Silicone Rubber for Molding

Shin-Etsu Silicone

Silicone rubber has excellent properties and meets the needs of a wide range of industrial fields.

Silicone rubber has features not found in other organic rubbers.
Especially, it is excellent in heat resistance, cold resistance, weather resistance, and electrical characteristics, and it is used for products in various fields such as automobiles, electric and electronic equipment, machinery, daily goods, and food industry.
There are two types of silicone rubber for molding: millable rubber and LIMS (Liquid Injection Molding System), which can be selected according to the manufacturing process of the molded product and the required functions.
The type that does not require post cure contributes to the efficiency and energy saving of the customer's manufacturing process.

CONTENTS

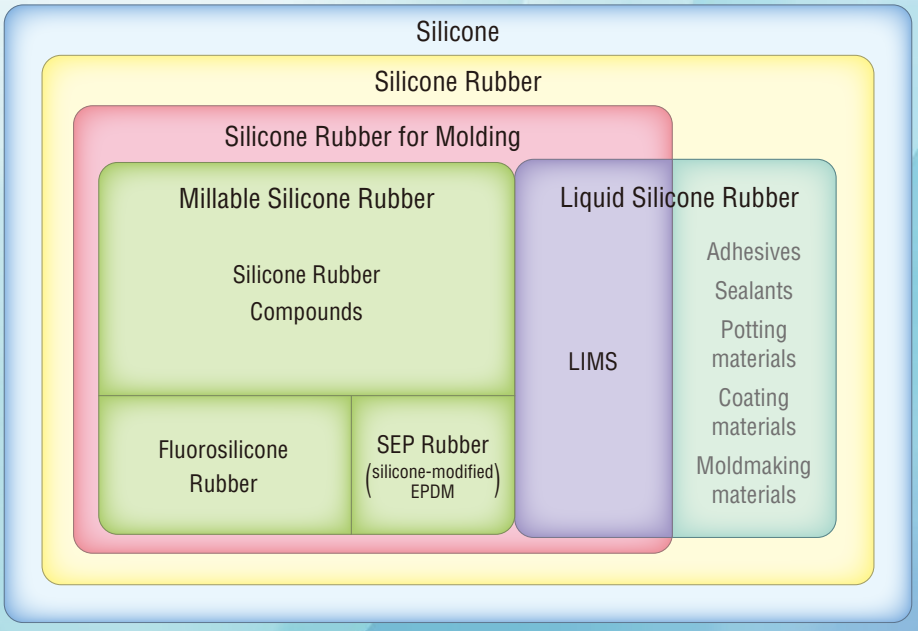
Rubber Compounds (Millable)

Products List — Silicone Rubber Compounds 5
Fluorosilicone Rubber 11
SEP Rubber (silicone-modified EPDM) 13
Curing Agents 13
Standard Conditions for Compression Molding 14
Packaging 14
Handling Precautions 14

LIMS® (Liquid Injection Molding System)

Products List 16
Characteristics 19
LIMS® Molding Machines 22
Packaging 23
Handling Precautions 23

■ Category

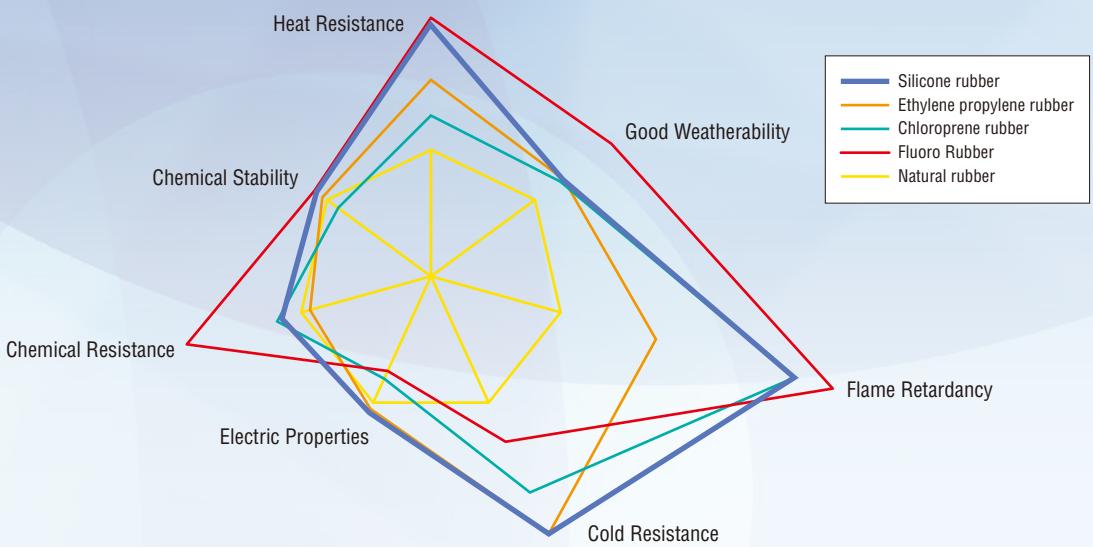


Characteristic properties of Silicone Rubber Compounds;
Please see it.
https://www.shinetsusilicone-global.com/catalog/pdf/rubber_e.pdf

Primers;
Please see it.
https://www.shinetsusilicone-global.com/catalog/pdf/Primers_for_HCR_LIMS_E.pdf

Color;
Please see it.
https://www.shinetsusilicone-global.com/catalog/pdf/ColorGuide_HCRandLIMS.pdf

■ Comparison of properties of various rubbers using natural rubber as a reference



Rubber Compounds

(Millable)

Millable silicone rubber includes silicone rubber compound, fluorosilicone rubber and SEP rubber. Each has its own characteristics, and products can be selected according to the purpose and application. Millable silicone rubber does not contain curing agents. When using this product, please select the curing agent as well as the product.

- Silicone Rubber Compounds
- Fluorosilicone Rubber
- SEP Rubber (silicone-modified EPDM)

Silicone Rubber Compounds: General Properties

Parameter / Grade		For general purpose, FDA (21 CFR 177.2600), BfR								
Product name		KE-931-U	KE-941-U	KE-951-U	KE-961-U	KE-971-U	KE-981-U	KE-961T-U	KE-971T-U	KE-981T-U
Appearance		Milky white translucent	Milky white translucent	Milky white translucent	Grayish white	Grayish white	Grayish white	Milky white translucent	Milky white translucent	Milky white translucent
Curing agent	Curing agent name	C-8	C-8	C-8	C-8	C-8	C-8	C-8A	C-8	C-8A
	Standard adding quantity phr	2.0	2.0	2.0	2.0	2.0	2.0	0.5	2.0	0.5
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		160	190	240	280	330	420	280	340	370
Hardness Durometer A		31	43	52	63	71	84	62	71	81
Density at 23°C g/cm³		1.07	1.11	1.14	1.22	1.30	1.42	1.17	1.20	1.21
Linear shrinkage at 150°C		4.0	3.9	3.9	3.4	3.0	2.7	3.6	3.4	3.2
Tensile strength MPa		4.7	6.5	8.2	7.3	7.5	8.8	9.7	8.8	8.5
Elongation at break %		480	370	330	320	220	100	310	260	201
Tear strength Crescent piece kN/m		15*1	15*1	23*1	20*1	20*1	8	25*1	25*1	10
Compression set 180°C × 22 h %		15	11*2	11*2	11*2	9*2	12*2	11*2	11*2	6

*1 Angle piece *2 150°C × 22 h

(Not specified values)

Parameter / Grade		Extrusion molding, ISO 10993, USP Class VI, FDA, BfR									
Product name		KE-541-U		KE-551-U		KE-561-U		KE-571-U		KE-581-U	
Appearance		Milky white translucent		Milky white translucent		Milky white translucent		Milky white translucent		Milky white translucent	
Curing agent	Curing agent name	C-23N	C-25A/B	C-23N	C-25A/B	C-23N	C-25A/B	C-23N	C-25A/B	C-23N	C-25A/B
	Standard adding quantity phr	1.0	0.5/2.0	1.0	0.5/2.0	1.0	0.5/2.0	1.0	0.5/2.0	1.3	0.5/2.0
Curing conditions	Primary cure	120°C×10 min		120°C×10 min		120°C×10 min		120°C×10 min		120°C×10 min	
	Post cure	200°C×4 h		200°C×4 h		200°C×4 h		200°C×4 h		200°C×4 h	
Williams plasticity (10 min after remix)		150	150	200	200	250	250	360	360	430	430
Hardness Durometer A		40	40	50	50	63	62	70	68	79	77
Density at 23°C g/cm³		1.10	1.10	1.14	1.14	1.17	1.17	1.22	1.22	1.24	1.24
Linear shrinkage at 150°C		—	—	—	—	—	—	—	—	—	—
Tensile strength MPa		8.0	8.2	10.5	9.8	11.5	11.5	11.0	11.0	10.5	10.5
Elongation at break %		550	690	530	590	450	470	430	450	310	430
Tear strength Crescent piece kN/m		10	22	13	26	15	24	19	26	13	23
Compression set 180°C × 22 h %		12*1	9*2	8*1	9*2	11*1	9*2	13*1	9*2	14*1	9*2

*1 100°C × 22 h *2 150°C × 22 h

(Not specified values)

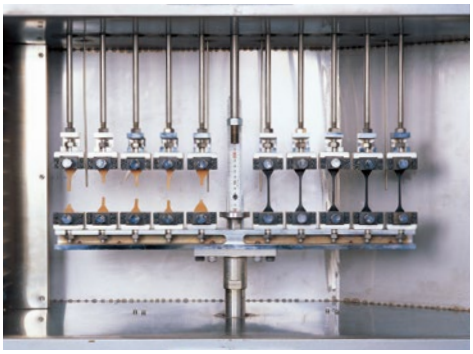
Parameter \ Grade		Steam resistance			High tear strength, high elongation, FDA, BfR	High tear strength, USP Class VI, FDA, BfR		
	Product name	**KE-7511-U**	**KE-7611-U**	**KE-7711-U**	**KE-5441-U**	**KE-5451-U**	**KE-5461-U**	**KE-5471-U**
Appearance		Pale yellow	Pale yellow	Pale yellow	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent
Curing agent	Curing agent name	C-15	C-8A	C-8A	C-25A/B	C-25A/B	C-25A/B	C-25A/B
	Standard adding quantity phr	1.3	0.6	0.6	0.5/2.0	0.5/2.0	0.5/2.0	0.5/2.0
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		220	220	230	177	187	222	305
Hardness Durometer A		55	61	72	41	52	59	67
Density at 23°C g/cm³		1.14	1.15	1.21	1.13	1.13	1.16	1.19
Linear shrinkage at 150°C		3.8	3.9	3.9	—	—	—	—
Tensile strength MPa		9.5	9.1	8.8	10.4	9.8	10.1	9.9
Elongation at break %		410	330	300	950	640	610	530
Tear strength Crescent piece kN/m		12	11	15	34	48	51	52
Compression set 180°C × 22 h %		9	9	10	37	19	20	21

(Not specified values)

Parameter \ Grade		High elongation		
	Product name	**KE-520-U**	**KE-530B-2-U**	**KE-540B-2-U**
Appearance		Milky white translucent	Milky white translucent	Milky white translucent
Curing agent	Curing agent name	C-8	C-8A	C-15
	Standard adding quantity phr	2.0	0.5	1.5
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		150	170	180
Hardness Durometer A		23	35	39
Density at 23°C g/cm³		1.06	1.13	1.13
Linear shrinkage at 150°C		4.5	3.8	4.1
Tensile strength MPa		5.0	9.7	9.7
Elongation at break %		770	880	700
Tear strength Crescent piece kN/m		10	34	17
Compression set 180°C × 22 h %		22	20*	9*

* 150°C × 22 h

(Not specified values)



Silicone Rubber Compounds: General Properties

Parameter / Grade		Vibration control								
Product name		KE-5530-U	KE-5540-U	KE-5550-U	KE-5560-U	KE-5570-U	KE-401EM-U	KE-501EM-U	KE-601EM-U	KE-701EM-U
Appearance		Pale yellow	Pale yellow	Pale yellow	Gray	Gray	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent
Curing agent	Curing agent name	C-8	C-8	C-8	C-8	C-8	C-15	C-15	C-15	C-15
	Standard adding quantity phr	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		255	296	365	409	418	145	168	196	186
Hardness Durometer A		35	42	52	63	72	41	52	61	74
Density at 23°C g/cm³		1.17	1.23	1.26	1.45	1.42	1.07	1.10	1.12	1.15
Linear shrinkage at 150°C		—	—	—	—	—	—	3.9	—	—
Tensile strength MPa		8.8	9.6	9.2	6.4	5.5	5.3	7.7	8.4	7.4
Elongation at break %		870	800	750	510	330	530	530	460	330
Tear strength Crescent piece kN/m		20	34	38	26	18	25	34	21	12
Compression set 180°C × 22 h %		10	13	14	18	30	21	23	24	27

(Not specified values)

Parameter / Grade		Dynamic fatigue durability				
Product name		KE-9411-U	KE-9511-U	KE-9611-U	KE-5142-U	KE-5182-U
Appearance		Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent
Curing agent	Curing agent name	C-8A	C-8A	C-8A	C-8B	C-8B
	Standard adding quantity phr	0.6	0.6	0.6	0.5	1.0
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		170	200	188	146	293
Hardness Durometer A		40	50	61	44	82
Density at 23°C g/cm³		1.11	1.12	1.13	1.08	1.17
Linear shrinkage at 150°C		3.7	3.3	3.5	—	—
Tensile strength MPa		6.2	6.6	7.6	6.0	7.9
Elongation at break %		437	310	266	380	110
Tear strength Crescent piece kN/m		7	6	7	—	—
Compression set 180°C × 22 h %		8	8	5	24	16

(Not specified values)

Parameter \ Grade		Antistatic							
	Product name	**KE-9390-U**	**KE-9490-U**	**KE-9590-U**	**KE-9690-U**	**KE-9790-U**	**KE-5490-U**	**KE-5590-U**	**KE-5690-U**
Appearance		Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent	Milky white translucent
Curing agent	Curing agent name	C-8	C-8	C-8	C-8	C-8	C-8	C-8	C-8
	Standard adding quantity phr	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		160	190	220	280	300	150	200	250
Hardness Durometer A		29	43	51	63	70	40	53	63
Density at 23°C g/cm³		1.09	1.11	1.15	1.22	1.32	1.10	1.13	1.17
Linear shrinkage at 150°C		—	—	3.9	—	—	—	—	—
Tensile strength MPa		5.5	6.5	8.8	7.3	7.1	7.4	9.3	9.5
Elongation at break %		600	365	400	320	230	570	430	600
Tear strength Crescent piece kN/m		15*1	—	—	—	—	—	—	—
Compression set 180°C × 22 h %		—	—	14*2	—	—	—	—	—

*1 Angle piece *2 150°C × 22 h

(Not specified values)

Parameter \ Grade		Antistatic		Heat resistance					
	Product name	**KE-5790-U**	**KE-5890-U**	**KE-552-U**	**KE-582-U**	**KE-552B-U**	**KE-765-U**	**KE-785-U**	**KE-6080-U**
Appearance		Milky white translucent	Milky white translucent	Light brown	Light brown	Pale yellow	Pale yellow	Grayish white	Umber brown
Curing agent	Curing agent name	C-8	C-8	C-23N	C-23N	C-23N	C-8	C-8	C-23N
	Standard adding quantity phr	2.0	2.0	1.0	1.0	1.0	2.0	1.5	1.3
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	150°C×1 h+ 250°C×24 h	150°C×1 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		320	440	270	470	280	270	370	270
Hardness Durometer A		70	76	52	80	52	63	83	55
Density at 23°C g/cm³		1.22	1.23	1.16	1.25	1.17	1.17	1.58	1.18
Linear shrinkage at 150°C		—	—	2.7	3.3	2.4	3.7	2.4	—
Tensile strength MPa		9.2	10.1	10.0	7.0	9.8	10.0	8.5	8.5
Elongation at break %		380	365	550	250	550	340	110	390
Tear strength Crescent piece kN/m		—	—	15	20	14	—	—	13
Compression set 180°C × 22 h %		—	—	18*	23	24*	8	11	—

* 150°C × 22 h

(Not specified values)

Silicone Rubber Compounds: General Properties

Parameter \ Grade / Product name		Cold resistance					Oil resistance, solvent resistance, JIS 4C
		KE-136Y-U	**KE-183-U**		**KE-186-U**		**KE-871C-U**
Appearance		Pale yellow	Milky white translucent		Milky white translucent		Grayish white
Curing agent	Curing agent name	C-23N	C-23N	C-8	C-23N	C-8	C-8
	Standard adding quantity phr	0.7	0.7	2.0	0.7	2.0	1.0
Curing conditions	Primary cure	120°C×10 min	120°C×10 min	160°C×10 min	120°C×10 min	160°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		220	189	189	277	277	260
Hardness Durometer A		52	31	36	62	65	72
Density at 23°C g/cm³		1.16	1.11	1.12	1.19	1.19	1.29
Linear shrinkage at 150°C		3.6	—	—	—	—	2.9
Tensile strength MPa		10.2	8.7	8.2	11.2	11.0	6.9
Elongation at break %		620	640	550	570	480	190
Tear strength Crescent piece kN/m		32	10	8	25	19	9
Compression set 180°C × 22 h %		16*1	14*2	6*2	23*2	12*2	10

*1 105°C × 70 h *2 150°C × 22 h

(Not specified values)

Parameter \ Grade / Product name		Flame retardance					Fireproof, low smoke	Flame retardance, voltage resistance
		KE-5638-U	**KE-5606-U**	**KE-5612E-U**	**KE-5637-U**	**KE-5634-U**	**KE-1735-U**	**KE-5615-U**
Appearance		Light brown	Gray	Charcoal	Grayish white	Translucent	Charcoal	White
Curing agent	Curing agent name	C-3 X-93-1209A	C-3	C-3	C-3	C-25A/B	C-23N	C-23N
	Standard adding quantity phr	1.3/0.3	1.3	1.3	1.3	1.0/2.0	1.3	1.3
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	120°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		170	230	230	340	340	350	300
Hardness Durometer A		39	55	60	69	68	71	62
Density at 23°C g/cm³		1.24	1.49	1.49	1.45	1.21	1.47	1.30
Linear shrinkage at 150°C		—	—	2.7	—	—	—	—
Tensile strength MPa		6.3	6.0	7.2	7.7	7.8	6.1	7.8
Elongation at break %		695	460	290	280	330	220	330
Tear strength Crescent piece kN/m		10	12	13	11	—	12	11
Compression set 180°C × 22 h %		—	16	16	—	—	13*	—

* 100°C × 22 h

(Not specified values)

Parameter \ Grade		High voltage resistance		Voltage resistance				Oil bleed		
Product name		**KE-5641-U**	**KE-5643-U**	**KE-655-U**	**KE-1265-U**	**KE-7211-U**	**KE-7212-U**	**KE-503-U**	**KE-5042-U**	**KE-505-U**
Appearance		White	White	Grayish white	Grayish white	Light gray	Gray	White	White	Grayish white
Curing agent	Curing agent name	C-23N	C-23N	C-8A	C-23N	C-3	C-3	C-8	C-8	C-8
	Standard adding quantity phr	1.3	1.3	0.7	1.3	1.3	1.3	2.0	2.0	2.0
Curing conditions	Primary cure	120°C×10 min	120°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	150°C×1 h	150°C×1 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		380	440	300	230	220	250	170	197	210
Hardness Durometer A		72	73	60	66	54	58	32	44	48
Density at 23°C g/cm³		1.32	1.37	1.22	1.21	1.15	1.20	1.10	1.14	1.19
Linear shrinkage at 150°C		—	—	3.8	—	—	—	4.0	3.6	3.4
Tensile strength MPa		9.3	6.8	10.5	8.0	11.0	9.2	6.5	7.2	7.3
Elongation at break %		370	280	400	280	780	680	650	510	330
Tear strength Crescent piece kN/m		14	11	28	12	31	35	18	22	19
Compression set 180°C × 22 h %		—	—	15*1	—	9	10	15	12*1	17*2

*1 150°C × 22 h *2 150°C × 70 h

(Not specified values)

Parameter \ Grade		Electrical conductivity				Abrasion resistance				
Product name		**KE-3502-U**	**KE-3601SB-U**	**KE-3711-U**	**KE-3801M-U**	**KE-7140-U**	**KE-7150-U**	**KE-7160-U**	**KE-7170-U**	**KE-7180-U**
Appearance		Black	Black	Black	Black	Pale yellow	Pale yellow	Pale yellow	Pale yellow	Pale yellow
Curing agent	Curing agent name	C-8A	C-8A	C-8A	HC-101 CAT-PL-2	C-8	C-8	C-8	C-8	C-8
	Standard adding quantity phr	1.0	1.0	1.0	2.7/0.1	2.0	2.0	2.0	2.0	2.0
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		329	450	480	630	—	—	—	—	—
Hardness Durometer A		51	62	66	73	40	50	60	70	80
Density at 23°C g/cm³		1.10	1.17	1.14	1.20	1.10	1.12	1.15	1.18	1.22
Linear shrinkage at 150°C		—	4.2	—	—	—	—	—	—	—
Tensile strength MPa		6.8	7.0	6.5	5.3	9.0	10.0	10.0	10.0	9.5
Elongation at break %		345	290	170	190	680	600	605	380	300
Tear strength Crescent piece kN/m		—	10	—	15*1	25	30	40	30	25
Compression set 180°C × 22 h %		13	—	12	18*2	13	10	10	11	13

*1 Angle piece *2 150°C × 22 h

(Not specified values)

Fluorosilicone Rubber: General Properties

Parameter \ Grade		Oil resistance, solvent resistance						Oil resistance, solvent resistance, extrusion molding
	Product name	FE-221-U	FE-241-U	FE-251-U	FE-261-U	FE-271-U	FE-281-U	FE-242-U
Appearance		Milky white translucent	Milky white translucent	Pale yellow	Pale yellow	Grayish white	Grayish white	Milky white translucent
Curing agent	Curing agent name	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A
	Standard adding quantity phr	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		230	278	298	308	363	403	340
Hardness Durometer A		22	43	54	63	73	80	42
Density at 23°C g/cm³		1.38	1.38	1.41	1.42	1.50	1.70	1.40
Linear shrinkage at 150°C		3.3	3.7	3.5	3.5	3.3	3.1	3.0
Tensile strength MPa		10.3	9.1	9.8	9.8	9.0	7.3	10.0
Elongation at break %		750	470	430	400	300	150	300
Tear strength Crescent piece kN/m		26	14	15	16	16	13	13
Compression set 180°C × 22 h %		11	16	8	8	9	15	17

(Not specified values)

Parameter \ Grade		Oil resistance, solvent resistance				Oil resistance, solvent resistance, high strength				
	Product name	FE-441-U	FE-451-U	FE-461-U	FE-471-U	FE-341-U	FE-351-U	FE-361-U	FE-371-U	FE-381-U
Appearance		Pale yellow	Pale yellow	Pale yellow	Pale yellow	Pale yellow	Pale yellow	Pale yellow	Pale yellow	Pale yellow
Curing agent	Curing agent name	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A
	Standard adding quantity phr	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		200	204	264	324	343	400	410	430	485
Hardness Durometer A		35	50	59	66	38	49	62	71	80
Density at 23°C g/cm³		1.20	1.23	1.25	1.28	1.42	1.44	1.46	1.48	1.49
Linear shrinkage at 150°C		—	3.8	—	—	3.3	3.3	3.2	3.4	3.3
Tensile strength MPa		6.5	6.4	7.9	9.9	13.1	13.3	12.7	10.9	10.5
Elongation at break %		350	300	310	290	630	520	520	430	300
Tear strength Crescent piece kN/m		6	10	10	11	32	38	45	44	29
Compression set 180°C × 22 h %		11	6	11	13	14	17	14	15	14

(Not specified values)

Parameter \ Grade		Oil resistance, solvent resistance, translucent		Oil resistance, solvent resistance, low compression set			
Product name		**FE-341T-U**	**FE-361T-U**	**FE-2510-U**	**FE-2610-U**	**FE-2710-U**	**FE-273-U**
Appearance		Milky white translucent	Milky white translucent	Pale yellow	Pale yellow	Pale yellow	Grayish white
Curing agent	Curing agent name	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A
	Standard adding quantity phr	0.8	0.8	0.8	0.8	0.8	0.8
Curing conditions	Primary cure	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		347	416	283	296	370	397
Hardness Durometer A		42	61	53	63	74	70
Density at 23°C g/cm³		1.41	1.46	1.42	1.45	1.48	1.48
Linear shrinkage at 150°C		3.2	3.2	—	—	—	3.0
Tensile strength MPa		12.0	11.6	9.9	10.4	9.8	—
Elongation at break %		630	540	320	270	210	240
Tear strength Crescent piece kN/m		28	50	10	11	12	13
Compression set 180°C × 22 h %		30	35	3	4	4	5

(Not specified values)

Parameter \ Grade		Oil resistance, Solvent resistance, oil bleed	Oil resistance, solvent resistance, heat resistance					
Product name		**FE-2501-U**	**FE-2513-U**	**FE-2613-U**	**FE-2511-U**	**FE-2611-U**	**FE-343-U**	**FE-343A-U**
Appearance		Grayish white	Red	Grayish white	Grayish white	Grayish white	Pale yellow	Pale yellow
Curing agent	Curing agent name	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A	C-8A
	Standard adding quantity phr	0.8	0.8	3.0	0.8	0.8	0.8	0.8
Curing conditions	Primary cure	170°C×8 min	165°C×10 min	180°C×5 min	165°C×10 min	165°C×10 min	165°C×10 min	165°C×10 min
	Post cure	—	200°C×4 h	200°C×6 h	200°C×4 h	200°C×4 h	200°C×4 h	200°C×4 h
Williams plasticity (10 min after remix)		290	304	329	306	309	264	—
Hardness Durometer A		46	49	63	50	57	49	52
Density at 23°C g/cm³		1.43	1.45	1.46	1.43	1.47	1.38	1.39
Linear shrinkage at 150°C		2.8	4.0	3.4	3.5	3.5	—	—
Tensile strength MPa		6.9	9.9	8.0	9.9	8.9	9.6	8.8
Elongation at break %		450	450	280	433	410	610	380
Tear strength Crescent piece kN/m		12	19	12	15	16	21	17
Compression set 180°C × 22 h %		17	5	7	7	7	18	9

(Not specified values)

SEP Rubber (silicone-modified EPDM): General Properties

Parameter \ Grade		General purpose		Heat resistance		Extrusion molding	Flame retardance
Product name		**SEP-1411-U**	**SEP-1711-U**	**SEP-1421-U**	**SEP-1721-U**	**SEP-1731-U**	**SEP-363-U**
Appearance		Pale yellow	Yellow	Pale yellow	Pale yellow	Gray	Black
Curing agent	Curing agent name	C-11A/SEP-BM	C-11A	C-11A	C-11A	C-12/SEP-BM	C-11A
	Standard adding quantity phr	2.0/0.1	2.0	2.0	2.0	4.0/0.2	1.5
Curing conditions	Primary cure	170°C×10 min	170°C×10 min	170°C×10 min	170°C×10 min	170°C×10 min	170°C×10 min
	Post cure	150°C×2 h	150°C×2 h	150°C×2 h	150°C×2 h	150°C×2 h	150°C×2 h
Williams plasticity (10 min after remix)		—	—	—	—	—	—
Hardness Durometer A		47	70	41	72	70	70
Density at 23°C g/cm³		0.99	1.11	1.01	1.15	1.21	1.40
Linear shrinkage at 150°C		—	—	—	—	—	—
Tensile strength MPa		7.8	17.0	6.2	11.0	14.0	4.8
Elongation at break %		820	600	930	550	600	400
Tear strength Crescent piece kN/m		12	35	12	30	30	25
Compression set 150°C × 22 h %		40	40	50	45	28	28

(Not specified values)

Curing Agents

Shin-Etsu's silicone rubbers typically do not include a curing agent. These are called "U-types," and expressed such as KE-951-U. With U-type products, choose a suitable curing agent (from C-1A to C-25A/B) in accordance with the curing method. We also offer curing agents other than those listed here. Please contact Shin-Etsu for details.

Types

Product name	Applications	Appearance	Main curing ingredient
C-1A	General molding, thin sections	White paste	Benzoyl peroxide Approx. 50% content
C-3	General molding, steam curing, flame retardance	White putty	Dicumyl peroxide Approx. 20% content
C-4	General molding	Grayish white paste	Ditertiarybutyl peroxide Approx. 20% content
C-8, C-8A, C-8B	General molding, thick sections	Grayish white paste (C-8) Translucent paste (C-8A, C-8B)	2.5 dimethyl-2.5 bis (tertiarybutylperoxy) hexane Approx. 25% content (C-8), approx. 80% content (C-8A), approx. 40% content (C-8B)
C-12	SEP General molding, SEP Steam curing	White powder	tert-Butyl alpha-cumyl peoxide Approx. 65% content
C-15	General molding, for transparent products	Translucent paste	2.5 dimethyl-2.5 bis (tertiarybutylperoxy) hexane Approx. 12.5% content
C-23N	Hot Air Vulcanization (HAV)	White paste	Paramethylbenzoilperoxide Approx. 50% content
C-25A/B	Addition-cure rubbers	Transparent paste (C-25A) Translucent paste (C-25B)	Contains metal complex (C-25A) Contains cross-linker (C-25B)

Suitability by application

Product name	Applications					Curing method			
	Thin sections	Thick sections	Sponge*	Carbon compound products	Low compression set	HAV	CV	Mold	Coating
C-1A	●		●				●	●	●
C-3		●	●	●	●		●	●	
C-4		●			●			●	
C-8, C-8A, C-8B	●	●		●	●		●	●	
C-14		●			●			●	
C-15	●	●		●	●			●	
C-23N			●			●	●	●	●
C-25A/B		●	●	●	●	●		●	

* Use sponge curing agents as a combination of C-1A with C-3, or C-23N with C-3.

Standard Conditions for Compression Molding

Product name	Press condition	Thickness of molded item (mm)	Less than 1	1 to 5	5 to 10	10 to 25	25 to 50
C-1A*1 C-23N	Temperature	°C	120 to 125				
	Time	min	10	10 to 15	15 to 30	30 to 60	60 to 120
	Pressure	MPa	2.9 to 4.9				
C-3	Temperature	°C	155 to 160				
	Time	min	10	10 to 15	15 to 30	30 to 60	60 to 120
	Pressure	MPa	2.9 to 4.9				
C-4 C-8, C-8A, C-8B C-15	Temperature	°C	165 to 170				
	Time	min	10	10 to 15	15 to 30	30 to 60	60 to 120
	Pressure	MPa	2.9 to 5.9				
C-25A/B*2	Temperature	°C	150 to 170				
	Time	min	10 to 20			20 to 60	60 to 120
	Pressure	MPa	2.9 to 5.9				

*1 Curing may be uneven in molded items thicker than 5 mm. Shin-Etsu recommends C-3, C-8, or C-8A for molding items over 5 mm thick.
*2 Molding possible at temperature as low as 120°C to 150°C

Packaging

Handling Precautions

■ Handling precautions

1. Silicone rubber may react with strong oxygen agents.
2. Uncured substance generates silica. Please handle with caution.

■ Safety and Hygiene

1. These products cause serious eye irritation and may cause skin irritation. When handling the products, be sure to avoid contact with the skin and mucous membranes by wearing protective glasses and protective gloves. In case of skin contact, immediately wipe off with dry cloth and then flush thoroughly with running water. In case of accidental eye contact, flush immediately with plenty of clean water for at least 15 minutes and then seek medical attention. Contact lens wearers must take special care. If the products get into the eye, the contact lens may become stuck to the eye.
2. In a confined space with poor ventilation, please wear a protective mask. It is recommended to provide local ventilation. If vapors are inhaled and victims feel uncomfortable, move immediately to an area with fresh air. When you put non-hardening substance into the discard, silica and other powder generate. So you should wear a protective mask.
3. Keep out of the reach of children.
4. Please read the Safety Data Sheets (SDS) before use. SDS can be obtained from our sales department.

LIMS®

Liquid Injection Molding System

LIMS is a precision and stable injection molding system for liquid silicone rubber. By simply blending the two-part materials of liquid A and liquid B, the process from mixing to molding can be automated. Flashless, runnerless molding eliminates waste. High quality, multi-material components can be made efficiently by two-shot and insert overmolding processes.

General Properties

Parameter	Grade / Product name	Low viscosity						
		KE-1950-10-A/B	**KE-1950-20-A/B**	**KE-1950-30-A/B**	**KE-1950-40-A/B**	**KE-1950-50-A/B**	**KE-1950-60-A/B**	**KE-1950-70-A/B**
Conformity Standard	FDA			✓	✓	✓	✓	✓
	BfR			✓	✓	✓	✓	✓
Appearance		Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent
Viscosity A/B Pa·s		60/60	160/160	250/250	530/530	680/630	730/690	680/650
Curing speed at 130°C (MDR)	T_{10}	47	47	31	29	37	37	36
	T_{90}	105	109	55	58	73	78	65
Standard curing conditions	Primary cure	120°C×5 min	120°C×5 min	120°C×5 min	120°C×5 min	120°C×5 min	120°C×5 min	120°C×5 min
	Post cure	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h
Hardness Durometer A		13	20	31	39	49	57	68
Density at 23°C g/cm³		1.08	1.10	1.10	1.12	1.13	1.14	1.13
Linear shrinkage at 150°C		2.6	2.5	2.5	2.5	2.5	2.5	2.5
Tensile strength MPa		4.3	7.3	8.2	9.3	8.9	8.0	9.5
Elongation at break %		750	970	710	670	560	420	470
Tear strength Crescent piece kN/m		10	24	22	31	37	39	39
Compression set %		12*	15*	22*	20*	28*	22*	34*

* Curing condition: 150°C × 15 min + 150°C × 1 h, testing condition: 150°C × 22 h

(Not specified values)

Parameter	Grade / Product name	Fast curing						
		KEG-2000-20-A/B	**KEG-2000-30-A/B**	**KEG-2000-40-A/B**	**KEG-2000-50-A/B**	**KEG-2000-60-A/B**	**KEG-2000-70-A/B**	**KEG-2000-80-A/B**
Conformity Standard	FDA		✓	✓	✓	✓	✓	✓
	BfR		✓	✓	✓	✓	✓	✓
	USP class VI			✓	✓	✓	✓	
	ISO 10993-1	✓	✓	✓	✓	✓	✓	✓
	UL94 HB	✓	✓	✓	✓	✓	✓	
Appearance		Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent
Viscosity A/B Pa·s		700/700	1200/1200	1300/1300	1400/1400	1600/1600	1400/1400	1120/1080
Curing speed at 130°C (MDR)	T_{10}	27	33	33	33	43	37	35
	T_{90}	48	65	57	60	79	70	65
Standard curing conditions	Primary cure	120°C×5 min	120°C×5 min	120°C×5 min	120°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min
	Post cure	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h
Hardness Durometer A		23	32	43	51	60	70	81
Density at 23°C g/cm³		1.08	1.12	1.12	1.14	1.14	1.14	1.13
Linear shrinkage at 150°C		2.6	2.5	2.5	2.5	2.5	2.5	2.5
Tensile strength MPa		6.2	9.2	9.2	12.7	11.5	10.8	8.0
Elongation at break %		880	830	630	670	550	470	200
Tear strength Crescent piece kN/m		15	28	34	38	48	34	5
Compression set %		28*	14*	17*	11*	20*	18*	—

* Curing condition: 120°C × 15 min + 200°C × 4 h, testing condition: 175°C × 22 h

(Not specified values)

Parameter \ Grade		Very fast curing				No post cure, high tear strength				
	Product name	KEG-2001-40-A/B	KEG-2001-50-A/B	KEG-2001-60-A/B	KEG-2001-70-A/B	KEG-2003H-30-A/B	KEG-2003H-40-A/B	KEG-2003H-50-A/B	KEG-2003H-60-A/B	KEG-2003H-70-A/B
Conformity Standard	FDA	✓	✓	✓	✓	✓	✓	✓	✓	✓
	BfR	✓	✓	✓	✓	✓	✓	✓	✓	✓
	USP class VI	✓	✓	✓	✓	✓	✓	✓	✓	✓
	ISO10993-1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	UL94 HB					✓	✓	✓	✓	✓
Appearance		Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent
Viscosity A/B Pa·s		1000/1000	1000/1000	1320/1280	1200/1200	740/690	900/960	1030/1000	750/700	1040/1010
Curing speed at 130°C (MDR)	T_{10}	26	26	24	26	23	23	21	22	30
	T_{90}	45	45	51	46	44	45	41	43	61
Standard curing conditions	Primary cure	120°C×10 min	120°C×10 min	120°C×5 min	120°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min
	Post cure	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	—	—	—	—	—
Hardness Durometer A		42	52	60	70	31	41	51	60	69
Density at 23°C g/cm³		1.12	1.13	1.13	1.14	1.13	1.13	1.13	1.13	1.14
Linear shrinkage at 150°C		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4
Tensile strength MPa		11.0	11.8	9.2	9.5	9.3	9.1	10.6	9.9	9.1
Elongation at break %		630	530	550	420	900	830	790	660	490
Tear strength Crescent piece kN/m		33	40	44	40	30	36	40	46	46
Compression set %		15*1	12*1	19*1	20*1	21*2	15*2	15*2	19*2	28*2

*1 Curing condition: 120°C × 15 min + 200°C × 4 h, testing condition: 175°C × 22 h
*2 Curing condition: 150°C × 15 min, testing condition: 120°C × 22 h

(Not specified values)

Parameter \ Grade		No post cure, oil bleeding				No post cure, low compression set			
	Product name	KE-2017-20-A/B	KE-2017-30-A/B	KE-2017-40-A/B	KE-2017-50-A/B	KE-2019-30-A/B	KE-2019-40-A/B	KE-2019-50-A/B	KE-2019-60-A/B
Appearance		Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent
Viscosity A/B Pa·s		610/490	1940/1590	1790/1550	2030/1710	342/370	327/334	840/710	693/773
Curing speed at 130°C (MDR)	T_{10}	31	44	35	33	32	31	25	33
	T_{90}	86	85	76	72	95	78	52	63
Standard curing conditions	Primary cure	150°C×10 min	150°C×10 min	150°C×10 min	150°C×10 min	150°C×10 min	150°C×10 min	150°C×10 min	150°C×10 min
	Post cure	—	—	—	—	—	—	—	—
Hardness Durometer A		24	32	43	50	32	40	53	59
Density at 23°C g/cm³		1.10	1.14	1.14	1.14	1.12	1.12	1.15	1.14
Linear shrinkage at 150°C		2.5	2.4	2.4	2.4	2.5	2.5	2.4	2.4
Tensile strength MPa		7.4	8.9	9.0	9.3	8.7	9.5	9.8	9.3
Elongation at break %		840	740	620	480	738	670	565	507
Tear strength Crescent piece kN/m		13	22	34	40	20	31	42	43
Compression set %		13*	18*	18*	18*	15*	14*	16*	41*

* Curing condition: 150°C × 15 min, testing condition: 150°C × 70 h

(Not specified values)

Parameter	Grade / Product name	No post cure, self-adhesive						
		KE-2097-30-A/B	KE-2097-40-A/B	KE-2097-50-A/B	KE-2097-60-A/B	KE-2098-40-A/B	KE-2098-50-A/B	KE-2098-60-A/B
Conformity Standard	FDA	✓	✓	✓	✓			
Appearance		Translucent	Translucent	Translucent	Translucent	Translucent	Translucent	Translucent
Viscosity A/B	Pa·s	620/670	964/898	500/546	623/613	819/797	890/850	870/790
Curing speed at 130°C (MDR)	T_{10}	19	21	21	25	23	24	22
	T_{90}	55	44	47	63	60	54	47
Standard curing conditions	Primary cure	150°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min	150°C×5 min
	Post cure	—	—	—	—	—	—	—
Hardness Durometer A		30	37	47	60	40	47	61
Density at 23°C	g/cm³	1.13	1.14	1.13	1.14	1.14	1.15	1.14
Linear shrinkage at 150°C		2.5	2.5	2.5	2.5	2.5	2.5	2.5
Tensile strength	MPa	9.8	8.9	9.7	9.7	9.2	8.5	8.9
Elongation at break	%	820	720	700	380	700	610	430
Tear strength Crescent piece	kN/m	13	25	34	45	35	36	42
Compression set	%	15*	—	—	—	—	—	—

* Curing condition: 120°C × 15 min, testing condition: 150°C × 22 h

(Not specified values)

Parameter	Grade / Product name	High transparency						
		KE-2061-30-A/B	KE-2061-40-A/B	KE-2061-50-A/B	KE-2061-60-A/B	KE-2061-70-A/B	KE-2061-80-A/B	KE-2061-90-A/B
Conformity Standard	UL94 HB			✓		✓		✓
Appearance		Transparency	Transparency	Transparency	Transparency	Transparency	Transparency	Transparency
Viscosity A/B	Pa·s	36/23	36/19	36/16	36/16	27/8.4	51/13	68/70
Curing speed at 130°C (MDR)	T_{10}	26	24	23	29	29	32	29
	T_{90}	82	70	58	80	79	80	79
Standard curing conditions	Primary cure	120°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min	120°C×10 min
	Post cure	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h	150°C×1 h
Hardness Durometer A		30	39	50	59	70	79	86
Density at 23°C	g/cm³	1.02	1.03	1.03	1.04	1.06	1.07	1.08
Linear shrinkage at 150°C		2.8	2.7	2.7	2.7	2.6	2.6	2.6
Tensile strength	MPa	3.5	5.2	6.3	7.3	11.0	11.4	6.0
Elongation at break	%	350	300	230	90	84	71	40
Tear strength Crescent piece	kN/m	3	6	6	9	6	7	6
Light transmittance	%	94	94	94	94	94	94	94
Refractive index at 25°C		1.41	1.41	1.41	1.41	1.41	1.41	1.41
HAZE	%	3	3	3	3	3	3	3

(Not specified values)

Characteristics

Injection Pressure

Best results are achieved at cure temperatures from 130°C to 200°C and pressures from 40 kg/cm² to 120 kg/cm².

Cure Time

At 150°C, cure time is under 10 seconds per 1-mm of thickness. This enables molding with very short cycle times.

Cure Temperature

The standard temperature range for curing is between 130°C and 200°C, although the ideal temperature varies depending on the thickness and shape of the molded item. Generally speaking, molding can be done at temperatures from 90°C to 210°C.

Linear Shrinkage

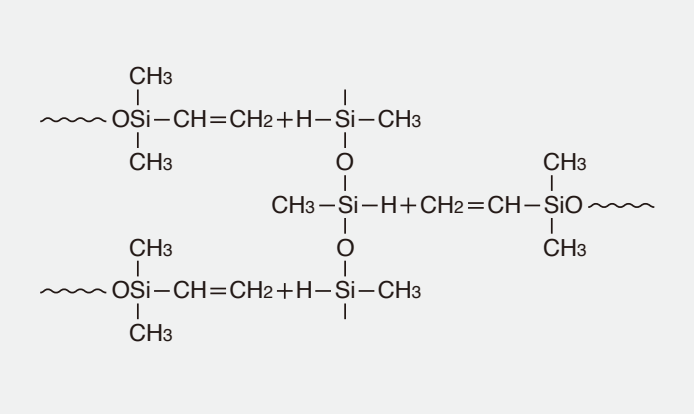
At temperatures between 100°C and 150°C, linear shrinkage is about 2% to 3%.

Pot Life

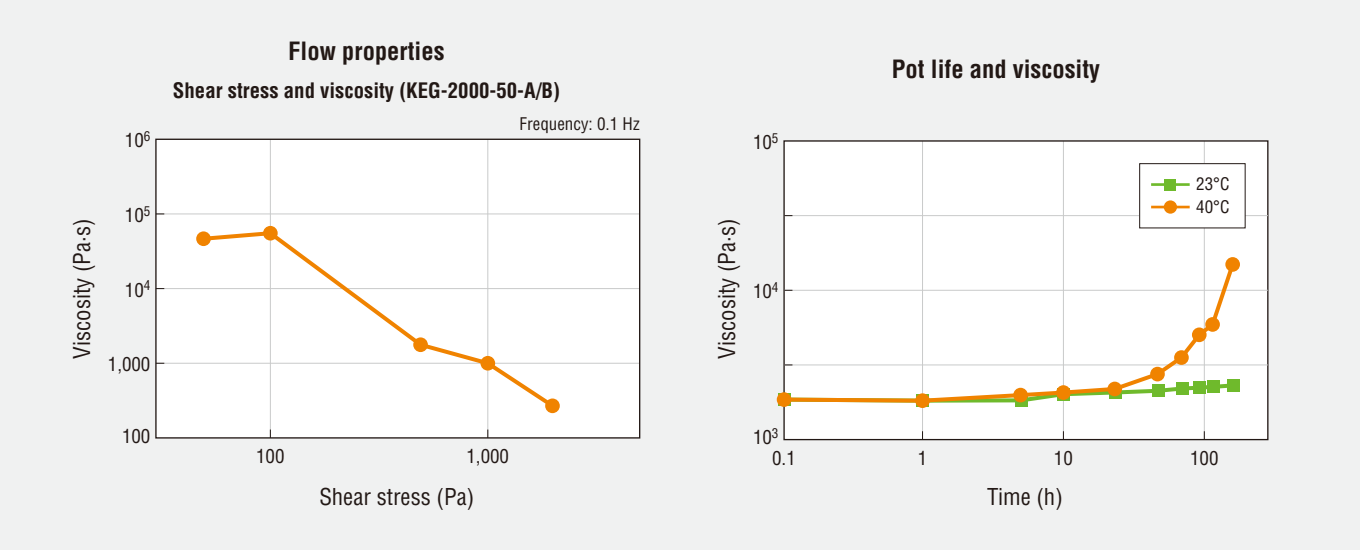
The pot life of a given product after mixing components A and B is dependent on temperature. Ordinary products will retain a suitable viscosity (one that will not cause problems for molding) for 72 hours at room temperature (25°C). To extend the pot life, install a chiller to cool the mixing section.

■ Curing mechanism

LIMS liquid silicone rubbers normally cure by addition reaction as shown below.
Heating accelerates the reaction, and cure time decreases as the temperature increases.



■ Flow properties and pot life of KEG-2000-50-A/B



■ Curing profile of KEG-2000-50-A/B and KEG-2001-50-A/B by means of MDR*

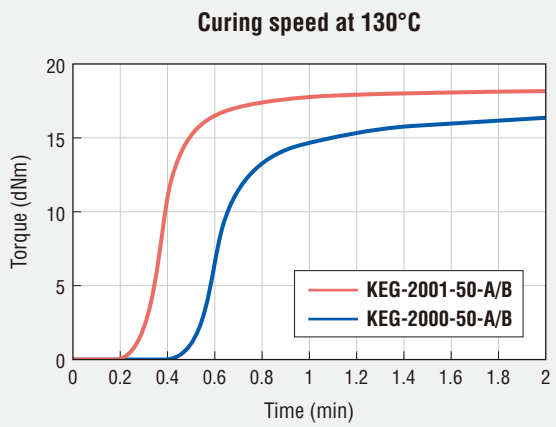
KEG-2001-50-A/B is the fast curing version of KEG-2000-50-A/B.

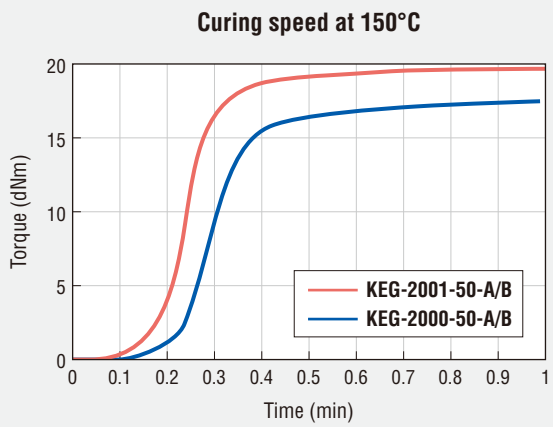
(Unit: sec)

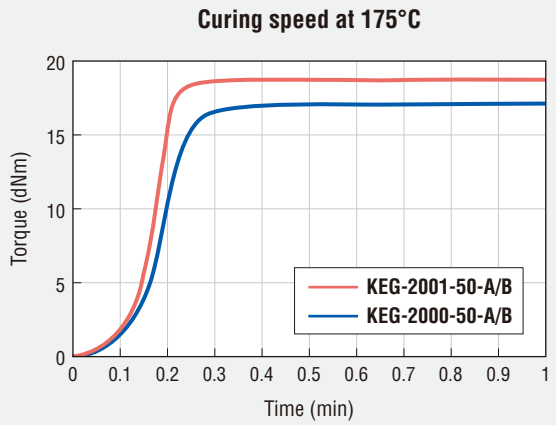
Curing speed / Temperature	KEG-2000-50-A/B (for general purpose, fast curing)			KEG-2001-50-A/B (very fast curing)		
	T10	T50	T90	T10	T50	T90
110°C	151	167	227	58	70	141
130°C	31	38	64	18	23	35
150°C	13	18	25	10	14	20
175°C	8	11	15	7	10	13
200°C	5	9	11	5	8	10

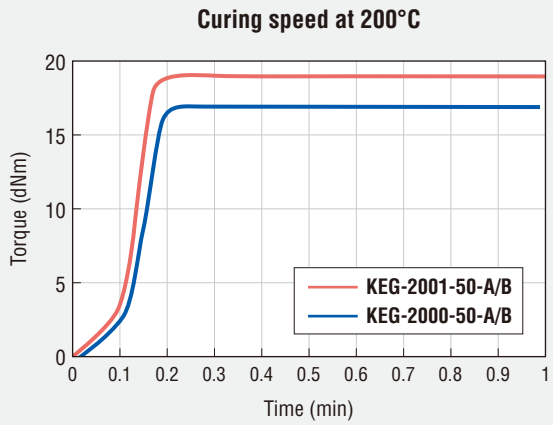
(Not specified values)

* MDR=Moving Die Rheometer
T10: How long it takes time until the cured torque has achieved to 10% of maximum torque.
T50: Up to 50% of maximum torque.
T90: Up to 90% of maximum torque.







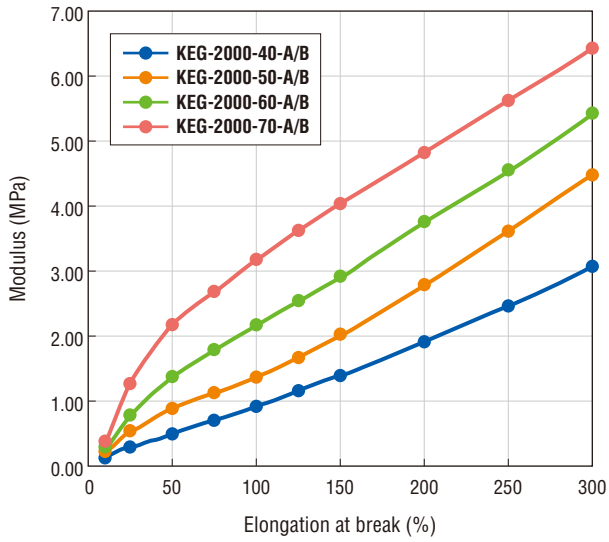


■ Modulus of KEG-2000 Series

(Unit: MPa)

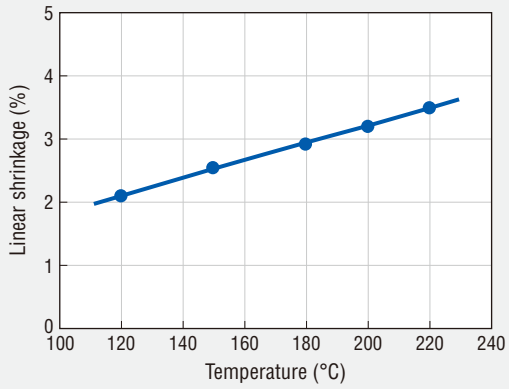
	KEG-2000-40-A/B	KEG-2000-50-A/B	KEG-2000-60-A/B	KEG-2000-70-A/B
10%	0.15	0.22	0.23	0.35
25%	0.28	0.53	0.76	1.24
50%	0.49	0.85	1.36	2.14
75%	0.68	1.10	1.77	2.68
100%	0.90	1.36	2.14	3.15
125%	1.14	1.66	2.52	3.59
150%	1.37	2.00	2.92	4.01
200%	1.89	2.76	3.73	4.83
250%	2.45	3.60	4.55	5.62
300%	3.05	4.48	5.40	6.42

Curing condition: 120°C × 10 min + 150°C × 1 h (Not specified values)

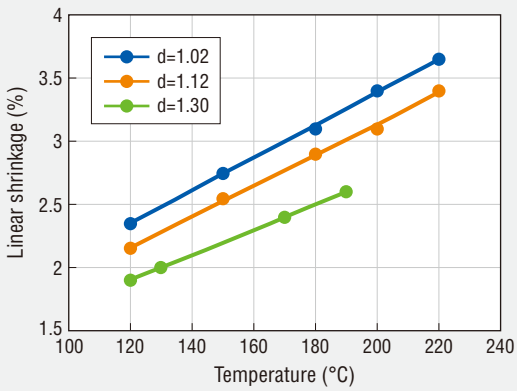


■ Linear shrinkage of KEG-2000 Series

Linear shrinkage of KEG-2000-50-A/B



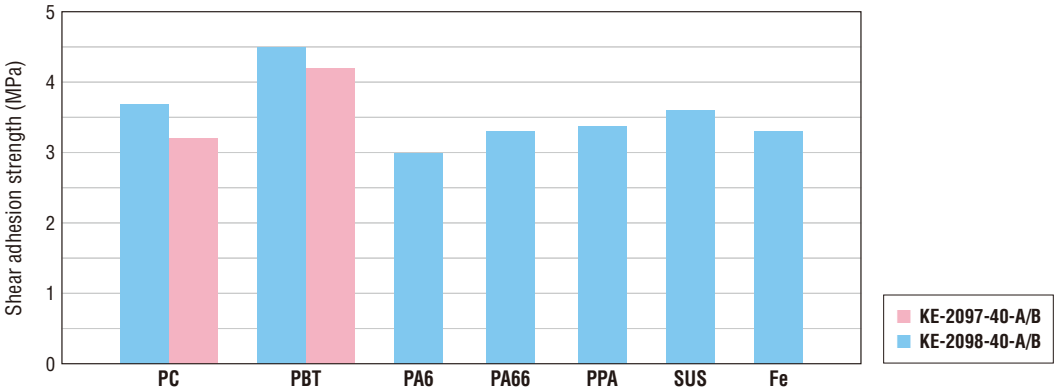
Linear shrinkage depending on the processing temperature



Condition: Compression molding, no post cure

■ Shear adhesion strength to various adherends

KE-2097-40-A/B, KE-2098-40-A/B vs. Various materials

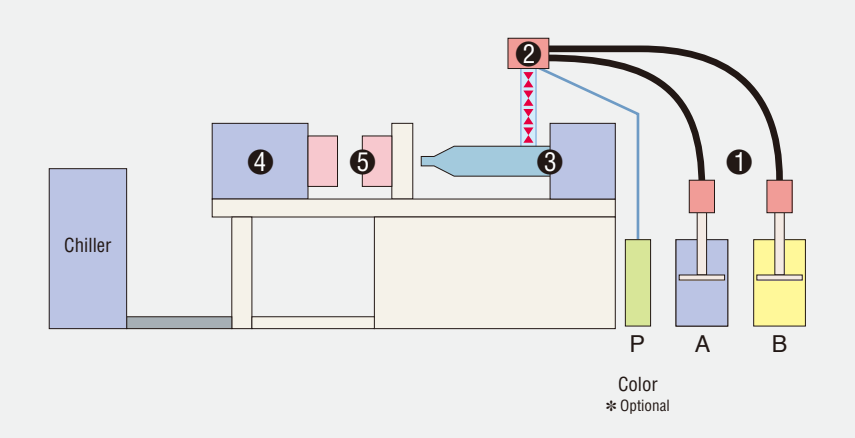


✻ This value is not a specification value or guaranteed value.

LIMS® Molding Machines

LIMS materials consist of two viscous fluid components, with viscosities between 50 and 2,000 Pa·s at room temperature.
Two components ("A" and "B") are mixed in a 100:100 ratio and the mixture quickly vulcanizes in a high temperature heated tool.
LIMS molding requires an injection unit which can be cooled by water and a dosage system which feeds and mixes the material.
Please contact a Shin-Etsu representative for more information about molding machines.

■ Basic configuration of a LIMS® molding machine



❶ **Material supply unit:** This should pump both components in a 100:100 ratio into the mixing unit.
❷ **Mixing unit:** Mixes two components homogeneously. A static mixer is often utilized in order to avoid air entrainment.
❸ **Injection unit:** LIMS material is highly flowable, therefore LIMS molding can be done at low injection pressure.
The user sets the injection speed and pressure according to the volume or shape of the product.
❹ **Molding machine:** This controlls clamping, opening, ejection, etc. The operation is basically same as one for thermoplastics.
❺ **Mold:** For LIMS molding, cold-runner system is becoming popular to minimize sprue and runner scrap that cannot be reused.

■ Points to consider when putting together a system

- The most important consideration when putting together a system is the material to be used for the seals. For example, for sliding and rotating parts, use nitrided steel or ceramic, avoid metal-on-metal contact, and use 1-3 Teflon-based gaskets.
- Be careful to prevent leakage, because the liquid molding compound can easily seep into gaps.
- The inorganic fillers contained in the molding compounds can cause increased wear on the mechanical components (mixing unit, mold). This should be considered when selecting materials for the components.
- In designing the mechanisms "downstream" of the mixing unit (shut-off nozzle, mold clamping unit, mold, etc.), take care to avoid configurations that create spots where the molding compound can collect.
- The molding compounds are compressible fluids, so be sure to adjust the timing so that the liquids flow into the mixing system simultaneously.
- Be sure the mold configuration permits air bleeding.

✻ For more information, please talk to a Shin-Etsu representative.

■ Molding defects: causes and remedies

Problem	Cause	Remedy
Blistering	Insufficient cure	Increase curing time, increase temperature.
	Insufficient molding pressure	Increase pressure.
	Air bubbles	Thoroughly remove air from pails. Adjust injection rate.
	Uneven heating	Adjust heating unit.
Voids Surface bubbles Uneven color	Insufficient cure	Increase curing time.
	Insufficient air removal	Thoroughly remove air from pail.
	Trapped air	Prevent introduction of air during injection.
	Mold temperature too high	Reduce mold temperature. Be aware of temperature distribution throughout mold.
	Uneven mixing	Adjust injection rate. Check mixing unit.
Weld marks	Improper mix ratio and uneven mixing	Adjust mix ratio. Adjust injection rate.
	Improper molding pressure	Increase pressure. Reduce temperature.
	Injection time too long	Reduce injection time.
	Insufficient air-bleed at the fused sections	Make an air bleed.
	Unbalanced gates	Balance the gates.
Poor gloss	Insufficient cure	Increase curing time. Raise mold temperature.
	Roughness of the mold surface	Polish and use hard chrome plating. Use weaker release agent.
Poor mold release	Improper curing conditions	Increase curing time.
	Poor mold surface	Repair mold.
	Uneven surface temperature distribution	Consider changing heating method.
Nozzle leaks	Worn or damaged nozzle	Inspect shut-off nozzle.
Poor cure	Curing inhibition	Eliminate curing inhibitors.
	Mix ratio	Check mixing system.

Packaging

Product name	Packaging			
	18 L pail		180 L drum	
	18 kg	20 kg	180 kg	200 kg
KE-1950-10-A/B	●			●
KE-1950-20-A/B	●			●
KE-1950-30-A/B		●		●
KE-1950-40-A/B		●		●
KE-1950-50-A/B		●		●
KE-1950-60-A/B		●		●
KE-1950-70-A/B		●		●
KEG-2000-20-A/B		●		●
KEG-2000-30-A/B		●		●
KEG-2000-40-A/B		●		●
KEG-2000-50-A/B		●		●
KEG-2000-60-A/B		●		●
KEG-2000-70-A/B		●		●
KEG-2000-80-A/B		●		●
KEG-2001-40-A/B		●		●
KEG-2001-50-A/B		●		●
KEG-2001-60-A/B		●		●
KEG-2001-70-A/B		●		●
KEG-2003H-30-A/B		●		●
KEG-2003H-40-A/B		●		●
KEG-2003H-50-A/B		●		●
KEG-2003H-60-A/B		●		●
KEG-2003H-70-A/B		●		●
KE-2017-20-A/B		●		●
KE-2017-40-A/B		●		●
KE-2017-50-A/B		●		●
KE-2019-30-A/B		●		
KE-2019-40-A/B		●		●
KE-2019-50-A/B		●		●
KE-2019-60-A/B		●		●
KE-2097-30-A/B	●			
KE-2097-40-A/B	●			
KE-2097-50-A/B	●			
KE-2097-60-A/B	●			●
KE-2098-40-A/B	●			●
KE-2098-50-A/B	●			●
KE-2098-60-A/B	●			●
KE-2061-30-A/B	●			●
KE-2061-40-A/B	●			●
KE-2061-50-A/B	●			●
KE-2061-60-A/B	●			●
KE-2061-70-A/B	●			●
KE-2061-80-A/B	●			●
KE-2061-90-A/B	●			●

Handling Precautions

■ Handling precautions

1. Seal container tightly and store in a cool, dark place (25°C or below, out of direct sunlight) with good ventilation. Keep away from heat and flame because the primers used may be classified as flammable hazardous materials.
2. LIMS liquid silicone rubbers may not cure properly if they come in contact with certain substances, including amines, sulfur, organophosphorus compounds and organotin compounds. If there is a possibility of curing inhibition, the user should perform a test to determine whether the product will cure properly.

   Some curing inhibitors
   - Chloroprene and other synthetic rubbers
   - Sulfur compounds
   - Soft PVC
   - Amine-cure epoxies
   - PVC insulating tape
   - Soldering flux that contains rosin
3. Mixing Liquid B with alkaline substances produces flammable hydrogen gas, so handle with caution.

■ Cautions in using self-adhesive liquid silicone

1. Even among the same resin materials, some materials are not suited to addition reactions of silicone rubbers or cannot sufficiently exert adhesion depending on their method of polymerization, degree of refining and types of additive and resin. When designing, check the resin to be used in advance.
2. In the situations where the resin surface is dirty, clean the surface with a solvent or similar.
3. As for polyamide resin, it is recommended to dry the resin before molding since it has high water absorption properties. Moreover, attention must be paid to the molding procedure and conditions in the situations where heat treatment and humidity conditioning are performed to acquire dimensional stability.
4. The release properties may vary depending on the mold material and condition of the surface (plating), so be sure to test prior to use.

■ Safety and Hygiene

1. When handling the products, take care to avoid contact with the skin and mucous membranes by wearing protective glasses and protective gloves. In case of skin contact, immediately wipe off with dry cloth and then flush thoroughly with running water. In case of accidental eye contact, flush immediately with plenty of clean water for at least 15 minutes and then seek medical attention. Contact lens wearers must take special care. If the products get into the eye, the contact lens may become stuck to the eye.
2. In the small place with poor ventilation, please wear a protective mask. And it is recommended to install a local exhaust ventilation system. If you become uncomfortable with inspiring the vapors, move to an area with fresh air immediately.
3. Keep out of the reach of children.
4. Please read the Safety Data Sheets (SDS) before use. SDS can be obtained from our sales department.

Silicone Division Sales and Marketing Department Ⅲ

Marunouchi Eiraku Bldg., 4-1, Marunouchi 1-chome, Chiyoda-ku, Tokyo 100-0005, Japan
Phone : +81-(0)3-6812-2408 Fax : +81-(0)3-6812-2415

Shin-Etsu Silicones of America, Inc.
1150 Damar Drive, Akron, OH 44305, U.S.A.
Phone : +1-330-630-9860 Fax : +1-330-630-9855

Shin-Etsu do Brasil Representação de Produtos Químicos Ltda.
Rua Coronel Oscar Porto, 736 - 8°Andar - Sala 84,
Paraíso São Paulo - SP Brasil CEP: 04003-003
Phone : +55-11-3939-0690 Fax : +55-11-3052-3904

Shin-Etsu Silicones Europe B.V.
Bolderweg 32, 1332 AV, Almere, The Netherlands
Phone : +31-(0)36-5493170 Fax : +31-(0)36-5326459
(Products & Services: Products for Cosmetics Application)

Germany Branch
Kasteler Str. 45, 65203 Wiesbaden, Germany
Phone : +49-(0)611-71187290
(Products & Services: Products for Industrial Applications)

Shin-Etsu Silicone Korea Co., Ltd.
GT Tower 15F, 411, Seocho-daero, Seocho-gu,
Seoul 06615, Korea
Phone : +82-(0)2-590-2500 Fax : +82-(0)2-590-2501

Shin-Etsu Silicone International Trading (Shanghai) Co., Ltd.
29F Junyao International Plaza, No.789,
Zhao Jia Bang Road, Shanghai 200032, China
Phone : +86-(0)21-6443-5550 Fax : +86-(0)21-6443-5868

Guangzhou Branch
Room 2409-2410, Tower B, China Shine Plaza, 9 Linhexi Road,
Tianhe, Guangzhou, Guangdong 510610, China
Phone : +86-(0)20-3831-0212 Fax : +86-(0)20-3831-0207

Shin-Etsu Silicone Taiwan Co., Ltd.
Hung Kuo Building 11F-D, No.167, Dunhua N.Rd.,
Taipei, 105406, Taiwan, R.O.C.
Phone : +886-(0)2-2715-0055 Fax : +886-(0)2-2715-0066

Shin-Etsu Singapore Pte. Ltd.
1 Kim Seng Promenade #15-05/06 Great World City
East Tower, Singapore 237994
Phone : +65-6743-7277 Fax : +65-6743-7477

Shin-Etsu Silicones Vietnam Co., Ltd.
Unit 4, 11th Floor, A&B Tower, 76A Le Lai Street,
Ben Thanh Ward, District 1, Ho Chi Minh City, Vietnam
Phone : +84-(0)28-35355270

Shin-Etsu Silicones India Pvt. Ltd.
Unit No. 403A, Fourth Floor, Eros Corporate Tower,
Nehru Place, New Delhi 110019, India
Phone : +91-11-43623081 Fax : +91-11-43623084

Shin-Etsu Silicones (Thailand) Ltd.
7th Floor, Unit 7F, Harindhorn Tower,
54 North Sathorn Road, Bangkok 10500, Thailand
Phone : +66-(0)2-632-2941 Fax : +66-(0)2-632-2945

- The data and information presented in this catalog may not be relied upon to represent standard values. Shin-Etsu reserves the right to change such data and information, in whole or in part, in this catalog, including product performance standards and specifications without notice.
- Users are solely responsible for making preliminary tests to determine the suitability of products for their intended use. Statements concerning possible or suggested uses made herein may not be relied upon, or be construed, as a guaranty of no patent infringement.
- For detailed information regarding safety, please refer to the Safety Data Sheet (SDS).
- The silicone products described herein have been designed, manufactured and developed solely for general industrial use only; such silicone products are not designed for, intended for use as, or suitable for, medical, surgical or other particular purposes. Users have the sole responsibility and obligation to determine the suitability of the silicone products described herein for any application, to make preliminary tests, and to confirm the safety of such products for their use.
- Users must never use the silicone products described herein for the purpose of implantation into the human body and/or injection into humans.
- Users are solely responsible for exporting or importing the silicone products described herein, and complying with all applicable laws, regulations, and rules relating to the use of such products. Shin-Etsu recommends checking each pertinent country's laws, regulations, and rules in advance, when exporting or importing, and before using the products.
- Please contact Shin-Etsu before reproducing any part of this catalog. Copyright belongs to Shin-Etsu Chemical Co., Ltd.

The Development and Manufacture of Shin-Etsu Silicones are based on the following registered international quality and environmental management standards.

Gunma Complex	ISO 9001 (JCQA-0004)	ISO 14001 (JCQA-E-0002)
Naoetsu Plant	ISO 9001 (JCQA-0018)	ISO 14001 (JCQA-E-0064)
Takefu Plant	ISO 9001 (JQA-0479)	ISO 14001 (JQA-EM0298)

"Shin-Etsu Silicone" is a registered trademark of Shin-Etsu Chemical Co., Ltd.

https://www.shinetsusilicone-global.com/

This is an edited version of the product data released on Jul. 2024.

©Shin-Etsu 2024.3/2024.7②M.G. Web in Japan.