OTHER APPLICATION
Molding, black

GLOXIL iM16k MAM in peroxide cured FKM
70 Shore A, FKM, peroxide cure

Guide formulations of HOFFMANN MINERAL	M 682.2	1	2	6
Viton GAL-200S		100.0	100.0	100.0
Zinkoxyd aktiv		3.0	3.0	3.0
TAIC 70 %		4.3	4.3	4.3
Trigonox 101-50D-pd		2.0	2.0	2.0
Carbon Black N-990		30.0	12.0	12.0
3M™ Glass bubbles iM16k		---	12.0	---
GLOXIL iM16k MAM		---	---	12.0
Total phr		139.3	133.3	133.3

Benefits of GLOXIL iM16k MAM vs. 3M™ Glass bubbles iM16k
- increased tensile strength
- markedly increased moduli
- improved resistance to hot air, water, fuel and oil

Benefits of GLOXIL iM16k MAM vs. Carbon Black N-990
- reduction of compound density and compound costs
- markedly increased moduli
- comparable resistance to hot air and water
- improved resistance to fuel and oil

Mooney Viscosity					
ML (1+4) @ 120°C	DIN ISO 289-1	MU	41	48	49
Mooney Scorch					
ML +5 @ 120°C	DIN ISO 289-2	min	29	40	34
Rotorless curemeter @ 177°C					
M_{min}	DIN 53529, T3	Nm	0.04	0.05	0.05
V_{max}	DIN 53529, T3	Nm/min	2.2	2.2	2.3
t_{90}	DIN 53529, T3	min	1.0	1.0	1.0

Münchener Straße 75 • DE-86633 Neuburg (Donau)
Phone +49 8431 53-0 • info@hoffmann-mineral.com

		M 682.2	1	2	6
Mechanical properties					
Press cure 7 min @ 177°C, post cure 2 h @ 230°C					
Density (not post cured)	DIN EN ISO 1183-1	g/cm³	1.81	1.60	1.56
Hardness	DIN ISO 7619-1	Shore A	69	72	73
Tensile strength	DIN 53504, S2	MPa	22	15	18
Modulus 100 %	DIN 53504, S2	MPa	4.3	3.6	6.6
Elongation at break	DIN 53504, S2	%	282	325	235
Compression set 70 h @ 230°C, 25 %	DIN ISO 815-1, B	%	25	31	29
Air aging, 94 h @ 230°C, post cured specimen, measured 30 min after exposure					
Hardness		Shore A	71	75	77
Tensile strength		MPa	26	19	19
Modulus 100 %		MPa	5.5	9.6	9.5
Elongation at break		%	269	187	198
Δ Hardness		Shore A	+2	+3	+4
Δ Tensile strength		%	+19	+22	+6
Δ Modulus 100 %		%	+28	+165	+44
Δ Elongation at break		%, rel.	-5	-43	-16
Immersion in distilled water, 168 h @ 60°C, post cured specimen					
Hardness		Shore A	68	63	70
Tensile strength		MPa	21	15	15
Modulus 100 %		MPa	3.7	1.9	5.1
Elongation at break		%	336	368	260
Δ Hardness		Shore A	-1	-9	-3
Δ Tensile strength		%	-2	+1	-16
Δ Modulus 100 %		%	-12	-47	-23
Δ Elongation at break		%, rel.	+19	+13	+10
Δ Weight		%	+1.4	+4.1	+2.6
Δ Volume		%	+2.8	+6.4	+3.4
Immersion in FAM B, 70 h @ 23°C, post cured specimen					
Hardness		Shore A	61	63	65
Tensile strength		MPa	12	6.7	9.0
Modulus 100 %		MPa	3.9	2.2	5.2
Elongation at break		%	206	228	176
Δ Hardness		Shore A	-8	-9	-8
Δ Tensile strength		%	-44	-56	-49
Δ Modulus 100 %		%	-10	-40	-21
Δ Elongation at break		%, rel.	-27	-30	-25
Δ Weight		%	-7.0	+6.2	+6.6
Δ Volume		%	+16	+13	+13

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Lagerung in OS 206 304, 168 h @ 150°C, post cured specimen				
Hardness	Shore A	66	71	72
Tensile strength	MPa	18	11	16
Modulus 100 %	MPa	4.4	3.8	6.7
Elongation at break	%	256	272	208
Δ Hardness	Shore A	-3	-1	-1
Δ Tensile strength	%	-15	-25	-10
Δ Modulus 100 %	%	+2	+4	+2
Δ Elongation at break	%, rel.	-9	-16	-12
Δ Weight	%	+0.8	+0.9	+0.8
Δ Volume	%	+1.6	+1.3	+0.7

More information on this topic:

GLOXIL iM16k MAM - Functionalized Hollow Glass Microspheres in Peroxide Cured FKM

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