

## Deutsche Akkreditierungsstelle GmbH

### Annex to the Accreditation Certificate D-PL-21095-01-00 according to DIN EN ISO/IEC 17025:2018

**Valid from: 13.05.2020**

Date of issue: 13.05.2020

Holder of certificate:

**DIK Prüfgesellschaft mbH  
Eupener Straße 33, 30519 Hannover**

Tests in the fields:

**mechanical-technological and chemical tests as well as determination of temperature-dependent properties of rubber and plastics as well as determination of N-nitrosamines**

**Within the given testing field marked with <sup>1)/2)</sup> the testing laboratory is permitted, without being required to inform and obtain prior approval from DAkkS, the following:**

- 1) **the free choice of standard or equivalent testing methods.**
- 2) **the modification, development and refinement of 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 document is a translation. The definitive version is the original German annex to the accreditation certificate.

Abbreviations used: see last page

*The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.  
<https://www.dakks.de/en/content/accredited-bodies-dakks>*

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**1 Mechanical-technological tests <sup>1)</sup>**

**1.1 Hardness test**

DIN ISO 48  
2016-09 Rubber, vulcanized or thermoplastic - Determination of hardness  
(hardness between 10 IRHD and 100 IRHD)  
(here: *only method M - Micro hardness test*)

DIN ISO 7619-1  
2012-02 Rubber, vulcanized or thermoplastic - Determination of indentation  
hardness - Part 1: Durometer method (Shore hardness)

**1.2 Rheological test**

DIN 53529-2  
1983-03 Testing of rubber and elastomers; measurement of vulcanization  
characteristics (curemetry); evaluation of cross-linking isotherms in terms of  
reaction kinetics

DIN 53529-3  
1983-06 Testing of rubbers; curemetry; types and applications of rotorless  
curemeters

ISO 6502-3  
2018-07 Rubber - Measurement of vulcanization characteristics using curemeters -  
Part 3: Rotorless curemeter

**1.3 Physical properties test**

DIN 53512  
2000-04 Testing of rubber - Determination of rebound resilience (Schob pendulum)

DIN ISO 815-1  
2016-09 Rubber, vulcanized or thermoplastic - Determination of compression set -  
Part 1: At ambient or elevated temperatures

DIN ISO 4649  
2014-03 Rubber, vulcanized or thermoplastic - Determination of abrasion resistance  
using a rotating cylindrical drum device  
(here: *only method A*)

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  
(here: *only method A*)

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ISO 4662  
2017-06 Rubber, vulcanized or thermoplastic - Determination of rebound resilience

**1.4 Tensile test**

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 ISO 34-1  
2016-09 Rubber, vulcanized or thermoplastic - Determination of tear strength - Part 1: Trouser, angle and crescent test pieces

ISO 37  
2017-11 Rubber, vulcanized or thermoplastic - Determination of tensile stress-strain properties

**1.5 Flow behaviour test**

DIN ISO 289-1  
2018-12 Rubber, unvulcanized - Determinations using a shearing-disc viscometer - Part 1: Determination of Mooney viscosity

DIN ISO 289-2  
2018-12 Rubber, unvulcanized - Determinations using a shearing-disc viscometer - Part 2: Determination of pre-vulcanization characteristics

**1.6 Accelerated ageing test**

DIN 53508  
2000-03 Testing of rubber - Accelerated ageing

ISO 188  
2011-10 Rubber, vulcanized or thermoplastic - Accelerated ageing and heat resistance tests

**1.7 Chemical resistance test**

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

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**2 Determination of temperature-dependent properties <sup>2)</sup>**

**2.1 Thermoanalytical tests of elastomers and plastics using differential scanning calorimetry (DSC)**

E DIN EN ISO 11357-2 2019-03      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

AA-3.2.1.3  
Version 1  
2019-08      Determination of thermodynamic properties of elastomers and polymers using DSC

**2.2 Thermoanalytical tests of elastomers and plastics using thermogravimetric analysis (TGA)**

DIN EN ISO 11358-1 2014-10      Plastics - Thermogravimetry (TG) of polymers - Part 1: General principles

AA-3.2.1.4  
Version 1  
2019-08      Thermogravimetric analysis (TGA) of elastomers and polymers

PV 3927  
2017-11      Thermogravimetry for plastics and elastomers - Determination: plasticizer, carbon black

**3 Chemical test**

**3.1 Sample preparation for the determination of leachable/extractable components from polymer materials with evaluation of recovery rates <sup>2)</sup>**

AA-3.4.1.3  
Version 1  
2019-07      Extractions of filter elements and capsules with pharmaceutical solutions or surrogates/model solutions

AA-3.4.1.4  
Version 1  
2019-07      Preparation of eluates and extracts of polymer materials used in the pharmaceutical and food sector for the subsequent analysis

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**3.5 Determination of the retention time and the UV-/Vis- and mass spectra for identification of organic substances in eluates and extracts of polymer materials using high performance liquid chromatography with mass selective detector (HPLC-UVD-MSD) <sup>2)</sup>**

AA-3.4.1.12                      Qualitative testing by HPLC-UV-MS analyses of eluates and extracts with  
Version 1                              LCQ  
2019-12

**3.6 Determination of the retention time and the mass spectra for identification of organic substances as well as determination of their mass fraction or mass concentration in polymer materials as well as eluates and extracts of polymer materials using gas chromatography with mass selective detector (GC-MSD) <sup>2)</sup>**

AA-3.4.1.7                        Qualitative GC-MS analyses of eluates and extracts of polymer materials  
Version 1                              used in the pharmaceutical and food sector  
2019-08

AA-3.4.1.8                        Semi quantification of identified components in eluates and extracts of  
Version 1                              polymer materials using internal standards by GC-MS analysis  
2019-08

AA-3.4.1.9                        Headspace-GC-MS analyses of eluates and extracts of polymer materials  
Version 1                              used in the pharmaceutical and food sector  
2019-08

AfPS GS 2019:01 PAK              GS Specification - Test and assessment of Polycyclic Aromatic Hydrocarbons  
2019-05                              (PAHs) in the awarding of GS Marks  
(here: *Annex Test instructions*)

**4 Determination of N-nitrosamines <sup>2)</sup>**

**4.1 Determination of the absolute mass or mass concentration of N-nitrosamines in ambient air on solid collection phases by gas chromatography with selective detector (GC TEA)**

AA-3.3.1.2                        Determination of N-nitrosamines in ambient air on solid collection phases  
Version 1                              using GC-TEA  
2019-11

DGUV I 213-523                      Method for the determination of N-nitrosamines  
Verfahren 5-GC                      Method 5: Gas chromatography with TEA detector after elution with  
2019-09                              dichloromethane/methanol

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IFA 8172  
Lfg. 1/2018 IV  
2018

N-Nitrosamines, aliphatic and cycloaliphatic - Gas chromatographic measurement method for determination of the concentration of aliphatic and cycloaliphatic nitrosamines in the workplace air

**4.2 Determination of the mass fraction of N-nitrosamines in consumer products of elastomers and rubber as well as polymer matrices by gas chromatography with selective detector (GC TEA)**

DIN EN 12868  
2017-04

Child use and care articles - Method for determining the release of N-nitrosamines and N-nitrosatable substances from elastomer or rubber teats and soothers

AA-3.3.1.1  
Version 1  
2019-08

Determination of N-nitrosamines by methanol extraction in polymer matrices using GC-TEA

**Abbreviations used:**

AA In house method of the DIK Prüfgesellschaft mbH  
AfPS Product Safety Committee – Federal Institute for Occupational Safety and Health (BAuA)  
DGUV German Social Accident Insurance  
DIN German Institute for Standardization  
EN European Standard  
IFA Institute for Occupational Safety and Health of the German Social Accident Insurance  
ISO International Organisation for Standardisation  
PV Test procedure of the VW-Group

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