

SPECIAL TOPICS

Neuburg Siliceous Earth in addition-cured high consistency silicone rubber

Molding, high tear resistance

40-50 Shore A, Q, addition-cured

Guide formulations of HOFFMANN MINERAL	M 675.0	Base cpd.	Silfit Z 91	Âktisil Q	Aktifit Q	Aktifit VM
Elastosil R plus 4000/40 MH		100.0	100.0	100.0	100.0	100.0
SILFIT Z 91		---	25.0	---	---	---
AKTISIL Q		---	---	25.0	---	---
AKTIFIT Q		---	---	---	25.0	---
AKTIFIT VM		---	---	---	---	25.0
Elastosil AUX Batch PT 2		1.5	1.5	1.5	1.5	1.5
Total phr		126.5	126.5	126.5	126.5	126.5

General benefits with 25 phr Neuburg Siliceous Earth vs. unfilled polymer / base compound

Processing properties

- less stickiness and higher intrinsic strength of the non-cured compounds (green strength)

Mechanical properties

- comparable or higher tear resistance
- higher moduli
- better oil resistance
- comparable hot air resistance

Compound costs

- compound cost reduction potential

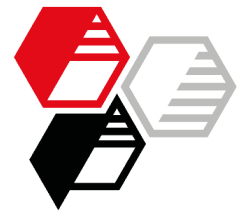
Product specific benefits

	Silfit Z 91	Aktisil Q	Aktifit Q	Aktifit VM
Reduction of stickiness	+	+	+	+
Intrinsic strength of non-cured compound (green strength)	+	+	+	+
Torque minimum	=	=	=	=
Cure yield	+	+	+	+
Tear resistance trousers	=		=	
Tear resistance Graves	+	=	+	+
Moduli	+	+	+	+
Compression set		=		
Hot air resistance		+		
Oil resistance	+	+	+	+

+ ≈ better than base compound

+ ≈ best product

= ≈ comparable to base compound



		Base cpd.	Silfit Z 91	Åktisil Q	Aktifit Q	Aktifit VM
M 675.0		41	42	43	44	45

Rotorless curemeter, 150°C

M_{min}	Nm	0.013	0.016	0.014	0.016	0.016
M_{max}	Nm	0.200	0.275	0.257	0.272	0.266
$M_{max}-M_{min}$	Nm	0.187	0.259	0.243	0.256	0.250
$\tan \delta$	-	0.08	0.08	0.07	0.08	0.08

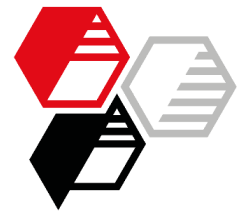
Physical properties

Press cure 5 min @ 150°C + Post cure 4 h @ 200°C

Hardness	Shore A	37	43	48	46	42
Tensile strength	MPa	7.9	6.2	5.8	6.3	5.8
Elongation at break	%	887	637	629	676	739
Modulus 100 %	MPa	1.1	1.6	1.8	1.8	1.4
Modulus 300 %	MPa	2.6	3.8	3.8	3.9	3.2
Tear resistance (trousers)	N/mm	20.6	20.8	19.7	20.9	19.1
Tear resistance (Graves)	N/mm	35.3	38.3	36.4	38.3	37.8
Compression set, 24 h @ 175°C, 25 % deflection	%	24	32	24	32	28
Rebound	%	49	44	46	43	43

Air aging, 168 h @ 200°C, post cured specimen

Hardness	Shore A	37	43	48	46	42
Tensile strength	MPa	7.9	6.2	5.8	6.3	5.8
Elongation at break	%	887	637	629	676	739
Modulus 100 %	MPa	1.1	1.6	1.8	1.8	1.4
Modulus 300 %	MPa	2.6	3.8	3.8	3.9	3.2
Tear resistance (trousers)	N/mm	20.6	20.8	19.7	20.9	19.1
Tear resistance (Graves)	N/mm	35.3	38.3	36.4	38.3	37.8
Rebound	%	49	44	46	43	43
Δ Hardness	Shore A	+4	+8	+5	+4	+8
Δ Tensile strength	%	+20.1	+8.2	-2.8	-13.6	+7.9
Δ Elongation at break	%, rel.	-25.1	-43.9	-20.6	-42.1	-43.7
Δ Modulus 100 %	%	+19.1	+33.3	+25.0	+16.4	+42.6
Δ Modulus 300 %	%	+34.6	+53.5	+15.0	+22.5	+52.5
Δ Tear resistance (trousers)	%	-17.5	-17.8	-12.2	-24.4	-17.3
Δ Tear resistance (Graves)	%	-11.3	-17	-20.3	-26.9	-10.8
Δ Rebound	%, rel.	-6.1	-6.8	-6.5	-2.3	2.3



	Base cpd.	Silfit Z 91	Äktisil Q	Aktifit Q	Aktifit VM
M 675.0	41	42	43	44	45

Immersion in reference oil IRM 903, 72 h @ 150°C, post cured specimen

Hardness	Shore A	23	28	31	28	26
Tensile strength	MPa	3.1	3.3	3.4	3.3	2.9
Elongation at break	%	267	251	272	248	286
Modulus 100 %	MPa	1.3	1.7	1.9	1.7	1.3
Δ Hardness	Shore A	-14	-15	-17	-18	-16
Δ Tensile strength	%	-61.4	-46.6	-40.5	-47.0	-49.4
Δ Elongation at break	%, rel.	-69.9	-60.7	-56.8	-63.3	-61.3
Δ Modulus 100 %	%	+14.5	+6.3	+7.3	-6.8	-6.4
Δ Weight	%	+53	+42	+39	+42	+44
Δ Volume	%	+65	+59	+56	+58	+61

Standards

Cure characteristics	DIN 53529, part 1-4
Tensile test	DIN 53504, S2
Compression set	DIN ISO 815, B
Hardness	DIN ISO 7619-1
Rebound	DIN 53512
Tear resistance (trousers)	DIN ISO 34-1, A
Tear resistance (Graves)	DIN ISO 34-1, Bb
Air aging	ISO 188, D
Immersion in liquid media	DIN ISO 1817

More information on this topic:

[Neuburg Siliceous Earth in addition cured high consistency silicone rubber](#)

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.