

KCC SILICONE HCE

New world | New leader | New face

HCE

KCC SILICONE HCE CATALOG

KCC SILICONE Corporation

Coporate Headquarters 344, saphyeong-daero, seocho-gu, korea
Tel. (82)-2-3480-5000 Fax. (82)-2-480-8557

Homepage www.kccsilicone.co.kr

UK

KCC Basildon Chemical Co., Ltd.
7 Kimber Road, Abingdon, Oxon OX14 1RZ, England (Zip code : OX14)
Tel: (44)-1235-205003, Fax: (44)-1235-524334, Email : hukim@kccworld.co.kr

GUANGZHOU, CHINA

KCC(GUANGZHOU) Co., Ltd.
No.9 Doutang street, Yonghe Economic Zone,
Guangzhou, P.R.China (Zip code : 511356)
Tel: (86)-20-3222-1111, Fax : (86)-20-3222-2021
Email : Kccguangzhou@kccworld.co.kr

INDIA

KCC India representative
No. 17013, Tower 17A
Prestige Bella Vista
Iyappathangal, Chennai - 600056, India
Ph : (91)-96000-56740

2021.02

KCC SILICONE Corporation

We are reaching out to the world
with quality and technology



A precision chemical corporation growing rapidly based on customer's confidence

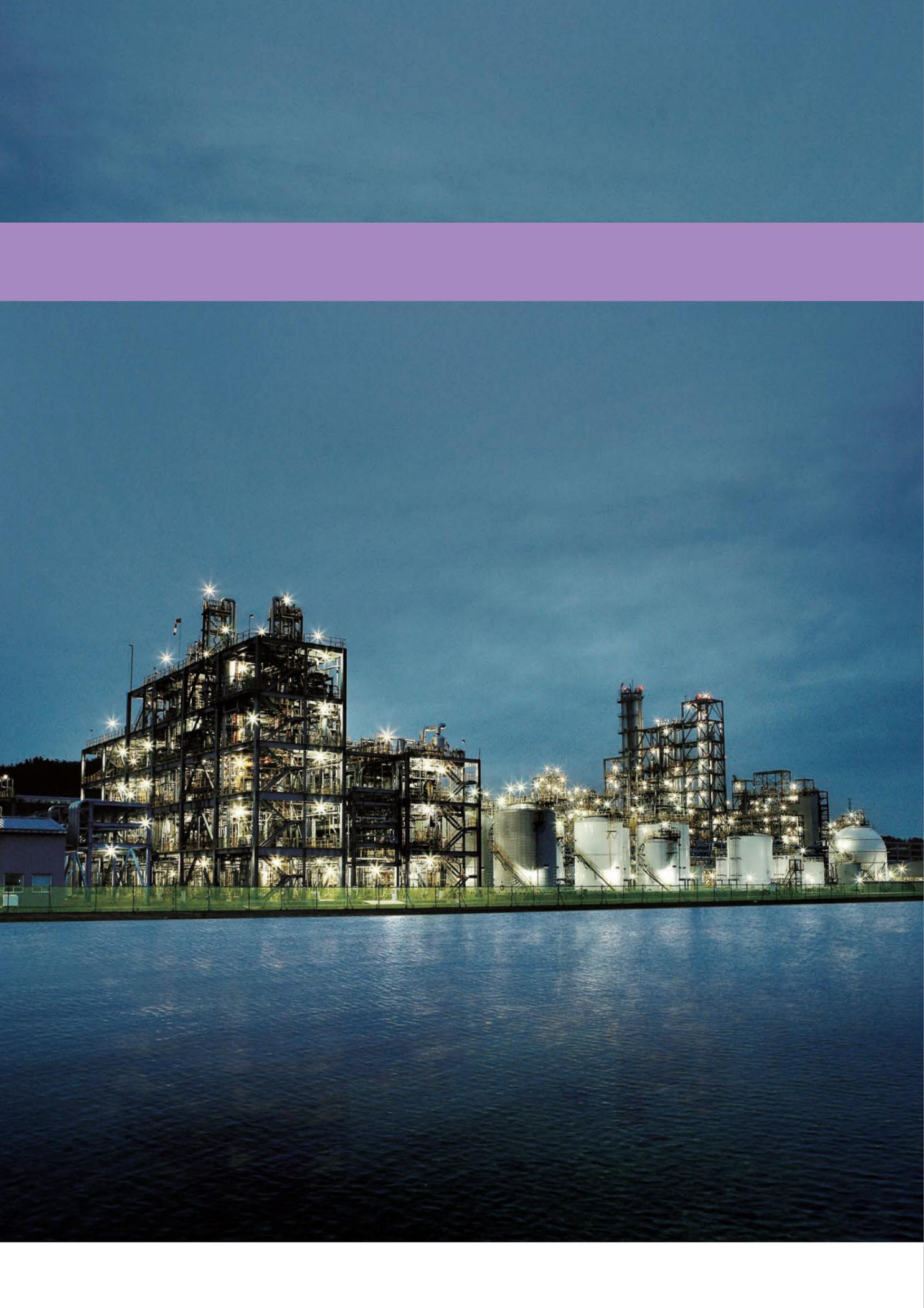
With state-of-the-art technology and ultra-modern production facilities, KCC Silicone seeks the perfection in the quality of its products and customer services. Each and every product that it introduces to its customers on the marketplace is always the result of creative and intensive R&D activities satisfying the diversified customer needs. KCC Silicone always remains deeply committed to ever the living environment by leading the building and industrial upgrading materials industry through continuous research and development precisely reflecting the market trends and user-wishes.

KCC Silicone Corporation Service Network



About KCC Silicone





We are reaching out to the world
with quality and technology

We produce and distribute various silicone products including silicone rubber, sealants for construction and industrial use, silane, silicone oil, silicone emulsion, and silicone dispersion products.

We produce and distribute various silicone products including silicone rubber, sealants for construction and industrial use, silane, silicone oil, silicone emulsion, and silicone dispersion products.

Today's building materials are essential blends or composites of organic and inorganic chemical products.

KCC Silicone takes pride in being a market leader in these particular chemical fields. In the past, the two divisions within KCC Silicone operated separately, but they are now merged together to provide enhanced synergy, cost efficiency, and service to our multitude of highly valued customers. Korea Chemical Co. Ltd., that specialized in organic chemical products (mainly paints and resins for paints) has merged with Kumgang Chemical Co. Ltd., into a single legal entity entitled Kumgang Korea Chemical Co. Ltd. The company is known as KCC Silicone for short. The technical integration of the organic and inorganic chemistry business under the same roof ensures better products, better technical service, and more competitive prices. KCC Silicone continues to be a worldwide industrial player in the 21st century and continues to invest in innovative R&D activities.

Introduction to KCC Silicone Business

KCC Silicone constructed the first silicone monomer production plant in Korea in 2003. KCC Silicone has made great R&D advances for the silicone industry with researchers specialized in the field of silicone monomer, polymer synthesis, and the development of applicable products. Thus, KCC Silicone has completed the development in the silicone-related field successfully. KCC Silicone is ready to produce and provide silicone products including silicone sealant for construction, industrial RTV, silane, fluids, emulsion and dispersion, as well as rubber.

Moreover, KCC Silicone makes contributions to promote the competitive power of our customers by supplying products corresponding to their needs and by concentrating our energies on R & D activities.

KCC SILICONE RUBBER



Contents

- Silicone HCE
- Characteristics of Silicone Elastomers
- Manufacturing process
- Curing Agents
- Production process for HCE rubber parts
- General Purpose for Molding
- General Purpose for Extruding
- Low Hardness HCE
- High Hardness HCE
- High Tear Strength HCE
- Low Compression Set HCE
- Steam Resistant HCE
- Electrically Conductive HCE
- Thermally Conductive HCE
- Flame Retardant HCE
- Wire & Cable HCE
- HCE for High Voltage Insulation
- Oil Bleed HCE
- High Fatigue Resistant HCE
- High Transparent & High Strength HCE
- High Heat Resistant HCE
- High Green Strength HCE
- Addition cure HCE
- Sponge HCE
- Fire resistant HCE
- Additives for HCE
- Color Master Batch for HCE

Silicone HCE

Definition

HTV : High Temperature Vulcanizing

HCR : Heat Cured Rubber

HVR : Heat Vulcanizing Rubber

HCE : Heat Cured Elastomer

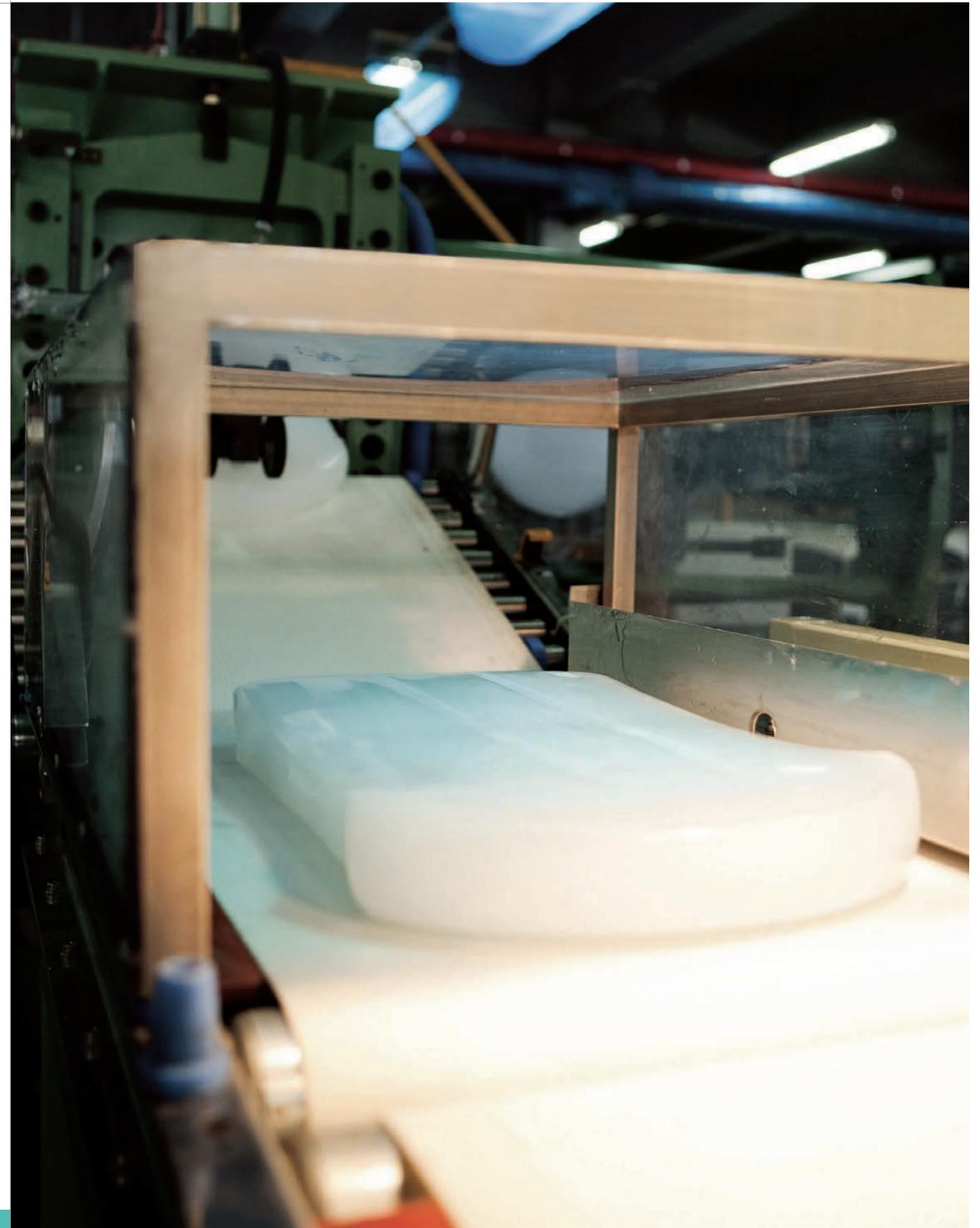
Milable silicone rubber

Description

A long chain silicone gum with controlled vinyl level is combined with fumed, precipitated silica as reinforcing filler along with various other materials and additives to create special properties.

Once you cure the compounds at high temperature (100~200 °C) after mixing with catalysts

❖ It becomes HCE silicone elastomer



Characteristics of Silicone Elastomers

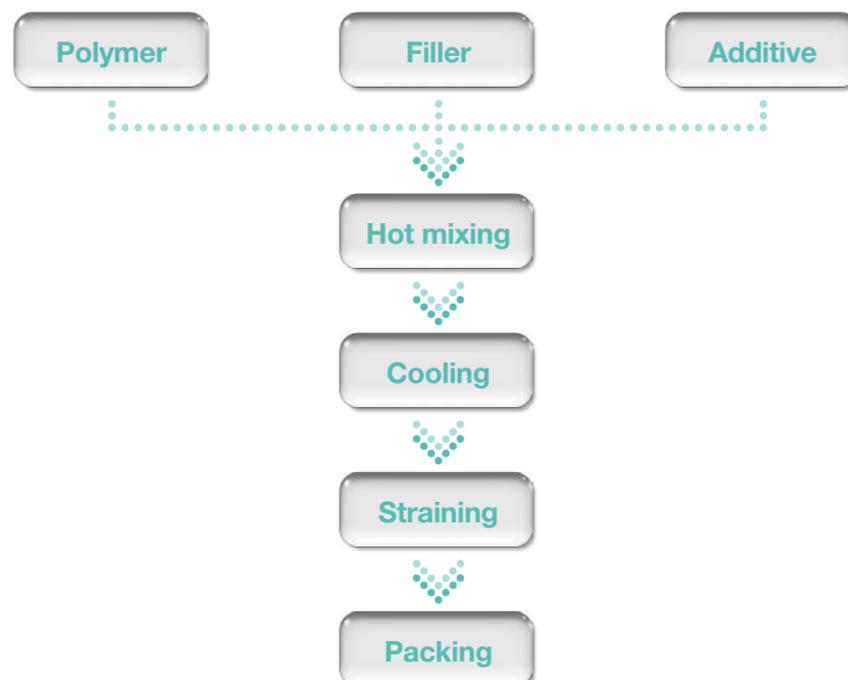
Advantages

- Heat resistance : Usable at 200 °c for over 10,000 hours
- Cold resistance : Flexible at ~ -50 °c
- Good mechanical properties : At high temperature conditions
- Good electrical properties : Less affected by temperature change
- Ozone resistance & Good weatherability
- Flame retardant : Low-toxic gas & good flame retardant
- Good chemical resistance : Low swelling in acid, base & polar organic compound
- Excellent gas permeability : Possibility of application to medical devices needing high gas permeability
- Water repellent & releasing ability

Weak points

- Mechanical strength
- Abrasion resistance property
- Oil & solvent stability

Manufacturing Process



Curing Agents

Peroxide curing (organic peroxides)

Extruding class

- 2,4-dichlorobenzoyl peroxide
benzoyl peroxide
- Low molding temperature
- Possible to HAV (Hot Air Vulcanization)
- Decomposition byproducts can cause reversion

Molding class

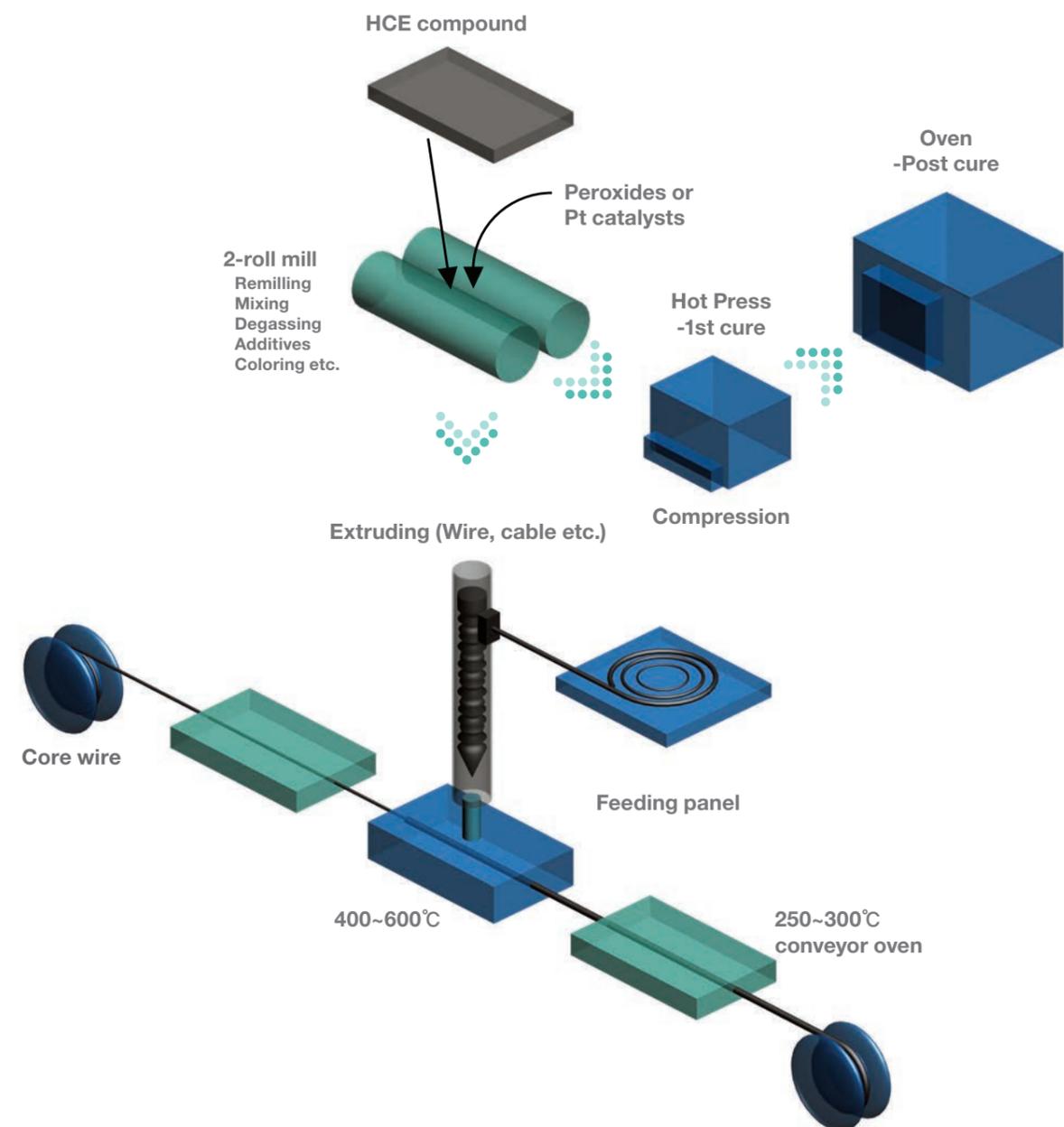
- 2,5-dimethyl-2,5-di (tert-butyl peroxy) hexane
dicumyl peroxide
- High molding temperature
- Decomposition byproduct easy to remove
- Low compression Set
- High elongation & tensile strength

Addition curing (Pt catalysts)

- No decomposition products
- Good tear strength
- Applicable for medical and food contact rubber parts



Production process for HCE rubber parts



General Purpose for Molding

Description

KCC translucent general purpose silicone rubber products are heat-curing silicone rubbers which are widely used for molding in various industries. They exhibit excellent mill workability, mold release ability. These grades have mechanical properties, and are used in various applications such as keypads and kitchenware.

Characteristics

- Well balanced mechanical properties
- Excellent process ability in compression molding, etc
- Passing UL 94 HB test
- Complies with FDA and BfR recommendations for articles in contact with food



Properties	Test method	Unit	SH0030U	SH0040U	SH0050U	SH0060U	SH0070U	SH0080U
Appearance	ASTM E1767	-	Translucent				Light grey	
Williams plasticity	ASTM D926	-	130	160	190	210	240	280
Specific gravity	ASTM D792	-	1.09	1.12	1.15	1.23	1.30	1.43
Hardness	ASTM D2240	Shore A	30	40	50	60	70	80
Tensile strength	ASTM D412	MPa	7.5	8.9	8.5	7.7	8.1	7.0
Elongation	ASTM D412	%	800	600	430	270	220	180
Tear strength	ASTM D624 C	N/mm	22	26	27	21	19	16
Resilience	ASTM D1054	%	58	63	63	52	49	44
Compression set 22hrs at 175°C	ASTM D395	%	19	18	18	14	14	25

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr
 ※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air



Applications

- General industry articles (Keypad, O-rings OA rollers)
- Food contact articles (packing, Kitchenware)
- Automotive articles (O-rings, oil filters)



Properties	Test method	Unit	SH5060U	SH5070U	SH5180U
Appearance	ASTM E1767	-	Translucent		
Williams plasticity	ASTM D926	-	200	240	330
Specific gravity	ASTM D792	-	1.17	1.19	1.23
Hardness	ASTM D2240	Shore A	60	70	80
Tensile strength	ASTM D412	MPa	8.8	8.4	7.5
Elongation	ASTM D412	%	400	270	210
Tear strength	ASTM D624 C	N/mm	28	27	23
Resilience	ASTM D1054	%	58	57	50
Compression set 22hrs at 175°C	ASTM D395	%	16	17	15

Properties	Test method	Unit	SH0830U	SH0840U	SH0850U	SH5860U
Appearance	ASTM E1767	-	Translucent			
Williams plasticity	ASTM D926	-	140	160	190	220
Specific gravity	ASTM D792	-	1.10	1.12	1.15	1.18
Hardness	ASTM D2240	Shore A	30	40	50	60
Tensile strength	ASTM D412	MPa	7.0	8.3	7.8	8.0
Elongation	ASTM D412	%	660	520	360	260
Tear strength	ASTM D624 C	N/mm	22	26	25	24
Resilience	ASTM D1054	%	56	61	62	70
Compression set 22hrs at 175°C	ASTM D395	%	25	19	18	12

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr
 ※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

General Purpose for Extruding

Description

KCC General purpose extruding silicone rubber products are compounds with Shore A hardness 30, 40, 50, 60, 70 and 80. They are designed to facilitate mixing with extending fillers and additives. Along with mechanical and electrical properties, these products have excellent process abilities and transparency. Also, various hardness levels can be made by mixing each grade. Rubber parts are usually made by an extruding process, and compression molding method is also possible.

Characteristics

- Excellent mechanical and electrical properties
- Excellent process ability in extruding & molding, etc
- Good heat resistance when stabilized with SH0008B additive
- Complies with FDA and BfR recommendations for articles in contact with food



Properties	Test method	Unit	SH1021U	SH1032U	SH1040U	SH1040E	SH1041U	SH1050U	SH1050E	SH1053E
Appearance	ASTM E1767	-	Transparent							
Williams plasticity	ASTM D926	-	140	140	150	160	170	190	180	170
Specific gravity	ASTM D792	-	1.09	1.10	1.11	1.12	1.12	1.13	1.15	1.15
Hardness	ASTM D2240	Shore A	32	38	40	43	45	50	50	51
Tensile strength	ASTM D412	MPa	6.7	6.6	7.3	6.5	8.9	8.4	9.8	9.0
Elongation	ASTM D412	%	590	550	520	425	540	450	420	450
Tear strength	ASTM D624 C	N/mm	27	25	27	26	31	26	38	41
Tear strength	ASTM D624 B	N/mm	14	13	13	12	15	14	18	41

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr
 ※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air



Applications

- General industry articles (seals, profiles, sheets, gaskets)
- Food contact articles (hoses, tubing, Kitchenware, packing)
- Electrical articles (wire & cable)



Properties	Test method	Unit	SH1060U	SH1061U	SH1060E	SH1063E	SH1070U	SH1072U
Appearance	ASTM E1767	-	Transparent					
Williams plasticity	ASTM D926	-	220	210	240	200	270	290
Specific gravity	ASTM D792	-	1.15	1.16	1.16	1.16	1.19	1.19
Hardness	ASTM D2240	Shore A	60	60	60	60	70	70
Tensile strength	ASTM D412	MPa	9.8	10.2	9.6	9.5	10.0	10.0
Elongation	ASTM D412	%	400	390	320	410	320	340
Tear strength	ASTM D624 C	N/mm	34	28	32	32	30	29
Tear strength	ASTM D624 B	N/mm	15	16	16	31	17	17

Properties	Test method	Unit	SH1072U TT903	SH1073U	SH1073U TT903	SH1080U	SH1080E	SH1080U TT901
Appearance	ASTM E1767	-	Transparent					
Williams plasticity	ASTM D926	-	330	290	320	330	340	380
Specific gravity	ASTM D792	-	1.20	1.19	1.19	1.20	1.21	1.22
Hardness	ASTM D2240	Shore A	73	70	73	80	80	80
Tensile strength	ASTM D412	MPa	9.5	9.3	11.0	9.6	9.2	8.5
Elongation	ASTM D412	%	250	470	520	210	260	350
Tear strength	ASTM D624 C	N/mm	35	34	37	30	31	30
Tear strength	ASTM D624 B	N/mm	15	29	32	12	16	20

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr
 ※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air

Low Hardness HCE

Description

These products have a low hardness (Shore A hardness 9 ~ 20) in the cured state. They can be used in silicone rubber products such as sporting goods and medical articles that require a soft feel.

Characteristics

- Low Shore A hardness and high elastic elongation property
- Excellent process ability in molding & injection
- Complies with FDA and BfR recommendations for articles in contact with food

Applications

- Swimming goods (swimming caps, goggle bands)
- Baby care articles (playthings, covers)
- Highly elastic articles (strip, tape)



Application	Test method	Unit	SH0005U	SH1020U	SH1025U	SH0010U	SH0020U
Appearance	ASTM E1767	-	Transparent			Translucent	
Williams plasticity	ASTM D926	-	120	110	110	90	110
Specific gravity	ASTM D792	-	1.03	1.08	1.02	1.04	1.07
Hardness	ASTM D2240	Shore A	9	20	22	10	20
Tensile strength	ASTM D412	MPa	2.3	5.2	4.0	3.5	5.1
Elongation	ASTM D412	%	960	1,050	810	980	970
Tear strength	ASTM D624 C	N/mm	8	19	14	8	13
Compression set 22hrs at 175°C	ASTM D395	%	55	65	-	26	20

For SH0005U, SH0010U, SH0020U, SH1020U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr

※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

For SH1025U

※Curing agent : SH0003A 1.0 phr / SH0002B 1.5phr

※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air

High Hardness HCE

Description

This series consist of high hardness silicone rubber compounds which have hardness 90 (Shore A) in the cured state. These harder grades can be used to adjust the hardness of other grades, and they also have their own applications

Characteristics

- Super high Shore A hardness 90
- High Williams plasticity and high green strength
- Complies with FDA and BfR recommendations for articles in contact with food

Applications

- General industry articles (Key top of keypads, special rollers)
- Food contact articles (Kitchenware, bottles)

Application	Test method	Unit	SH5190U	SH1090U
Appearance	ASTM E1767	-	Translucent	Transparent
Williams plasticity	ASTM D926	-	300	380
Specific gravity	ASTM D792	-	1.23	1.22
Hardness	ASTM D2240	Shore A	90	90
Tensile strength	ASTM D412	MPa	8.1	7.8
Elongation	ASTM D412	%	70	220
Tear strength	ASTM D624 C	N/mm	15	31
Compression set 22hrs at 175°C	ASTM D395	%	20	19

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 1.0 phr

※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

High Tear Strength HCE

Description

These products have excellent mechanical properties including high tear strength and they are used for applications such as parts with complicated shapes, large molded parts, etc.

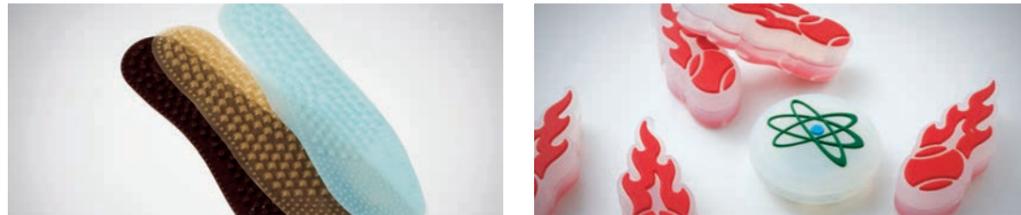
SH7340U, SH7255U, SH7360U show good heat stability by themselves.

Characteristics

- High tear strength & high tensile strength
- Excellent process ability in molding & extruding, etc

Applications

- General industry parts (Rubber labels textile, Spin-casting, sheets, gaskets)
- High mechanical rubber articles
- Automotive articles (Muffler hanger)



Application	Test method	Unit	SH7230U	SH7340U	SH7250U	SH7255U	SH7360U	SH7070U
Appearance	ASTM E1767	-	Transparent					
Williams plasticity	ASTM D926	-	130	160	170	220	200	260
Specific gravity	ASTM D792	-	1.10	1.12	1.13	1.16	1.15	1.18
Hardness	ASTM D2240	Shore A	30	40	50	60	60	70
Tensile strength	ASTM D412	MPa	7.5	9.0	10.0	10.0	10.0	8.5
Elongation	ASTM D412	%	950	1,020	870	920	700	780
Tear strength	ASTM D624 C	N/mm	23	39	37	46	47	45
Tear strength	ASTM D624 B	N/mm	28	36	42	39	45	41
Compression set 22hrs at 175°C	ASTM D395	%	32	24	29	29	14	28
Property change after heat aging 72 hours at 220°C								
Hardness		Shore A	-	+3	-	+2	+1	+5
Tensile strength	ASTM D573	%	-	-25	-	-15	-22	-30
Elongation		%	-	-23	-	-20	-27	-40

※ Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr

※ Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

Low Compression Set HCE

Description

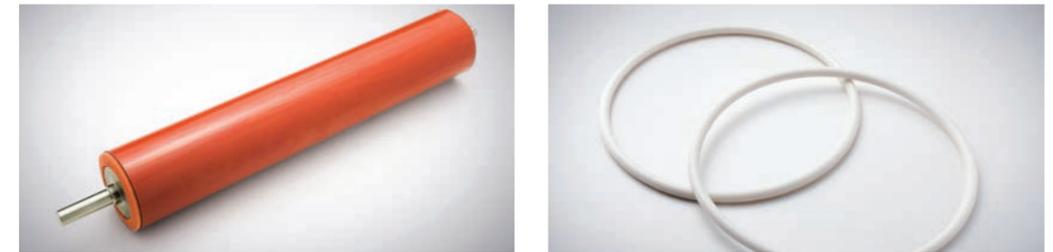
These products are designed to have excellent compression sets without post curing.

Characteristics

- Low compression set without post cure

Applications

- General industry articles
(OA roller, packing, gasket, sheet, seal, O-ring)



Application	Test method	Unit	SH2540U	SH2580U
Appearance	ASTM E1767	-	Light yellow	Beige
Williams plasticity	ASTM D926	-	160	260
Specific gravity	ASTM D792	-	1.10	1.42
Hardness	ASTM D2240	Shore A	42	80
Tensile strength	ASTM D412	MPa	7.7	8
Elongation	ASTM D412	%	550	140
Tear strength	ASTM D624 C	N/mm	24	19
Resilience	ASTM D1054	%	65	50
Compression set 22hrs at 175°C	ASTM D395	%	13	10
Property change after heat aging 72 hours at 250°C				
Hardness		Shore A	-5	+5
Tensile strength	ASTM D573	%	-20	-30
Elongation		%	+9	-50

※ Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 1.0 phr

※ Curing condition : 10mins at 170°C press cure

Steam Resistant HCE

Description

These products are used for various parts requiring steam-, heat-, and oil-resistance as well as excellent mechanical properties under both high temperature.

The Shore A hardness ranges from 50 to 70.

Characteristics

- Steam & heat resistance properties
- Low compression set
- Excellent process ability

Applications

- Packing (steam rice cooker, steam iron, jar pot, autoclave, etc)
- Other industry articles (O-ring, gasket, valves)



Application	Test method	Unit	SH6050U	SH6060U	SH6070U
Appearance	ASTM E1767	-	Light yellow		
Williams plasticity	ASTM D926	-	200	220	210
Specific gravity	ASTM D792	-	1.13	1.15	1.17
Hardness	ASTM D2240	Shore A	50	60	70
Tensile strength	ASTM D412	MPa	9	10	8
Elongation	ASTM D412	%	520	560	170
Tear strength	ASTM D624 C	N/mm	30	36	20
Compression set 22hrs at 175°C	ASTM D395	%	15	10	10
Property change after heat aging 72 hours at 250°C					
Hardness	ASTM D573	Shore A	+1	+1	-1
Tensile strength		%	-7	-24	-20
Elongation		%	-29	-35	-20
Property change after heat aging 168 hours at 3 bars, 130°C					
Hardness	ASTM D471	Shore A	+2	+4	-1
Tensile strength		%	-2	-2	-8
Elongation		%	-13	-14	-1
Volume		%	-1	-1	-1

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr

※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

Electrically Conductive HCE

Description

The electrically conductive series are heat cured compounds for press molding, extrusion and calendaring. The Shore A hardness ranges from 60 to 80

Characteristics

- Electrically conductivity (Low volume resistivity)
- Good mechanical properties

Applications

- Electrical conductive articles (OA roller, sheet, pad, EMI gasket, keypad contact)



Electrically conductive Roller



Electrically conductive sheet

Properties	Test method	Unit	SH6560U	SH6570U	SH6580U
Appearance	ASTM E1767	-	Black		
Williams plasticity	ASTM D926	-	580	750	800
Specific gravity	ASTM D792	-	1.17	1.19	1.21
Hardness	ASTM D2240	Shore A	60	70	80
Tensile strength	ASTM D412	MPa	6.6	6.6	7.5
Elongation	ASTM D412	%	400	240	130
Tear strength	ASTM D624 C	N/mm	28	24	19
Volume resistivity	ASTM D991	Ω.cm	9	5	3

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 2.0 phr

※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

Thermally Conductive HCE

Description

These products are thermal conductive grades
Therefore it is used in electronic appliances to remove heat from devices.

Characteristics

- High thermal conductivity and flame retardant (SH6280U)
- Excellent process ability in molding & extruding, etc

Applications

- Thermal conductive articles for electric devices (Heat spread pad, sheet, cap)



Thermal conductive cap

Properties	Test method	Unit	SH6280U	SH6281U	SH6283U
Appearance	ASTM E1767	-	Dark grey	White	White
Williams plasticity	ASTM D926	-	280	280	200
Specific gravity	ASTM D792	-	2.17	2.15	2.32
Hardness	ASTM D2240	Shore A	80	80	80
Tensile strength	ASTM D412	MPa	4.5	5.0	3.0
Elongation	ASTM D412	%	120	100	90
Tear strength	ASTM D624 C	N/mm	10	10	10
Volume resistivity	ASTM D257	$\Omega \cdot \text{cm}$	3×10^{14}	-	-
Dielectric strength	ASTM D149	KV/mm	26	-	-
Thermal conductivity	ASTM D5470	W/m.k	1.0	1.0	1.3
Elongation	UL 94	-	UL94-V0	-	-

For SH6280U and SH6281U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr
※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

For SH6283U

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr
※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air

Flame Retardant HCE

Description

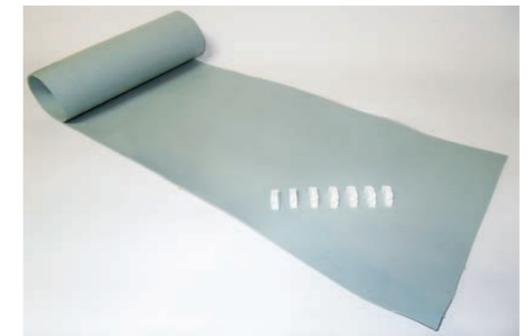
These products are flame retardant grades
SH1520U, SH1550U, SH1572U have a certificate of UL94-V0 (UL file NO : QMFZ8. 253047)
SH8560U, SH8561U have level of UL VW-1

Characteristics

- Excellent process ability in molding & extruding, etc
- Good mechanical and electrical properties

Applications

- Electronic articles (High voltage cap, Back light holder, special wire)
- Construction articles (fire-proof gasket)



Properties	Test method	Unit	SH1520U	SH1550U	SH1572U	SH8560U	SH8561U
Appearance	ASTM E1767	-	Dark grey	White		Transparent	
Williams plasticity	ASTM D926	-	230	210	235	240	220
Specific gravity	ASTM D792	-	1.44	1.40	1.48	1.16	1.15
Hardness	ASTM D2240	Shore A	60	57	70	58	58
Tensile strength	ASTM D412	MPa	7.4	8.2	6.4	13.6	10.1
Elongation	ASTM D412	%	310	380	200	630	490
Tear strength	ASTM D624 C	N/mm	23	24	18	36	35
Volume resistivity	ASTM D257	$\Omega \cdot \text{cm}$	9×10^{15}	3×10^{15}	7×10^{15}	-	-
Dielectric strength	ASTM D149	KV/mm	24	26	20	-	-
Flame retardancy	UL 94	-	UL94V-0	UL94V-0	UL94V-0	UL VW-1	UL VW-1

For SH1520U, SH1550U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr
※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

For SH1572U

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr
※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air

For SH8560U, SH8561U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 1.0 phr
※Curing condition : 10mins at 170°C press cure

Wire & Cable HCE

Description

These products are wire & cable extrusion grades
They have excellent extrusion properties.

Characteristics

- Excellent temperature stability
- Excellent process ability in extruding
- Good mechanical and electrical properties



Applications

- Wire & cables
(general / thermo stable appliances)
- Glass & ceramic packing

Application	Test method	Unit	SH1160U	SH1170U	SH1270U	SH1175U	SH1875U	SH1885U
Appearance	ASTM E1767	-	White	Beige	White	Beige	Beige	Beige
Williams plasticity	ASTM D926	-	210	240	230	235	260	400
Specific gravity	ASTM D792	-	1.40	1.40	1.33	1.58	1.30	1.75
Hardness	ASTM D2240	Shore A	60	70	70	75	75	85
Tensile strength	ASTM D412	MPa	8.2	8.1	7.9	7.5	8	5.0
Elongation	ASTM D412	%	280	190	270	210	350	70
Tear strength	ASTM D624 C	N/mm	23	19	24	16	20	7
Volume resistivity	ASTM D257	Ω.cm	2×10 ¹⁵	1×10 ¹⁵	1.3×10 ¹⁶	1×10 ¹⁵	1×10 ¹⁵	1×10 ¹⁴
Dielectric strength	ASTM D149	KV/mm	27	28	30	28	30	30
Property change after heat aging as below condition								
Hardness change		Shore A	+1	+1	+7	3	-	-
Tensile strength	ASTM D573	%	-13	-15	-30	-4	-	-
Elongation change		%	-7	-6	-45	-21	-	-

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr
 ※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air
 ※Heat aging condition : SH1160U, SH1170U (72hrs at 250°C) SH1175U (70hrs at 225°C), SH1270U (168hrs at 250°C)
 ※SH1875U is flame resistant HCE silicone for safety cable (Limited oxygen index : 30)
 ※SH1885U is flame resistant HCE silicone for safety cable. Customer can use blending between SH1885U and extrusion grade to improve mechanical properties.

HCE for High Voltage Insulator

Description

This product is a molding compound for high voltage insulating applications. It is already mixed with a peroxide catalyst.

Characteristics

- Excellent tracking & erosion resistance
- Excellent electrical insulation properties
- Superior water repellency
- Excellent process ability in injection molding



Applications

- High voltage insulators, cable terminations and connectors
- Surge arrestors, suspension insulators

Properties	Test method	Unit	SH4001Z
Appearance	ASTM E1767	-	Dark grey
Williams plasticity	ASTM D926	-	230
Specific gravity	ASTM D792	-	1.56
Hardness	ASTM D2240	Shore A	65
Tensile strength	ASTM D412	MPa	4.3
Elongation	ASTM D412	%	280
Tear strength	ASTM D624 C	N/mm	17
Tracking resistance	IEC 60587	kV	4.5
Volume resistivity	ASTM D257	Ωcm	2.9*10 ¹⁶
Dielectric strength	ASTM D149	kv/mm	21.2
Dielectric constant (60Hz)	ASTM D150	-	3.94
Dissipation factor (60Hz)	ASTM D150	-	0.03
Tracking resistance	IEC 60587	kV	2.4

※They are already mixed curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 1.0 phr
 ※Curing condition : 10mins at 170°C press cure

Oil Bleed HCE

Description

These products release a lubricating oil to the surface elastomer article after curing. This allows easy assembly and waterproof properties. They can be used by various processing methods such as injection, transfer molding and calendaring

Characteristics

- Good heat and oil resistance properties
- Excellent process ability in injection, transfer molding
- Good mechanical properties

Applications

- Automotive articles (Wire harness connectors, grommets, single wire gaskets, flat gaskets)
- Industry articles (O-ring, oil seals)



Properties	Test method	Unit	SH9030U	SH9035U	SH9040U	SH9040U NA0550	SH9050U	SH9060U	SH9070U
Appearance	ASTM E1767	-	Milky White					Beige	White
Williams plasticity	ASTM D926	-	160	170	170	160	170	210	230
Specific gravity	ASTM D792	-	1.12	1.13	1.14	1.14	1.16	1.20	1.20
Hardness	ASTM D2240	Shore A	30	32	40	39	50	60	70
Tensile strength	ASTM D412	MPa	7.0	7.8	7.9	7.9	8.0	7.5	7.5
Elongation	ASTM D412	%	550	580	530	530	400	330	300
Tear strength	ASTM D624 C	N/mm	23	23	26	25	24	22	24
Compression set 22hrs at 175°C	ASTM D395	%	20	23	18	14	13	20	20

※ Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr
 ※ Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

High Fatigue Resistant HCE

Description

These products designed for high dynamic articles (keypads, single key domes)

Characteristics

- Excellent dynamic durability
- High rebound resiliency
- Excellent process ability in molding
- High dispersion degree
- Low compression set

Applications

- Electronic articles (Dynamic keypad, key board, key switch)
- Various industrial uses for high durability



Properties	Test method	Unit	SH9131U	SH9141U	SH9151U	SH9161U	SH9171U	SH9182U
Appearance	ASTM E1767	-	Transparent					
Williams plasticity	ASTM D926	-	140	150	170	180	210	290
Specific gravity	ASTM D792	-	1.08	1.08	1.10	1.11	1.15	1.19
Hardness	ASTM D2240	Shore A	30	40	52	60	70	80
Tensile strength	ASTM D412	MPa	7.3	7.2	9.3	9.3	9.5	9.6
Elongation	ASTM D412	%	730	480	480	370	320	230
Tear strength	ASTM D624 C	N/mm	28	28	37	39	37	34
Resilience	ASTM D1054	%	75	80	78	75	77	63
Compression set 22hrs at 175°C	ASTM D395	%	14	12	15	15	20	16
Fatigue resistant degree	ASTM D4482	cycle	6,000,000	6,000,000	1,500,000	1,650,000	1,000,000	1,000,000

For SH9131U, SH9141U, SH9151U and SH9161U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.8 phr
 ※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air
 ※Fatigue resistant test condition : 150% elongation 5 cycle/sec

For SH9171U and SH9182U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr
 ※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air
 ※Fatigue resistant test condition : 100% elongation 5 cycle/sec

High Transparent & High Strength HCE

Description

These products deliver highly transparent and mechanically strong silicone elastomers which have Shore A hardness from 30 to 70 useful by various processing methods (extruding, molding, calendaring). They have a good heat stability with additive SH0008B

Characteristics

- Excellent mechanical and electrical properties
- Excellent process ability in extruding & molding
- Good transparency
- Good heat resistance with heat stabilizer SH0008B
- Complies with FDA and BfR recommendations for articles in contact with food



Applications

- High mechanical strength articles for various industries (seals, profiles, sheets, gasket)
- Healthcare & food contact articles (baby cares, hoses, tubing, kitchenware)

Application	Test method	Unit	SH2130U	SH2140U	SH1660U	SH8250U	SH8260U	SH8270U
Appearance	ASTM E1767	-	Good transparent					
Williams plasticity	ASTM D926	-	140	160	230	220	250	290
Specific gravity	ASTM D792	-	1.10	1.12	1.17	1.17	1.18	1.19
Hardness	ASTM D2240	Shore A	34	42	60	50	60	70
Tensile strength	ASTM D412	MPa	8.0	11.0	12.4	9.0	10.0	10.0
Elongation	ASTM D412	%	1,010	1,000	640	600	550	450
Tear strength	ASTM D624 C	N/mm	26	28	34	25	25	35
Tear strength	ASTM D624 B	N/mm	19	19	24	20	20	23
Compression set 22hrs at 175°C	ASTM D395	%	14	35	34	50	65	60

For SH2130U and SH2140U

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr

※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

For SH1660U, SH8250U, SH8260U and SH8270U

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr

※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air

High Heat Resistant HCE

Description

These products are high heat resistant grades

Characteristics

- Excellent heat resistant at over 250 degree Celsius
- Excellent mechanical properties

Applications

- Heat resistant parts (Gaskets, Seals, Boots, Wires)

Properties	Test method	Unit	SH7751U	SH7761U	SH7771U	SH7781U
Appearance	ASTM E1767	-	Beige	Beige	Beige	Beige
Williams plasticity	ASTM D926	-	190	220	280	320
Specific gravity	ASTM D792	-	1.15	1.17	1.20	1.23
Hardness	ASTM D2240	Shore A	50	60	70	80
Tensile strength	ASTM D412	MPa	10.0	10.0	9.5	8.0
Elongation	ASTM D412	%	600	510	320	200
Tear strength	ASTM D624 C	N/mm	29	31	35	30
Property change after heat aging 72 hours at 250°C						
Hardness		Shore A	+2	+2	+4	+1
Tensile strength	ASTM D573	%	-10	-17	-10	-24
Elongation		%	-18	-20	-20	-34

※Curing agent : KC-8 (2,5-dimethyl 2,5-di(t-butyl peroxy) hexane 45% paste) 0.5 phr

※Curing condition : 10mins at 170°C press cure → 4 hours at 200°C hot air

High Green Strength HCE

Description

SH7965E has Shore A hardness 65 silicone rubber with high green strength, which enhance by various processing methods, such as calendaring, extrusion

Characteristics

- High green strength to make huge sized extrusion hose
- High dimensional stability to make calendared sheets
- Excellent mechanical & adhesion properties

Applications

- Automotives hose (Turbo charger hose, Intercooler hose, water hose)
- Huge sized extrusion hose (Corona sleeve tube)

Properties	Test method	Unit	SH7965E
Appearance	ASTM E1767	-	Transparent
Williams plasticity	ASTM D926	-	350
Specific gravity	ASTM D792	-	1.2
Hardness	ASTM D2240	Shore A	68
Tensile strength	ASTM D412	MPa	10.5
Elongation	ASTM D412	%	670
Tear strength	ASTM D624 B	N/mm	28
Tear strength	ASTM D624 C	N/mm	35

For SH7965E

- ※ Curing agent : DCP (Dicumyl peroxide 98% granule), 0.7 phr
- ※ Curing condition : 15mins at 165°C press cure → 4 hours at 200°C hot air

Addition cure HCE

Description

These products are specially designed for addition cure properly post-cured articles comply with BfR and FDA food contact regulations.

SH2630U, SH2660U, SH2670U have a certification of USP Class VI

Characteristics

- Excellent process ability in extruding & molding
- Excellent mechanical properties & good transparency
- Complies with FDA and BfR recommendations for articles in contact with food



Food container gasket

Applications

- Food contact articles (Hoses, Tubing, Kitchenware, Packing)
- Healthcare, medical devices (Catheter balloons, Seals, Tubing, Drains)

Properties	Test method	Unit	SH2630U	SH1440U	SH1460U	SH2660U	SH2670U	SH2781U	SH2770U	SH2780U
Appearance	ASTM E1767	-	Transparent						Translucent	
Williams plasticity	ASTM D926	-	150	180	250	250	260	330	240	310
Specific gravity	ASTM D792	-	1.10	1.14	1.15	1.18	1.18	1.21	1.19	1.21
Hardness	ASTM D2240	Shore A	30	40	66	60	70	82	70	83
Tensile strength	ASTM D412	MPa	9.0	10.7	9.0	10.5	10.0	11.2	9.5	9.2
Elongation	ASTM D412	%	700	860	300	640	400	250	220	190
Tear strength	ASTM D624 C	N/mm	30	33	33	36	30	35	29	27
Tear strength	ASTM D624 B	N/mm	15	30	13	35	28	14	10	17

For SH2630U, SH1440U and SH1460U

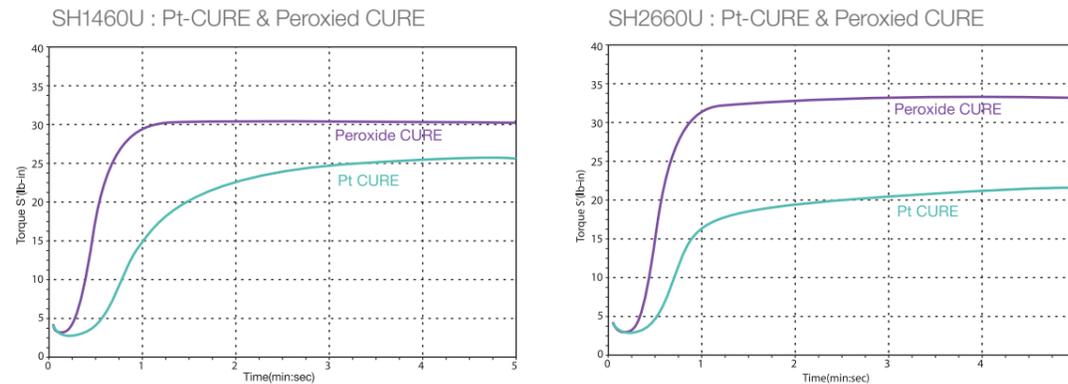
- ※The Base & SH0003A & SH0002B are homogeneously mixed in ratio of 100 : 1 : 1 on a roll mill
- ※Curing condition : 5mins at 120°C press cure → 4 hours at 200°C hot air

For SH2660U, SH2670U, SH2770U, SH2780U and SH2781U

- ※The Base & SH0003A are homogeneously mixed in ratio of 100 : 1 on a roll mill
- ※Curing condition : 10mins at 120°C press cure → 4 hours at 200°C hot air

Addition cure HCE

1. Describe curing curve (Peroxide vs Platinum)



2. T10, T60, T90 cure

Compound	Curing Agent	Test condition	T10	T60	T90
SH1460U	KC-2 1.5phr	5mins at 120°C	18 sec	20 sec	47 sec
SH1460U	SH0003A 1phr / SH0002B 1phr		33 sec	72 sec	157 sec
Compound	Curing Agent	Test condition	T10	T60	T90
SH2660U	KC-2 1.5phr	5mins at 120°C	19 sec	33 sec	54 sec
SH2660U	SH0003A 1phr		26 sec	46 sec	117 sec

※Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.5 phr

Sponge HCE

Description

Non-toxic silicone sponge rubber produces silicone sponge without chemical blowing agents or volatile organics. General conventional blowing agents may produce toxic by-products, but SH3055B doesn't contain any toxic materials and doesn't release them either. As a result, environment-friendly products can be made through various methods.

Characteristics

- Enable to various processing (extruding, molding, etc)
- Expansion ratio about 250 %
- Non-toxic hazardous by-product
- Non-blooming & non-yellowing properties
- Complies with FDA and BfR recommendations for articles in contact with food

Applications

- Various profiles, gasket, sheets, insulations, Rollers, packing, seals



Extruding profile

Properties	Test method	Unit	SH3050B	SH3055B
Appearance	ASTM E1767	-	White	White
Williams plasticity	ASTM D926	-	175	170
Specific gravity	ASTM D792	-	1.04 (uncured compound)	1.06 (uncured compound)
Curing agent	-	-	SH0003A 1.5phr	
Mechanical properties after curing				
Curing condition (thickness : 5mm)	-	-	10 mins at 200°C hot air	
Hardness	ASTM D2240	Shore C	35	25
Specific gravity	ASTM D792	-	0.35 ~ 0.55	0.3 ~ 0.5

※Curing condition : 5~10mins at 200°C ~ 300°C hot air → 4 hours at 150°C hot air

Fire resistant HCE

Description

SH9960U is a fire resistant HCE silicone rubber that have 60 shore A

Characteristics

- Excellent fire resistance performance
- Good workability and heat resistance
- Satisfied EN45545 part

Applications

- O-ring, Gasket, Sheets, Profiles, Bellows

Properties	Test method	Unit	SH9960U
Appearance	ASTM E1767	-	Creamy
Williams plasticity	ASTM D926	-	220
Specific gravity	ASTM D792	-	1.43
Hardness	ASTM D2240	Shore A	60
Tensile strength	ASTM D412	MPa	6.7
Elongation	ASTM D412	%	450
Tear strength	ASTM D624 B	N/mm	20
"Heat release (MARHE)"	ISO 5660-1	KW/m2	41.5 (HL3)
Limit oxygen index	ISO 4589-2	%	40.0
Flame retardancy	UL 94	-	UL94-V0

※ Curing agent : KC-2 (2,4-dichlorobenzoyl peroxide 50% paste) 1.2 phr

※ Curing condition : 5mins at 115°C press cure → 4 hours at 200°C hot air

Additives for HCE



Classification	items	Appearance	Use level (phr)
Peroxide curing additive for molding	SH0000B	KC-8 (2,5-dimethyl 2,5-di (t-butyl peroxy) hexane 45%) translucent paste	0.4 ~ 1.3
Peroxide curing additive for extruding	SH0000C	KC-2 (2,4-dichlorobenzoyl peroxide 50%) light yellow paste	1.0 ~ 2.0
Addition cure additive	SH0003A	Translucent compound (Pt catalyst & Inhibitor)	1.0 ~ 1.5
	SH0002B	Translucent paste (cross-linker)	0.5 ~ 1.5
Flame retardant additive	SH0003B	Opaque paste	< 30
Mold release additive	SH0005B	White paste	0.2 ~ 1.0
Anti-blooming additive	SH0006B	Beige paste	0.4 ~ 0.8
Tensile enhancer	SH0007B	White paste	1.0 ~ 3.0
Heat stabilizer	SH0008B	Light yellow paste	0.7 ~ 1.3
	SH0008BHF0087	Light brown paste	0.7 ~ 1.3

Color Master Batches for HCE

Description

These color master batches can be variously selected for the customer's purpose. They should be added on two-roll mill before heat vulcanization. The color pastes are non-poisonous and can be used for articles for food contact.

Color Master Batches	items	Appearance	FDA	RoHS	Color
Black	SH0049B	Black paste (Carbon black)	+	+	
White	SH0050B	White paste	+	+	
Reddish brown	SH0053B	Reddish brown paste	+	+	
Ultramarine blue	SH0054B	Blue paste	+	+	
Green	SH0055B	Green paste	+	+	
Black	SH0056B	Black paste (Iron oxide)	+	+	
Red	SH0058B	Red paste	+	+	