

Bluesil™ HCR*

Specialties

Bluestar Silicones markets Bluesil™ HCR Specialties able to support extreme working conditions.

With the highest notable performance, these products are specifically designed for the most demanding application fields (i.e.: automotive, electrical appliance, heavy industries, etc.).



● Gasketing and "o-rings"



● Silicone rubber rollers



● Oven profiles

> Advantages of Bluesil™ HCR Specialties

■ Special products for all your special needs

- > Easy processing
- > Outstanding oil resistance
- > Very high heat stabilities
- > Excellent damping coefficients
- > Very low shore hardness and extrudable
- > Coolant fluid resistance

* Heat Cure Silicone Rubber

Bluesil™ HCR Specialties

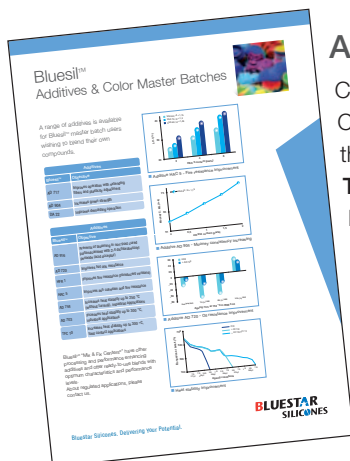
		Properties	Standards	Units	MM 40 THT		M
General characteristics	Appearance				Creamy white		C
	Specific Gravity		ISO R1183	(g/cm ³)	1.09		
	Heat stability				300 °C		
Mechanical properties after cure	Catalyst type				E	L	E
	Catalyst content (parts)				1.25	0.6	1.25
	Post cure				4 hours at 200 °C		4 h
	Hardness, shore A		ASTM D 2240		39	37	46
	Tensile strength		ISO R37	(MPa)	6.1	7.4	7.4
	Elongation at break		ISO R37	(%)	470	530	485
	Secant modulus at 100% elongation		ASTM D 412	(MPa)	0.8	0.8	1
	Tear strength		ASTM D 624 A	(kN/m)	12	14	16
	Compression set (22 h/177 °C/25%)		ASTM D 395 B	(%)	31	15	43
	Rebound resilience		ISO 4662	(%)	60	52	54

		Properties	Standards	Units	MF 620 U		Good compr
General characteristics	Appearance				Translucent		T
	Specific Gravity		ISO R1183	(g/cm ³)	1.06		
	Heat stability				200 °C		
Mechanical properties after cure	Catalyst type				E	L	E
	Catalyst content (parts)				0.8	0.6	1.25
	Post cure				Without post cure		Wit
	Hardness, shore A		ASTM D 2240		24	17	60
	Tensile strength		ISO R37	(MPa)	4.1	5.1	7.6
	Elongation at break		ISO R37	(%)	700	1 050	355
	Secant modulus at 100 % elongation		ASTM D 412	(MPa)	0.46	0.37	2.1
	Tear strength		ASTM D 624 A	(kN/m)	7	7	17
	Compression set (22 h/177 °C/25 %)		ASTM D 395 B	(%)	30	28	15
	Rebound resilience		ISO 4662	(%)	63	51	55

THT series						Molding					
Molding extrusion						Excellent damping coefficient Resistance to low temperature					
Very high heat stability											
MM 50 THT		MM 60 THT		MM 70 THT		MM 771/30 U		MM 771/50 U		MM 771/80 U	
Creamy white		Creamy white		Creamy white		Translucent		Translucent		Translucent	
1.13		1.16		1.19		1.08		1.16		1.25	
300°C		300°C		300°C		- 110°C to 250°C		- 110°C to 250°C		- 110°C to 250°C	
	L	E	L	E	L	E	L	E	L	E	L
5	0.6	1.25	0.6	1.25	0.6	1.25	0.6	1.25	0.6	1.25	0.6
4 hours at 200°C		4 hours at 200°C		4 hours at 200°C		16 hours at 200°C		16 hours at 200°C		16 hours at 200°C	
	46	56	56	64	64	27	31	45	50	74	71
	7.6	9.4	9.4	9.5	9.5	9.7	9.4	9.3	9.4	7	7.7
5	570	460	505	410	530	810	715	655	625	455	455
	0.8	1.3	1.2	1.7	1.3	0.5	0.6	0.8	0.9	1.9	2.1
	18	19	20	20	25	28	26	42	37	29	31
	21	42	28	54	33	-	-	-	-	-	-
	49	50	44	43	34	31	46	27	35	35	34

Series 600						Series 700					
Molding extrusion						Molding calendaring					
Translucent elastomer Excellent processing properties Compromise between tear strength and compression set						Coolant fluid Resistance High resiliency					
MF 660 U		MF 670 U		MF 680 U		MF 750 U		MF 760 U		MF 770 U	
Translucent		Translucent		Translucent		Translucent		Translucent		Translucent	
1.16		1.18		1.21		1.13		1.16		1.18	
200°C		200°C		220°C		225°C		225°C		200°C	
	L	E	L	E	L	E	L	E	L	E	L
5	0.6	1.25	0.6	1.25	0.6	1.25	0.6	1.25	0.6	1.25	0.6
Without post cure		Without post cure		Without post cure		4 hours at 200°C		4 hours at 200°C		4 hours at 200°C	
	60	67	70	76	80	49	45	63	60	73	75
	7.5	8	7.6	7.1	6.8	8.8	9.4	8.4	8.1	8.3	8.2
	390	350	400	340	300	445	615	344	391	280	298
	2	2.5	2.4	2.9	3.2	1.5	1	2.4	2.1	3.4	3.4
	18	17	18	15	17	13	16	15	17	14	17
	16	21	20	22	22	18	7	9	9	6	6
	54	46	48	42	40	68	60	65	58	56	57

Extrusion	Molding, extrusion, calendering			
Low hardness	High tear strength, low compression set Good hat stability			
MF 25 U	HD 1060		HD 1070	
Beige	Creamy white		Creamy white	
1.13	1.18		1.19	
225°C	250°C		250°C	
E	E	L	E	L
0.75	1.25	0.6	1.25	0.6
4 hours at 200°C	4 hours at 200°C	4 hours at 200°C	4 hours at 200°C	4 hours at 200°C
23	56	61	62	71
6.4	10	10.5	10.5	10.5
1 015	480	430	400	380
0.4	1.8	2.3	2	3,2
29	25	22	22	24
-	30	7	30	7
38	51	55	53	59



Additives & Color Master Batches

Coloring Bluesil™ master batches is easy using Bluesil™ Color Master Batches (pigments premixed into the silicone gum).

To find out about all the available Bluesil™ Color Master Batches, please consult the Additives & Color Master Batches page.

A range of additives is available for Bluesil™ Master Batch users wishing to blend their own compounds.

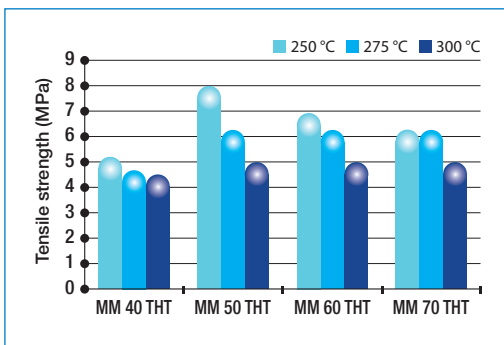
To find out about all the available Bluesil™ Additives, please consult the Additives & Color Master Batches page.

In order to reply to increasingly severe under-the-hood environments, Bluester Silicones developed Silicone rubers that meet the main automotive requirements, such as:

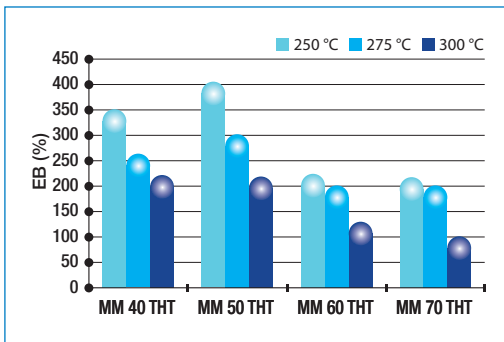
- High temperature resistance
- Oil resistance
- Collant resistance
- Low compression set

Heat resistance

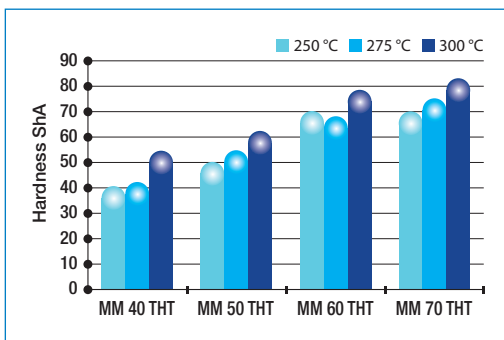
> **THT series** can resist up to 300°C without significant deterioration of its properties.



■ Tensile strenght evolution after 7 days



■ Elongation at break evolution after 7 days



■ Shore A hardness evolution after 7 days

Oil resistance

Generally, the aggressiveness of the engine oils with elastomers increases with temperature, and espacially with temperatures higher than 100-120°C. Beyond 150°C, only silicones can ensure a sufficient sealing for automobile gasketing.

> **600 series**

	MF 620 U	MF 660 U*	MF 670 U*	MF 680 U*
No post cure				
Shore A hardness	17	60	70	80
Tensile strength (MPa)	5,1	7,5	7,6	5,9
Elongation at break (%)	1050	390	400	290
Properties after immersion for 70 h at 150 °C in ASTM 1 oil				
Shore A hardness	14 (- 3)	58 (- 2)	68 (- 2)	80 (0)
Tensile strength (MPa)	4,2 (-17 %)	6,2 (-17 %)	6,8 (-11 %)	4,8 (-18 %)
Elongation at break (%)	1045 (0)	330 (-15 %)	320 (-21 %)	225 (-22 %)
Swelling (%)	+6	+4	+5	+3
Properties after immersion for 70 h at 150 °C in IRM 902 oil				
Shore A hardness	12 (- 5)	54 (- 6)	63 (- 7)	76 (- 4)
Tensile strength (MPa)	4 (-22 %)	6,8 (-9 %)	6,7 (-12 %)	5,1 (-14 %)
Elongation at break (%)	970 (-8 %)	360 (-8 %)	350 (-14 %)	225 (-22 %)
Swelling (%)	+12	+9	+9	+8
Properties after immersion for 70 h at 150 °C in IRM 903 oil				
Shore A hardness		40 (- 20)	46 (- 24)	60 (- 20)
Tensile strength (MPa)		4,6 (-34 %)	6 (-21 %)	4 (-32 %)
Elongation at break (%)		300 (-24 %)	310 (-24 %)	215 (-26 %)
Swelling (%)		+38	+41	+32

* With 5 parts of AD 720 additive

Coolant resistance

The severe conditions under the hood are requiring new generation of coolant fluids which are rather aggressive versus elastomers pipes. 700 series are designed to produce hoses and parts with extended life.

> 700 series

	MF 750 U		MF 760 U		MF 770 U	
Post cure: 4 hours at 200 °C						
Shore A hardness	45		60		75	
Tensile strength (MPa)	9.4		8.1		8.2	
Elongation at break (%)	615		391		298	
Properties after immersion for 7 days at boiling point in Havoline XLC						
Shore A hardness	46	1	61	1	76	1
Tensile strength (MPa)	9.9	6%	7.2	-11%	7.2	-12%
Elongation at break (%)	608	-1%	341	-13%	274	-8%
Swelling (%)	0		-1		-1	
Properties after immersion for 1 000 hours at boiling point in Havoline XLC						
Shore A hardness	46	1	63	2	78	3
Tensile strength (MPa)	9.1	-3%	6.9	-15%	6.3	-23%
Elongation at break (%)	633	3%	328	-16%	262	-12%
Swelling (%)	37		-3		-4	

Compression set

> **HD series** maintain low compression set value in severe conditions of time and temperature.

		HD 1060	HD 1070
Catalysed in L and Post cured 4 hours at 200 °C			
Compression set (22 hours at 200 °C / 25%)	ASTM D 395 B	7	7
Compression set (3 days at 200 °C / 25%)	ASTM D 395 B	30	28
Compression set (42 days at 177 °C / 25%)	ASTM D 395 B	65	65