in an Ozone Controlled Environment
CEC L-39-96 2015-06	The Evaluation of Oil-Elastomer Compatibility
CEC L-112-16 2018-06	The Evaluation of Oil-Elastomer Compatibility
DIN 53508 2024-03	Testing of Rubber – Accelerated Aging
DIN 53521 1987-11	Determination of the Behavior of Rubber and Elastomers When Exposed to Fluids and Vapours
DIN ISO 1431-1 2017-04	Rubber, vulcanized or thermoplastic – Resistance to ozone cracking – Part 1: Static and dynamic strain testing
DIN ISO 1817 2016-11	Rubber, Vulcanized or Thermoplastic – Determination of the Effect of Liquids
ISO 188 2023-03	Rubber, Vulcanized or Thermoplastic – Accelerated Ageing and Heat Resistance tests

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ISO 1431-1 2024-07	Rubber, Vulcanized or Thermoplastic – Resistance to Ozone Cracking – Part 1: Static and Dynamic Strain Testing
ISO 1817 2024-03	Rubber, Vulcanized or Thermoplastic – Determination of the Effect of Liquids
ISO 6072 2011-12	Rubber – Compatibility Between Hydraulic Fluids and Standard Elastomer Materials
JIS K 6257 2017-10	Rubber, Vulcanized or Thermoplastic – Determination of Heat Ageing Properties
JIS K 6259-1 2015-09	Rubber, Vulcanized or Thermoplastic – Determination of Ozone Resistance – Part 1: Static and Dynamic Strain Testing
VDA 290-130 2021-05	Elastomer Resistance – Determination of the Behavior Towards Test Condensate Mixtures (Blow-By)
VDA 675-241 2020-10	Elastomer Components in Motor Vehicles – Test Procedure for Identification – Corrosion Effect on Copper
VDA 675-301 2021-01	Elastomer Components in Motor Vehicles – Test Method to Determine Resistances – Determination of the Effect of Fluids
VDA 675-302 1992-12	Elastomer Components in Motor Vehicles – Test Method to Determine Resistances – Determination of the Effect of Testing Fuels
VDA 675-303 2020-11	Elastomer Components in Motor Vehicles – Test Method to Determine Resistances – Determination of the Effect of Coolant
VDA 675-304 2023-06	Elastomer Components in Motor Vehicles – Test Method to Determine Resistances – Determination of the Effect of Brake Fluids
VDA 675-305 2020-05	Elastomer Components in Motor Vehicles – Test Method to Determine Resistances – Determination of the Effect of Testing Greases
VDA 675-310 2020-05	Rubber and Elastomer Testing – Test Method to Determine Resistances – Accelerated Aging

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5 Thermoanalytical Analysis [Flex B]

ASTM D 6370 2023	Standard Test Method for Rubber – Compositional Analysis by Thermogravimetry (TGA)
ASTM E 1356 2025	Standard Test Method for Assignment of the Glass Transition Temperatures by Differential Scanning Calorimetry
DIN 53545 2016-12	Testing of Rubber – Determination of Low-temperature Behavior of Elastomers – Principles and Test Methods
DIN EN ISO 11357-1 2023-06	Plastics – Differential Scanning Calorimetry (DSC) – Part 1: General Principles
DIN EN ISO 11357-2 2020-08	Plastics – Differential Scanning Calorimetry (DSC) – Part 2: Determination of Glass Transition Temperature and Glass Transition 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
DIN EN ISO 11357-4 2021-05	Plastics – Differential Scanning Calorimetry (DSC) – Part 4: Determination of Specific Heat Capacity
DIN EN ISO 11357-5 2014-07	Plastics – Differential Scanning Calorimetry (DSC) – Part 5: Determination of Characteristic Reaction-curve Temperatures and Times, Enthalpy of Reaction and Degree of Conversion
DIN EN ISO 11357-6 2018-07	Plastics – Differential Scanning Calorimetry (DSC) – Part 6: Determination of Oxidation Induction Time (Isothermal OIT) and Oxidation Induction Temperature (Dynamic OIT)
DIN EN ISO 11358-1 2022-07	Plastics – Thermogravimetry (TG) of Polymers – Part 1: General Principles
ISO 9924-1 2023-03	Rubber and Rubber Products – Determination of the Composition of Vulcanizates and Uncured Compounds by Thermogravimetry – Part 1: Butadiene, Ethylene-Propylene Copolymer and Terpolymer, Isobutene-Isoprene, Isoprene and Styrene-Butadiene Rubbers

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ISO 9924-2 2016-08	Rubber and Rubber Products – Determination of the Composition of Vulcanizates and Uncured Compounds by Thermogravimetry – Part 2: Acrylonitrile-Butadiene and Halobutyl Rubbers
ISO 9924-3 2024-02	Rubber and Rubber Products – Determination of the Composition of Vulcanizates and Uncured Compounds by Thermogravimetry – Part 3: Hydrocarbon Rubbers, Halogenated Rubbers and Polysiloxane Rubbers after Extraction
ISO 11357-1 2023-02	Plastics – Differential Scanning Calorimetry (DSC) – Part 1: General Principles
ISO 11357-2 2020-03	Plastics – Differential Scanning Calorimetry (DSC) – Part 2: Determination of Glas Transission Temperature and Glass Transission Step Height
ISO 11357-3 2018-03	Plastics – Differential Scanning Calorimetry (DSC) – Part 3: Determination of Temperature and Enthalpy of Melting and Crystallization
ISO 11357-4 2021-02	Plastics – Differential Scanning Calorimetry (DSC) – Part 4: Determination of Specific Heat Capacity
ISO 11357-5 2013-03	Plastics – Differential Scanning Calorimetry (DSC) – Part 5: Determination of Characteristic Reaction Curve Temperatures and Times, Enthaply of Reaction and Degree of Conversion
ISO 11357-6 2018-03	Plastics – Differential Scanning Calorimetry (DSC) – Part 6: Determination of Oxidation Induction Time (Isothermal OIT) and Oxidation Induction Temperature (Dynamic OIT)
ISO 11357-7 2022-03	Plastics – Differential Scanning Calorimetry (DSC) – Part 7: Determination of Crystallization Kinetics
ISO 11358-1 2022-03	Plastics – Thermogravimetry (TG) of polymers – Part 1: General principles
VDA 675 116 2016-05	Elastomer Identification – Differential-Scanning-Calorimetry (DSC)
VDA 675-135 2016-05	Elastomer Identification – Determining the Thermal Decomposition Behavior with Thermogravimetry (TG)

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6 Tests according to Factory Standards

PV 3307 2019-03	Elastomer Components – Plastic and Elastic Deformability
PV 3316 2007-06	Rubber Products – Reference Photographs after Exposure to Ozone
PV 3330 2021-01	Elastomer O-Rings – Compression Set (Plastic Deformation)
PV 3927 2022-04	Thermogravimetric Analysis for Plastics and Elastomers
PV 3973 2021-03	Elastomer Circular Sealing Rings – Determining Tensile Strength, Elongation at Tear and Stress Values in the Tensile Test
ZF Test Specification Nr. 0000 702 011d 2015-02	CEC-Oil-Elastomer-Resistance-Test
ZF Test Specification Nr. 0000 702 064e 2018-12	2L-Oil-Elastomer-Resistance-Test
ZF Test Specification Nr. 0000 702 107 2003-01	2L-Oil-Plastic-Compatibility-Test
ZF Test Specification Nr. 0000 702 689 2017 04	Elastomer – Resistance Test at Elevated Pressure

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Abbreviations used:

ASTM	American Society for Testing and Materials
CEC	Coordinating European Council
DIN	German institute for standardization
EN	European Standard
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
JIS	Japanese Industrial Standard
PV	Factory standard of Volkswagen AG
VDA	Association of the Automotive Industry
ZF	Factory standard of Zahnradfabrik Friedrichshafen AG