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NBR / Nitrile or Buna N material test report

Physical properties		required	actual		
Density	DIN EN ISO 1183-1	1.17 ±0.02	1.17	g/cm³	
Hardness	DIN ISO 7619-1	70 ±5	72	Shore	
Rebound resilience	DIN 53512	> 20	28	%	
Modulus	100 %, DIN 53504, S2	> 4	5.5	MPa	
Tensile strength	DIN 53504, S2	> 15	18.5	MPa	
Elongation at break	DIN 53504, S2	> 180	240	%	
Compression set	DIN ISO 815, B, 22 h, 100 °C	< 20	12	%	
Tear strength	DIN 53515, Winkel	---	10	KN/m	
Low Temperature	ISO 11357-2, DSC	---	-24	°C	
Temperature range	-20°C to 100°C				
Temperature range	-20°C to 100°C				
Certificates	Country	Part	Remark	Expires	unlimited
(EG) 1935/2004	EU		food	12 / 2017	☐
(EG) 2023/2006 (GMP)	EU		(EG) 2023/2006 (GMP)	12 / 2017	☐
3 A Sanitary	USA	Seals	Class II	12 / 2017	☐
ACS	F	Seals		11 / 2017	☐
ADI Free					☒
FDA	USA	Seals	§ 177.2600	12 / 2017	☐
RoHS			2015/863/EU and 2011/65/EU		☒

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Tested after ASTM D 2000: M 2 BG 714 B14 B34 EA14 EF11 EF21 EO14 EO34

		required	actual
Hardness	Shore	70 ±5	70
Tensile strength	MPa	min. 14	17.5
Elongation at break	%	min. 250	290
Change after aging in Air 70h/100°C			
Hardness	Shore A	---	4
Tensile strength	%	---	4
Elongation at break	%	---	-19
B14 Compression set 22h/100°C	%	25	7
B34 Compression set 22h/100°C	%	25	8
EA14 Change after aging in Distilled water 70h/100°C			
Hardness	Shore A	±10	-1
Volume	%	±15	3
EF11 Change after aging in Fuel A 70h/23°C			
Hardness	Shore A	±10	5
Tensile strength	%	-25	-20
Elongation at break	%	-25	-15
Volume	%	-5 to 10	0.2
EF21 Change after aging in Fuel B 70h/23°C			
Hardness	Shore A	0 to -30	-12
Tensile strength	%	-60	-55
Elongation at break	%	-60	-50
Volume	%	0 to 40	30
EO14 Change after aging in IRM 901 70h/100°C			
Hardness	Shore A	-5 to 10	3
EO34 Change after aging in IRM 903 70h/100°C			
Hardness	Shore A	-10 to 5	-3
Tensile strength	%	-45	-7
Elongation at break	%	-45	-14
Volume	%	0 to 25	10 ±5
Tensile strength	%	-25	-2
Elongation at break	%	-45	-10
Volume	%	-10 to 5	-3