

AUTOMOTIVE INDUSTRY Molding, light-colored

Gasket and O-Ring AKTIFIT AM versus carbon black N-550 60 Shore A, AEM, diamine cure according to PSA S22 5106

Guide formulations of HOFFMANN MINERAL	Control M 621.2/8	AKTIFIT AM		
		25 phr R. W 759 cure system M 621.4/5	30 phr R. W 759 M 621.4/2	30 phr E. T810T M 621.4/3
Vamac Ultra IP	100.00	100.00	100.00	100.00
Luvomaxx CDPA	2.00	2.00	2.00	2.00
Stearic acid	1.50	1.50	1.50	1.50
Vanfre VAM	1.50	1.50	1.50	1.50
Crodamide ER	1.00	1.00	1.00	1.00
FEF N-550	50.00	---	---	---
AKTIFIT AM	---	137.50	137.50	137.50
Rhenosin W 759	10.00	25.00	30.00	---
Edenol T810T	---	---	---	30.00
Diak No. 1	1.50	1.25	1.50	1.50
Luvomaxx Safecure CA	3.00	3.50	3.00	3.00
Total phr	170.50	273.25	278.00	278.00

Along with positive cost aspects, **replacing N-550 by AKTIFIT AM** in combination with various possibilities of optimization results in good initial mechanical properties along with a good compression set, very good heat resistance and markedly improved engine oil resistance (esp. reduced hardness change, reduced change of elongation at break and reduced volume increase).

Mooney Viscosity

ML (1+4) 120°C	DIN 53523, T3	MU	29	20	15	17
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Mooney Scorch

ML (5 MU) 120°C	DIN 53523, T4	min	6.9	6.5	7.4	6.6
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Rotorless curemeter, 180°C

Mmin	DIN 53529, T3	Nm	0.02	0.01	0.01	0.01
Mmax	DIN 53529, T3	Nm	0.55	0.47	0.48	0.51
Cure rate	DIN 53529, T3	Nm/min	0.35	0.37	0.29	0.32
t ₅	DIN 53529, T3	min	0.43	0.41	0.48	0.44
t ₁₀	DIN 53529, T3	min	0.52	0.48	0.56	0.52
t ₉₀	DIN 53529, T3	min	6.5	2.6	3.7	3.7

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.

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			Control	AKTIFIT AM			
				25 phr R. W 759 cure system	30 phr R. W 759	30 phr E. T810T	
			M 621.2/8	M 621.4/5	M 621.4/2	M 621.4/3	
Physical properties							
Press cure 10 min @ 180°C							
Density	DIN EN ISO 1183-1	g/cm ³	1.20	1.50	1.49	1.47	
Hardness (piled S2)	DIN ISO 7619-1	Shore A	60	59	58	58	
Tensile strength	DIN 53504, S2	MPa	15	10	9	10	
Elongation at break	DIN 53504, S2	%	396	221	211	231	
Modulus 100 %	DIN 53504, S2	MPa	3.3	3.8	3.7	3.9	
Post cure 4 h @ 185°C							
Hardness (piled S2)	DIN ISO 7619-1	Shore A	65	62	60	61	PSA S22 5106 50-80
Tensile strength	DIN 53504, S2	MPa	18	11	10	11	≥ 7
Elongation at break	DIN 53504, S2	%	310	229	215	207	≥ 200
Rebound	DIN 53512	%	43	41	41	40	
Compression set 72 h @ 165°C, 25 % deflection	DIN ISO 815-1, B	%	17	19	19	14	≤ 25
Air aging, 168 h @ 165°C (post cured specimen)							
Hardness (piled S2)		Shore A	68	66	65	62	
Tensile strength		MPa	17	10	9	10	
Elongation at break		%	318	222	216	197	≥ 150
Modulus 100 %		MPa	4.6	4.5	4.5	4.9	
Rebound		%	38	36	37	37	
Δ Hardness		Shore A	+3	+4	+5	+1	≤ +10
Δ Tensile strength		%	-1	-8	-7	-7	≤ -20
Δ Elongation at break		%, rel.	+3	-3	0	-5	≤ -30
Δ Modulus 100 %		%	+7	-3	+3	-1	
Δ Rebound		%, rel.	-12	-12	-10	-8	
Immersion in OS 206 304, 168 h @ 165°C (post cured specimen)							
Hardness (piled S2)		Shore A	55	58	58	58	
Tensile strength		MPa	17	12	11	11	
Elongation at break		%	251	203	187	183	≥ 150
Modulus 100 %		MPa	5.1	5.0	5.0	5.6	
Δ Hardness		Shore A	-10	-4	-2	-3	±5
Δ Tensile strength		%	-3	+9	+5	+5	≤ -20
Δ Elongation at break		%, rel.	-19	-11	-13	-12	≤ -30
Δ Modulus 100 %		%	+18	+10	+14	+13	
Δ Volume		%	+17	+9	+7	+4	-5 / +10

More information on this topic is available in this technical report:

[Aktifit AM in AEM Seals and Gaskets](#)

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