SPECIAL TOPICS

Silicone rubber compounds with Aktisil Q
Curing agent "2,5-Bis-(t-butylperoxy)-2,5-dimethylhexane"
40-75 Shore A, Q, peroxide cure

Guide formulations of HOFFMANN MINERAL	M 608.5	18	19	20	21	22
Elastosil R 401/40		100.0	100.0	100.0	100.0	100.0
AKTISIL Q		---	25.0	50.0	75.0	100.0
Elastosil AUX Curing Agent C6		1.2	1.2	1.2	1.2	1.2
Total phr		101.2	126.2	151.2	176.2	201.2
Density	g/cm³	1.12	1.26	1.38	1.48	1.56

Physical properties							
Press cure 5 min @ 165°C							
Hardness	DIN ISO 7619-1	Shore A	38	47	55	64	72
Modulus 100 %	DIN 53504, S2	MPa	0.7	1.2	1.7	2.6	3.4
Tensile strength	DIN 53504, S2	MPa	10.7	9.6	8.8	8.2	8.0
Elongation at break	DIN 53504, S2	%	800	610	430	315	235
Rebound	DIN 53512	%	40	50	50	46	45
Tear resistance	DIN ISO 34-1, A	N/mm	11.5	14.0	3.7	2.0	1.4
Compression set	DIN ISO 815, B						
24 h @ 175°C		%	35	24	24	23	25
Post cure 4 h @ 200°C							
Hardness		Shore A	40	48	57	66	74
Modulus 100 %		MPa	0.7	1.1	1.8	2.5	3.2
Tensile strength		MPa	11.2	8.8	7.5	6.8	6.7
Elongation at break		%	860	585	435	300	230
Rebound		%	53	52	49	45	42
Tear resistance		N/mm	12.2	12.8	4.2	2.3	1.6
Compression set							
24 h @ 175°C		%	24	16	17	18	21

The influence of post-cure in association with Curing Agent C6 may be diminished by increasing the cure temperature of 165°C up to 180°C.
By this measure, the other properties should not be influenced unfavourable.

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	M 608.5	18	19	20	21	22
Immersion in reference oil IRM 903, 72 h @ 150°C, post cured specimen						
Δ Hardness	Shore A	-22	-22	-25	-26	-27
Δ Modulus 100 %	%	-4	+6	+2	-2	+8
Δ Tensile strength	%	-72	-41	-24	-16	-15
Δ Elongation at break	%, rel.	-55	-40	-21	-7	-11
Δ Weight	%	+52	+39	+31	+25	+22
Δ Volume	%	+65	+55	+47	+41	+38

Without post-cure, AKTISIL Q attains a marginally higher increase of volume and weight of about 1 to 2 %.

More information on this topic:

Neuburg Siliceous Earth in High Consistency Silicone Rubber

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