Silicone Technology
HRS

SEOUL OFFICE
#1605, Miwon Bldg.,70, Gukjegeumyung-ro, Yeongdeungpo-gu,
Seoul, KOREA 07333
Tel. 82-2-780-6156 I Fax. 82-2-785-7643

PYEONGTAEK PLANT
7, Chupalsandan 2-gil, Paengseong-eup, Pyeongtaek-si,
Gyeonggi-do, KOREA 17998
Tel. 82-31-655-8822 I Fax. 82-31-691-5901

ASAN PLANT
103-15, Sinbong-gil, Yeongin-myeon, Asan-si,
Chungcheongnam-do, KOREA 31401
Tel. 82-41-543-4003 I Fax. 82-41-543-4006

CHINA PLANT
Plant 2, Science & Technology Park No.777 Kangyuan Road,
Suzhou Xiangcheng Economic Development Zone, 215131
Tel. 86-512-6939-0288 I Fax. 86-512-6618-9388

HRS Silicone Technology

www.hrssilicone.com
www.hrssilicone.com.cn

SPECIALIST
IN SILICONE RUBBER TECHNOLOGY

Silicone Technology
HRS

CONTENTS

EVERYTHING FOR YOUR LIFE

HRS dreams of happiness and abundance of people with leading and world chaning silicone technology.

Silicone for Personal Care

Silicone is widely used in personal care products like skin care, sun care, and hair care due to its versatile functions.

Silicone Chemical Company

Silicone is used as an essential material in various industries

Silicone Technology
HRS

Eco-Friendly

Silicone is widely used in our daily lives like housewares and baby products.

SILDENT™

Silicone provides a new and healthy solution for your dental impression

TECHNOLOGY TO CHANGE THE WORLD,
TECHNOLOGY-LEADING SILICONE COMPANY,
HRS

HRS dreams of people's happiness and prosperity with silicone technology.

“Since its establishment in 1981, HRS has been growing as a leading and renowned silicone company.”

We keep improving and growing our technolgy and products through close cooperation with our partners and customers.

HRS Co., Ltd. is not satisfied with the current situation and has played a pivotal role in the development of the silicon industry with passion for the better future of all of us, strengthening its internal core capabilities through continuous management innovation and new technology development.

HRS Co., Ltd., which specializes in silicon that can be found anywhere in our lives, from household goods to medical products, automotive parts materials, and high-tech industrial materials, is striving to satisfy our customers.

Please keep an eye on HRS Co., Ltd., which is developing more and more through various information exchanges and conversations with customers, shareholders, and netizens, and please continue to support and encourage HRS Co., Ltd., which uses all its capabilities to create a rich and hopeful future.

CEO **JIN SEONG KIM**

SILICONE
CHEMICAL COMPANY

We are an expert in Silicone Technology.
Silicone is an essential material for various industries.

Silicone rubber is used as a key material in many different industries with growing demand.
Based on excellent competitiveness in products and customer serivce, HRS has become No. 1 domestic market holder since 2010. We will continue to work hard to become a global silicone company without being satisfied with the present.

SPECIALIZED COMPANY IN MATERIAL

Silicone Rubber

With differentiated products and services, HRS will become beloved company by people around the world.

GLOBALIZATION

- Expanding market share in Asian & Middle East market
- Developing European & American markets, Sales Increase and Secure stronghold
- The balance between the sales in domestic market and export

SPECIALIZATION

-Improvement and Innovation in technology
- Diversified products
- Differentiated service system

SUSTAINABILITY

- High revenue for stakeholders
- Excellent Financial Status
- Sustainable growth

HRS HISTORY

We are a leading silicone rubber manufactures.
We do not settle with our past achivement and will keep growing with our stakeholders.

Specialist
in Silicone Rubber
Technology

1980 Take the first step to become an independent silicone manufacture.

- **1987. 06** Developed the basic technology for silicone gum compounding
- **1986. 08** Developed the technology for primary synthesis of silicone gum (collaborate with KAIST for the first time in the country)
- **1985. 03** Changed the name to Hae Ryong Silicone Co., Ltd. Moved to the new Plant in Gimpo-si
- **12** Acquired U.L Standard (UL 94 V-0, Flammability Standard)
- **1983. 10** Awarded for New Material development by the minister of the Ministry of commerce and industry
- **1981. 07** Incorporated Hae Ryong (started developing the manufacturing technology of silicone rubber Compound)
- **1978. 05** Established Hae Ryong Trading Company (Importing business of silicone rubber)

1990 Turn crises into opportunites

- **1995. 11** Exported silicone rubber amounting more than $5,000,000 for the first time in the country (Awarded “the tower of 5 million dollar export” as the prize).
- **12** Acquired the certification of EM mark (silicone RTV foam)
- **1993. 05** National Industrial Technology Center Supplied and installed Fire Stop Seal for the 3rd and 4th Yeonggwang nuclear power plant (Applied localization for the first time in Korea)
- **11** Developed the technology to manufacture the silicone RTV foam (collaborate with National Industrial Technology Center)
- **1991. 07** Developed the technology to manufac-ture the silicone rubber for general grade silicone rubber for general grade molding Acquisition of UL standards and posting domestic and international sales (first in Korea)
- **10** Established sales agencies in Southeast Asia (8 Countries including Taiwan and Malaysia)
- **1990. 09** Contract with Bayer AG in Germany for technological affiliation and sales in Southeast Asia

2000 Open up sustainable future

- **2009. 07** Acquired LFGB certificate from TUV Rheinland
- **09** Developed dental impression materials and Acquired KGMP certificate
- **09** Acquired the certification of certificate of supplier quality(SQ) from Hyundai, Kia Motor Company
- **12** Acquired ISO 13485
- **2008. 10** Construction completed for Asan Plant
- **11** Awarded “the tower of 10 million dollar export” as the prize (KITA)
- **2007. 03** Changed the company name to HRS Co., Ltd.
- **07** Form strategic alliance with ‘D’ Corporation for Silicone rubber
- **11** Acquired ISO 14001 certificate
- **2006. 08** Appointed new CEO (co CEO: Ms. Sung Ja, Kang & Mr. Won Yeong, JI)
- **2004. 08** Construction completed for Pyeong-teak Plant (HCR, LSR, RTV, POLYMER line)
- **2003. 09** Acquired ISO 9001 certificate
- **2000. 05** Listed on KOSDAQ

2010~ Grow as a renowned silicone rubber manufacture.

- **2022. 08** Acquired Cerificate of authentication Excellent Employment Company
- **10** Acquired Small and Medium-Sized Enterprise designation for talent development
- **11** Acquired Certificate of Authentication Promising Small and Medium-Sized Enterprise
- **2020. 05** Acquired Main-Biz Reselected as a global hidden champion (Ministry of SMEs and Startups)
- **2018. 11** Acquired IATF 16949_2016
- **2017. 03** Appointed new CEO (CEO : jin sung, Kim)
- **2016. 03** Appointed new CEO (CEO : Ms. Sung Ja Kang)
- **11** Acquired CFDA (Silent-Dental impression materials)
- **2014. 03** Selected as “The Proud SME Businessman of the Month”
- **06** Acquired FDA (Silent-Dental impression materials)
- **2013. 10** Acquired the certification of Hyundai Rotem Supplier Quality (RSQ)
- **2012. 03** Selected as “THE BEST TAXPAYER” (Pyeongtaek district tax office)
- **04** Selected as “global hidden champion” (the Small and Medium Business Administration)
- **09** Selected as “KOTRA GLOBAL BRAND(BLUE)”
- **2011. 05** Suzhou haeryong silicone co., Ltd. Was established in CHINA
- **2010. 07** Supply agreement between ‘H’ Corporation and HRS
- **09** Acquired “INNO-BIZ” (Ministry of SMEs and Startups)

HRS LOCATIONS

HRS has four business locations in Seoul, Pyengtaek, and Asan in Korea and in Suzhou in China. We make mainly silicone materials at Pyongtaek plant and various customized articles at Asan plant and at Suzhou plant in China.

Silicone Technology
HRS

SEOUL OFFICE

✓ Main Functions

Trading Team, Finance Team, HR/IR Team, Strategy & Planning Team

#1605, Miwon Bldg.,70, Gukjegeumyung-ro, Yeongdeungpo-gu, Seoul,
KOREA 07333
TEL: 82-2-780-6156 FAX: 82-2-785-7643

PYEONGTAEK PLANT

✓ Main Products

HCR(High Consistency Silicone Rubber) / LSR(Liquid Silicone Rubber) /
RTV(F/S) Silicone Rubber / Silicone Gum / Polymer /
DM(Dental Impression Materials) / Silicone for Personal Care

7, Chupalsandan 2-gil, Paengseong-eup, Pyeongtaek-si, Gyeonggi-do,
KOREA 17998
TEL: 82-31-655-8822 FAX: 82-31-691-5901

ASAN PLANT

✓ Main Products

Rubber Article / Silicone Sheet(S/S) / PSA(Pressure Sensitive Adhesive)

103-15, Sinbong-gil, Yeongin-myeon, Asan-si, Chungcheongnam-do,
KOREA 31401
TEL: 82-41-543-4003 FAX: 82-41-543-4006

CHINA PLANT

✓ Main Products

Rubber Articles / Silicone Sheet (S/S)

Plant 2, Science & Technology Park No.777
Kangyuan Road, Suzhou Xiangcheng Economic Development Zone, 215131
TEL: 86-512-6939-0288 FAX: 86-512-6618-9388

SILICONE RUBBER
TECHNOLOGY

Silicone rubber is non-toxic and inert material which is widely used to make medical and baby products.

HRS manufactures HCR(millable silicone rubber), LSR(liquid silicone rubber). HCR is widely used as a key materieal in various industries like electricity, electornics, car, medical, household goods. We expect the demand for silicone rubber will keep growing due to its excellent characteristics like eco-friendly.

LSR has strong advantage in automated production with fast curing cycle to improve productivity and lower the labor cost, so the demand from industries, who require strict and complex control of the products, is increasing. Also, due to its relatively less by-product nature, LSR is getting more popular in medical and electronics industries.

Silicone Rubber General properties

Silicone Technology HRS

☑ HIGH BONDING ENERGY

Silicone rubber has siloxane bond (Si-O) of molecular structure as the main chains. While carbonbond, C-C, carries 84.9 Kcal/mol, siloxane bond carries 106.0 Kcal/mol It shows that siloxane bond has greater capacity and stability. As a result, silicone rubber has better heat resistance, electric conductivity and chemical stability than any other ordinary organic rubbers. Siloxane ond's energetic stability is secured due to sharp difference between Si and O in terms of electro-negativity making Si-O to be closest to ionic bond.

Classification	Bonding Energy Kcal/mol (KJ/mol)	
	C	Si
C	84.9(349)	58-80(240-340)
Si	58-80(240-340)	45(189)
H	98.8(414)	72.6(304)
O	83.2(349)	**106.0(423)**

☑ LOW INTERMOLECULAR FORCE WITH SPIRAL STRUCTURE

With its coil shaped spiral structure and low intermolecular force, silicone (dimethyl-polysiloxane) is highly elastic and compressible. Furthermore as methyl groups are located in the outside of coil structure, they are free to rotate on its own. As a result silicone rubber has outstanding water repellency and contact resistance.

SILICONE

Create utility from the nature

Eco-Friendly made from sand
From aerospace to household
Wide variety of industial applications.

Specialist
in Silicone Rubber
Technology

Silicone Technology HRS

OVERVIEW OF SILICONE RUBBER

ORGANOSILOXANES POLYMER Unlike ordinary organic rubber, silicone rubber has excellent properties due to its unique ambivalence, which has both inorganic and organic properties in its molecular structure. In other words, due to the inorganic properties caused by siloxane bonds (Si-O), which are the main chain in molecular structure, it is very heat resistant, chemical stability, electrical insulation, wear resistance, and ozone resistance compared to general organic rubber.

In addition, POLYDIMETHYL-SILOXANE, a basic material of silicone rubber, forms a spiral structure as a long-chain high polymer, has low intermolecular attraction, shows abundant elasticity, excellent compression permanent shrinkage, excellent cold resistance, and excellent interfacial properties.

Because of these characteristics, silicone is widely used in all industries, replacing aerospace, military, automotive, precision chemistry, architecture, electric and electronics, food processing, machinery, medical pharmaceuticals, cosmetics, household goods, paper film, solar cells, semiconductors, etc. In recent years, the application field is expanding more rapidly.

SILICONE IS WIDELY USED AS A KEY MATERIAL THROUGHOUT THE INDUSTRY


Automotive


Medical


Housewares


Personal Care


Electric


Electron


Baby Products


Railroad


Aerospace

PROPERTIES OF SILICONE RUBBERS

Silicone rubber has superior properties to other materials, such as heat resistance, cold resistance, eletric properties, flame retardancy, non-toxic, radiation resistance, and more.

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Technology

NON TOXIC

Silicone rubber is physiologically inert, and is thus used for baby nipple and stoppers in medical application. Silicone rubber is also very ideal elastomer for making swimming caps and goggles.

HEAT RESISTANCE

Heat resistance of silicone rubber is the one of its most excellent properties and provides the basis for its creation. Silicone rubber is far better than organic rubbers in terms of heat resistance.
At 150°C, almost no alterations of properties take place that it may be used semi permanently. Furthermore, silicone rubber withstands use for over 10,000 consecutive hours even at 200°C and, if used for a shorter term, it may also be used at 300°C as well. Boasting this excellent heat resistance, silicone rubbers are widely used to manufacture rubber components and parts used in high-temperature places.

COLD RESISTANCE

Cold resistance of silicone rubber is the finest among organic rubbers. It provides a critical reason behind the creation of silicone rubbers. Natural and ordinary rubbers demonstrate significant changes in formation depending on temperatures. They become soft at high temperatures and hard at low temperatures so that they may not be able to used any more. While other organic rubbers may only be used up to -20°C or -30°C, silicone rubber maintains its elasticity between -55°C and -70°C. Some of the products even withstand temperatures as extremely low as under -100°C.

WEATHERABILITY

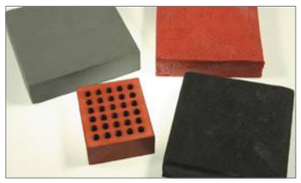
Silicone rubber has superb ozone resistance. Due to corona-discharged ozone, other organic rubbers become soften at a higher speed, but silicone rubber is rarely affected. Furthermore, even long-term exposures to UV rays, winds, or rain silicone rubber's physical properties will not be changed substantially.

ELECTRIC PROPERTIES

Silicone rubber is being used for insulation materials at high temperature with its superior insulation properties. It is particularly known for wide range in temperature and volume resistance between $10^{14}\Omega \cdot cm$ and $10^{16}\Omega \cdot cm$. Silicone rubber experiences lowest change in performance in wet condition and is the best fit for being used as insulation materials. By adding special conductive fillers, conductive silicone may also be manufactured. In particular, silicone rubber is strongly resistant against corona discharge compares to others, while being widely used for insulation purposes in high voltage environments.

ELECTRIC CONDUCTIVITY

Conductive silicone rubber is a compound comprising conductive materials such as carbon black, silver and copper. Depending on the type of silicone rubber, they range in resistance level from a few $\Omega \cdot cm$ to $10^{3}\Omega \cdot cm$. One of the properties is that its electric properties are not much affected by variance in temperatures.
No rubber materials are not found yet to match the electric properties of silicone rubber over 200°C. Conductive silicone rubber is also being used for keyboard interfaces, antistatic parts, and shield materials for high voltage cables.



RADIATION RESISTANCE

Compares to other organic rubbers, ordinary (dimethyl) silicone rubber has no special performance in terms of anti radiation. However, methyl phenyl silicone rubber adopting phenyl group in polymer molecules does have radiation resistance to be used for cables at nuclear power plants and connectors.

STEAM RESISTANCE

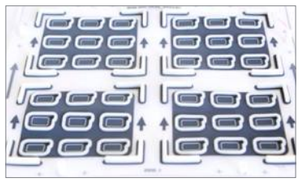
Silicone rubber absorbs only 1% of moisture even after experiencing long exposure to water without being affected in mechanical strength or electric properties. Generally, silicone rubber does not deteriorate even after having contact with steam under atmospheric pressure. In high pressure steam over 150°C, siloxane polymer is cut off and rubber properties decline. Such a property may be improved by the composition of silicone rubber, selection of curing agent, and the post curing. Other modified products are also available with improved steam and boiling water resistance.

FLAME RETARDANCY

Silicone rubber does not easily burn when in contact with a flame, but would burn out consistently once ignited. However, by adding a small amount of flame retardant, it may become flame retardant and self-extinguisher. Flame retardant silicone rubbers presently in use would scarcely produce toxic gas during combustion since they do not contain organic halogen compounds discovered in organic polymers.

OIL RESISTANCE

Silicone rubber is inferior to ordinary organic rubber in oil resistance at room temperature. However, for automobiles or aircrafts that require high temperature resistance, it demonstrates higher performance. Even when in contact with automobile oil, silicone rubber does not inflate significantly by reason of swelling. It swells in non polar organic compounds such as benzene, toluene, and gasoline. But its materials do not disintegrate or dissolve unlike ordinary organic rubbers. If solvent is removed, it would be restored to the original conditions.



THERMAL CONDUCTIVITY

Silicone rubber has an excellent thermal conductivity property as it is filled with special heat conductive materials to give an excellent heat transfer. Its main function is to transfer the heat from the heat source to the heat sink and normally applied between them. It provides cushioning effect on components and very adhesive as it's very soft. It also has a property of self-adhesion so no need to treat with any other adhesive material.

ELECTROMAGNETIC ABSORPTION

Recently the technologies of electronic equipments are advancing at a very fast-growing. Due to this reason EMC has become one of the hot issue in the electronic industrial. Electromagnetic absorption material is manufactured by filling the high performance metal powder with silicone rubber. It absorbs electromagnetic wave and changes the electromagnetic wave into the heat then vanish it.

Characteristics
- Supply best product with various filler for specific frequency, maintaining characteristics of silicone rubber (Heat Resistance, Steam Resistance, Corrosion Resistance etc.)
- Soft rubber that can be made into various shape and easy to be manufactured

PART.1

HCR

1. Automotive

2. Railroad

3. Medical/Baby Products

4. Electric/Electronics/Wire

5. Household Goods

6. ETC

HRS dreams about happiness and affluence of people with silicone technology.

HIGH CONSISTENCY SILICONE RUBBER

Silicone Rubber is classified into HTV (High Temperature Vulcanization) and RTV (Room Temperature Vulcanization) by its curing temperature.

Also, HTV is divided into Millable Type Silicone Rubber and Liquid Type Silicone Rubber by its degree of polymerization. Millable Type Silicone Rubber is composed mainly of Polyorganosilioxan(Silicone Polymer) and Silica with various additives to grant different characteristics. We call this stage of Silicone Rubber as “Base Compound”. Then this “Base Compound” is catalyzed, pigmented with twin roll mill and cured by various fabrication methods like compression molding and extrusion.

Due to its status, Millable Type Silicone Rubber is also being called as “HCR (High Consistency Silicone Rubber)” in the market.

HCR

High Consistency Silicone Rubber

Specialist
in Silicone Rubber
Technology

GENERAL PURPOSE FOR MOLDING SILICONE RUBBER

FEATURES

- Good physical properties.
- Excellent processability in press molding & injection and all other process.
- Price Advantage
- Qualified UL94HB.
- Comply with FDA Reg. 21 CFR, 177.2600
- Good Rebound resilience

APPLICATIONS

- General Industrial parts
- Electronic parts, Keypad, O/A rolls
- Food contact parts, packing
- Automotive parts

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-1931U(T)	HR-1941U(T)	HR-1951U(T)	HR-1961U(T)	HR-1971U(T)	HR-1975U(T)	HR-1981U(T)	HR-1961U(G)	HR-1971U(G)	HR-1981U(G)
Colors	ASTM E1767				Translucent					Natural Gray	
William's Plasticity	ASTM D926	160	180	210	230	240	260	280	230	250	280
Specific Gravity	ASTM D792	1.09	1.13	1.15	1.16	1.2	1.2	1.21	1.24	1.35	1.42
Hardness	ASTM D2240	30	40	50	60	70	75	80	60	70	80
Tensile Strength (MPa)	ASTM D412	6.5	7.5	8.5	8	8	9.5	8.5	7.5	8	8
Elongation (%)	ASTM D412	500	400	300	230	200	210	160	210	150	120
Tear Strength (KN/m)	ASTM D624-B	8	8	8.5	8.5	8.5	9	8	8	8	8
	ASTM D624-C	16	18	20	20	22	23	18	20	18	16
Rebound Resilience (%)	ASTM D1054	61	66	70	65	62	56	60	54	55	42
Compression Set* (%)	ASTM D395	16	14	13	15	15	12	14	19	21	26
Linear Shrinkage (%)	JIS K6249	4.2	4.1	3.9	3.8	3.6	3.5	3.7	3.6	3	3

*Compression Set : 177°C×22hrs

GENERAL PURPOSE FOR EXTRUSION SILICONE RUBBER

FEATURES

- Excellent physical properties
- Excellent extrusion processability and good molding
- Easy to blending for intermediate hardness control
- Good heat resistant up to 250°C ~ 280°C with the heat additives HT-100 or HT-300

APPLICATIONS

- All molded articles gaskets, packing, O-ring, profiles and general high temp wires
- Food contact packing
- Electrical article (Wire & cable)

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	BASE-30U	BASE-50U	BASE-60U	BASE-70U	BASE-75U
Colors	ASTM E1767			Transparent		
William's Plasticity	ASTM D926	150	210	230	250	260
Specific Gravity	ASTM D792	1.08	1.14	1.16	1.18	1.19
Hardness	ASTM D2240	31	51	60	70	75
Tensile Strength (MPa)	ASTM D412	7.5	9	9.5	10	9
Elongation (%)	ASTM D412	600	350	330	290	240
Tear Strength (KN/m)	ASTM D624-B	10	10	10	11	12.5
Linear Shrinkage (%)	JIS K6249	4.3	4.2	4.1	4	3.7
Volume Resistivity (Ω-cm)	ASTM D257	10^{15}	10^{15}	10^{15}	10^{15}	10^{15}
Dielectric Strength (KV/mm)	ASTM D149	25	26	26	27	27

LOW HARDNESS SILICONE RUBBER

FEATURES

- Low Hardness and high Elongation Property
- Excellent process ability in molding & Injection
- Complies with FDA and BfR recommendations for articles in contact with food

APPLICATIONS

- Swimming Cap, Goggle bands
- Baby Care
- High elastic article (Strip, Tape)

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	SW-5	SW-8	SW-15	SW-20U	HR-28U
Colors	ASTM E1767			Translucent		
William's Plasticity	ASTM D926	90	90	120	120	230
Specific Gravity	ASTM D792	1.01	1.01	1.02	1.06	1.15
Hardness	ASTM D2240	8	10	15	20	29
Tensile Strength (MPa)	ASTM D412	2.5	4	5	5.5	8.5
Elongation (%)	ASTM D412	1,100	1,000	1,000	950	870
Tear Strength (KN/m)	ASTM D624-B	4	4	4	12	13
	ASTM D624-C	7	10	10	25	-
Compression Set*1 (%)	ASTM D395	47	22	25	18	-
Linear Shrinkage (%)	JIS K6249	4.4	4.2	4.3	4.3	-

*1 Compression Set : 177°C × 22hrs

SUPER HIGH HARDNESS SILICONE RUBBER

FEATURES

- High Hardness 90 shore A
- Transparent
- High Williams plasticity and high green strength
- Good mechanical properties
- Comply with FDA Reg. 21 CFR 177. 2600. for food contact applications

APPLICATIONS

- Keytop of keypad
- O-ring, Gasket, Seals
- Food Contact article (Kitchenware, bottles)

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-1991U(T)	HR-2290U(T)
Colors	ASTM E1767	Light Yellow	Transparent
William's Plasticity	ASTM D926	300	450
Specific Gravity	ASTM D792	1.24	1.25
Hardness	ASTM D2240	90	90
Tensile Strength (MPa)	ASTM D412	8.5	9.5
Elongation (%)	ASTM D412	150	100
Tear Strength (KN/m)	ASTM D624-B	12	13
	ASTM D624-C	30	35
Rebound Resilience (%)	ASTM D1054	50	50
Compression Set*1 (%)	ASTM D395	12	16
Linear Shrinkage (%)	JIS K6249	3.6	3.8

*1 Compression Set : 177°C × 22hrs

HCR

High Consistency Silicone Rubber

HIGH TEAR STRENGTH SILICONE RUBBER

FEATURES

- Low Hardness and high Elongation Property
- Excellent process ability in molding & Injection
- Complies with FDA and BfR recommendations for articles in contact with food

APPLICATIONS

- Swimming Cap, Goggle bands
- Baby Care
- High elastic article (Strip, Tape)

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-2500/40U	HR-2500/50U	HR-2500/60U	HR-2500/70U
Colors	ASTM E1767	Transparent			
William's Plasticity	ASTM D926	180	200	240	270
Specific Gravity	ASTM D792	1.11	1.13	1.16	1.17
Hardness	ASTM D2240	40	51	61	71
Tensile Strength (MPa)	ASTM D412	9	10	11	10
Elongation (%)	ASTM D412	700	550	520	450
Tear Strength (KN/m)	ASTM D624-B	32	33	39	35
	ASTM D624-C	36	40	42	46
Rebound Resilience (%)	ASTM D1054	55	54	49	45
Volume Resistivity (Ω-cm)	ASTM D257	10^{16}	10^{16}	10^{16}	10^{16}
Dielectric Strength (KV/mm)	ASTM D149	25	26	26	26

SUPER HIGH TEAR STRENGTH GRADE

FEATURES

- Excellent Mechanical Strengths
- Superior Tear Strength
- High modulus
- Easy to blend color pigments

APPLICATIONS

- Extrusion and molding
- Calendering and Sheeting
- Automotive Parts

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-NS-55U	HR-NS-75U
Colors	ASTM E1767	Translucent	
William's Plasticity	ASTM D926	200	260
Specific Gravity	ASTM D792	1.13	1.17
Hardness	ASTM D2240	57	74
Tensile Strength (MPa)	ASTM D412	10	9.0
Elongation (%)	ASTM D412	720	600
Tear Strength (KN/m)	ASTM D624-B	50	49
Rebound Resilience (%)	ASTM D1054	50	50
Compression Set*1 (%)	ASTM D395	30	32
PROPERTIES CHANGE AFTER HEAT AGING AT 200°C X 70 hrs			
Hardness Change	ASTM D573	+6	+4
Tensile Strength Change (%)		-20	-11
Elongation Change (%)		-25	-30

*1 Compression Set : 177°C × 22hrs

Specialist
in Silicone Rubber
Technology

LOW COMPRESSION SET SILICONE RUBBER

FEATURES

- Low Compression Set
- Excellent Extrusion Processability & Molding Processability

APPLICATIONS

- O/A Roll
- Packing
- Gasket
- Sheet
- O-Ring
- Seal

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	LCS-40
Colors	ASTM E1767	Transparent
William's Plasticity	ASTM D926	140
Specific Gravity	ASTM D792	1.10
Hardness	ASTM D2240	40
Tensile Strength (MPa)	ASTM D412	5
Elongation (%)	ASTM D412	280
Tear Strength (KN/m)	ASTM D624-B	10
Rebound Resilience (%)	ASTM D1054	78
Compression Set*1 (%)	ASTM D395	5
Linear Shrinkage (%)	JIS K6249	4
Volume Resistivity (Ω-cm)	ASTM D257	10^{15}

*1 Compression Set : 177°C × 22hrs

STEAM RESISTANCE SILICONE RUBBER

FEATURES

- Excellent heat resistance and steam resistance
- Superior resilience
- Low Lines shrinkage

APPLICATIONS

- Rice Steam Cooker Packing
- Electric pot, teapot, packing, valves, O-ring
- Steam Line Packing

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-3700/50U	HR-3700/60U	HR-3700/70U	HR-3741U(T)	HR-3751U(T)	HR-3761U(T)	HR-3771U(T)
Colors	ASTM E1767	Transparent			Translucent			
William's Plasticity	ASTM D926	210	230	250	170	180	200	240
Specific Gravity	ASTM D792	1.13	1.15	1.18	1.09	1.12	1.16	1.19
Hardness	ASTM D2240	50	60	70	42	50	60	72
Tensile Strength (MPa)	ASTM D412	10	10	10	7.2	7	8.3	9
Elongation (%)	ASTM D412	400	350	300	390	400	410	300
Tear Strength (KN/m)	ASTM D624-B	15	14	15	14	10	14	13
	ASTM D624-C	29	32	30	-	20	-	-
Rebound Resilience (%)	ASTM D1054	65	65	60	71	67	61	53
Compression Set*1 (%)	ASTM D395	12	10	10	19	10	14	12
Linear Shrinkgage (%)	JIS K6249	4.0	4.0	3.9	-	3.6	-	-
PROPERTIES CHANGE AFTER STEAM AGING (110°C Steam × 30 Days)								
Hardness Change (Points)		-2	-2	-2	-	-	-	-
Tensile Strength Change (%)		-11	-10	-8	-	-	-	-
Elongation Change (%)		-15	-12	-10	-	-	-	-
PROPERTIES CHANGE AFTER STEAM AGING (150°C Steam × 30 Days)								
Hardness Change (Points)		+1	+1	+1	-	-4	-	-
Tensile Strength Change (%)		-47	-46	-47	-	-30	-	-
Elongation Change (%)		-47	-47	-48	-	-17	-	-
PROPERTIES CHANGE AFTER BOILING WATER AGING (100±1°C × 96 hrs)								
Hardness Change (Points)		+1	+1	0	-	-	-	-
Tensile Strength Change (%)		-2	-2	0	-	-	-	-
Elongation Change (%)		-3	0	-2	-	-	-	-

*1 Compression Set : 177°C × 22hrs

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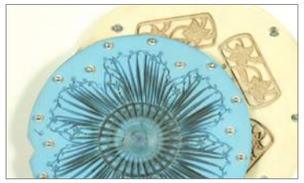
METAL CASTING SILICONE RUBBER



FEATURES

- High Mechanical Property
- High Heat Resistant
- Low Shrinkage
- High Elongation
- Produced comply with FDA Reg. 21CFR, 177.2600

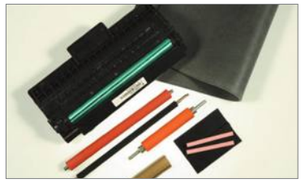
APPLICATIONS

- Alloy Casting
- Art Accessory Casting
- Ring Casting
- Other Casting

Catalyst: HC-8/1.8phr (171°C×10min)

Typical Properties	Test Method	MC-50	MC-60	MC-70
Colors	ASTM E1767		Translucent	
Specific Gravity	ASTM D792	1.15	1.17	1.19
Hardness	ASTM D2240	50	60	70
Tensile Strength (MPa)	ASTM D412	10	10	9
Elongation (%)	ASTM D412	550	400	250
Tear Strength (KN/m)	ASTM D624-B	38	38	40
	ASTM D624-C	37	37	38

ELECTRIC CONDUCTIVE SILICONE RUBBER



FEATURES

- Electro conductivity (3-10omh.cm Volume Resistance)
- Very good elasticity
- Good heat resistant
- Good physical properties

APPLICATIONS

- Electro conductive parts
- Keypad contractors
- LCD Zebra
- EMI gasket
- Cable connectors
- Heaters

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-1526U	HR-1527U	HR-1528U
Colors	ASTM E1767		BLACK	
William's Plasticity	ASTM D926	500	600	750
Specific Gravity	ASTM D792	1.16	1.2	1.21
Hardness	ASTM D2240	60	70	78
Tensile Strength (MPa)	ASTM D412	6	6.5	6.5
Elongation (%)	ASTM D412	250	200	150
Tear Strength (KN/m)	ASTM D624-B	10	10	11
	ASTM D624-C	18	18	18
Linear Shrinkage (%)	JIS K6249	4.3	4.2	4
Volume Resistivity (Ω·cm)	ASTM D257	10	5	4

THERMAL CONDUCTIVE SILICONE RUBBER

FEATURES

- High thermal conductivity
- High electrical insulation properties
- High heat resistant
- Low volatility content
- Flame retardant (UL94V-0, V-1 Level)

APPLICATIONS

- Heat transfer pads, Sheets, Packings
- CPU, Transformer, Transistor pads for heat transfer
- All kind of heat transfer parts

Catalyst: Compression Molding Grade - HC-8/1.8phr (171°C×10min / 200°C×4hrs) / Extrusion Grade - HC-2/1.6phr (116°C×10min)

Typical Properties	Test Method	Compression Molding Grade			Extrusion Grade	
		HR-770/60U	HR-770/70U	HR-770/80U	HR-7705U	HR-7706U
Colors	ASTM E1767	Dark Gray			Natural White	
Catalyst / phr	-	HC-8 / 1.8phr			HC-2 / 1.6phr	
William's Plasticity	ASTM D926	260	280	300	210	270
Specific Gravity	ASTM D792	2	2.05	2.1	2.17	2.3
Hardness	ASTM D2240	60	70	80	52	59
Tensile Strength (MPa)	ASTM D412	3	3.5	4	1.1	1.1
Elongation (%)	ASTM D412	400	300	100	500	700
Tear Strength (KN/m)	ASTM D624-B	10	10	10	7	8
	ASTM D624-C	10	10	10	-	-
Linear Shrinkage (%)	JIS K6249	3	2.7	2.6	-	-
Volume Resistivity (Ω·cm)	ASTM D257	10^{15}	10^{15}	10^{15}	-	-
Dielectric Strength (kv/mm)	ASTM D149	20	19	19	-	-
Thermal Conductivity (W/m.K)	ASTM E1530	0.7	0.8	0.9	0.85	0.98
Flame Retardancy	UL94	V-1	V-0	V-0	-	-

FLAME RETARDANT SILICONE RUBBER

FEATURES

- Flame Retardant UL94V-0, (UL E-98818)
- Halogen Free
- Good Heat Stability (-50°C ~ +250°C)
- Good Electrical Property & Excellent process ability in molding & Extruding

APPLICATIONS

- Flame Retardant Rubber Parts
- Construction article (Fire-Proof gasket)
- PDP, TFT-LCD Lamp holder
- Special Wires

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-5020U		HR-7020U	
		(W)	(B)	(W)	(B)
Colors	ASTM E1767	White	Black	White	Black
William's Plasticity	ASTM D926	200		250	
Specific Gravity	ASTM D792	1.43		1.47	
Hardness	ASTM D2240	55		70	
Tensile Strength (MPa)	ASTM D412	7.5		7	
Elongation (%)	ASTM D412	320		200	
Tear Strength (KN/m)	ASTM D624-B	12		15	
Linear Shrinkage (%)	JIS K6249	3.2		2.5	
Volume Resistivity (Ω·cm)	ASTM D257	10^{15}		10^{15}	
Dielectric Strength (KV/mm)	ASTM D149	25		25	
Flame Retardancy	UL94	V-0		V-0	

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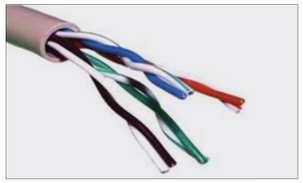
WIRE & CABLE SILICONE RUBBER



FEATURES

- Excellent temperature stability
- Excellent Process ability in extrusion
- Good Mechanical and electrical properties

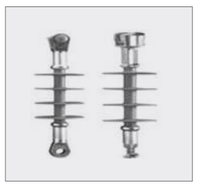
APPLICATIONS

- Appliance wire
- Fixture wire
- Motor lead wires
- Heater lead wires
- Power control and instrument cables
- Automotive wires

Catalyst: HC-2/1.5phr (116°C×10min)

Typical Properties	Test Method	HR-1660U	HR-1670U
Colors	ASTM E1767	White	
William's Plasticity	ASTM D926	240	250
Specific Gravity	ASTM D792	1.4	1.45
Hardness	ASTM D2240	63	70
Tensile Strength (MPa)	ASTM D412	8	8
Elongation (%)	ASTM D412	220	180
Tear Strength (KN/m)	ASTM D624-B	20	20
	ASTM D624-C	23	23
Volume Resistivity (Ω-cm)	ASTM D257	10^{15}	10^{15}
Dielectric Strength (KV/mm)	ASTM D149	22	22
PROPERTIES CHANGE AFTER HEAT AGING AT 250°C × 72 hrs			
Hardness Change	ASTM D573	2	2
Tensile Strength Change(%)	ASTM D573	-12	-13
Elongation Change(%)	ASTM D573	-20	-20

HIGH VOLTAGE INSULATOR SILICONE RUBBER



FEATURES

- Excellent Tracking and Erosion Resistance
- Excellent Dielectric Strength
- Superior Water Repellency (Hydrophobicity)
- Excellent Weathering and Air Pollution
- Low Leakage Current
- Excellent Injection Molding Processibility

APPLICATIONS

- Suspension Insulation
- Line Post Insulator
- Surge Arrestor
- Cable Terminator and Connectors

Catalyst: HC-8/1.8phr (171°C×10min)

Typical Properties	Test Method	HVI-65U	HVI-70U
Colors	ASTM E1767	Gray	
Specific Gravity	ASTM D792	1.52	1.54
Hardness	ASTM D2240	65	70
Tensile Strength (MPa)	ASTM D412	5	5
Elongation (%)	ASTM D412	250	230
Tear Strength (KN/m)	ASTM D624-B	15	13
Rebound Resilience (%)	ASTM D1054	50	49
Compression Set*1 (%)	ASTM D395	24	24
Linear Shrinkage (%)	JIS K6249	2.9	2.85
Flame Retardancy	IEC 60695	V-0	V-0
Volume Resistivity (Ω-cm)	ASTM D257	2.5×10^{15}	2.5×10^{15}
Dielectric Strength (KV/mm)	ASTM D149	23	23
Dielectric Constant (1KHz)	ASTM D150	4	4
Dissipation Factor (1KHz)	ASTM D150	0.03	0.03
Tracking Rasistance (KV)	IEC 60587	4.5	4.5
Arc Resistance (sec)	ASTM D495	>200	>200

*1 Compression Set : 177°C × 22hrs

OIL BLEED SILICONE RUBBER

FEATURES

- Good Heat and oil Resistance properties
- Excellent process ability in injection & molding
- Good Mechanical properties

APPLICATIONS

- Automotive article (Wire harness connectors, grommets, single wire gasket, flat gaskets)
- Industrial O-Ring, Oil Seal

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	SL-30U	SL-40U	SL-50U	SL-60U
Colors	ASTM E1767		Natural White		
William's Plasticity	ASTM D926	150	165	200	210
Specific Gravity	ASTM D792	1.1	1.13	1.16	1.17
Hardness	ASTM D2240	30	40	50	60
Tensile Strength (MPa)	ASTM D412	7	7.5	8.5	8.5
Elongation (%)	ASTM D412	500	400	300	260
Tear Strength (KN/m)	ASTM D624-B	10	10	10	11
	ASTM D624-C	18	21	27	25
Linear Shrinkage (%)	JIS K6249	4.3	3.9	3.5	3.3
Compression Set*1 (%)	ASTM D395	10	6	5	6
PROPERTIES CHANGE AFTER HEAT AGING AT 225°C × 96 hrs					
Hardness Change	ASTM D573	-11	-3	+2	+2
Tensile Strength Change (%)	ASTM D573	-45	-22	-16	-15
Elongation Change (%)	ASTM D573	-20	-26	-20	-10
PROPERTIES CHANGE AFTER OIL IMMERSION TEST AT 150°C × 70 hrs / ASTM NO.1 Oil)					
Hardness Change	ASTM D471	-11	-11	-12	-12
Tensile Strength Change (%)	ASTM D471	-38	-28	-20	-22
Elongation Change (%)	ASTM D471	-11	-10	-14	-12
Volume Change (%)	ASTM D471	+29	+25	+21	+20

*1 Compression Set : 177°C × 22hrs

HIGH TRANSPARENT SILICONE RUBBER

FEATURES

- High super transparency
- High tear strength
- Hardness from 30 ~ 70
- All ingredients selected comply with FDA Reg. 21 CFR, 177.2600

APPLICATIONS

- Baby Nipples
- Medical tubing
- Food contact articles
- High tear strength articles

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-2130U	HR-2140U	HR-2150U	HR-2160U	HR-2170U
Colors	ASTM E1767			Transparent		
William's Plasticity	ASTM D926	170	190	210	220	240
Specific Gravity	ASTM D792	1.09	1.1	1.14	1.16	1.18
Hardness	ASTM D2240	30	40	50	60	70
Tensile Strength (MPa)	ASTM D412	8.5	10	11	11	11
Elongation (%)	ASTM D412	700	650	550	500	350
Tear Strength (KN/m)	ASTM D624-B	20	25	25	20	15
	ASTM D624-C	34	37	40	42	40
Linear Shrinkage (%)	JIS K6249	4.3	4.2	4	4	3.8

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HIGH HEAT RESISTANCE SILICONE RUBBER

FEATURES

- Specially designed for high temperature resistant in range of 250°C ~ 315°C
- Excellent all properties
- Excellent for compression molding and extrusion

APPLICATIONS

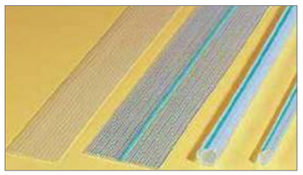
- Electric Dry-oven Gaskets
- Electronic Micro-oven Gaskets
- Autoclave Packing
- Glass tube handling of Pads

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-520U	HR-620U	HR-720U	HR-820U
Colors	ASTM E1767		Light Yellow		Beige White
William's Plasticity	ASTM D926	220	230	290	300
Specific Gravity	ASTM D792	1.13	1.16	1.18	1.34
Hardness	ASTM D2240	52	60	72	80
Tensile Strength (MPa)	ASTM D412	10	10	10	8.5
Elongation (%)	ASTM D412	400	250	250	100
Tear Strength (KN/m)	ASTM D624-B	15	13	10	10
	ASTM D624-C	29	25	30	24
Rebound Resilience (%)	ASTM D1054	55	55	50	50
Compression Set*1 (%)	ASTM D395	30	22	29	28
Linear Shrinkage (%)	JIS K6249	4	3.9	3.8	2.8
Volume Resistivity (Ω-cm)	ASTM D257	10^{15}	10^{15}	10^{15}	10^{15}
Dielectric Strength (KV/mm)	ASTM D149	23	23	22	22
PROPERTIES CHANGE AFTER HEAT AGING AT 250°C × 72 hrs					
Colors	ASTM E1767	Beige / Red	Beige / Red	Beige / Red	Beige / Red
Hardness Change	ASTM D573	-2 / +4	-2 / +2	-3 / -3	-3 / -3
Tensile Strength Change (%)	ASTM D573	-28 / -26	-28 / -26	-26 / -26	-25 / -25
Elongation Change (%)	ASTM D573	-30 / -30	-30 / -30	-28 / -28	-26 / -26
PROPERTIES CHANGE AFTER HEAT AGING AT 300°C × 24 hrs					
Hardness Change	ASTM D573	+3 / +2	+3 / +3	+4 / +4	+4 / +4
Tensile Strength Change (%)	ASTM D573	-35 / -32	-35 / -34	-34 / -34	-33 / -33
Elongation Change (%)	ASTM D573	-36 / -34	-36 / -34	-32 / -32	-30 / -30

*1 Compression Set : 177°C × 22hrs

ADDITION CURE SILICONE RUBBER



FEATURES

- Excellent process ability in extrusion & mold
- Excellent Mechanical Properties & good Transparency
- Non Yellowshi
- Complies with FDA BfR recommendation for articles in contact with food

APPLICATIONS

- Food Contact article (Hoses, Tubing, Packing)
- Healthcare, Medical Devices (Seal, Tubings)

Catalyst: HC-25A/1.0phr (140°C×10min / 200°C×4hrs)

Typical Properties	Test Method	High Performance Grade			General Purpose Grade			
		AD-1150U	AD-1160U	AD-1170U	AD-3950U	AD-3960U	AD-3970U	AD-3980U
Colors	ASTM E1767		Transparent			Translucent		
William's Plasticity	ASTM D926	200	220	250	200	225	250	280
Specific Gravity	ASTM D792	1.12	1.16	1.2	1.15	1.16	1.18	1.23
Hardness	ASTM D2240	50	60	70	50	62	72	80
Tensile Strength (MPa)	ASTM D412	11.5	10	10.5	9.5	9.5	9	8
Elongation (%)	ASTM D412	670	550	420	470	420	280	250
Tear Strength (KN/m)	ASTM D624-B	26	25	21	15	15	20	15
	ASTM D624-C	-	-	-	32	33	35	30
Rebound Resilience (%)	ASTM D1054	55	49	45	65	52	52	50
Compression Set*1 (%)	ASTM D395	26	24	22	24	26	25	30
Linear Shrinkage (%)	JIS K6249	2.8	2.7	2.4	2.9	2.7	2.6	2.4
Volume Resistivity (Ω-cm)	ASTM D257	10^{15}	10^{15}	10^{15}	10^{14}	10^{14}	10^{14}	10^{14}
Dielectric Strength (KV/mm)	ASTM D149	26	27	28	26	25	24	25

*1 Compression Set : 177°C × 22hrs

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CLOSED CELL SPONGE SILICONE RUBBER

FEATURES

- Excellent high & low temperature resistant (-50°C ~ +230°C)
- Very low compression set at high & low temperature excellent weather resistant

APPLICATIONS

- Dry oven gaskets, Seals
- Building glazing gasket, seals
- Building movement gap absorbing gasket
- Food container gasket, packing
- Hot liquid pipe line insulation
- O/A Rolls
- Many suitable application

Catalyst: HC-2/1.6phr

Typical Properties	SPG-30	SPG-50	SPG-60	SPG-70
Blowing Ratio(%) approx.	200	200	200	200
Density	0.35	0.45	0.50	0.55

FABRICATION TECHNIQUE

- Refresh & Mix Catlayst
- SPG compounds should be refreshend with two roll mill for 3 ~10 min. and then mix a catalyst depends on the required density and curing conditions
- The catalyst must be well dispersed with SPG compounds and pigments can be added in this stage
- The mixing temperature must be keep below 45°C in any cases
- Extrusion, Foaming, Curing
- Strict temperature control (below 45°C) is required througout the extrusion process
- HAV Tunnel : 1st zone : 150~180°C / 2nd Zone : 180~200°C / 3rd Zone : 200~250°C
- Post Cure : 180~200°C / 4hrs

Note

- Good quality sponge silicone usually need very high level of technical know-how due to the sensitive nature of fabrication conditions

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HIGH PROPERTY EXTRUSION MOLDING SILICONE RUBBER

FEATURES

- High Mechanical Property
- High Heat Resistant
- Low Shrinkage
- High Elongation
- Produced comply with FDA Reg. 21CFR, 177.2600

APPLICATIONS

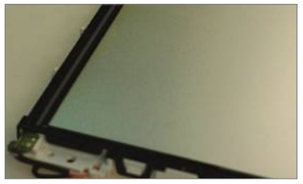
- Automotive Parts
- Electrical Parts
- Food Contacted Articles
- Tubings, Hoses
- Profiles Packings
- Sheets
- All Molded & Extruded Products

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	BASE 300U	BASE 500U	BASE 700U
Colors	ASTM E1767		Transparent	
William's Plasticity	ASTM D926	160	200	250
Specific Gravity	ASTM D792	1.08	1.14	1.18
Hardness	ASTM D2240	35	53	70
Tensile Strength (MPa)	ASTM D412	9	11	11
Elongation (%)	ASTM D412	600	550	400
Tear Strength (KN/m)	ASTM D624-B	16	22	24
Rebound Resilience (%)	ASTM D1054	65	50	50
Compression Set*1 (%)	ASTM D395	45	40	31
Volume Resistivity (Ω-cm)	ASTM D257	10^{15}	10^{15}	10^{15}
Dielectric Strength (KV/mm)	ASTM D149	25	26	26
Food Contact	FDA	YES	YES	YES

*1 Compression Set : 177°C × 22hrs

SPACER PANEL SILICONE RUBBER



FEATURES

- Good physical property
- Excellent processability in press molding & injection and all other process
- Qualified UL94HB
- Comply with FDA Reg. 21 CFR, 177.2600

APPLICATIONS

- General Industrial Parts
- Electronic Parts, Keypad, O/A rolls
- Food contact parts, packing
- Automotive parts

Catalyst: HC-2/1.5phr (116°C×10min)

Typical Properties	Test Method	HR-SPL
Colors	ASTM E1767	Translucent
William's Plasticity	ASTM D926	190
Specific Gravity	ASTM D792	1.13
Hardness	ASTM D2240	42
Tensile Strength (MPa)	ASTM D412	8
Elongation (%)	ASTM D412	400
Tear Strength (KN/m)	ASTM D624-B	8
	ASTM D624-C	10
Rebound Resilience (%)	ASTM D1054	60
Compression Set*1 (%)	ASTM D395	25

*1 Compression Set : 177°C × 22hrs

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HIGH VOLTAGE CABLE SILICONE RUBBER

FEATURES

- Excellent heat aging properties
- Excellent dielectric strength
- Excellent mechanical properties
- Excellent extrusion workability

APPLICATIONS

- High voltage FBT cable of electric microwave oven
- High voltage C/TV cable/wires
- High voltage aircraft cable
- High voltage ignition cable of automobile
- High voltage parts, bushing, insulation tubes

Catalyst: HC-2/1.5phr (116°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-700UHV
Colors	ASTM E1767	Transparent
William's Plasticity	ASTM D926	250
Specific Gravity	ASTM D792	1.2
Hardness	ASTM D2240	70
Tensile Strength (MPa)	ASTM D412	11
Elongation (%)	ASTM D412	300
Tear Strength (KN/m)	ASTM D624-B	14
	ASTM D624-C	40
Volume Resistivity (Ω-cm)	ASTM D257	10^{16}
Dielectric Strength (KV/mm)	ASTM D149	32
PROPERTIES CHANGE AFTER HEAT AGING AT 220°C × 96 hrs		
Hardness Change	ASTM D573	+2 ~ +3
Tensile Strength Change (%)	ASTM D573	-3 ~ -10
Elongation Change (%)	ASTM D573	-10 ~ -13
PROPERTIES CHANGE AFTER HEAT AGING AT 250°C × 72 hrs		
Hardness Change	ASTM D573	+3 ~ +6
Tensile Strength Change (%)	ASTM D573	-10 ~ -18
Elongation Change (%)	ASTM D573	-15 ~ -22

OIL RESISTANT SILICONE RUBBER

FEATURES

- Specially designed for Oil Resistance
- Excellent all properties
- Excellent for compression molding and extrusion

APPLICATIONS

- O-Ring, Automotive Rubber Parts, Seals.

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-707/60U	HR-707/70U	HR-707/80U
Colors	ASTM E1767		Natural Gray	
William's Plasticity	ASTM D926	250	270	300
Specific Gravity	ASTM D792	1.23	1.32	1.4
Hardness	ASTM D2240	60	71	81
Tensile Strength (MPa)	ASTM D412	6.5	7.5	7
Elongation (%)	ASTM D412	250	200	150
Tear Strength (KN/m)	ASTM D624-B	15	15	15
	ASTM D624-C	28	24	23
Compression Set*1 (%)	ASTM D395	28	30	33
PROPERTIES CHANGE AFTER OIL IMMERSION TEST AT 150°C × 72 hrs / ASTM No.1 Oil)				
Hardness Change	ASTM D471	-3	-2	-2
Tensile Strength Change(%)	ASTM D471	-10	-9	-10
Elongation Change(%)	ASTM D471	-12	-10	-10
Volume Change(%)	ASTM D471	+10	+8	+9

*1 Compression Set : 177°C × 22hrs

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High Consistency Silicone Rubber

NO POST CURE SILICONE RUBBER

FEATURES

- Excellent elastic properties
- Post curing is not required in case of industrial use (cost saving / short lead time)
- Can be blended for intermediate hardness between 40 and 80 hardness

APPLICATIONS

- All industrial rubber articles (molded, extruded)
- Industrial rolls
- Seal packing, Gaskets, Sheets

Catalyst: HC-8/1.8phr (171°C×10min / No Post Cure)

Typical Properties	Test Method	HR-NPC-140U	HR-NPC-180U
Colors	ASTM E1767	Transparent	Beige White
William's Plasticity	ASTM D926	190	300
Specific Gravity	ASTM D792	1.11	1.43
Hardness	ASTM D2240	42	80
Tensile Strength (MPa)	ASTM D412	8.5	8.5
Elongation (%)	ASTM D412	400	150
Tear Strength (KN/m)	ASTM D624-B	10	11
	ASTM D624-C	25	22
Rebound Resilience (%)	ASTM D1054	65	45
Compression Set*1 (%)	ASTM D395	20	15
Linear Shrinkage (%)	JIS K6249	4	3.2

*1 Compression Set : 177°C × 22hrs

SPECIAL GRADE FOR AUTOMOTIVE

FEATURES

- Excellent permanent compression reduction rate
- Excellent mechanical properties (shrinkability)
- Excellent workability

APPLICATIONS

- General press molding products
- O-Ring, Gasket
- automotive parts
- highly elastic products

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-5006U	HR-631BK (FMB)
Application	-	O-Ring, Gasket	Spark Plug Boot
Colors	ASTM E1767	Translucent / Ivory	BLACK
William's Plasticity	ASTM D926	180	210
Specific Gravity	ASTM D792	1.13	1.13
Hardness	ASTM D2240	52	60
Tensile Strength (MPa)	ASTM D412	9	10.5
Elongation (%)	ASTM D412	520	530
Tear Strength (KN/m)	ASTM D624-B	15	30
Rebound Resilience (%)	ASTM D1054	-	65
Compression Set*1 (%)	ASTM D395	10 / 7	18
Compression Set*2 (%)	ASTM D395	-	35
Dielectric Strength (KV/mm)	ASTM D149	-	21
PROPERTIES CHANGE AFTER HEAT AGING AT 200°C × 168 hrs			
Hardness Change	ASTM D573	-	-1
Tensile Strength Change (%)	ASTM D573	-	-15
Elongation Change (%)	ASTM D573	-	-18
Tear Strength Change (%)	ASTM D573	-	0

*1 Compression Set : 177°C × 22hrs
*2 Compression Set : 175°C × 168hrs

HIGH TRANSPARENT, HIGH TEAR STRENGTH SILICONE RUBBER

FEATURES

- High transparency
- High tear, High tensile strength
- Comply with FDA Reg. 21 CFR, 177.2600
- Excellent for extrusion, molding, injection

APPLICATIONS

- Baby Nipples (HR-1140)
- Goggles (HR-1150, 1160, 1170)
- Medical products
- Food contact products
- High mechanical products

Catalyst: HC-8/1.8phr (171°C×10min / No Post Cure)

Typical Properties	Test Method	HR-1130U	HR-1140U	HR-1150U	HR-1160U	HR-1170U	HR-1180U
Colors	ASTM E1767	Transparent					
William's Plasticity	ASTM D926	160	195	210	230	260	280
Specific Gravity	ASTM D792	1.08	1.1	1.12	1.16	1.19	1.2
Hardness	ASTM D2240	30	41	52	60	70	80
Tensile Strength (MPa)	ASTM D412	9	9	9.5	10	10	9.5
Elongation (%)	ASTM D412	700	600	450	400	300	200
Tear Strength (KN/m)	ASTM D62 4-B	10	20	12	14	14	14
	ASTM D624-C	25	36	38	38	37	-
Linear Shrinkage (%)	JIS K6249	4.3	4	3.9	3.6	4	-

ADDITIVES FOR SILICONE RUBBER

CURING AGENTS

Name	Chemical Composition	Addition(phr)	Usage
HC-2	2,4 Dichlorobenzoylperoxide 50%	1.2 ~ 1.8	HAV, Coating Thick Section Molding
HC-3	Dicumyl Peroxide	1.0 ~ 2.0	General Molding, Steam Cure
HC-4	2,5 Dimethyl, 2,5(t-butylperoxy) hexane 50%	0.8 ~ 1.2	All Compression Molding Conductive Rubber Food Contact
HC-8	2,5 Dimethyl, 2,5(t-butylperoxy) hexane 25%	1.6 ~ 2.4	
HC-15AY	Special Pure Peroxide (25%)	1.8 ~ 2.0	Anti Yellowing Food contact
HC-25A	Platinum Catalyst	-	HAV, Molding
HC-25B	Inhibitor + Cross linker	-	HAV, Molding

HC-15AY curing agent is very effective for Less Odor, No or Less Yellowing,
More Transparent purpose curing, but it may be little worse about mold releasing, if the mold is not chrome plate.

ADDITIVES

ADDITIVES	Color & Form	Functions	Addition Amount(phr)
ZA-1	White Paste	Improve Roll Mixing / Releasing	0.1 ~ 0.5
CA-1	White Paste	Improve Mold Releasing	0.1 ~ 0.5
AS-1	White Paste	Improve Mold Releasing	0.1 ~ 0.5
HT-100	Light Yellow Paste	Improve Heat Resistant (280℃)	0.5 ~ 1.0
HT-P	Clear Paste	Improve Heat Resistant (250℃)	0.2 ~ 0.5
HT-Red	Red Paste	Improve Heat Resistant (300℃)	2.0 ~ 3.0
FS-1	White Paste	Flame Retardant (94V-1)	3.0 ~ 5.0
FS-3	Black Paste	Flame Retardant (94V-0)	3.0 ~ 5.0
Softener	Clear Paste	Improve Softness / Mold Flow	1.0 ~ 5.0
CS-1	White Beige Paste	Reduce Compression Set	1.0 ~ 3.0

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FLUORO SILICONE RUBBER BASE

FEATURES

- Excellent oil resistance
- Excellent permanent compression reduction rate
- Stability over a wide range of temperatures
- Excellent tensile strength and elongation

APPLICATIONS

- Press molding or extrusion molding
- Automotive gasket or hose
- Oil pump gasket

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-FS40U	HR-FS50U	HR-FS60U	HR-FS70U
Colors	ASTM E1767		Ivory		
William's Plasticity	ASTM D926	200	240	280	380
Specific Gravity	ASTM D792	1.35	1.38	1.4	1.42
Hardness	ASTM D2240	40	50	64	73
Tensile Strength (MPa)	ASTM D412	8.3	9.2	9.5	8.6
Elongation (%)	ASTM D412	460	400	330	280
Tear Strength (KN/m)	ASTM D624-B	21	20	19	25
Rebound Resilience (%)	ASTM D1054	44	32	35	36
Compression Set*1 (%)	ASTM D395	6.8	10	12	11
PROPERTIES CHANGE AFTER OIL IMMERSION TEST AT 23°C × 24 hrs / ASTM Reference Fuel B)					
Hardness Change	ASTM D471	-4	-6	-5	-10
Tensile Strength Change (%)	ASTM D471	-50	-40	-32	-38
Elongation Change (%)	ASTM D471	-40	-34	-26	-24
Volume Change (%)	ASTM D471	+23	+20	+18	+18
PROPERTIES CHANGE AFTER OIL IMMERSION TEST AT 150°C × 72 hrs / IRM901)					
Hardness Change	ASTM D471	0	+1	0	-1
Tensile Strength Change (%)	ASTM D471	+3	-1	-9	-8
Elongation Change (%)	ASTM D471	+7	+2	+6	-12
Volume Change (%)	ASTM D471	+2	+2	+2	+2
PROPERTIES CHANGE AFTER OIL IMMERSION TEST AT 150°C × 72 hrs / IRM903)					
Hardness Change	ASTM D471	0	+1	-1	-5
Tensile Strength Change (%)	ASTM D471	-4	-6	-10	-19
Elongation Change (%)	ASTM D471	-4	+8	+9	-8
Volume Change (%)	ASTM D471	+4	+5	+10	+12

*1 Compression Set : 177°C × 22hrs

INDUSTRIAL ROLL / ROLL COVERING GRADE

FEATURES

- High temperature stability
- Excellent elasticity
- Low permanent compression reduction rate
- Anti-static properties (Surface Resistivity: 10^6~10^8)

APPLICATIONS

- Industrial roller
- Laminating roller
- Stamping roller

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-3527
Colors	ASTM E1767	White
William's Plasticity	ASTM D926	340
Specific Gravity	ASTM D792	1.96
Hardness	ASTM D2240	70
Tensile Strength (MPa)	ASTM D412	3.9
Elongation (%)	ASTM D412	310
Tear Strength (KN/m)	ASTM D624-B	15
Surface Resistivity (Ω)	ASTM D257	10^6 ~ 10^8

SILICONE RUBBER BASE FOR FATIGUE RESISTANCE APPLICATIONS

FEATURES

- Excellent workability for press molding, injection molding or other various molding methods
- Excellent elasticity
- High tear strength
- High modulus
- Excellent durability

APPLICATIONS

- Key pad&key top
- Automobile parts (muffler hanger, etc.)
- Fields requiring high durability

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)

Typical Properties	Test Method	HR-LF50U	HR-LF60U	HR-LF70U	HR-LF1050U	HR-LF1070U
Colors	ASTM E1767			Translucent		
William's Plasticity	ASTM D926	150	165	180	140	155
Specific Gravity	ASTM D792	1.09	1.11	1.13	1.09	1.12
Hardness	ASTM D2240	54	63	69	51	70
Tensile Strength (MPa)	ASTM D412	7.5	9	9.5	7.2	8.4
Modulus 100%	ASTM D412	3.5	3.1	3.7	1.7	3.9
Elongation (%)	ASTM D412	480	410	420	400	400
Tear Strength (KN/m)	ASTM D624-C	36	42	46	35	41
Extension Fatigue*1 (Cycles)	ASTM D430 Method B	5×10^6	5×10^6	3×10^6	3×10^6	3×10^6
Key Stroke Fatigue*2 (Cycles)	-	$1.8 \sim 2.2\times10^6$	$1.8 \sim 2.2\times10^7$	$1.8 \sim 2.2\times10^7$	-	-

*1 Extension Fatigue Test : De Mattia Flexing Fatigue Tester, 100% elongation, 6Hz
*2 Key Stroke Fatigue Test : Key Switch Curve Tester, Recovery force is 50%

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Silicone Technology HRS

Grade No.	Color (※1)	Standard Curing			Properties(※2)							Rebound (%)		Permanent Compression Set,% 177°C (350°F)/ 22Hours	Heat Resistance, Change After 96 Hours At 220°C(428°F)(%)			Oil Resistance, Change After 72 Hours At 150°C(302°F)in ASTM No.3 Oil(%)				Volume Resistivity (Ω・cm)	Breakdown Voltage(kV/mm)	Application
		Catalyst/ Amount(Phr) (※3)	Press Cure Condition (℃/Min)	Post Cure Condition (℃/Hrs)	Plasticity (Wiliams)	Specific Gravity	Hardness (Shore A)	Tensile Strength (MPa)	Elongation (%)	Tear Strength (KN/m) B Type	Tear Strength (KN/m) C Type				Hardness	Tensile Strength	Elongation	Hardness	Tensile Strength	Elongation	Volume	As Cured	As Cured	
GENERAL PURPOSE FOR MOLDING GRADE																								
HR-1931U(T)	TL	HC-8/1.8	171/10	200/4	160	1.09	30	6.5	500	8	16	61		16	+1	-10	-20	-12	-35	-30	+40	10^{15}	22	Molding
HR-1941U(T)	TL	HC-8/1.8	171/10	200/4	180	1.13	40	7.5	400	8	18	66		14	+1	-10	-15	-12	-36	-20	+34	10^{15}	23	
HR-1951U(T)	TL	HC-8/1.8	171/10	200/4	210	1.15	50	8.5	300	8.5	20	70		13	+2	-12	-15	-16	-35	-30	+38	10^{15}	23	
HR-1961U(T)	TL	HC-8/1.8	171/10	200/4	230	1.16	60	8	230	8.5	20	65		15	+2	-12	-10	-13	-35	-30	+34	10^{15}	23	
HR-1971U(T)	TL	HC-8/1.8	171/10	200/4	240	1.20	70	8	200	8.5	22	62		15	+1	-10	-10	-15	-36	-20	+30	10^{15}	23	
HR-1975U(T)	TL	HC-8/1.8	171/10	200/4	260	1.20	75	9.5	210	9	23	56		12	+1	-10	-10	-15	-36	-20	+30	10^{15}	23	
HR-1981U(T)	TL	HC-8/1.8	171/10	200/4	280	1.21	80	8.5	160	8	18	60		14	+1	-10	-10	-15	-36	-15	+30	10^{15}	23	
HR-1961U(G)	NG	HC-8/1.8	171/10	200/4	230	1.24	60	7.5	210	8	20	54		19	+1	-9	-15	-16	-35	-20	+30	10^{14}	22	
HR-1971U(G)	NG	HC-8/1.8	171/10	200/4	250	1.35	70	8	150	8	18	55		21	+1	-9	-10	-15	-35	-15	+26	10^{14}	22	
HR-1981U(G)	NG	HC-8/1.8	171/10	200/4	280	1.42	80	8	120	8	16	42		26	+1	-8	-10	-15	-35	-15	+20	10^{14}	21	
GENERAL PURPOSE FOR EXTRUSION GRADE																								
BASE-30U	TP	HC-8/1.8	171/10	200/4	150	1.08	31	7.5	600	10	25	-		-	+2	-13	-20	-28	-50	-20	+50	10^{15}	25	Extrusion
BASE-50U	TP	HC-8/1.8	171/10	200/4	210	1.14	51	9	350	10	30	-		-	+2	-15	-20	-27	-49	-21	+55	10^{15}	26	
BASE-60U	TP	HC-8/1.8	171/10	200/4	230	1.16	60	7.5	330	10	30	-		-	+1	-15	-20	-27	-49	-21	+55	10^{15}	26	
BASE-70U	TP	HC-8/1.8	171/10	200/4	250	1.18	70	10	290	11	35	-		-	+1	-14	-15	-26	-48	-18	+45	10^{15}	27	
BASE-75U	TP	HC-8/1.8	171/10	200/4	260	1.19	75	9	240	12.5	35	-		-	+1	-14	-15	-26	-48	-18	+45	10^{15}	27	
HIGH TRANSPARENT / HIGH TEAR STRENTH GRADE																								
HR-1130U	TP	HC-8/1.8	171/10	200/4	160	1.08	30	9	700	10	25	55		28	+2	-13	-20	-28	-50	-20	+50	10^{15}	25	Extrusion/Molding
HR-1140U	TP	HC-8/1.8	171/10	200/4	195	1.10	41	9	600	20	36	60		30	+2	-20	-25	-27	-45	-35	+45	10^{16}	27	
HR-1150U	TP	HC-8/1.8	171/10	200/4	210	1.12	52	9.5	450	12	38	60		31	+1	-20	-20	-26	-46	-40	+42	10^{16}	27	
HR-1160U	TP	HC-8/1.8	171/10	200/4	230	1.16	60	10	400	14	38	60		29	+2	-18	-22	-28	-50	-30	+40	10^{16}	26	
HR-1170U	TP	HC-8/1.8	171/10	200/4	260	1.19	70	10	300	14	37	60		25	+2	-20	-20	-29	-49	-25	+40	10^{16}	27	
HR-1180U	TP	HC-8/1.8	171/10	200/4	280	1.20	80	9.5	200	14	-	-		-	-	-	-	-	-	-	-	10^{15}	25	
LOW HARDNESS GRADE																								
SW-5	TL	HC-8/1.8	171/10	200/4	90	1.01	8	2.5	1100	4	7	-		47	-	-	-	-	-	-	-	10^{15}	-	Molding
SW-8	TL	HC-8/1.8	171/10	200/4	90	1.01	10	4	1000	4	10	-		22	-	-	-	-	-	-	-	10^{15}	-	
SW-15U	TL	HC-8/1.8	171/10	200/4	120	1.02	15	5	1000	4	10	-		25	-	-	-	-	-	-	-	10^{15}	-	
SW-20U	TL	HC-8/1.8	171/10	200/4	120	1.06	20	5.5	950	12	25	-		18	-	-	-	-	-	-	-	10^{15}	-	
HR-28U	TP	HC-8/1.8	171/10	200/4	230	1.15	29	8.5	870	13	-	-		-	-	-	-	-	-	-	-	10^{15}	-	
SUPER HIGH HARDNESS GRADE																								
HR-1991U(T)	TL	HC-8/1.8	171/10	200/4	300	1.24	90	8.5	150	12	30	50		12	-	-	-	-	-	-	-	10^{15}	-	Extrusion/Molding
HR-2290U	TP	HC-8/1.8	171/10	200/4	450	1.25	90	9.5	100	13	35	50		16	-	-	-	-	-	-	-	10^{15}	-	
HIGH TEAR STRENGTH GRADE																								
HR-2500/40U	TP	HC-8/1.8	171/10	200/4	180	1.11	40	9	700	32	36	-		30	-	-	-	-	-	-	-	10^{16}	25	Extrusion/Molding
HR-2500/50U	TP	HC-8/1.8	171/10	200/4	200	1.13	51	10	550	33	40	-		37	-	-	-	-	-	-	-	10^{16}	26	
HR-2500/60U	TP	HC-8/1.8	171/10	200/4	240	1.16	61	11	520	39	42	-		-	-	-	-	-	-	-	-	10^{16}	26	
HR-2500/70U	TP	HC-8/1.8	171/10	200/4	270	1.17	71	10	450	35	46	-		40	-	-	-	-	-	-	-	10^{16}	26	
SUPER HIGH TEAR STRENGTH GRADE																								
HR-NS-55U	TP	HC-8/1.8	171/10	-	200	1.13	57	10	720	50	-	50		30	-	-	-	-	-	-	-	10^{15}	-	Molding Wearable devices
HR-NS-75U	TP	HC-8/1.8	171/10	-	260	1.17	74	9	600	49	-	50		32	-	-	-	-	-	-	-	10^{15}	-	
LOW COMPRESSION SET GRADE																								
LCS-40	TP	HC-8/1.8	171/10	200/4	140	1.10	40	5	280	10	15	78		5	-	-	-	-	-	-	-	10^{15}	-	Molding
STEAM RESISTANCE GRADE																								
HR-3700/50U	TP	HC-8/1.8	171/10	200/4	210	1.13	50	10	400	15	29	65		12	+1	-15	-20	-27	-50	-20	+45	10^{15}	25	Extrusion/Molding
HR-3700/60U	TP	HC-8/1.8	171/10	200/4	230	1.15	60	10	350	14	32	65		10	+1	-15	-20	-26	-49	-21	+48	10^{15}	26	
HR-3700/70U	TP	HC-8/1.8	171/10	200/4	250	1.18	70	10	300	15	30	60		10	+2	-15	-15	-26	-49	-18	+42	10^{15}	27	
STEAM RESISTANCE GRADE FOR GENERAL PURPOSE																								
HR-3741U(T)	TL	HC-8/1.8	171/10	200/4	170	1.09	42	7.2	390	14	-	71		19	-	-	-	-	-	-	-	·	-	Molding Packing
HR-3751U(T)	TL	HC-8/1.8	171/10	200/4	180	1.12	50	7	400	10	20	67		10	-	-	-	-	-	-	-	-	-	
HR-3761U(T)	TL	HC-8/1.8	171/10	200/4	200	1.16	60	8.3	410	14	-	61		14	-	-	-	-	-	-	-	-	-	
HR-3771U(T)	TL	HC-8/1.8	171/10	200/4	240	1.19	72	9	300	13	-	53		12	-	-	-	-	-	-	-	-	-	
METAL CASTING GRADE																								
MC-50	TL	HC-8/1.8	171/10	200/4	-	1.15	50	10	550	38	37	-		-	-	-	-	-	-	-	-	-	-	Molding
MC-60	TL	HC-8/1.8	171/10	200/4	-	1.17	60	10	400	38	37	-		-	-	-	-	-	-	-	-	-	-	
MC-70	TL	HC-8/1.8	171/10	200/4	-	1.19	70	9	250	40	38	-		-	-	-	-	-	-	-	-	-	-	
ELETRIC CONDUCTIVE GRADE																								
HR-1526U	BK	HC-8/1.8	171/10	200/4	500	1.16	60	6	250	10	18	-		-	-	-	-	-	-	-	-	10	-	Molding
HR-1527U	BK	HC-8/1.8	171/10	200/4	600	1.20	70	6.5	200	10	18	-		-	-	-	-	-	-	-	-	5	-	
HR-1528U	BK	HC-8/1.8	171/10	200/4	750	1.21	78	6.5	150	11	18	-		-	-	-	-	-	-	-	-	4	-	
THERMAL CONDUCTIVE GRADE																								
HR-770/60U	DG	HC-8/1.8	171/10	200/4	260	2.00	60	3	400	10	10	-		* Thermal Conductivity 0.7W/m.K		-	-15	-20	-30	+20	10^{15}	20	Extrusion/Molding	
HR-770/70U	DG	HC-8/1.8	171/10	200/4	280	2.05	70	3.5	300	10	10	-		* Thermal Conductivity 0.8W/m.K		-	-15	-15	-30	+20	10^{15}	19		
HR-770-80U	DG	HC-8/1.8	171/10	200/4	300	2.10	80	4	100	10	10	-		* Thermal Conductivity 0.9W/m.K		-	-10	-15	-20	+10	10^{15}	19		
THERMAL CONDUCTIVE GRADE FOR EXTRUSION PROCESS																								
HR-7705U	NW	HC-2/1.6	116/10	-	210	2.17	52	1.1	500	7	-	-		* Thermal Conductivity 0.85W/m.K		-	-	-	-	-	-	-	EXTRUSION	
HR-7706U	NW	HC-2/1.6	116/10	-	270	2.30	59	1.1	700	8	-	-		* Thermal Conductivity 0.98W/m.K		-	-	-	-	-	-	-		
FLAME RETARDANT GRADE																								
HR-5020U	W/BK	HC-8/1.8	171/10	200/4	200	1.43	55	7.5	320	12	23	30		23	-1	-25	-30	-14	-45	-29	+35	10^{15}	25	Extrusion/ Molding UL-94V_0
HR-7020U	W/BK	HC-8/1.8	171/10	200/4	250	1.47	70	7	200	15	23	30		24	+1	-23	-25	-11	-48	-30	+34	10^{15}	25	

HCR

High Consistency Silicone Rubber

Specialist
in Silicone Rubber
Technology

Silicone Technology HRS

Grade No.	Color (※1)	Standard Curing			Properties(※2)								Rebound (%)		Permanent Compression Set,% 177°C (350°F)/ 22Hours	Heat Resistance, Change After 96 Hours At 220°C(428°F)(%)			Oil Resistance, Change After 72 Hours At 150°C(302°F)in ASTM No.3 Oil(%)				Volume Resistivity (Ω・cm)	Breakdown Voltage(kV/mm)	Application
		Catalyst/ Amount(Phr) (※3)	Press Cure Condition (℃/Min)	Post Cure Condition (℃/Hrs)	Plasticity (Wiliams)	Specific Gravity	Hardness (Shore A)	Tensile Strength (MPa)	Elongation (%)	Tear Strength (KN/m) B Type	Tear Strength (KN/m) C Type					Hardness	Tensile Strength	Elongation	Hardness	Tensile Strength	Elongation	Volume	As Cured	As Cured	
HIGH VOLTAGE INSULATOR GRADE																									
HVI-65U	G	HC-8/1.8	171/10	-	240	1.52	65	5	250	15	-	50			24	-	-	-	-	-	-	-	10^{15}	23	Molding, Surge Arrestors Suspension, Insulators
HVI-70U	G	HC-8/1.8	171/10	-	240	1.54	70	5	230	13	-	49			24	-	-	-	-	-	-	-	10^{15}	23	
OIL BREED GRADE																									
SL-30U	NW	HC-8/1.8	171/10	-	150	1.10	30	7	500	10	18	-			10	-11	-45	-20	-11	-38	-11	+29	10^{15}	-	O-Ring, Oil seal Gasket, Wire
SL-40U	NW	HC-8/1.8	171/10	-	165	1.13	40	7.5	400	10	21	-			6	-3	-22	-26	-11	-28	-10	+25	10^{15}	-	
SL-50U	NW	HC-8/1.8	171/10	-	200	1.16	50	8.5	300	10	27	-			5	+2	-16	-20	-12	-20	-14	+21	10^{15}	-	
SL-60U	NW	HC-8/1.8	171/10	-	210	1.17	60	8.5	260	11	25	-			6	+2	-15	-10	-12	-22	-12	+20	10^{15}	-	
HIGH TRANSPARENT GRADE																									
HR-2130U	TP	HC-8/1.8	171/10	200/4	170	1.09	30	8.5	700	20	34	-			-	-	-	-	-	-	-	-	-	-	Extrusion/Molding
HR-2140U	TP	HC-8/1.8	171/10	200/4	190	1.10	40	10	650	25	37	-			-	-	-	-	-	-	-	-	-	-	
HR-2150U	TP	HC-8/1.8	171/10	200/4	210	1.14	50	11	550	25	40	-			-	-	-	-	-	-	-	-	-	-	
HR-2160U	TP	HC-8/1.8	171/10	200/4	220	1.16	60	11	500	20	42	-			-	-	-	-	-	-	-	-	-	-	
HR-2170U	TP	HC-8/1.8	171/10	200/4	240	1.18	70	11	350	15	40	-			-	-	-	-	-	-	-	-	-	-	
HIGH HEAT RESISTANCE GRADE																									
HR-520U	LY	HC-8/1.8	171/10	200/4	220	1.13	52	10	400	15	29	55			30	+1	-22	-30	-29	-48	40	+45	10^{15}	23	Extrusion/Molding
HR-620U	LY	HC-8/1.8	171/10	200/4	230	1.16	60	10	250	13	25	55			22	+1	-22	-30	-29	-48	40	+45	10^{15}	23	
HR-720U	LY	HC-8/1.8	171/10	200/4	290	1.18	72	10	250	10	30	50			29	+2	-20	-30	-30	-50	-30	+44	10^{15}	22	
HR-820U	BW	HC-8/1.8	171/10	200/4	300	1.34	80	8.5	100	10	24	50			28	-1	-21	-28	-29	-49	-29	+40	10^{15}	22	
ADDITION CURE GRADE																									
AD-1150U	TP	HC-25A/1.0	140/10	200/4	200	1.12	50	11.5	670	26	-	55			26	-	-	-	-	-	-	-	10^{15}	26	Extrusion/Molding
AD-1160U	TP	HC-25A/1.0	140/10	200/4	220	1.16	60	10	550	25	-	49			24	-	-	-	-	-	-	-	10^{15}	27	
AD-1170U	TP	HC-25A/1.0	140/10	200/4	250	1.20	70	10.5	420	21	-	45			22	-	-	-	-	-	-	-	10^{15}	28	
AD-3950U	TL	HC-25A/1.0	140/10	200/4	200	1.15	50	9.5	470	15	32	65			24	-	-	-	-	-	-	-	10^{14}	26	
AD-3960U	TL	HC-25A/1.0	140/10	200/4	225	1.16	62	9.5	420	15	33	52			26	-	-	-	-	-	-	-	10^{14}	25	
AD-3970U	TL	HC-25A/1.0	140/10	200/4	250	1.18	72	9	280	20	35	52			25	-	-	-	-	-	-	-	10^{14}	24	
AD-3980U	TL	HC-25A/1.0	140/10	200/4	280	1.23	80	8	250	15	30	50			30	-	-	-	-	-	-	-	10^{14}	25	
CLOSED CELL SPONGE GRADE																									
SPG-30	-	HC-2/1.6	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	Extrusion/Foaming Blowing ratio(200) Density(0.35~0.55%)
SPG-50	-	HC-2/1.6	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	
SPG-60	-	HC-2/1.6	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	
SPG-70	-	HC-2/1.6	-	-	-	-	-	-	-	-	-	-			-	-	-	-	-	-	-	-	-	-	
HIGH PROPERTY EXTRUSION MOLDING GRADE																									
BASE-300U	TP	HC-8/1.8	171/10	200/4	160	1.08	35	9	600	16	17	65			45	+2	-15	-25	-27	-48	-20	+50	10^{15}	25	Extrusion/Molding
BASE-500U	TP	HC-8/1.8	171/10	200/4	200	1.14	53	11	550	22	31	50			40	+2	-18	-23	-28	-45	-20	+52	10^{15}	26	
BASE-700U	TP	HC-8/1.8	171/10	200/4	250	1.18	70	11	400	24	37	50			31	+1	-20	-20	-26	-46	-18	+45	10^{15}	26	
SPACER PANEL GRADE																									
HR-SPR	TL	HC-2/1.5	116/10	-	190	1.13	42	8	400	8	10	60			25	-	-	-	-	-	-	-	-	-	Molding
HIGH VOLTAGE CABLE GRADE																									
HR-700UHV	TR	HC-2/1.5	116/10	200/4	250	1.20	70	11	300	14	40	-			-	2	-3	-10	-	-	-	-	10^{16}	32	Extrusion
OIL RESISTANT GRADE																									
HR-707/60U	GW	HC-8/1.8	171/10	200/4	250	1.23	60	6.5	250	15	28	60			28	-	-	-	-3	-10	-12	+10	10^{14}	25	Molding
HR-707/70U	GW	HC-8/1.8	171/10	200/4	270	1.32	71	7.5	200	15	24	60			30	-	-	-	-2	-9	-10	+8	10^{14}	26	
HR-707/80U	GW	HC-8/1.8	171/10	200/4	300	1.40	81	7	150	15	23	58			33	-	-	-	-2	-10	-10	+9	10^{14}	26	
NO POST CURE GRADE																									
HR-NPC-140U	TP	HC-8/1.8	171/10	200/4	190	1.11	42	8.5	400	10	25	65			20	+2	-15	-20	-20	-48	-20	+40	10^{15}	27	Extrusion/Molding
HR-NPC-180U	BW	HC-8/1.8	171/10	200/4	300	1.43	80	8.5	150	11	22	45			15	+1	-14	-30	-15	-46	-18	+22	10^{15}	27	
SPECIAL GRADE FOR AUTOMOTIVE																									
HR-5006U	TL IVORY	HC-8/1.8	171/10	200/4	180	1.13	52	9	520	15	-	-			10	-	-	-	-	-	-	-	-	-	Molding Automotive Parts (Gasket, Boot)
HR-631BK (FMB)	BK	HC-8/1.8	171/10	200/4	210	1.13	60	10.5	530	30	-	-			18	(200°C × 168hr) -1	-15	-18	-	-	-	-	10^{15}	25	
INDUSTRIAL ROLL / ROLL COVERING GRADE																									
HR-3527	White	HC-8/1.8	171/10	200/4	340	1.96	70	3.9	310	15	-	-			-	-	-	-	-	-	-	-	Surface Resistivity 10^{6}~10^{8}		Molding Anti-static
SILICONE RUBBER BASE FOR FATIGUE RESISTANCE APPLICATIONS																									
HR-LF50U	TL	HC-8/1.8	171/10	200/4	150	1.09	54	7.5	480	-	36	-			-	-	-	-	-	-	-	-	-	-	Automotive parts Key pad & Key top
HR-LF60U	TL	HC-8/1.8	171/10	200/4	165	1.11	63	9	410	-	42	-			-	-	-	-	-	-	-	-	-	-	
HR-LF70U	TL	HC-8/1.8	171/10	200/4	180	1.13	69	9.5	420	-	46	-			-	-	-	-	-	-	-	-	-	-	
HR-LF1050U	TL	HC-8/1.8	171/10	200/4	140	1.09	50	7.2	400	-	35	-			-	-	-	-	-	-	-	-	-	-	
HR-LF1070U	TL	HC-8/1.8	171/10	200/4	155	1.12	70	8.5	400	-	41	-			-	-	-	-	-	-	-	-	-	-	
FLUORO SILICONE RUBBER BASE																									
HR-FS40U	IVORY	HC-8/1.8	171/10	200/4	200	1.35	40	8.3	460	21	-	44			6.8	-	-	-	0	-4	-4	4	-	-	Extrusion/Molding High mechanical products Automotive parts O-Ring, Gasket, Hose
HR-FS50U	IVORY	HC-8/1.8	171/10	200/4	240	1.38	50	9.2	400	20	-	32			10	-	-	-	1	-6	8	5	-	-	
HR-FS60U	IVORY	HC-8/1.8	171/10	200/4	280	1.40	64	9.5	330	19	-	35			12	-	-	-	-1	-10	9	10	-	-	
HR-FS70U	IVORY	HC-8/1.8	171/10	200/4	380	1.42	73	8.6	280	25	-	36			11	-	-	-	-5	-19	-8	12	-	-	

※1 TL(Translucent), NG(Natural Gray), TP(Transparent), BW(Beige White), BK(Black), DG(Dark Gray), W(White), G(Gray), NW(Natural White), LY(Light Yellow)

※2 The Properties are to be taken as typical. Please note these properties are not a specification. The properties are normal average value with the standard curing method. If use different catalyst and different curing condition, the value will be different.

※3 HC-2: 2,4-dichlorobenzoylperoxide 50% in silicone
HC-8: 2,5-dimethyl 2,5-di-t-butylperoxyhexane 25% in silicone

PART.2

LSR

1. Automotive

2. Electric/Electronics/Mobile

3. Housewares

4. Medical/Baby Product

5. ETC

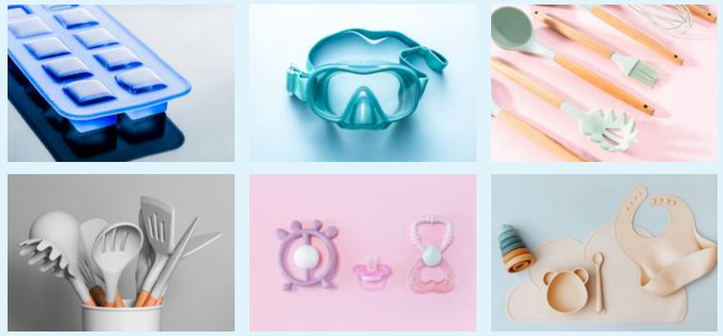
HRS dreams about happiness and affluence of people with silicone technology.

LIQUID SILICONE RUBBER

LSR is Liquid Type and High Temperature Vulcanization Silicone Rubber. LSR differs from Millable Type Silicone Rubber and RTV (Room Temperature Vulcanization) by its viscosity and curing temperature.

LSR is perfect rubber material for automated injection molding due to its excellent liquidity. Also, LSR is ideal for complex molds, demanding design and tolerance because it can be easily filled almost every complex part of a mold.

LSR also generates relatively less volatiles and it makes LSR possible to be used that required inertness for example pacifier, diving mask, medical tube, snorkel and bakeware.



ECONOMICS OF LSR

PROPERTIES
- Thermal resistance
- Ultraviolet resistance and Ozone resistance
- Weatherability
- Exceelent dielectric strength
- Bio-compatibility

INJECTION MOLDING
- Less by-products
- Flashless Molding

FAST CYCLE
- Addition-curing
- Fast curing time
- Short working time

ADVANTAGE
- Production with lower injection pressure
- Suitable for fine workings
- Less worry for the contamination
- High quality and efficiency

APPLICATION OF LSR

LSR is used in countless fileds from automobiels to baby products.

The example of applications: Copy machine Roller / High voltage insulator / Keypads / Anode Caps / Connector seals / Diaphram & valves / O-ring, Gaskets & Seal / Diving mask & snorkels / a baby's nipple / Wire seal / Gromet

PACKING SIZE OF HRS LSR

The inside diameter of HRS LSR package (Pail and Drum)
20Kg : 282㎜ (Pail) 200Kg : 572mm (Drum)

The size of packing is universal and compatible with all LSR injection molding machine.

STORAGE

LSR should be stored in a cool and dark place with good ventilation and away from direct sunlight. Please do not forget to close the lid after using it. With the lid closed and in the normal temperature range, it can be used with stability for 6 months (in case A and B are not mixed).
Make sure to close the lid after use. Also the drum is recommended to be used as soon as possible after opening.

POT LIFE

- If liquid A and liquid B are mixed, it can be stored in a cool and dark place for up to 72 hours. However, it should be used as soon as possible.
- The pot life is subjected to change depending on storage conditions, so a close attention should be paid during the whole injection molding process.

PROCESS

1. LSR, packed in 20kg or 200kg, is supplied as 2 Parts of A and B for easy use.
2. With automatic dosing system, Part A and Part B flow to the static mixer.
3. Additives like color dispersions can be added and mixed with LSR by the static mixer
4. Curing takes place within a few seconds between 170°C~230°C

※ Caution

1. Prevent the curing of LSR before injection into the mold, the temperature of the nozzle and cylinder must be controlled lower than 23°C.
2. The mold temperature (above 200°C) is very high, so it is always recommended to install a automatic ejection system to protect the workers from an accident and exposure to volatile materials.

POST CURE

Even though relatively less worry for the volatils, we always recommend customers to consider doing post-curing. During post-curing process, sufficent fresh air must be supplied in to post-cuing over to prevent a fire or an explosion
(100 liter of air per 1kg of silicone rubber).

LINEAR SHRINKAGE

Linear shrinkage differs depending on the thickness. As the thickness decreases, linear shrinkage increases, and vice versa. It also differs depending on the curing temperature. At a higher temperature, linear shrinkage usually increases.
Linear shrinkage is a factor which must be considered in designing the mold.
Take LSR-200/50. At 171°C and with the thickness of 2mm, its linear shrinkage is as following.

Non Post-cured 2.7%±0.5%
Post-cured 3.5%±0.5%

INHIBITION MATERIALS

The cure mechanism of LSR products can be inhibited by amines, sulfurs, tin complexes and some peroxides. Therefore, special caution for the contamination is strongly recommended during the whole working process.

ADDITION CURE

Grade No.	Color (※1)	Specific Gravity ASTM D 792	Viscosity(A/B) Share rate=10s^{-1} [Pa.s]	Hardness ASTM D 2240 Shore A, [Hs]	Tensile Strength ASTM D 412 [Mpa]	Elongation ASTM D 412 [%]		Tear Strength ASTM D 624(B) [KN/m]	Rebound Resilience JIS K 6255 [%]	Compression Set ASTM D 365 [%]	Application	Features
GENERAL PURPOSE_HIGH TRANSPARENT & HIGH STRENGTH GRADE												
LSI-200/20	TP	1.08	200/190	20	2.5	600		14	40	40	Molding in general Food packaging Diving snorkels and Mask Electrical/Electronic boots Nipple Medical Rubber Articles Food Contacted Articles Automotive Part	Higher transparency compared with that of milliable silicone Satisfying the condition of FDA21CFR 177.2600 Fast cure time Higher tear strength and mechanical strength
LSI-200/30	TP	1.10	350/360	30	7.1	800		19	50	30		
LSI-200/40	TP	1.12	350/350	40	9	700		38	60	25		
LSI-200/50	TP	1.16	350/350	50	9	600		40	60	25		
LSI-200/60	TP	1.13	400/400	60	10	600		40	62	25		
LSI-200/70	TP	1.14	450/450	67	10	450		38	65	25		
LSI-200/75	TP	1.14	580/550	72	10	350		28	45	25		
LSI-200/80	TP	1.14	480/480	76	10.2	320		26	45	25		
LSI-200/80(H)	TP	1.15	505/490	82	9.5	90		8	-	-		
HIGH TRANSPARENT, HIGH ELONGATION GRADE												
LSI-200/23	TP	1.12	370/370	23	7.5	850		20	-	-	Baby Nipple	High Transparent and good mechenical strength / Fast Cure Time
LSI-200/33	TP	1.12	350/350	30	8	800		22	-	-		
SELF ADHESIVE GRADE												
LSI-800/40	TL	1.11	400/750	35	9	600		22	-	-	Sealing elements Automotive parts Co-molding process	For thermoplastics Excellent self-adhesive mechanical strength Convenient 1:1 mixing ratio for high tear strength Suitable for automatic equipment
LSI-800/60	TL	1.14	400/500	55	8	400		35	-	-		
SUPER HIGH TEAR STRANGTH GRADE												
LSI-700/60	TP	1.12	490/470	60	10	400		55	69	-	Injection Molding	Rubber Parts for Wearable Devices Automotive Parts
LOW VISCOSITY, FABRIC COATING GRADE												
LSI-280/30	TP	1.08	65/55	30	6.2	430		20	70	25	Coating agents and water repellents Food containers Auto Parts, Hoses, Seals	Low viscosity and high resilience Good Flowability Electrically insulating Satisfying the condition of FDA21CFR 177.2600
LSI-280/40	TP	1.08	80/80	40	6.8	420		22	65	25		
LSI-280/50	TP	1.08	100/100	50	8.5	450		40	60	25		
LSI-280/60	TP	1.11	110/110	60	9	320		35	60	25		
LSI-280/70	TP	1.12	140/140	68	8.4	200		10	50	25		
SELF ADHESION, FABRIC COATING GRADE												
LFC-2500	TP	1.07	56	45	8	340		7.5	-	-	Fabric Coating Non-Slip Coating Artificial Leather	Low Viscosity Good flowability Adhesion to fabric
LFC-3500	TP	1.06	32	41	6	340		7	-	-		
LFC-6260	TP	1.11	140/140	58	8.5	430		36	-	-		
LFC-6530	TP	1.05	30/20	30	3	350		5.5	-	-		
LFC-6830	TP	1.05	45/30	33	4.4	230		3.5	-	-	Fabric coating applications Automotive airbag coating Knife coating process	Unprimed adhesion to polyamide Improved elasticity Solventless
LFC-6850	TP	1.05	20/15	52	6.5	150		6	-	-		
LSC-242	TL	1.06	50/20	42	5.5	240		5	-	-		
GENERAL PURPOSE IMPREGNATING VARNISH GRADE												
LSC-2000	TP	1.03	30	40	3	230		3	-	-	General purpose impregnating varnish for fiberglass insulated wire sleeve	Good elastocity Improved thixotropy
LSC-4000	TP	1.06	27	40	2.5	200		1.5	-	-		
LSC-4000HT	RBN	1.03	11	32	1.5	190		-	-	-		
LSC-6000	TP	1.04	50	45	4.5	170		-	-	-		
LSC-6100	TP	1.04	50	45	5	230		-	-	-		
SELF-LUBRICATING GRADE (OIL BLEED)												
LSI-304/30	TL	1.10	300/260	30	5.5	600		31	50	-	Electric connectors Electric connectors for automobiles Wire seal, Gromet	Self-lubrication for A long period Low compression set
LSI-304/40	TL	1.11	300/300	40	5.5	500		35	50	-		
LSI-304/50	TL	1.12	350/350	50	6	450		35	50	-		
LSI-304/60	TL	1.13	400/400	60	7	400		35	55	-		
LSI-304/70	TL	1.12	300/300	68	6.5	109		15	55	-		
LOW COMPRESSION SET & HIGH REBOUND GRADE												
LSI-901/40	TP	1.13	75/75	40	6	350		25	70	15	Molding in general Keypad and O/A Rolls Packing and Gasket Electrical/Electronic boots	Highly economical Low compression set after curing Low viscosity
LSI-901/50	TP	1.12	45/50	50	4.5	180		20	75	15		
LSI-901/60	TP	1.15	69/48	60	5	100		20	75	15		
LSI-901/70	TP	1.18	233/156	70	8	100		15	70	15		
LSI-902/70	TP	1.15	500/500	68	9	300		10	65	25		

LSR

Liquid Silicone Rubber

Specialist
in Silicone Rubber
Technology

Grade No.	Color (※1)	Specific Gravity ASTM D 792	Viscosity(A/B) Share rate=10s^{-1} [Pa.s]	Hardness ASTM D 2240 Shore A, [Hs]	Tensile Strength ASTM D 412 [N/mm^2]	Elongation ASTM D 412 [%]		Tear Strength ASTM D 624(B) [N/mm]	Rebound Resilience JIS K 6255 [%]	Compression Set ASTM D 365 [%]	Application	Features
LOW HARDNESS & LOW COMPRESSION SET O/A ROLLS												
LSI-PR-15	RBN	1.24	100/100	16 (Asker C)	0.9	350		-	-	5	Printer Roller (Development, Pressure)	Low Compression Set (177°C/22hrs) Low Hardness
LSI-DR-25	Black	1.15	145/150	26	2.5	180		-	75	7		
LSI-DR-30	Black	1.24	80/80	30	2	200		-	-	7		
LOW HARDNESS & HEAT RESISTANCE ROLL GRADE												
LSI-401/15	RBN	1.05	31/29	7~8	1.5	400		2	72	-	Industrial Roller	Low Hardness Improved Heat Aging Properties Good Rebound Resilience
FLOWABLE GEL												
LSI-GL100	TP	1.05	65/55	40 (Shore 00)	0.3	500		-	-	-	Mask, Pad, Non Slip Coating	Flowable Gel Low Hardness
LSI-GL102	TP	1.05	65/60	5 (Asker C)	-	-		-	-	-		
LSI-GL200	TP	1.01	1.5/2.0	30	-	-		-	-	-		
MOLD CAST HRTV-ROOM TEMPERATURE VULCANIZATION												
HRTV-2035	TL	1.08	65/55	37	6.8	500		13	Linear Shrinkage	0.5	Accessory Molding Toy Molding Copy of plaster figures	high releasability Low linear shrinkage High Flowability No need for heat
HRTV-2038	TL	1.06	70	40	6.8	425		8.5		-		
HRTV-2040	TL	1.07	43	42	4.5	300		20		-		
HRTV-2045	TL	1.10	30/30	42	6.8	400		13		0.5		
HRTV-2140	TL	1.07	52	38	6.5	450		30	JIS K 6249	-		
HRTV-1600	TL	1.37	170/170	54	8.1	290		16		0.5		
HRTV-40-FC	TL	1.07	30	45	5.5	290		5.5				
HRTV-250/40	TP	1.08	50/50	40	6.8	400		26		0.5		
SUPERIOR TRANSPARENT RESIN												
HT-LSI-30	TP	0.98	64/40	30	3	280		3	-	-	Electric devices parts High Transparent Applications	High Clarity for Excellent Visibility Excellent release from metal molds
HT-LSI-40	TP	0.98	60/37	40	5.2	380		6	-	-		
HT-LSI-50	TP	1.02	56/27	50	5.7	270		9	-	-		
HT-LSI-60	TP	1.02	79/26	58	7.3	340		13	-	-		
HT-LSI-70	TP	1.04	78/16	68	9.6	90		8	-	-		
LOW HARDNESS & HIGH ELONGATION GRADE												
ES-05	TP	1.06	240	7	4	1050		-	-	-	High Elongation Silicone Sheet	High clarity for excellent visibility Superior elongation Low hardness
ES-15	TP	1.06	300	14	4	950		-	-	-		
FLAME RETARDANT GRADE												
LSI-500/55 W	White	1.33	260/300	56	6	340		16	64	* Flammability UL94 V-0	Lamp holder for TFT, LCD Display Home/Office appliance parts Other flame-retardance products	Excellent flame-retardancy High releasability Stability at temperature change Thermal Shork Stability
LSI-500/55 G	Gray	1.34	400/350	54	5.4	350		17	65			
LSI-500/60 BK	Black	1.28	270/220	62	7.2	350		20	60			
TRACKING RESISTANT GRADE												
LSI-600/40	White	1.10	85/85	40	7	500		25	65	* Flammability UL94 V-0	Suspension Insulation Cable Terminator and connectors	Tracking Resistant : 4.5KV Arc Resistant
LOW VISCOSITY ENCAPSULANT GRADE												
LV-20	White/Gray	1.05	9~10	17~20	2.5	450		-	-	-	General molding Various applications for vibration absorption process	Low viscosity and Good Flowability Improved Rheology
THERMALLY CONDUCTIVE ENCAPSULANT												
LT-6007	GRAY	1.60	3.8/5.2	60	290 psi	85		* Thermal Conductivity 0.7W/m.K			Potting and encapsulant Electronic devices for EV Transformer Converter	Low viscosity and good flowability High thermal conductivity Excellent dielectric strength
LT-3540	PINK	3.15	26/29	35	65 psi	10		* Thermal Conductivity 4.7W/m.K				
LT-5022Z	GRAY	2.7	12/18	50-60 (Shore 00)	-	-		* Thermal Conductivity 2.2W/m.K				
LT-5030Z	GRAY	2.8	22/12	50 (Shore 00)	-	-		* Thermal Conductivity 3.0W/m.K				
LT-4537Z	GRAY	2.9	17/19	40-50 (Shore 00)	-	-		* Thermal Conductivity 3.7W/m.K				
THERMALLY CONDUCTIVE GAP FILLER												
LT-7810	GRAY	2.05	90/80	78	-	-		* Thermal Conductivity 1.0W/m.K			Automotive electronics Lighting Power Supplies Motor	Addition Type Low Adhesive, Repairable Customizable Flow Characteristics
LT-7522Z	GRAY	2.7	22/12	65-75 (Shore 00)	-	-		* Thermal Conductivity 2.2W/m.K				
LT-7527	GRAY	2.78	50/30	75 (Shore 00)	-	-		* Thermal Conductivity 2.7W/m.K				
LT-8029	GRAY	2.8	65/45	80	-	-		* Thermal Conductivity 2.9W/m.K				
CLT-5051Z	White	3.1	300	50 (Shore 00)	-	-		* Thermal Conductivity 5.1W/m.K				Condensation Type
FB-0520	RBN	1.50	270/250	20-25	-	-		* Thermal Conductivity 0.5W/m.K			O/A Rolls	Addition Type High Thermal Diffusivity Low density
FB-1220	DARK GRAY	1.95	230/290	20-25	-	-		* Thermal Conductivity 1.2W/m.K				

CONDENSATION CURE

MOLDMAKING RTV SILICONE RUBBER												
CRTV-40	White	1.12	14	40	1	160		2	-	-	Industrial Roller Roll Covering Moldmaking Re-Production of Prototypes	Excellent resilience Low compression set Good release(low tack) Easy polishing
CRTV-50	White	1.27	19	50	2	120		2	-	-		
CRTV-60	White	1.43	23	62	3	95		3	-	-		
CRTV-70	White	1.51	20	70	3.8	55		3	-	-		
CRTV-80	White	1.54	20	80	5	55		3	-	-		
CRTV-85	White	1.56	14	85	3.5	30		3	-	-		
CRTV-90	White	1.58	33	90	3	23		3	-	-		
CRTV-280	White	1.58	6.4	82	-	-	-	-	-	-		

※ 1. TL(Translucent), TP(Transparent), RBN(Redish Brown)

PART.3

RTV

- FS (Fire-Stop system)

- DM (Dental impression materials)

HRS dreams about happiness and affluence of people with silicone technology.

ROOM TEMPERATURE VULCANIZATION

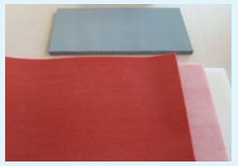
HRS RTV 2K for fire-stop system is designed based on Silicone Rubber’ s unique characteristics such as high temperature resistance, flame retardant, sound-proofness and air-tightness. HRS RTV 2K is in two parts and the mixing ratio is 1:1.

Once the two parts mixed, the mixture is cured within several minutes and fully cured within 24 hours. The final form of HRS RTV 2K is varied in density from solid elastomer block to sponge.

HRS RTV 2K is used as proven fire-stop materials in many fields like skyscrapers, hotels, department stores, nuclear power plant, thermal power plants, chemical plants, and refineries. Demand for HRS RTV 2K is increaseing from new fields, which require perfect fireproof sealing without generating harmful toxic gases.





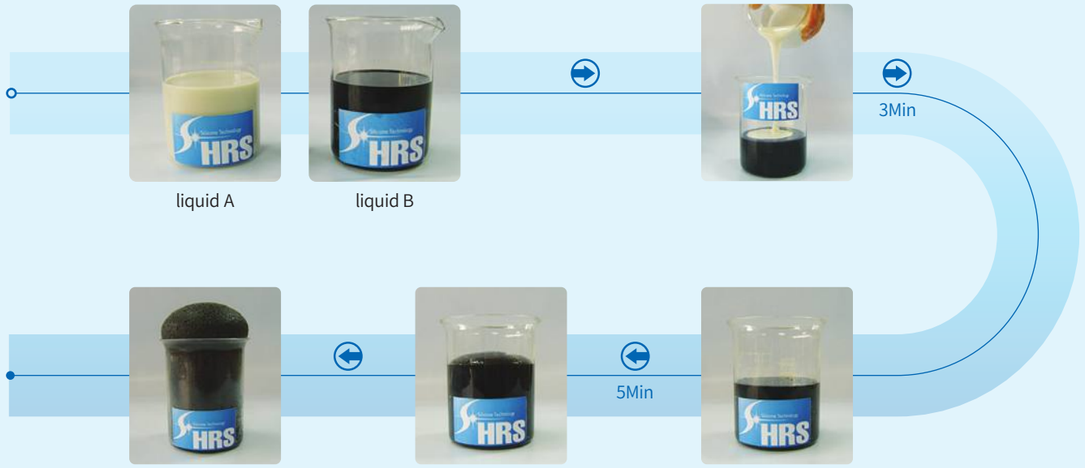
RTV

Room Temperature Vulcanization

WHAT IS THE SILICONE RTV FOAM?

It is silicone foam blown and cured at room temperature. It is designed to make use of the advantage of silicone polymers such as thermal resistance, fire retardance, sound-proofness and airtightness.

Mixing part A and part B at the same rate makes a sticky liquid. This mixture is to be blown and cured two or three times bigger within 1 to 5 minutes and become a closed-cell sponge.



IN CASE OF A FIRE, NO HARMFUL GASES ARE EMITTED FROM HRS RTV 2K

When a fire breaks out, the damage from harmful gases is more serious than from the flare or high temperture.
HRT RTV 2K is safe and do not emit harmful gases.

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HR-PS-80 (LOW DENSITY SILICONE RTV)

	Properties	Part A	Part B
Before curing	Main components	Silicone	Silicone
	Viscosity (23℃)	45~90Poise	45~90Poise
	Color	Black	Whitish
	Specific Gravity (23℃)	1.05~1.10	1.05~1.10
	Mixing Ratio	1 : 1	
	Working time after mixing	2~5 minutes	
	Time for complete cure	24 hours	
	Storage Temperature Range	32℃ Max	
After curing	Color	Black	
	Expansion	200~300%	
	Density	14~28 lb/ft^3	
	Cell structure	Closed Cell	
	Service Temperature Range	-70℃~200℃	
	Oxygen Index	>28	
	Fire resistance	T/F Class	
	Radiation resistance	1×10^{8}Rad (ASTM E-1027)	
	Flame Spread Index (ASTM E-84)	25 or less	

HR-PS-80 is a two-component type of liquid silicone RTV developed by HRS Co.,Ltd. Excellent fireproof and showing a great ventilation capability.

It has been certified as a qualified material for nuclear power plants by Korea Hydro & Nuclear Power Co., Ltd.

HR-PS-120 (LOW DENSITY SILICONE RTV)

	Properties	Part A	Part B
Before curing	Main components	Silicone	Silicone
	Color	Gray	Whitish
	Specific Gravity (23℃)	≥1.31	≥1.31
	Mixing ratio	1 : 1	
	Working time after mixing	30 minutes	
	Time for complete cure	24 Hours	
	Storage Temperature Range	32℃ Max	
After curing	Color	Gray	
	Density	≥82 lb/ft^3	
	Service Temperature Range	-70℃~200℃	
	Oxygen Index	>28	
	Fire resistance	T/F Class	
	Radiation resistance	1×10^{8}Rad (ASTM E-1027)	
	Flood Seal	≤0.01Gallon/Mim. @15psi	
	Comoartment Pressurization	≤0.001CFM/ft/psi	
	Flame Spread Index (ASTM E-84)	25 or less	

HR-PS-120 is a two-component type of liquid silicone RTV developed by HRS Co.,Ltd. Excellent fire-sealing, flood-sealing, ventilation-sealing, and compartment pressurization-sealing. It has been certified as a qualified material for nuclear power plants by Korea Hydro & Nuclear Power Co., Ltd.

HR-PS-140 (HIGH DENSITY SILICONE RTV)

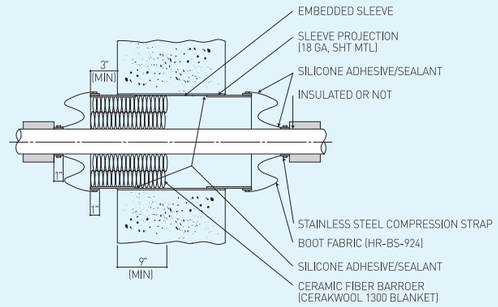
	Properties	Part A	Part B
Before curing	Main components	Silicone	Silicone
	Color	Black	Whitish
	Specific Gravity (23℃)	≥2.25	≥2.25
	Mixture Ratio	1 : 1	
	Working time after mixing	30 minutes	
	Time for complete cure	24 hours	
	Storage Temperature Range	32℃ Max	
After curing	Color	Dark Gray	
	Density	≥140 lb/ft^3	
	Service Temperature Range	-70℃~200℃	
	Oxygen Index	>28	
	Fire resistance	T/F Class	
	Radiation resistance	1×10^{8}Rad (ASTM E-1027)	
	Flood Seal	≤0.01Gallon/Mim. @15psi	
	Comoartment Pressurization	≤0.001CFM/ft/psi	
	Flame Spread Index (ASTM E-84)	25 or less	

HR-PS-140 is a two-component type of liquid silicone RTV developed by HRS Co.,Ltd. Excellent fire-sealing, flood-sealing, ventilation-sealing, and compartment pressurization-sealing. Especially, it is characterized by having a radiation-blocking function. It has been certified as a qualified material for nuclear power plants by Korea Hydro & Nuclear Power Co., Ltd.

※ Ventilation Seal : No leakage with 5" of water pressure head
※ Nontoxic
※ T/F Class (FS012, KSF2842, UL-1479, ASTM E-814)

HR-BS-924 (BOOT FABRIC)

Typical Drawing



HR-BS-924 is high elastic & flexible Boot Fabric developed by HRS Co.,Ltd. and it has a prominent characteristic for the condition of fire-stop, flood seal, ventilation seal and compartment pressurization. It has been certified as a qualified material for nuclear power plants by Korea Hydro & Nuclear Power Co., Ltd.

DM (DENTAL IMPRESSION MATERIALS)

A Dental Impression Material is one of the most important materials that is used in the process of dental prosthetics. It imprints dentition or surrounding structures of oral cavity and provides detailed and stable negative of teeth.
Comparing with other common Dental Impression Materials such as agar, alginate, polyester, polysulfide and condensation silicone, addition silicone dental impression material has excellent elastic recovery, short working and curing time, no deformation after fully cured, high dimensional stability and also provides excellent detail reproduction.

HRS silicone dental impression material called Sildent is hydrophilic addition silicone that has good wet ability when condensation silicone dental impression material has low wet ability due to the moisture on the surface of teeth.
Dental Impression Materials consist of light, regular, heavy and putty by variation of viscosity.

Sildent™ Light Body

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Consistency (mm)	Min. 36mm	
Mixing Time (sec)	Cartridge Type	Auto-Mixing
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	More than 1min	
Color	Base : Green	Catalyst : White
Setting Time (min)	4min (in the mouth)	
Strain in Compression (%)	Within 10%	
Elastic recovery (%)	> 99.5%	
Linear Dimensional change (%)	Within 0.2%	
Detail reproduction (㎛)	20㎛ reproduce	
Compatibility with gypsum (㎛)	50㎛ reproduce	

* Storage temperature 15°C to 25°C

INDICATIONS

- Crown and bridge impressions
- Inlay and onlay impressions
- Functional impressions
- Implant impressions
- Denture and partial denture impressions

BENEFITS

- Excellent flow properties
- Hydrophilic properties for excellent flow in wet environment
- High tear strength from deformation
- Working time is secured sufficiently by Snap-set technology
- Extraordinary stability
- Excellent detail reproduction

Sildent™ Regular Body

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Consistency (mm)	31 ~ 41mm	
Mixing Time (sec)	Cartridge Type	Auto-Mixing
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	More than 1min	
Color	Base : Blue	Catalyst : White
Setting Time (min)	4min (in the mouth)	
Strain in Compression (%)	Within 10%	
Elastic recovery (%)	> 99.5%	
Linear Dimensional change (%)	Within 0.2%	
Detail reproduction (㎛)	20㎛ reproduce	
Compatibility with gypsum (㎛)	50㎛ reproduce	

* Storage temperature 15°C to 25°C

INDICATIONS

- Crown and bridge impressions.
- Inlay and onlay impressions.
- Functional impressions.
- Implant impressions.
- Denture and partial denture impressions

BENEFITS

- Excellent elastic recovery
- Hydrophilic properties for excellent flow in wet environment
- High tear strength from deformation
- Extraordinary stability
- Excellent detail reproduction

Sildent™ Heavy Body

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Consistency (mm)	Max. 35mm	
Mixing Time (sec)	Cartridge Type	Auto-Mixing
	Tube Type	30 sec
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	More than 1min	
Color	Base : Purple	Catalyst : White
Setting Time (min)	4min (in the mouth)	
Strain in Compression (%)	Within 10%	
Elastic recovery (%)	> 99.5%	
Linear Dimensional change (%)	Within 0.2%	
Detail reproduction (㎛)	50㎛ reproduce	
Compatibility with gypsum (㎛)	50㎛ reproduce	

* Storage temperature 15°C to 25°C

INDICATIONS

- Crown and bridge impressions
- Inlay and onlay impressions
- Functional impressions
- Implant impressions
- Denture and partial denture impressions

BENEFITS

- Excellent elastic recovery
- Hydrophilic properties for excellent flow in wet environment
- High tear strength from deformation
- Long-lasting dimensional stability
- Excellent detail reproduction
- Easy to remove from mouth

Sildent™ Putty

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Consistency (mm)	Max. 35mm	
Mixing Time (sec)	Jar Type	Manual-Mixing(60sec)
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	More than 1min 40sec	
Color	Base : Violet	Catalyst : White
Setting Time (min)	5min (in the mouth)	
Strain in Compression (%)	within 2.4%	
Elastic recovery (%)	> 99.5%	
Linear Dimensional change (%)	Within 0.11%	
Detail reproduction (㎛)	75㎛ reproduce	
Compatibility with gypsum (㎛)	50㎛ reproduce	

* Storage temperature 15°C to 25°C

INDICATIONS

- Crown and bridge impressions
- Inlay and onlay impressions
- Functional impressions
- Implant impressions
- Denture and partial denture impressions

BENEFITS

- Short setting time in mouth
- Non-greasy, satiny smooth, extremely easy to mix
- No bubbles
- Good mechanical properties
- Excellent detail reproduction
- Hydrophilic

RTV

Room Temperature Vulcanization

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Sildent™ **FAST** Light Body

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Consistency (mm)	Min. 36mm	
Mixing Time (sec)	Cartridge Type	Auto-Mixing
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	More than 40sec	
Color	Base : Yellowgreen	Catalyst : White
Setting Time (min)	3min (in the mouth)	
Strain in Compression (%)	Within 10%	
Elastic recovery (%)	> 99.5%	
Linear Dimensional change (%)	Within 0.2%	
Detail reproduction (μm)	20μm reproduce	
Compatibility with gypsum (μm)	50μm reproduce	

* Storage temperature 15°C to 25°C

INDICATIONS

- Crown and bridge impressions
- Inlay and onlay impressions
- Functional impressions
- Implant impressions
- Denture and partial denture impressions

BENEFITS

- Fast working and setting time
- Hydrophilic properties for excellent flow in wet environment
- Excellent detail reproduction
- Long-lasting dimensional stability

Sildent™ **FAST** Heavy Body

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Consistency (mm)	Min. 35mm	
Mixing Time (sec)	Cartridge Type	Auto-Mixing
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	More than 40sec	
Color	Base : Cordovan	Catalyst : White
Setting Time (min)	3min (in the mouth)	
Strain in Compression (%)	Within 10%	
Elastic recovery (%)	> 99.5%	
Linear Dimensional change (%)	Within 0.2%	
Detail reproduction (μm)	50μm reproduce	
Compatibility with gypsum (μm)	50μm reproduce	

* Storage temperature 15°C to 25°C

INDICATIONS

- Crown and bridge impressions
- Inlay and onlay impressions
- Functional impressions
- Implant impressions
- Denture and partial denture impressions

BENEFITS

- Fast working and setting time
- Hydrophilic properties for excellent flow in wet environment
- Excellent elastic recovery
- Excellent detail reproduction
- Long-lasting dimensional stability
- Easy to remove from mouth

Sildent™ **BITE**

TECHNICAL DATA

Physical & Mechanical Properties	Standard	
Mixing Time (sec)	Cartridge Type	Auto-Mixing
Mixing Ratio	Base : Catalyst	1 : 1
Working Time (sec)	Over 30sec	
Color	Base : Yellow	Catalyst : White
Setting Time (min)	1min (in the mouth)	
Hardness (HD)	More than 22HD (or Min. 22HD)	
Linear Dimensional change (%)	Within 0.2%	

* Storage temperature 15°C to 25°C

INDICATIONS

- Bite Registration

BENEFITS

- Extremely fast setting time of 1:00 min
- High Hardness
- Outstanding occlusal details and accurate bite registration
- Easy to trim and grind

PART.4

SS

- IT

- Electric/Electronics/Mobile

- Housewares

- ETC

HRS dreams about happiness and affluence of people with silicone technology.

SILICONE SHEET

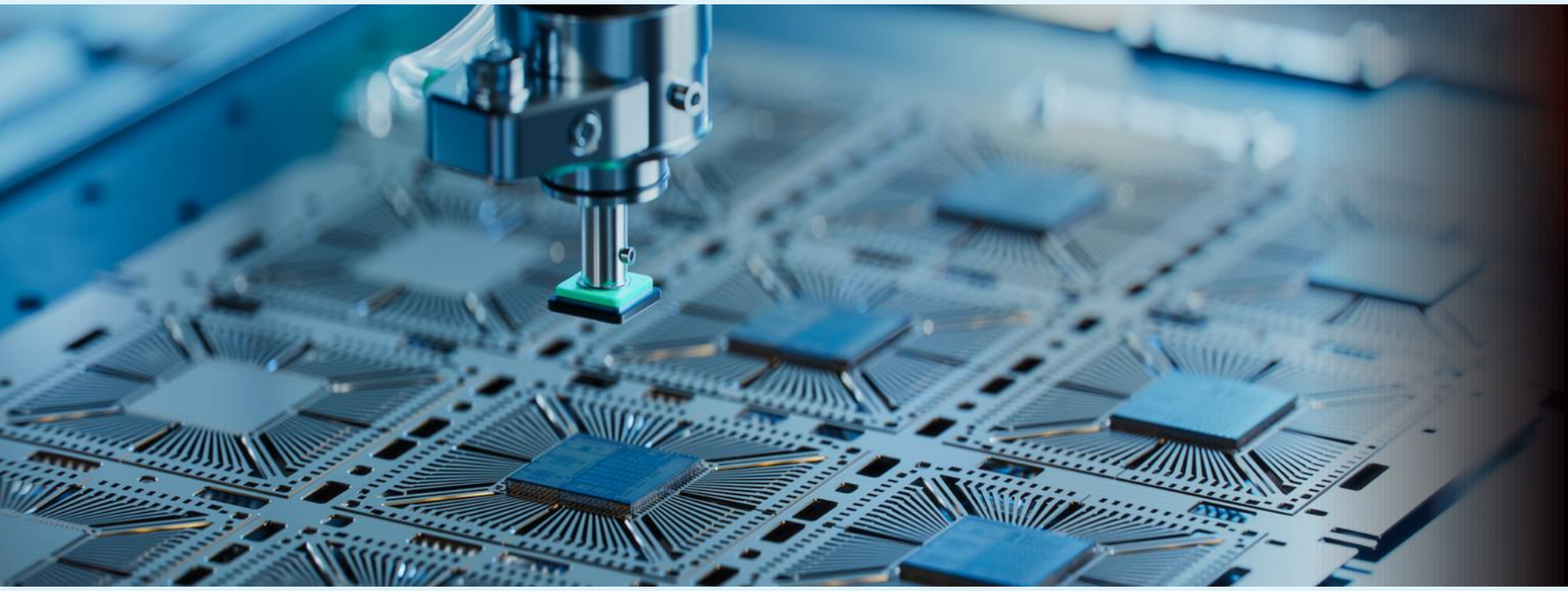
With the development of IT industry, electronic products are becoming smaller, thinner and multi-featured. Due to this trend, the thermal management of electronic products is also getting more and more important.

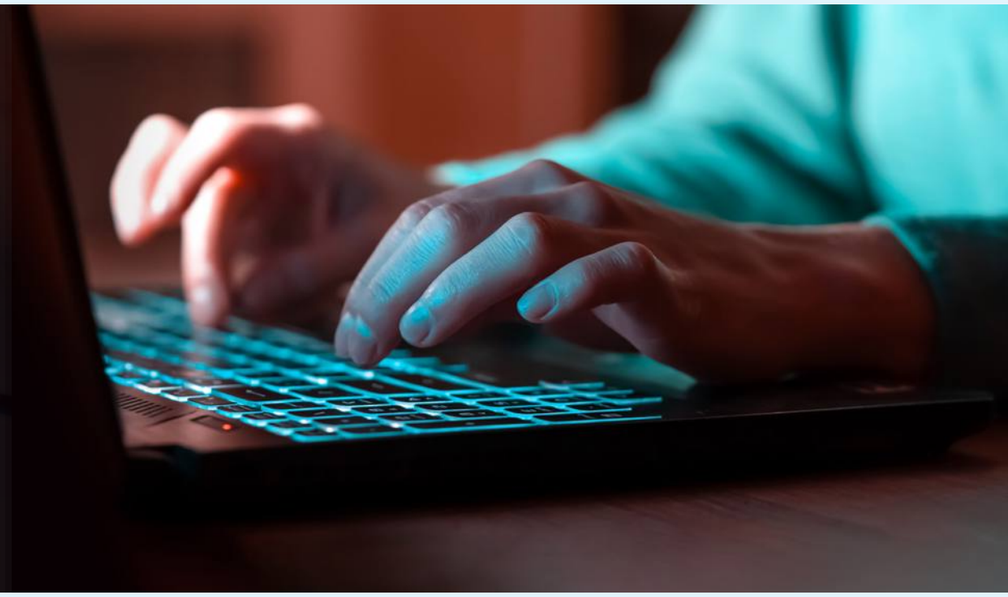
HRS SS products have developed to meet the needs of times based on Silicone Rubber' s characteristics like high thermal conductivity, flame retardant, high temperature resistance etc...

And the demand is getting wider into auto industry, shipbuilding industry, medical industry and home appliances.

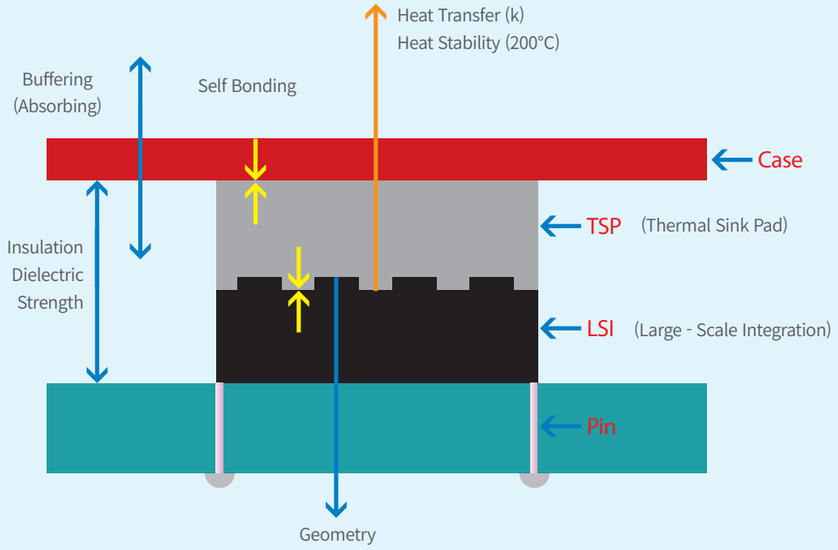
HRS SS product line includes functional silicone tape, super slim sheet, functional silicone foam, flame retardant silicone sheet, silicone tube, silicone packing, fiberglass reinforced thermal management sheet and adhesive silicone film etc...

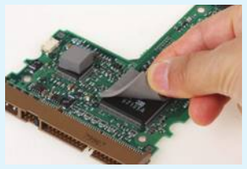
Specialist
in Silicone Rubber
Technology





Importance of Thermal Conductive Silicone Rubber





HR-TSP SERIES / SOFT SILICONE THERMAL CONDUCTIVITY PRODUCTS

- HR-TSP is an advanced silicone rubber with high thermal conductivity and superior flame-retardant. By combining the inherent silicone rubber properties of heat resistance, electrical insulation and long-term aging into one compound, this universally applicable material can be made in an unlimited number of thermal management configurations.
- HR-TSP is highly conformable and high heat conducting gel materials in a versatile sheet form. They easily fit most of all shapes and sizes of components, including protrusions and recessed area.

TSP-FI SERIES / COATED GLASS FIBER THERMAL CONDUCTIVE SHEET

- TSP-Fi-SERIES are filled thermally conductive polymer supplied on a rubber coated fiber glass. TSP-Fi-SERIES are a highly conformable.
- Low modules silicone polymer filled with special conductive filler that excellent heat conductivity and flame retardant UL94 V-0 level together with good electrical properties.

HR-TC SERIES / HIGH HARDNESS THERMAL CONDUCTIVITY SILICONE

- HR-TC SERIES are high thermally conductivity rubber sheets. They provide excellent heat conductivity and cushioning effect.
- HR-TC SERIES have excellent mechanical and physical characteristics. They are available in sheet, tape and O-rings.

LSR-SH SERIES / HIGH PROPERTY LSR SILICONE SHEET

- LSR-SH-SERIES have excellent heat resistance, corona resistance and fine performance as an electrical insulator.
- Our line up includes high strength, transparent and flame retardant grades designed for a range of molding applications. We are also developing new products for other specific applications.

SS

Silicone Sheet

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Type	Grade No.	Thickness (mm)		Color	Hardness (Shore 00)		Specific Gravity (g/cm³)		Continue Use (℃)	Dielectric Breakdown (kV)			Volume Resistivity (Ωcm)		Thermal Conductivity (W/mK)		Thermal Resistance (m²k/W)		Flame Retardant level		Application	Feature
		Value	Test Method	Value	Value	Test Method	Value	Test Method	Value	Value	Test Method		Value	Test Method	Value	Test Method	Value	Test Method	Value	Test Method		
HR-TSP SERIES	TSP-N4015	0.5~45	ASTM D 374	W/B/G/P	30~80	ASTM D 2240	2.4	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$3x10^{13}$	ASTM D 257	1.5	ASTM 5470	$5.5x10^{-3}$	ASTM D 150	V-0	UL 94	Heat dissipation of MPU (Micro Processing Units) Heat dissipation of surface-mount Chips. Between a CPU and heat spreader. Between a CD ROM and a heat spreader. DVD and CD ROM Cooling.(6025/7030) RDRAM memory modules.(8035)	Excellent thermal conductivity. Flexible and adhesive. Excellent flame retardant(UL94 V-0) Any thickness are available. Excellent electrical insulation. Retain good physical property in a wide range of temperature
	TSP-4020	0.5~45	ASTM D 374	W/B/G/P	30~80	ASTM D 2240	2.7	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	2.0	ASTM 5470	$3.8x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-4025	0.5~45	ASTM D 374	W/B/G/P	30~80	ASTM D 2240	2.8	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	2.5	ASTM 5470	$2.8x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-5030	0.5~45	ASTM D 374	W/B/G/P	40~80	ASTM D 2240	2.9	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{11}$	ASTM D 257	3.0	ASTM 5470	$2.4x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-5050	0.5~45	ASTM D 374	W/B/G/P	40~80	ASTM D 2240	3.2	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{11}$	ASTM D 257	5.0	ASTM 5470	$8.5x10^{-4}$	ASTM D 150	V-0	UL 94		
	TSP-6030	0.5~45	ASTM D 374	W/B/G/P	40~80	ASTM D 2240	2.9	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{11}$	ASTM D 257	3.0	ASTM 5470	$2.4x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-7040	0.5~45	ASTM D 374	W/B/G/P	40~80	ASTM D 2240	3.1	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{11}$	ASTM D 257	4.0	ASTM 5470	$1.7x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-7050	0.5~45	ASTM D 374	W/B/G/P	40~80	ASTM D 2240	3.2	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{11}$	ASTM D 257	5.0	ASTM 5470	$8.5x10^{-4}$	ASTM D 150	V-0	UL 94		
	TSP-7080	0.5~45	ASTM D 374	W/B/G/P	40~80	ASTM D 2240	3.8	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{11}$	ASTM D 257	8.0	ASTM 5470	$8.5x10^{-4}$	ASTM D 150	V-0	UL 94		
TSP-FI SERIES	TSP-FI 4015	0.3~2.0	ASTM D 374	W/B/G/P	40~90	ASTM D 2240	2.4	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	1.5	ASTM 5470	$5.5x10^{-3}$	ASTM D 150	V-0	UL 94	Heat dissipation of MPU (Micro Processing Units) Heat dissipation of surface-mount Chips. Between Power Sources and Heat Sink. Automotive systems. Isolate electrical components. Power supplies. Power semiconductors.	Special fillers to achieve specific performance and characteristics. Flexible and conformable. Good adhesive. Excellent flame retardant(UL94 V-0) Various thickness are available. Excellent electrical insulation.
	TSP-FI 9015	0.3~2.0	ASTM D 374	W/B/G/P	40~90	ASTM D 2240	2.4	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	1.5	ASTM 5470	$5.5x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-FI 4020	0.3~2.0	ASTM D 374	W/B/G/P	40~90	ASTM D 2240	2.7	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	2.0	ASTM 5470	$3.8x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-FI 6025	0.5~2.0	ASTM D 374	W/B/G/P	60~90	ASTM D 2240	2.8	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	2.5	ASTM 5470	$2.8x10^{-3}$	ASTM D 150	V-0	UL 94		
	TSP-FI 7030	0.5~2.0	ASTM D 374	W/B/G/P	70~90	ASTM D 2240	3.0	ASTM D 792	- 60 ~ 150	min 6	ASTM D 149		$1x10^{13}$	ASTM D 257	3.0	ASTM 5470	$2.4x10^{-3}$	ASTM D 150	V-0	UL 94		

Type	Grade No.	Thickness (mm)	Appearance	Hardness (Shore 00)	Specific Gravity (g/cm³)	Tensile Strength (kgf/cm²)	Elongation (%)		Tear strength (kgf/cm)	Dielectric Breakdown (kV/mm)	Rebound Resilience (%)	Flame Retardant level (UL94)	Application	Feature
FOAM SHEET	HR-40	1.0~10.0	B/G	40	0.3~0.7	-	-		-	-	-	-	- Railway vehicles, automobiles, airline, shipping - Electricity, Electronics - LED lighting, battery	-
	HR-50	1.0~10.0	B/G	50	0.3~0.7	-	-		-	-	-	-		
	HR-60	1.0~10.0	B/G	60	0.3~0.7	-	-		-	-	-	-		

Type	Grade No.	Thickness (mm)	Appearance	Hardness (Shore A)	Specific Gravity (g/cm³)	Tensile Strength (kgf/cm²)	Elongation (%)		Tear strength (kgf/cm)	Dielectric Breakdown (kV/mm)	Rebound Resilience (%)	Flame Retardant level (UL94)	Application	Feature
LSR-SH SERIES	LSR-SH 200/30	0.1~20.0	TP	30	1.11	85	650		30	20	50	-	Cushion of electronic parts. Insulating mat. Furniture manufacturing. IT and display industry. Construction material.(500/XX)	High mechanical property. Hardness are available from 30 to 70 (Shore A) Excellent heat stability. Easy cutting and mounting. High transparency.
	LSR-SH 200/50	0.3~20.0	TP	50	1.12	90	550		35	20	55	-		
	LSR-SH 200/70	0.5~20.0	TP	70	1.15	90	300		15	20	60	-		
	LSR-SH 500/50	0.5~20.0	W/B	50	1.45	40	200		10	15	-	V-0		
	LSR-SH 500/60	0.5~20.0	W/B	60	1.48	50	200		7	15	-	V-0		
	LSR-SH 500/70	0.5~20.0	W/B	70	1.48	50	200		7	15	-	V-0		
PET RUBBER	PET RUBBER	0.5~8.0	B/G	50~70	1.12	-	-		-	-	-	-	Used for shock absorption sheet when making MLCC (Multi Layer Ceramic Capacitor)	-
HOLDER SERIES	HOLDER LGP	-	G	80	-	-	-		-	-	-	-	Applies to wide range of TV parts as it has excellent recovery even in presence of heat	-
	HOLDER WIRE	-	G	80	-	-	-		-	-	-	-	Keep electric circuit safe and tidy electric cable inside of LCD / LED TV Panel	-

Type	Grade No.	Thickness (mm)		Color	Hardness (Shore A)		Specific Gravity (g/cm³)		Continue Use (℃)	Dielectric Breakdown (kV)			Volume Resistivity (Ωcm)		Thermal Conductivity (W/mK)		Thermal Resistance (m²k/W)		Flame Retardant level		Application	Feature
		Value	Test Method	Value	Value	Test Method	Value	Test Method	Value	Value	Test Method		Value	Test Method	Value	Test Method	Value	Test Method	Value	Test Method		
HR-TC SERIES	TC-3007	0.3~20.0	ASTM D 374	W/B/G/P	30	ASTM D 2240	1.9	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	0.7	ASTM 5470	-	-	-	-	Heat dissipation of surface-mount Chips. Between Power Sources and Heat Sink. Automotive systems. Isolate electrical components. Surface panel of LCD & PDP.	Excellent thermal conductivity. Excellent flame retardant(UL94 V-0) Various thickness are available. Excellent electrical insulation. Retain good physical property in a wide range of temperature.
	TC-4007	0.3~20.0	ASTM D 374	W/B/G/P	40	ASTM D 2240	1.9	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	0.7	ASTM 5470	-	-	-	-		
	TC-5007	0.3~20.0	ASTM D 374	W/B/G/P	50	ASTM D 2240	1.9	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	0.7	ASTM 5470	-	-	-	-		
	TC-4010	0.3~20.0	ASTM D 374	W/B/G/P	40	ASTM D 2240	2.4	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	1.0	ASTM 5470	-	-	-	-		
	TC-5015	0.3~20.0	ASTM D 374	W/B/G/P	50	ASTM D 2240	2.4	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	1.5	ASTM 5470	-	-	-	-		
	TC-7010	0.3~20.0	ASTM D 374	W/B/G/P	70	ASTM D 2240	1.9	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	1	ASTM 5470	-	-	-	-		
	TC-7020	0.3~20.0	ASTM D 374	W/B/G/P	70	ASTM D 2240	2.7	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{13}$	ASTM D 257	2	ASTM 5470	-	-	-	-		
	TC-7030	0.3~20.0	ASTM D 374	W/B/G/P	70	ASTM D 2240	2.9	ASTM D 792	- 60 ~ 150	min 7	ASTM D 149		$1x10^{11}$	ASTM D 257	3	ASTM 5470	-	-	-	-		
ACF SHEET	SS-7010	0.2~0.5	ASTM D 374	B/G	70	ASTM D 2240	2.1	ASTM D 792	- 60 ~ 400	Min[20]	ASTM D 149		10^{9}~10^{12}	ASTM D 257	0.8	ASTM 5470	-	ASTM D 150	-	UL94	Sheet for ACF process of LCD, PDP, LED panel. Heat transfer sheet, Heat resistant separate sheet, Thermal diffusion sheet	-
	PIS-710	0.2~0.5	ASTM D 374	B/G	60	ASTM D 2240	2.0	ASTM D 792	- 60 ~ 400	Min[20]	ASTM D 149		10^{12}~10^{15}	ASTM D 257	0.8	ASTM 5470	-	ASTM D 150	-	UL94		
SPACER PANEL	HR-SPR	0.2~2.0	ASTM D 374	B/G	30	ASTM D 2240	1.12	ASTM D 792	- 60 ~ 180	Min[20]	ASTM D 149		10^{14}	ASTM D 257	-	ASTM 5470	-	ASTM D 150	-	UL94	Spacer panel for TV, monitor Electronic, electronics shield Silicone adhesive tape Silicone adhesive sheet Insulating tape, sheet	-
	HR-SPL	0.2~2.0	ASTM D 374	B/G	40	ASTM D 2240	1.12	ASTM D 792	- 60 ~ 180	Min[20]	ASTM D 149		10^{14}	ASTM D 257	-	ASTM 5470	-	ASTM D 150	-	UL94		

※1 W(White), B(Black), G(Gray), P(Pink), TP(Transparant)

※2 The properties are to be taken as typical. Please note these proerties are not a specification. The properties are normal average value with the standard curing method. If use different catalyst and different curing condition, the value will be different.

PART.5

PSA

- IT

- Electric / Electronics / Mobile

- ETC

HRS dreams about happiness and affluence of people with silicone technology.

PRESSURE SENSITIVE ADHESVIE

Pressure Sensitive Adhesive (PSA) refers to those with ability to adhere to the intended surfaces with application of slight pressure, can be detached easily without leaving any traces on the surface, and can be adhered to the intended surfaces again by maintaining its adhesiveness and adhesive strength.

Pressure Sensitive Silicone Adhesive has outstanding adhesion and coagulation strength, better electrical properties and outstanding heat resistance in comparison to the ordinary organic pressure sensitive adhesives. Therefore, the demand keeps increasing from films and types used in electrical/electronic processes or heat resistance protection and LCD protective liquid crystal film, etc.






PSA

Pressure Sensitive Adhesive

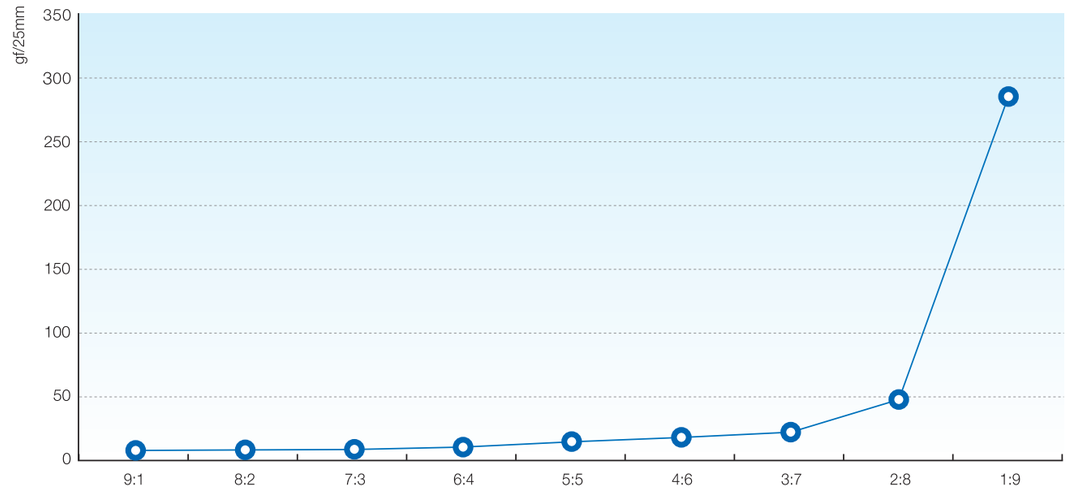
1. PSA-PROCESS FILMS

Type	SP-6802	SP-9902
Appearance	Liquid	
Color	Clear	
Nonvolatile Content (%)	61 ~ 65	>99
Viscosity (cP)	30,000 ~ 60,000	40,000 ~ 60,000
180° Peel Adhesion (g/25mm)	>1,000	0.5 ~ 1.0
Features	Realization of a diverse range of adhesive strength by mixing the SP-6802 and SP-9903 at a prescribed ratio.	

APPLICATION

- Electrical process films
- Graphic Films and labels
- LCD protection films
- Coating films and masking tape

2. SILICONE PSA ADHESION GRAPH (SP-9902:SP-6802)



3. PSA-LCD PROTECTION FILMS

Type	SP-4028	SP-6227
Appearance	Liquid	
Color	Clear	
Nonvolatile Content (%)	38 ~ 42	60 ~ 64
Viscosity (cP)	20,000 ~ 60,000	80,000 ~ 120,000
180° Peel Adhesion (g/25mm)	1.0 ~ 2.0	1.0 ~ 2.0
Features	Adhesion can be adjusted upon request for improved coating surface and leveling properties	

APPLICATION

- Electrical/electronic process film
- LCD protective film
- Flexible OLED film
- Graphic films and labels
- Coating film and masking tape

4. LOW TEMPERATURE HARDENING FILMS

Type	SP-7001LT	SP-7061LT	SP-6803LT
Appearance	Liquid		
Color	Clear		
Nonvolatile Content (%)	68 ~ 72	68 ~ 72	60 ~ 64
Viscosity (cP)	30,000 ~ 50,000	5,000 ~ 25,000	5,000 ~ 25,000
180° Peel Adhesion (g/25mm)	2	25	>1,000
Features	Products for low temperature (80°C) curing applicable to special material films (PO, PP)		

APPLICATION

- Protection tape/film
- LCD protective film
- Electrical/electronic process film
- Graphic films and labels
- Coating film and masking tape

5. TPU, CPP FILMS PROTECTION

Type	SP-6061LT	SP-6081LT
Appearance	Liquid	
Color	Clear	
Nonvolatile Content (%)	60	
Viscosity (cP)	5,500	4,000
180° Peel Adhesion (g/25mm)	27	50
Features	Curing at low temperature 70°C for 2 minutes, measuring adhesion by applying CPP film 40㎛ + PSA 20㎛	

APPLICATION

- Protection tape/film
- LCD protective film
- Electrical/electronic process film
- Graphic films and labels
- Coating film and masking tape

PART.6

PERSONAL CARE

- Skin Care
- Make up
- Hair Care
- Sun Care
- Body Care

HRS dreams about happiness and affluence of people with silicone technology.

SILICONE FOR PERSONAL CARE

Silicone is widely used as a key material for personal care products in our daily life to enhance the functionality of cosmetics. Silicones have been widely recongnized as safe ingriedents for perosnal care products and have been beloved due to its unique properties by cosmetic formulators.

The unique properties of silicone is generated mainly from its molecualr structure and compativility with other materials. Therefore, the purpose of using silicone is as diverse as the variety of silicone products like oil, emulsion, resin, and gum blends etc.






SILICONE FOR PERSONAL CARE

Specialist
in Silicone Rubber
Technology

VARIETY OF SILICONES FOR COSMETICS

HRS FOR YOUR BEAUTY

01

Silicone is widely used in personal care products due to its characteristics of water repellency, lubrication, low surface tension, gloss, great moisturizing effect and nontoxicity.

02

Silicone has a great variety of applications including skin care (Cream, Lotion), Make-up (BB Cream, Lip stick), Hair Care (Shampoo, Treatment), Sun Care (Sun Cream, Sun Gel), Body Care (Body Lotion, Body Cream) and more.

03

Many different forms of silicones are used as an essential ingredient of personal care products.

SILICONE OIL

- Silicone oil used for cosmetics is normally transparent, odorless and physiologically intert that is highly safe for human body.
- Silicone oil can improve the quality and performance of cosmetics by enhancing its spreadabilty, less stickiness, water repellence, hetreroplastic and inertness of other materials.
- Useful for improving the quality and performance of cosmetics due to its great spreadability, less sticky property, water repellency, heteroplastic and inertness of other materials.
  It can be applied to skin care, make-up, foundation, hair care, sun care, body care, etc.

SILICONE ELASTOMER GEL/POWDER

- Low viscosity (volatile and non-volatile) oil and Polymer is cross-linked together to create elastic silicone bringing cushioning for cosmetics.
- Brings high viscosity and Effectively reduce stickiness.
- Absorb face sebum to make the skin smooth.
- Enhence softness, silky touch, and matt characteristics.

SILICONE GUM(Dimethiconol)

- Dimethiconol is a heavy molecular weight dimethylsiloxane polymer, which has hydroxyl groud at the end of chemical structure.
- Dimethiconol can be used for scar improvement, and is approved by FDA as a skin protection component.
- Dimethiconol can impart good spreadability, high glossy lubrication, and outstanding feeling to cosmetics.
- Provides soft sense in usage and it can also improve the productivity by reducing bubbles in the manfuacturing stage.
- Moisturization and vitalization effect in skin and hair by forming protective flim on.

SILICONE RESIN

- Excellent film former with long lasting effect.
- Wash-off and rub-off resistance from water, sweat, and sebum.
- Applicable to various skin care and color cosmetics.

SILICONE EMULSIONS

- O/W and W/O silicone emulsion for skin care and hair care applications.
- Imparts soft and silky feel.
- Improves wet and dry combing.
- Additional appplications like anti-foaming agent, release agent, water-repellent agent, fiber disposal agent.

SILICONE FOR PERSONAL CARE

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SILICONE FLUIDS

Volatile Silicone Fluids

Product Name	INCI Name	Viscosity (Cs at 25°C)	Flash Point (°C) (Closed cup)	Surface Tension (Mn/m)	Specific Gravity at 25°C(g/cm³)
HRC-C4	Cyclotetrasiloxane	2.40	55	17.80	0.950
HRC-C5A	Cyclopentasiloxane	4.00	77	18.00	0.950
HRC-C6	Cyclohexasiloxane	6.80	93	18.80	0.960
HRC-CCM5	Cyclopentasiloxane (and) Cyclohexasiloxane	5.20	60	18.50	0.955
HRC-CC45	Cyclotetrasiloxane (and) Cyclopentasiloxane	2.70	58	19.00	0.950
HRC-CC56	Cyclopentasiloxane (and) Cyclohexasiloxane	6.00	77	20.80	0.960
HRC-CCM37	Cyclopentasiloxane (and) Cyclopentasiloxane	7.00	58	19.00	0.950
HRC-CCM73	Cyclopentasiloxane (and) Cyclopentasiloxane	6.00	58	18.00	0.957

Dimethicone Fluids

Product Name	INCI Name	Viscosity (Cs at 25°C)
HRC-D2A	Dimethicone	2
HRC-D5A	Dimethicone	5
HRC-D6A	Dimethicone	6
HRC-D10A	Dimethicone	10
HRC-D20	Dimethicone	20
HRC-D50	Dimethicone	50
HRC-D100	Dimethicone	100
HRC-D200	Dimethicone	200
HRC-D300	Dimethicone	300
HRC-D350	Dimethicone	350
HRC-D500	Dimethicone	500
HRC-D1,000	Dimethicone	1,000
HRC-D12,500	Dimethicone	12,500

Alkyldimethicones

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	Refractive index at 25°C
HRC-CM	Caprylyl Methicone	Clear colorless liquid	3	1.413

Special Silicone Oil

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)
HRC-PAD	PCA Dimethicone	Yellowish Clear liquid	1,000 ~ 1,400
HRC-HD	Hydrogen Dimethicone	Clear colorless liquid	30 ~ 70
HRC-DIDP	Diphenyl Dimethicone	Clear colorless liquid	350 ~ 500
HRC-PDM	Phenyl Dimethicone	Clear colorless liquid	350 ~ 500

Vinyl Dimethicone Fluids

Product Name	INCI Name	Viscosity (Cs at 25°C)	Molecular Weight (g/mol)	Refractive index at 25°C
HRC-100	Vinyl Dimethicone	100	7,500	1.404
HRC-200	Vinyl Dimethicone	200	14,500	1.404
HRC-300	Vinyl Dimethicone	300	22,500	1.404
HRC-500	Vinyl Dimethicone	500	27,000	1.404
HRC-1,000	Vinyl Dimethicone	1,000	31,000	1.404
HRC-1,500	Vinyl Dimethicone	1,500	42,000	1.404
HRC-3,000	Vinyl Dimethicone	3,000	50,000	1.404
HRC-10,000	Vinyl Dimethicone	10,000	70,000	1.404
HRC-20,000	Vinyl Dimethicone	20,000	81,000	1.404
HRC-65,000	Vinyl Dimethicone	65,000	104,000	1.404
HRC-165,000	Vinyl Dimethicone	165,000	132,000	1.404

SILICONE FOR PERSONAL CARE

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POLYMER-FLUID BLENDS

Gum Blends

Product Name	INCI Name	Viscosity (Cs at 25°C)	Content(%) Gum
HRC-C6DL	Cyclohexasiloxane (and) Dimethiconol	70,000	25
HRC-V10DL	Vinyl Dimethicone (and) Dimethiconol	100,000	25
HRC-V10DL-10	Vinyl Dimethicone (and) Dimethiconol	2,000	10
HRC-CDL15	Cyclopentasiloxane (and) Cyclotetrasiloxane (and) Dimethiconol	5,000	15
HRC-CDL20	Cyclopentasiloxane (and) Cyclotetrasiloxane (and) Dimethiconol	4,600	14
HRC-CPDL85B	Cyclopentasiloxane (and) Dimethiconol	4,000	15
HRC-CDL75B	Cyclopentasiloxane (and) Dimethiconol	6,500	17
HRC-CDL60	Cyclopentasiloxane (and) Dimethiconol	8,500	15
HRC-CDL76	Cyclomethicone (and) Dimethiconol	5,500	15
HRC-CDN50	Cyclopentasiloxane (and) Dimethicone	52,000	25.5
HRC-CDN60	Cyclopentasiloxane (and) Dimethicone	6,000	15
HRC-DDL50	Dimethicone (and) Dimethiconol	400,000	50
HRC-DDL50N	Dimethicone (and) Dimethiconol	350,000	50

SILICONE CROSSPOLYMERS

Silicone Elastomer Blends

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	Content(%) Gel
HRC-SP5058 (Heavy Type)	Dimethicone (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	21,500 ~ 31,500	8 - 15
HRC-SP5058C	Dimethicone (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	10,000 ~ 20,000	8 - 15
HRC-SP6659	Dimethicone (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	25,500 ~ 35,500	8 - 15
HRC-SP2510	Dimethicone (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	11,300 ~ 21,300	11 - 16
HRC-SP3510	Dimethicone (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	38,000 ~ 58,000	11 - 16
HRC-SP1807	Cyclohexasiloxane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	15,300 ~ 21,300	11 - 16
HRC-SP3207	Cyclopentasiloxane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	11,300 ~ 21,300	11 - 16
HRC-SP3208	Cyclohexasiloxane (and) Dimethicone/ Vinyldimethicone Crosspolymer	Colorless Translucent gel	26,000 ~ 39,000	11 - 16
HRC-SP3209	Cyclopentasiloxane (and) Dimethicone/ Vinyldimethicone Crosspolymer	Colorless Translucent gel	27,500 ~ 41,500	11 - 16
HRC-SP-PDV	Polypropylsilsesquioxane (and) Dimethicone/Vinyldimethicone Crosspolymer	Colorless Translucent gel	1,700 ~ 2,600	11 - 16
HRC-SP-IDV72	Isododecane (and) Vinyl Dimethiocne/ Methicone Silsesquioxane Crosspolymer (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	40,000 ~ 60,000	13 - 17
HRC-SP-DK88	Dimethicone (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	Colorless Translucent gel	107,000 ~ 162,000	15 - 20
HRC-SP-DDC20	Dimethicone (and) Dimethicone Crosspolymer	Colorless Translucent gel	40,000 ~ 60,000	15 - 20
HRC-SP-DDC25	Dimethicone (and) Dimethicone Crosspolymer	Colorless Translucent gel	70,000 ~ 110,000	20 - 25

SILICONE FOR PERSONAL CARE

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SILICONE CROSSPOLYMERS

Silicone Elastomer Blends

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	Content(%) Gel
HRC-DSB65	Dimethicone (and) Stearyl Dimethicone (and) Dimethicone / Vinyl Dimethicone Crosspolymer (and) Synthetic Beeswax	White Paste	Paste	8 - 15
HRC-WD45	Dimethicone (and) Aqua (and) Glycerin (and) Butylene (and) Glycol (and) Glyceryl Isostearate (and) Pentylene Glycol (and) Tocopheryl Acetate (and) Acetate (and) Dimethicone/ Vinyl Dimethicone Crosspolymer (and) Diglycerin (and) 1,2 Hexanediol	Transparent to pale yellow gel	> 40,000	41 - 45

SILICONE COPOLYOLS

Emulsifiers

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	HLB
HRC-EF1205	Cetyl PEG/PPG-10/1 Dimethicone	Colorless to slightly yellow viscous liquid	2,500	5
HRC-EF2008	PEG/PPG-18/18 Dimethicone	Clear to slightly hazy liquid	1,250	8
HRC-EF3002	Cyclopentasiloxane (and) PEG/PPG-18/ 18 Dimethicone	Translucent to white liquid	17	2
HRC-EF3013	PEG-12 Dimethicone	Clear, Colorless liquid	300	13
HRC-EF6045	PEG-10 Dimethicone	Clear to slightly hazy colorless to light yellow viscous liquid	800 ~ 1,200	4.5
HRC-EF-DDP6	Phenyl Trimethicone (and) Dimethicone/ Polyglycerin-3 Crosspolymer	Colorless slightly haze	35,000 ~ 65,000	-

PHENYL MODIFIED FLUIDS

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	Refractive index at 25°C
HRC-PTM27	Phenyl Trimethicone	Colorless liquid	22.5	1.46
HRC-DIDP	Diphenyl Dimethicone	Colorless liquid	300 ~ 500	1.50

SILICONE RESINS

Resin Powder

Product Name	INCI Name	Appearance	Content(%) resin	Particle Size (μm)
HRC-TMS	Trimethylsiloxysilicate	White to off-white	100	10
HRC-VMS	Vinyl Dimethicone/ Methiconesilsesquioxane Crosspolymer	White to off-white	-	12

Resin Treatment

Product Name	INCI Name	Appearance	Particle Size (μm)
HRC-PMS-2	Polymethylsilsesquioxane	White Fine Powder	2
HRC-PMS-5	Polymethylsilsesquioxane	White Fine Powder	5

Resin Blends

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	Content(%) resin
HRC-VTMS	Vinyl Dimethicone (and) Trimethylsiloxysilicate	Colorless to slightly yellowish viscous liquid	150,000	25
HRC-TMS5545C	Cyclopentasiloxane (and) Trimethylsiloxysilicate	Colorless viscous liquid	200	50
HRC-TMS4060I	Isododecane (and) Trimethylsiloxysilicate	Colorless viscous liquid	40	50
HRC-TMS4060M	Dimethicone (and) Trimethylsiloxysilicate	Colorless viscous liquid	4,000	30

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SILICONE EMULSIONS

Product Name	INCI Name	Appearance	Viscosity (Cs at 25°C)	Content(%)
HRC-ES2060	Dimethiconol (and) TEA-Dodecylbenzenesulfonate	Milky white to off-white viscous liquid	1,200	30
HRC-ES0535	Amodmethicone (and) Trideceth-12 (and) Cetrimonium chloride	Milky white/ thin liquid	15	35
HRC-ES-DLL70	Dimethicone (And) Laureth 20 (and) Laureth 3	White viscous liquid	750	55 - 60
HRC-W-PAD30	Water (and) PCA Dimethicone (and) Glycerin (and) Polyglyceryl-4 Oleate (and) 1,2-Hexanediol	Yellowish viscous liquid	-	20 - 30
HRC-W-VD30	Vinyl Dimethicone (and) Water (and) Cetyl Ethylhexanoate (and) Polyglyceryl-4 Oleate (and) Hydrogenated Lecithin (and) 1,2-Hexanediol	Bluish Transparent Gel	-	30
HRC-W-DIDP25	Glycerin (and) Diphenyl Dimethicone (and) Triethlhexanoin (and) Water (and) Hydrogenated Lecithin (and) Polyglyceryl-10 Oleate	Hazy Gel	-	25

UNIQUE SILICONE POLYMERS

Product Name	INCI Name	Viscosity (Cs at 25°C)	Hardness (time)	Characteristics	Appearance
HRC-LS-2830/1 A	Vinyl Dimethicone (and) Silica	30,000	35 (5min)	- High gloss - Improves spreadability - Mattifying effect After mixing, this 2-Parts is crosslinking and forming a transparent gel. Can be used for color cosmetics, scar care, and thickening agents for other silicone oils. It is covenient 1:1 mixing ratio.	Colorless, Translucent paste
HRC-LS-2830/1 B	Vinyl Dimethicone (and) Silica (and) Hydrogen Dimethicone	15,000			
HRC-LS-2850/1 A	Vinyl Dimethicone (and) Silica	30,000	50 (5min)		
HRC-LS-2850/1 B	Vinyl Dimethicone (and) Silica (and) Hydrogen Dimethicone	30,000			
HRC-DM-3045/1 A	Vinyl Dimethicone (and) Silica (and) Quartz	30,000	45 (5min)	- High gloss - Improves spreadability - Mattifying effect After mixing, this 2-Parts is crosslinking and forming a transparent gel. Can be used for color cosmetics, scar care, and thickening agents for other silicone oils. It is covenient 1:1 mixing ratio.	Colorless, Translucent paste
HRC-DM-3045/1 B	Vinyl Dimethicone (and) Silica (and) Hydrogen Dimethicone (and) Quartz	26,000			

Product Name	INCI Name	Application
HRC-GS100A	Vinyl Dimethicone (and) Trimethylsiloxysilicate	Silicone gel patch
HRC-GS100B	Vinyl Dimethicone (and) Trimethylsiloxysilicate (and) Hydrogen Dimethicone	
HRC-GS101A	Vinyl Dimethicone (and) Trimethylsiloxysilicate	LIFTING MASK Silicone gel
HRC-GS101B	Vinyl Dimethicone (and) Trimethylsiloxysilicate (and) Hydrogen Dimethicone	

BLOWING TYPE UNIQUE SILICONE POLYMERS

Product Name	INCI Name	Application
HRC-BS-1000A	Vinyl Dimethicone (and) Dimethiconol	-
HRC-BS-1000B	Vinyl Dimethicone (and) Silica (and) Hydrogen Dimethicone	-

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EWG GREEN SCORE PRODUCTS

Groups	Product Name	INCI Name	EWG Score
Volatile Silicone Fluids	HRC-C6	Cyclohexasiloxane	2
	HRC-T1	Trisiloxane	2
Phenyl Modified Fluid	HRC-PTM27	Phenyl Trimethicone	1
	HRC-DIDP	Diphenyl Dimethicone	1
	HRC-PDM	Phenyl Dimethicone	1
Gum Blends	HRC-C6DL	Cyclohexasiloxane (and) Dimethiconol	2
	HRC-V10DL	Vinyl Dimethicone (and) Dimethiconol	1
	HRC-V10DL-10	Vinyl Dimethicone (and) Dimethiconol	1
Silicone Resins	HRC-TMS	Trimethylsiloxysilicate	1
	HRC-VTMS	Vinyl Dimethicone (and) Trimethylsiloxysilicate	1
Resin Treatment	HRC-PMS-2	Polymethylsilsesquioxane	1
	HRC-PMS-5	Polymethylsilsesquioxane	1
Alkyl Dimethicones	HRC-CM	Caprylyl Methicone	1
Vinyl Dimethicone Fluids	HRC-100	Vinyl Dimethicone	1
	HRC-200	Vinyl Dimethicone	1
	HRC-300	Vinyl Dimethicone	1
	HRC-500	Vinyl Dimethicone	1
	HRC-1,000	Vinyl Dimethicone	1
	HRC-1,500	Vinyl Dimethicone	1
	HRC-3,000	Vinyl Dimethicone	1
	HRC-10,000	Vinyl Dimethicone	1
	HRC-20,000	Vinyl Dimethicone	1
	HRC-65,000	Vinyl Dimethicone	1
	HRC-165,000	Vinyl Dimethicone	1
Unique Silicone Polymers	HRC-LS-2830/1 A	Vinyl Dimethicone (and) Silica	2
	HRC-LS-2830/1 B	Vinyl Dimethicone (and) Silica (and) Hydrogen Dimethicone	2
	HRC-LS-2850/1 A	Vinyl Dimethicone (and) Silica	2
	HRC-LS-2850/1 B	Vinyl Dimethicone (and) Silica (and) Hydrogen Dimethicone	2
	HRC-BS-1000A	Vinyl Dimethicone (and) Dimethiconol	1
	HRC-BS-1000B	Vinyl Dimethicone (and) silica (and) Hydrogen Dimethicone	2

Groups	Product Name	INCI Name	EWG Score
Silicone Oil	HRC-PAD	PCA Dimethicone	1
	HRC-HD	Hydrogen Dimethicone	1
Silicone Elastomer Blends	HRC-SP1807	Cyclohexasiloxane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	2
	HRC-SP3208	Cyclohexasiloxane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	2
	HRC-SP-IDV	Isohexadecane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	1
	HRC-SP-IDV100	Isohexadecane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	1
	HRC-SP-IDV200	Isohexadecane (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	1
	HRC-SP-IDV72	Isododecane (and) Vinyl Dimethiocne/ Methicone Silsesquioxane Crosspolymer (and) Dimethicone/ Vinyl Dimethicone Crosspolymer	1

SILICONE COPOLYOLS

Product Name	INCI Name	EWG Score
HRC-EF-DDP6	Phenyl Trimethicone (and) Dimethicone/ Polyglycerin-3 Crosspolymer	1

SPECIAL PRODUCTS

Product Name	INCI Name	EWG Score
HRC-W-PAD30	Water (and) PCA Dimethicone (and) Polyglyceryl-4 Oleate (and) 1,2 Hexanediol(and) Sodium Sterolyl Glutamate	1
HRC-W-VD30	Vinyl Dimethicone (and) Water (and) Cetyl Ethylhexanoate (and) Polyglyceryl-4 Oleate (and) Hydrogenated Lecithin (and) 1,2-Hexanediol	2
HRC-W-DIDP25	Glycerine (and) Diphenyl Dimethicone (and) Trithylhexanoin (and) Water (and) Hydrogenated Lecithin (and) Polyglyceryl-10 Oleate	2

PATENTS

Silicone rubber composition for low density and lowhardness

Preparation Method of Silicone Based Polymer Foams with Low Density and Low Hardness

Process for preparing of silicone lampshade

Silicone composition for back light unit lamp holder of liquid crystal display

Thermal conductivity liquid silicone rubber composition and manufacturing method thereof

Liquid silicone addition type adhesive composition

Manufacturing Method Of EMBO Type Silicone Rubber Sheet

A lampshade to be sprayed silicone layer

ACF Film bonding sheet and Manufacturing method thereof

Composition for silicone release coating and release film comprising same

Composition for silicone adhesive coating and adhesive film comprising the same

Silicone sheet for back light unit side cushion rubber of liquid crystal display

CERTIFICATES

Specialist
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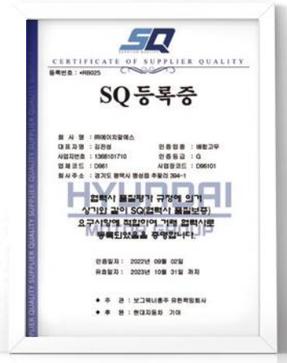
Technology

ISO 9001

ISO 14001

ISO 13485

RSQ



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