Bluesil™ HCR
General purpose

Bluestar Silicones markets a wide variety of Heat Cure Silicone Rubber (HCR) under the Bluesil™ brand name.
The general purpose series combine an excellent compromise between properties, exceptional processability and optimized performance in terms of converting.

Automotive hoses

Ignition sets

Model technical parts

Tubing and profiles

> Advantages of Bluesil™ Silicone elastomers

- **Heat stability in continuous use from - 50 to 200 °C (can be increased up to 250 °C and even up to 300 °C using specific additives).**
- **Exceptional ageing resistance (even under extreme conditions).**
- **Great flexibility of use**

> Wide possibilities for blending with other Bluesil™ HCR
> Easy pigmentation using Bluestar Silicones Color Master Batches for HCR
> Easily extended with silica fillers (quartz type)
> A wide range of processing and performance enhancing additives are available (plasticity adjustment, fire resistance improvement, ash cohesion improvement, …)

Bluestar Silicones. Delivering Your Potential.

BLUESTAR SILICONES

Bluesil™ General purpose

				Series 100			
				Calendering extrusion			
				High transparency Good compromise of properties			
	Properties	**Standards**	**Units**	**MF 135 U**	**MF 160 USP**	**MF 175 USP**	**MF 180 U**
General characteristics	Appearance			Transparent			
	Specific Gravity	ISO R1183	(g/cm³)	1.11	1.15	1.19	1.21
	Heat stability			200 °C	200 °C	200 °C	200 °C
Mechanical properties after cure	Catalyst type			E	E	E	E
	Catalyst content (parts)			1.1	1.25	1.25	1.25
	Post cure			no	4 hours at 200 °C		
	Hardness. shore A	ASTM D 2240		36	62	75	82
	Tensile strength	ISO R37	(MPa)	8.5	11.5	12.2	9
	Elongation at break	ISO R37	(%)	600	440	370	290
	Secant modulus at 100% elongation	ASTM D 412	(MPa)	1.1	1.9	3.1	4.6
	Tear strength	ASTM D 624 A	(kN/m)	17	22	22	19
	Compression set (22 h/177 °C/25%)	ASTM D 395 B	(%)	39	34	43	49
	Rebound resilience	ISO 4662	(%)	53	55	50	46

				Excellent compromise			
	Properties	**Standards**	**Units**	**MF 940 U**		**MF 950 U**	
General characteristics	Appearance			Translucent		Translucent	
	Specific Gravity	ISO R1183	(g/cm³)	1.11		1.11	
	Heat stability			225 °C		200 °C	
Mechanical properties after cure	Catalyst type			E	L	E	L
	Catalyst content (parts)			1.25	0.6	1.25	0.6
	Post cure			4 hours at 200 °C		No	
	Hardness. shore A	ASTM D 2240		46	42	52	46
	Tensile strength	ISO R37	(MPa)	7.8	9.1	9.7	6.8
	Elongation at break	ISO R37	(%)	515	650	480	485
	Secant modulus at 100% elongation	ASTM D 412	(MPa)	1	0.8	1.3	1
	Tear strength	ASTM D 624 A	(kN/m)	13	15	14	15
	Compression set (22 h/177 °C/25%)	ASTM D 395 B	(%)	27	20	52	27
	Rebound resilience	ISO 4662	(%)	61	48	65	52

Mix & Fix Centers®

The Bluesil™ range can be utilized by two ways

- **Make up your own silicone elastomer batches**
- **Call your Mix & Flix Center®** to produce your ready to use product in accordance with your specifications and your processing conditions.

Series 200				Series 300					
Calendering molding				Calendering extrusion molding					
No postcure Low compression set High resiliency				High transparency High tear strength					
MF 240 U		MF 280 U		MF 345 U		MF 360 U		MF 370 U	
Transparent		Beige		Transparent		Transparent		Transparent	
1.09		1.36		1.1		1.16		1.18	
200 °C		225 °C		200 °C		200 °C		200 °C	
E	L	E	L	E	L	E	L	E	L
0.9	0.6	1.25	0.6	1.1	0.6	1.25	0.6	1.25	0.6
No		4 hours at 200 °C		4 hours at 200 °C		4 hours at 200 °C		4 hours at 200 °C	
46	42	79	81	44	49	60	65	70	74
8.5	7.6	7.3	7.6	9.5	9.3	10.3	10.5	9.7	9.6
450	500	165	170	620	620	530	550	460	450
1.29	0.98	5.2	5.3	1.2	1.5	2.6	2.7	2.9	3.5
12	12	16	17	31	30	35	35	36	41
17	8	31	10	42	26	50	38	52	38
68	64	52	48	48	49	47	48	36	38

Series 900					
Calendering extrusion molding					
Translucent between resiliency compression set and tear strength					
MF 960 U		MF 970 USP		MF 980 U	
Transparent		Translucent		Translucent	
1.15		1.17		1.18	
200 °C		225 °C		200 °C	
E	L	E	L	E	L
1.25	0.6	1.25	0.6	1.25	0.6
No		No		4 hours at 200 °C	
58	57	68	67	78	81
8.5	7.7	8.5	8.8	8	8.2
320	320	380	500	230	230
2.14	1.8	2.1	1.8	3.8	4.4
17	18	20	21	16	18
38	16	60	25	34	20
55	54	51	53	60	66

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.

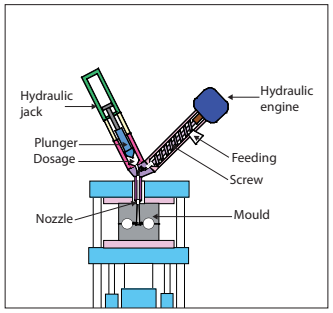
> Transformation mode

Injection molding

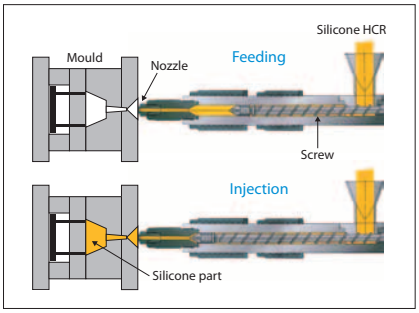
Applications
> Mass production
> The most commonly used transformation method in the rubber industry

Noticeable advantages
> The most cost effective in terms of productivity:
- automatic operation
- shorter curing time
> Lower waste percentage (very low flash levels…)
> More accurate part dimensions

Equipment
> Injection press



"Screw + plunger" injection



Direct screw injection

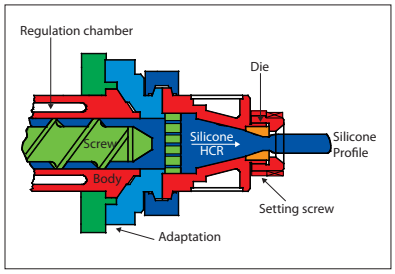
Extrusion

Applications
> All types of sections (tubes, oven seals…)
> Electrical cables

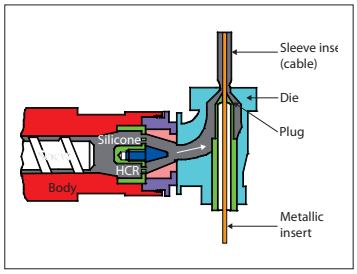
Equipment
An extruder with:
> A double skin enabling the sheath, the screw and the head to be cooled
> A feed roller, located under the feed hopper, to help pull through the materials
> A chrome-plated or other type of screw (L/D ratio: from 10 to 15)

Curing methods
> Hot air, or infra red without pressure.
> Salt melted bath.
> Steam under pressure (6 to 20 bars)

Peroxide
The peroxide type is determined by the vulcanization process as recommended in this table.



Direct head extrusion



Cross-head extrusion

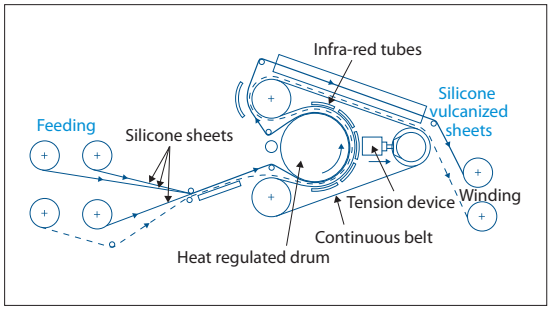
Catalyst	Bluestar Silicones name	Vulcanizing technique
2,4 dichlorobenzoyl peroxide	E	- Without pressure hot air or infra red extrusion - Melted salt bath extrusion
2,5-Dimethyl-2,5-di (tert-butylperoxy) hexane	L	- Extrusion in steam at 12 to 20 bars pressure - Molding
Dicumyl peroxide	D	- Extrusion in steam at 6 to 12 bars pressure - Molding

Calendering

Applications
> To produce thin sheets of uncured Silicone elastomer

Equipment
> 3, 4 or 5 rollers system

Curing methods
> Hot air tunnel
> Autoclave
> Rotocure



Direct head extrusion