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|---|---|
| Material name, short description | EPDM |
| Material name, based on technical standards | Ethylene-propylene-diene rubber |
| Material description / intended use | Elastomer with good resistance to hot water and vapour as well as UV and ozone. |
| Color | black |
| Compound code | EPDM 70.503-00 |
| Old, but still valid compound code | EPDM 70.502-03 |
| Crosslinking/curing agent | Peroxide |
| Remarks | Testing for Mercosur GMS/RS N°54/97 (migration) is in progress |

Mechanical properties

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|---------------------|--|
| Hardness nominal | 70 ±5 Shore A |
| Density nominal | 1.18 ±0.03 g/cm ³ ISO 2781-A |
| Tensile strength | 15.5 N/mm ² ISO 37-Typ 1 |
| Elongation at break | 218 % ISO 37-Typ 1 |
| Compression set | 12 % ISO 815-A 22 h, 150 °C |
| | 22 % ISO 815-A 70 h, 150 °C |
| Tear resistance | 28 N/mm ISO 34-1C |

Thermal properties

| | |
|-----------------------------|-------------------------|
| Operating temperature min.* | -57 °C |
| Operating temperature max.* | 150 °C |
| TR 10 value | -47 °C ASTM D 1329 |
| Brittleness point | -60 °C ASTM D 2137-A |

* Approximate value, dependent on the application

Storage in medium 1

| | |
|----------------|--|
| Medium | Water |
| Test parameter | 70 h, 100 °C |
| Test standard | ISO 1817 |
| Value change | Hardness: -1 Points Tensile strength: +2 % Elongation at break: -3 % Volume: +1 % Weight: +1 % |

Storage in medium 2

| | |
|----------------|---|
| Medium | Water / Ethyleneglycole 50:50 |
| Test parameter | 70 h, 100 °C |
| Test standard | ISO 1817 |
| Value change | Hardness: -1 Tensile strength: +5 % Elongation at break: +5 % Volume: +0.5 % Weight: +0.5 % |

Storage in medium 3

| | |
|----------------|--|
| Medium | Molykote 111 |
| Test parameter | 336 h, 23 °C |
| Test standard | DIN ISO 1817 |
| Value change | Hardness: 0 Shore A Tensile strength: +3 % Elongation at break: +2 % Volume: -0.7 % Weight: -0.5 % |

Storage in medium 4

| | |
|----------------|---|
| Medium | Molykote 111 |
| Test parameter | 336 h, 70 °C |
| Test standard | DIN ISO 1817 |
| Value change | Hardness: 0 Shore A Tensile strength: +12 % Elongation at break: +2 % Volume: -2.0 % Weight: -1.3 % |

In compliance with **RoHS** and **REACH** directives.

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Storage in medium 5

| | |
|----------------|--|
| Medium | Molykote 111 |
| Test parameter | 672 h, 23 °C |
| Test standard | DIN ISO 1817 |
| Value change | Hardness: -1 Shore A Tensile strength: +6 % Elongation at break: 0 % Volume: -0.9 % Weight: -0.6 % |

Storage in medium 6

| | |
|----------------|---|
| Medium | Molykote 111 |
| Test parameter | 672 h, 70 °C |
| Test standard | DIN ISO 1817 |
| Value change | Hardness: 0 Shore A Tensile strength: +15 % Elongation at break: +3 % Volume: -2.0 % Weight: -1.4 % |

Air aging 1

| | |
|----------------|--|
| Test parameter | 70 h, 100 °C |
| Test standard | ISO 188-B |
| Value change | Hardness: +1.5 Points Tensile strength: +3 % Elongation at break: -7 % Volume: -0.5 % Weight: -0.5 % |

Air aging 2

| | |
|----------------|---|
| Test parameter | 70 h, 150 °C |
| Test standard | ISO 188-B |
| Value change | Hardness: +3 Points Tensile strength: +4 % Elongation at break: -16 % Volume: -1 % Weight: -1 % |

Ozone test

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|-------------------------------|------------|
| Ozone concentration | 100 pphm |
| Test standard | ISO 1431-1 |
| Duration of test | 72 h |
| Temperature during test | 40 °C |
| Elongation during test | 100 % |
| Relative humidity during test | 72 % |
| Test result | PASSED |

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Approvals / Compliance

| | |
|-------------------------------|--|
| Drinking water | UBA Conformity hygiene based on KTW-BWGL and DIN EN 16421:2015-05 for drinking water cold and hot up to 85°C, Product group P2 |
| | NSF 61 cold and hot up to 82 °C |
| | ACS (DGS/VS4 n°99/217 dated 12/04/1999 and DGS/VS4 n°2000/232 dated 27/04/2000) |
| | AS/NZS 4020:2018 |
| | D.M. 06/04/04 n°174 |
| | DVGW EN 681-1 WA-WB-WC-WD |
| | DVGW W534 cold and warm drinking water |
| | KIWA (BRL-K17504) for cold and hot drinking water |
| | ÖNORM (B 5014-1) for drinking water for cold and hot water up to 85°C |
| | WRAS (BS 6920-1:2000 specification) cold and hot up to 85 °C |
| Food & Beverage | 3-A Sanitary Standard N°18-03 Class II |
| | FDA CFR 21 - 177.2600 "Rubber articles intended for repeated use" a) - f) |
| | NSF 51 for all food contact types up to 100°C |
| | BfR XXI Category 4 (Migration test BfR XXI Category 3) |
| | D.M. 21/03/1973 (Migration test) |
| | Dlgs. 25.01.1992 n.108 Art.2 (ex. DPR 777/82 art 2) - Complies with Arsenic content limits |
| | LFGB §30/31 |
| | Regulation EC 1935/2004 (excl. article 15) and EC Regulation 2023/2006 (GMP) |
| | SR 817.023.21 |
| | GB 4806.11-2016 (Migration test) |
| Medical / Pharma | USP Class VI Chapter <87> (In Vitro) and Chapter <88> (In Vivo) - 121°C |
| Oil & Gas | DVGW CERT ZP 5101:2021-12 H ₂ mean permeability 1049 (cm ³ x mm) / (m ² x 24 h x bar) / 23°C |
| Specific substance statements | ADI free (free of Animal Derived Ingredients) resp. TSE/BSE related substances |
| | Latex free |
| | PAH Category 1 (AfPS GS 2019:01) |
| | PAH Class I (AfPS GS 2019:01) |



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