



AUTOMOTIVE INDUSTRY

Hard sponge compounds, black

Partial replacement of carbon black with Neuburg Siliceous Earth for weight and cost savings, electrically conductive

60 Shore A, EPDM, sulfur cure / CV cure

Guide formulations of HOFFMANN MINERAL	Volume fraction Carbon Black (%)	conventional	partial CB replacement - conductive			
		filled with CB	16		14	
M 680.4	1	11	12	14	15	
Keltan 8550C	100.00	100.00	100.00	100.00	100.00	
Carbon Black N-550	110.00	70.00	70.00	70.00	70.00	
SILLITIN N 82)*	---	120.00	---	---	---	
SILLITIN Z 86	---	---	120.00	---	---	
AKTISIL PF 216	---	---	---	120.00	---	
AKTISIL AM	---	---	---	---	120.00	
Process Oil P 460 (ex Sunpar 2280)	20.00	20.00	20.00	20.00	20.00	
Zinkoxyd aktiv	5.00	5.00	5.00	5.00	5.00	
Stearic acid	1.00	1.00	1.00	1.00	1.00	
Kezadol GR	2.25	2.25	2.25	2.25	2.25	
PEG 4000	2.00	2.00	2.00	2.00	2.00	
Rhenogran DPG-80	1.10	1.10	1.10	1.10	1.10	
Rhenogran MBT-80	2.00	2.00	2.00	2.00	2.00	
Rhenogran ZBEC-70	2.00	2.00	2.00	2.00	2.00	
Rhenogran TP-50	4.00	4.00	4.00	4.00	4.00	
Rhenogran S-80	1.90	1.90	1.90	1.90	1.90	
Rhenogran CLD-80	1.00	1.00	1.00	1.00	1.00	
Expancel 950 DU 80	5.05	6.65	6.65	6.65	6.65	
Total phr	257.30	338.90	338.90	338.90	338.90	

)* No longer available. Recommended: SILLITIN N 75

Replacement of Carbon Black N-550 with Neuburg Siliceous Earth:

Unchanged properties

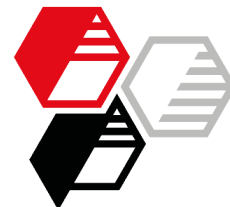
- cell structures comparable
- density comparable, despite increased filler content
- output comparable along with reduced mass pressure
- elongation at break roughly comparable with SILLITIN grades
- moduli at low deformations comparable, esp. with AKTISIL AM
- compression set comparable with AKTISIL grades

Additional benefits

- surfaces more matte
- output increased with AKTISIL grades
- significant reduction of compound costs, even with AKTISIL grades



			conventional filled with CB	partial CB replacement - conductive				
			M 680.4	1	11	12	14	15
Rotorless curemeter @ 230 °C								
Cure yield	DIN 53529, T3	Nm	1.16	1.30	1.35	1.41	1.22	
Curing rate	DIN 53529, T3	Nm/min	3.58	4.09	4.04	4.13	3.95	
t ₉₀	DIN 53529, T3	min	3.1	2.1	3.1	3.4	1.9	
Mechanical properties								
Curing in salt bath 3 min @ 230 °C								
Density	DIN EN ISO 1183-1	g/cm ³	0.73	0.67	0.72	0.72	0.73	
Tensile strength	DIN 53504, S2	MPa	6.3	2.7	3.0	3.6	3.7	
Modulus 10 %	DIN 53504, S2	MPa	0.90	0.78	0.86	0.88	0.89	
Elongation at break	DIN 53504, S2	%	158	146	147	117	108	
Hardness	DIN ISO 7619-1	Shore A	63	57	61	60	62	
Tear resistance (trouser)	DIN ISO 34-1, A	N/mm	4.5	3.1	3.3	3.1	2.8	
Compression set 22 h @ 70°C, 50 %	DIN ISO 815-1, B	%	28	35	38	29	29	
Water absorption	ASTM D 1056	%	0.2	0.7	0.9	0.5	0.4	
Electrical properties, DIN IEC 93								
Voltage used		V	1	1	1	1	10	
Volume resistivity		Ω*cm	1.3E+07	1.0E+07	1.2E+07	2.1E+07	4.7E+07	

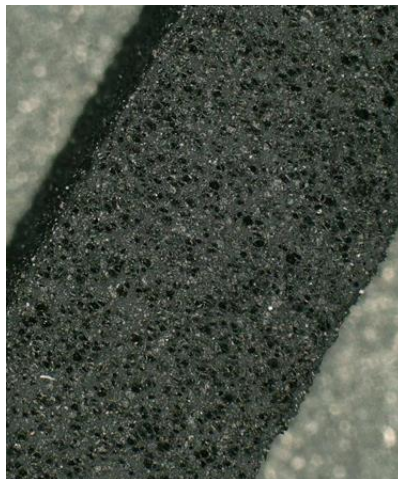


exemplary illustrations

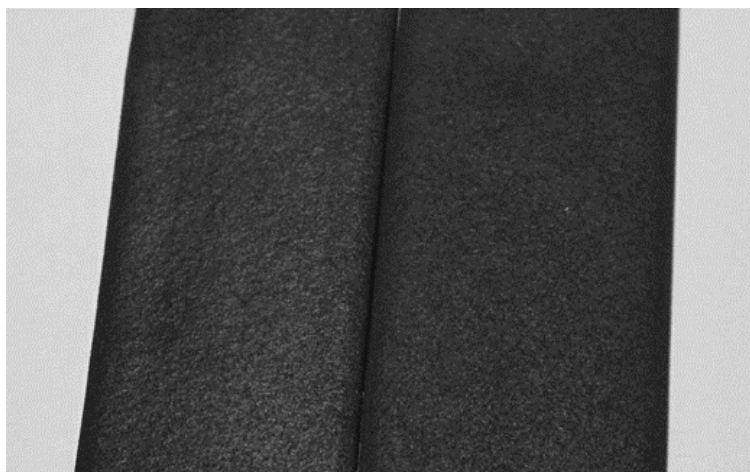
conventional – filled with CB

partial CB replacement -
conductive

cell structure



surface



reduced gloss with growing
Neuburg Siliceous Earth-content

More information on this topic:

[Partial Replacement of Carbon Black with Neuburg Siliceous Earth in Cellular, Hard EPDM Compounds for Weight and Cost Savings](#)

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