



MACHINERY and EQUIPMENT

Appliance, Gasket, light-colored

Washing machine gasket

35 Shore A, EPDM, sulfur cure

Specification Miele TLK 2007/D

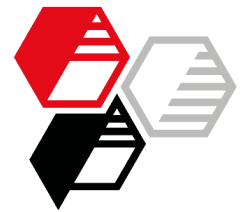
Guide formulations of EniChem (now Polimeri Europa)	1381-1	1382-1	1377-1	1380-1
Dutral TER 4436	167.0	167.0	167.0	167.0
Stearic acid	1.2	1.2	1.2	1.2
Zinc oxide	6.0	6.0	6.0	6.0
Irganox 1076	1.2	1.2	1.2	1.2
Polyplastol 6	3.6	3.6	3.6	3.6
Titanium dioxide rutile	11.0	11.0	11.0	11.0
SILLITIN V 85	121.0	121.0	151.0	151.0
Grundöl AP/E Core 2500 (ex Flexon 815)	39.0	69.0	39.0	69.0
Kagevest 25 (ex Polyvest 25)	2.4	2.4	2.4	2.4
Naugex MBT	2.4	2.4	2.4	2.4
Sulfur	0.7	0.7	0.7	0.7
Rhenogran CLD-80	1.2	1.2	1.2	1.2
Rhenogran TP-50	3.6	3.6	3.6	3.6
Total phr	360.3	390.3	390.3	420.3

Rheological properties

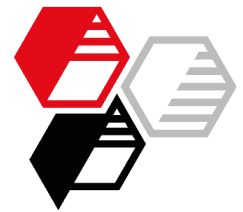
ML (1+4) 100°C	MU	29	20	27	19
ML (1+4) 125°C	MU	20	14	19	13
t ₅ 125°C	min	10.0	12.8	10.5	12.0
t ₃₅ 125°C	min	> 30	> 30	> 30	> 30

M. D. Rheometer 180°C (0.2°, gap 0.1 mm)

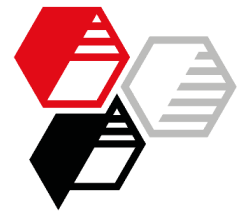
ts ₂	min	0.64	0.67	0.66	0.73
tc ₉₀	min	4.44	4.73	4.06	4.61
Mh	Nm	0.15	0.11	0.16	0.17
Ml	Nm	0.03	0.02	0.02	0.02
Mh-Ml	Nm	0.12	0.09	0.14	0.15
Rh	Nm/min	0.09	0.07	0.12	0.11
t _g delta minimum		0.21	0.21	0.21	0.18
t _g delta minimum		1.43	1.43	1.54	1.60



		1381-1	1382-1	1377-1	1380-1
O. D. Rheometer 180°C (3°)					
ts ₂	min	1.3	1.6	1.5	1.6
tc ₉₀	min	5.1	5.6	5.5	5.7
Mh	Nm	26	20	28	21
Mh-MI	Nm	20	16	23	18
Rh	Nm/min	0.18	0.14	0.21	0.16
Physical properties					
Cure 30 min @ 160°C					
Density	g/cm ³	1.20	1.17	1.26	1.22
Hardness (after 5 s)	ASTM 2240 Shore A	35	31	39	33
Modulus 100 %	MPa	0.9	0.7	1.0	0.8
Modulus 200 %	MPa	1.5	1.1	1.6	1.2
Modulus 300 %	MPa	2.0	1.6	2.2	1.7
Tensile strength	DIN 53504 MPa	9.2	8.7	8.7	6.7
Elongation at break	DIN 53504 %	770	845	800	820
Tear resistance	ASTM 624B N/mm	21	21	25	21
Compression set					
Cure 40 min @ 160°C					
22 h @ 70°C	ASTM 395 %	13	14	14	13
22 h @ 100°C	ASTM 395 %	29	31	32	33
24 h @ 100°C	DBL 5555 %	41	47	49	48
Air aging, 72 h @ 120°C					
Hardness (after 5 s)	Shore A	41	36	44	39
Modulus 100 %	MPa	1.1	0.8	1.3	0.9
Modulus 200 %	MPa	2.1	1.7	2.3	1.8
Modulus 300 %	MPa	2.9	2.4	3.0	2.5
Tensile strength	MPa	6.8	4.9	7.4	6.4
Elongation at break	%	615	615	630	650
Δ Hardness	Shore A	+6	+5	+5	+6
Δ Modulus 100 %	%	+22	+14	+30	+12
Δ Modulus 200 %	%	+40	+55	+44	+50
Δ Modulus 300 %	%	+45	+50	+36	+47
Δ Tensile strength	%	-26	-44	-15	-4
Δ Elongation at break	%, rel.	-20	-27	-21	-21



		1381-1	1382-1	1377-1	1380-1
Immersion in demineralized water, 72 h @ 100°C					
Density	g/cm ³	1.20	1.17	1.24	1.22
Hardness (after 5 s)	Shore A	39	33	42	35
Modulus 100 %	MPa	0.9	0.7	1.0	0.8
Modulus 200 %	MPa	1.6	1.3	1.9	1.5
Modulus 300 %	MPa	2.2	2.0	2.5	2.0
Tensile strength	MPa	9.9	8.4	8.9	9.3
Elongation at break	%	705	710	700	740
Δ Density	%	0	0	-2	0
Δ Weight	%	-0.4	-0.3	-0.3	-0.2
Δ Volume	%	0	0	+1	0
Δ Hardness	Shore A	+4	+2	+3	+2
Δ Modulus 100 %	%	0	0	0	0
Δ Modulus 200 %	%	+7	+18	+19	+25
Δ Modulus 300 %	%	+10	+25	+14	+18
Δ Tensile strength	%	+8	-3	+2	+39
Δ Elongation at break	%, rel.	-8	-16	-12	-10
Immersion in detergent solution: phosphate-free Persil powder, 10 g/l, 72 h @ 95°C					
Density	g/cm ³	1.17	1.12	1.23	1.18
Hardness (after 5 s)	Shore A	37	31	38	33
Modulus 100 %	MPa	0.8	0.6	1.0	0.7
Modulus 200 %	MPa	1.5	1.2	1.7	1.3
Modulus 300 %	MPa	2.1	1.8	2.2	1.9
Tensile strength	MPa	9.1	7.0	8.0	8.2
Elongation at break	%	715	730	710	755
Δ Density	%	-3	-4	-2	-3
Δ Weight	%	0	+0.5	+0.4	+0.5
Δ Volume	%	+3	+5	+3	+4
Δ Hardness	Shore A	+2	0	-1	0
Δ Modulus 100 %	%	-11	-14	0	-13
Δ Modulus 200 %	%	0	+9	+6	+8
Δ Modulus 300 %	%	+5	+12	0	+12
Δ Tensile strength	%	-1	-20	-8	+22
Δ Elongation at break	%, rel.	-7	-14	-11	-8



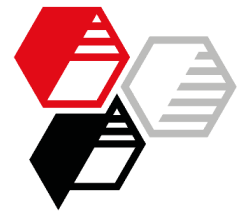
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Immersion in detergent solution: phosphate-free LIZ liquid, 10 ml/l, 72 h @ 60°C

Density	g/cm ³	1.17	1.13	1.21	1.19
Hardness (after 5 s)	Shore A	34	29	36	31
Modulus 100 %	MPa	0.8	0.6	0.9	0.7
Modulus 200 %	MPa	1.5	1.0	1.6	1.3
Modulus 300 %	MPa	1.9	1.5	2.1	1.9
Tensile strength	MPa	9.8	8.0	8.8	7.2
Elongation at break	%	740	800	745	770
Δ Density	%	-3	-3	-4	-2
Δ Weight	%	+0.6	+0.7	+0.6	+0.6
Δ Volume	%	+3	+4	+5	+3
Δ Hardness	Shore A	-1	-2	-3	-2
Δ Modulus 100 %	%	-11	-14	-10	-13
Δ Modulus 200 %	%	0	-9	0	+8
Δ Modulus 300 %	%	-5	-6	-5	+12
Δ Tensile strength	%	+7	-8	+1	+7
Δ Elongation at break	%, rel.	-4	-5	-7	-6

Immersion in sodium-dichloro-isocyanurate, 0.1 g/l, 72 h @ 95°C

Density	g/cm ³	1.18	1.15	1.25	1.20
Hardness (after 5 s)	Shore A	36	29	38	34
Modulus 100 %	MPa	0.9	0.7	1.0	0.8
Modulus 200 %	MPa	1.6	1.3	1.7	1.5
Modulus 300 %	MPa	2.1	1.9	2.3	2.1
Tensile strength	MPa	8.6	7.0	6.9	5.8
Elongation at break	%	730	775	725	700
Δ Density	%	-2	-2	-1	-2
Δ Weight	%	+0.1	-8	+0.3	+0.5
Δ Volume	%	+2	-6	+1	+2
Δ Hardness	Shore A	+1	-2	-1	+1
Δ Modulus 100 %	%	0	0	0	0
Δ Modulus 200 %	%	+7	+18	+6	+25
Δ Modulus 300 %	%	+5	+19	+5	+24
Δ Tensile strength	%	-7	-20	-21	-13
Δ Elongation at break	%, rel.	-5	-8	-9	-15



		1381-1	1382-1	1377-1	1380-1
Immersion in sodium-hypochlorite, content of active chlorine 1 mg/l, 72 h @ 40°C					
Density	g/cm ³	1.18	1.15	1.24	1.20
Hardness (after 5 s)	Shore A	37	30	40	34
Modulus 100 %	MPa	0.9	0.6	0.9	0.7
Modulus 200 %	MPa	1.5	1.1	1.6	1.3
Modulus 300 %	MPa	2.0	1.6	2.2	1.9
Tensile strength	MPa	10.3	7.3	8.9	7.5
Elongation at break	%	760	830	785	785
Δ Density	%	-2	-2	-2	-2
Δ Weight	%	-0.2	-0.1	-0.1	-0.1
Δ Volume	%	+1	+2	0	+2
Δ Hardness	Shore A	+2	-1	+1	+1
Δ Modulus 100 %	%	0	-14	-10	-13
Δ Modulus 200 %	%	0	0	0	+8
Δ Modulus 300 %	%	0	0	0	+12
Δ Tensile strength	%	+12	-16	+2	+12
Δ Elongation at break	%, rel.	-1	-2	-2	-4

Our applications engineering advice and the information contained in this formulation are based on experience and are made to the best of our knowledge and belief, they must be regarded however as non-binding advice without guarantee. Working and employment conditions over which we have no control exclude any damage claim arising from the use of our data and recommendations. Furthermore we cannot assume any responsibility for patent infringements, which might result from the use of our information.