Silicone Chemical Company
We produce silicone rubber which is the most widely used material in various industry fields.

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

SILDENT™ Dental Impression Materials
We provide the one solution for your teeth. Silicone cares about your health.

Silicone Rubber Technology
We produce silicone rubber which is the most widely used material in various industry fields.
1. Guangzhou - China (Guangzhou Recent Materials Co., Ltd.)
2. Taipei - Taiwan (Moonstar Poly-Film Corp)
3. Bangkok - Thailand (T.N.V. Corporation Co., Ltd.)
4. Mumbai - India (Rishiroop Polymers Pvt Lte)
5. Tehran - Iran (Silicone Nab Baspar Co)
6. Karachi - Pakistan (House of Chemicals)
7. Belem - Brazil (M.F DAS FRANCO)
8. Ramadan City - Egypt (Bibodent Albaraka)
9. Manila - Philippine (BNS Performance Material Corp)
10. Scjaam - Liechtenstein (HIL TI)

1. Tokyo - Japan (T-Net Japan Co., Ltd.)
2. Qingdao - China (Qingdao Tsukasa International Trading Co., Ltd.)
3. Hochiminh - Vietnam (Mien Nam TPT Co., Ltd.)
4. Amman - Jordan (Alkhaled Co. for Medical Equipment & Accessories Trade)
5. Brno - Czech Republic (Lucky Mark S.R.O)
6. Florida - U.S.A (ACE Dental Group INC)
7. Arlandastad - Sweden (Klardent)
8. Auckland - New Zealand (Lake Products Ltd.)
9. Moscow - Russia (AVOS)
10. Xingang - China (Juntai Hua Feng Trading Limited Duty Co.)
11. Hongkong - China (Worlden Trading Limited)

EVERYTHING FOR YOUR LIFE
SPECIALIST IN SILICONE RUBBER TECHNOLOGY
We pledge to return the affection and interest that our clients have given by developing even better technologies and products through the attitude of ceaselessly pursuing researches. HRS Co., Ltd. without being content with our current successes, has been steadfastly treading a single path with strong passion for the goal of achieving better future for everyone and played the core role in the advancement of silicone industry. We are putting in our utmost efforts to become an outstanding company that leads the materials industry through the reinforcement of the internal core capabilities, enhancement of corporate images and practicing of customer satisfaction by continuous management innovation and development of new technologies. HRS Co., Ltd. that manufactures silicone that can be found in all aspects of our daily lives from the automobile components to advanced industrial materials as well as medical products is endeavoring to provide full satisfaction of our customers by putting in our utmost efforts. We ask that you continue to have interest in HRS Co., Ltd. striving to make even further progresses through exchange of information and communication with our customers, stockholders and netizens in the future. Moreover, we would like to ask for your continued support and unsparing encouragement in order for HRS Co., Ltd. to create future filled with abundance and hope by fully exhibiting our capabilities.

HRS Co., Ltd. has succeeded in becoming the best company specializing in silicone through continuously growth since its incorporation in 1981

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HRS Co., Ltd. that manufactures silicone that can be found in all aspects of our daily lives from the automobile components to advanced industrial materials as well as medical products is endeavoring to provide full satisfaction of our customers by putting in our utmost efforts.

We ask that you continue to have interest in HRS Co., Ltd. striving to make even further progresses through exchange of information and communication with our customers, stockholders and netizens in the future. Moreover, we would like to ask for your continued support and unsparing encouragement in order for HRS Co., Ltd. to create future filled with abundance and hope by fully exhibiting our capabilities.

HRS Co., Ltd. has succeeded in becoming the best company specializing in silicone through continuously growth since its incorporation in 1981
SILICONE CHEMICAL COMPANY

We produce silicone rubber which is the most widely used material in various industry fields.

We are a company specializing in silicone with contribution towards the establishment of more affluent life of mankind through the provision of trusted products and services.

A company specialized in Silicone Rubber materials
Silicone Rubber

Silicone was founded in July, 1981 to manufacture silicone rubber. Silicone rubber is being a key material that is used in many different situations as the industry grows. Such as information industry, office appliances, home appliances, electricity, electrical power, medical, food, living culture, mechanical, facilities, car, shipping, leisure sport industry and so on.

With a competitive strength of product, we achieved the first place in domestic market share. We won't settle for the present, and will develop and produce new products to find markets in overseas.

HRS

- Continuous development of new technologies for the digital era
- Diversified products
- Differentiated service system
- Creation of high revenue / high value-added
- Super excellent financial structure
- Sustained growth
- 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

HRS Silicone Technology
We are leading silicone rubber manufacturing business for 37 years since July, 1981. We won’t satisfy with the first place in domestic market share, and will find new markets in overseas.

1980’s
Taking the first step with silicone with the long-cherished desire for independent domestic production

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.S. 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’s
Catapulting to the status of a every larger corporation by utilizing crisis as our opportunities

1987. 09 Established HRS Co., Ltd.
1991. 07 Developed the technology to manufacture the silicone rubber for general grade silicone rubber for general grade molding
10 Established sales agencies in Southeast Asia (13 Countries including Taiwan and Malaysia)
1990. 09 Contract with Bayer AG in Germany for technological affiliation and sales in Southeast Asia
1993. 05 National Industrial Technology Center Supplied and installed Fire Stop Seal for the 3rd and 4th Yeonggwang nuclear power plant
11 Developed the technology to manufacture the silicone RTV foam (collaborate with National Industrial Technology Center)

2000’s
Achievement of status as a specialized company in order to open the sustainable future of the silicone rubber industry

2001. 07 Acquired LFGB certificate from TUV Rheinland
09 Developed dental impression materials and Acquired KGMP certificate
09 Acquired the certification of supplier quality(SQ) from Hyundai Kia Motor Company
12 Acquired ISO 13485 certificate
2008. 10 Construction completed for Asian 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]
04 Construction completed for Pyeong-teak Plant [HCR, LSR, RTV, POLYMER line]
2003. 09 Acquired ISO 9001 certificate
2000. 05 Listed on KOSDAQ

2010’s ~ Now
Establishing of firm status as a company specializing in manufacturing of silicone rubber, a functional material everyone dreams of in the 21st century

2017. 03 Appointed new CEO (CEO: Jin Sung Kim)
2016. 03 Appointed new CEO (Ms. Sung Ja Kang)
12 Acquired CPQA (Silicone-Dental impression materials)
2014. 03 Selected as “The Proud SME Businessman of the Month”
06 Acquired FDA (Silicone-Dental impression materials)
11 Acquired the patent for Liquid silicone composition for back light unit lamp holder of Liquid crystal display
2013. 10 Acquired the certification of Hyundai Rotem Supplier Quality (HSQ)
2012. 03 Selected as “THE BEST TAXPIPER” (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 Suxhou haeryong silicone co., Ltd. Was established in CHINA
2010. 07 Supply agreement between ‘H’ Corporation and HRS
09 Selected as “INNO-BIZ”

Making the world happier with silicone! HRS will be with it.
HRS has offices in Seoul, plants in Pyeongtaek and Asan, corporate body in China. We make compounds and fire prevention silicone rubbers in Pyeongtaek plant, manufacture and sale processed good of silicone rubber in Asan plant and corporate body in China.

**SEoul Office**

- **Main Businesses**
  Trading Team, Finance Team, HR/IR Team, Strategy & Planning Team

  #1005, Mixon Bldg., 70, Gukjeonmyung-ro, Yeongdeungpo-gu, Seoul, KOREA 07333
  TEL. 82-2-790-6156-8  FAX 82-2-795-7843

**Pyeongtaek Plant**

- **Main Businesses**
  HCR (High Consistency Silicone Rubber) / LSR (Liquid Silicone Rubber) / RTV(1/3) Silicone Rubber / Silicone Gum / Polymer / DM (Dental Impression Materials) / EMULSION (Silicones for Personal care)

  7, Chupalsaedan 2-gil, Paengseong-eup, Pyeongtaek-si, Gyeonggi-do, KOREA 17998
  TEL. 82-31-655-4822  FAX 82-31-691-5901

**Asan Plant**

- **Main Businesses**
  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 Businesses**
  Rubber Article / Silicone Sheet(S/S)

  Plant 1, Science & Technology Park No.777
  Kangyuan Road, Suzhou Xiangcheng Economic Development Zone.
  TEL: 86-512-6939-0288  FAX: 86-512-6618-9388
Silicone rubber is an environmentally friendly and non-toxic material which is widely used to make medical and baby products.

HRS manufactures and sales HCR (mirrable silicone rubber), LSR (liquid silicone rubber). HCR is used in electricity, office appliance, car component, medical appliance and kitchen appliances. And also for its eco-friendly characteristic, we expect its range of use will expand. LSR is expanding its use in kitchen appliances, accessories, electronics, and we expect market growth due to its increase of demand for car and medical industries.

LSR has fast curing time, advantageous in automated production, can be used in complicated and requiring strict deviation situations to improve productivity and reduce manpower. Also, it is getting more spotlights and can substitute HCR for not making by-product. So, it’s keep growing its demand in detailed, car, medical, and electric products that need special functions.

### GENERAL PROPERTIES

1. **High bonding energy**

   Silicone rubber has siloxane bond (Si-O) of molecular structure as the main chains. While carbon bond, 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 bond’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.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Bonding Energy Kcal/mol (kJ/mol)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
</tr>
<tr>
<td>C</td>
<td>84.9(349)</td>
</tr>
<tr>
<td>Si</td>
<td>58.80(240-340)</td>
</tr>
<tr>
<td>H</td>
<td>98.8(414)</td>
</tr>
<tr>
<td>O</td>
<td>83.2(349)</td>
</tr>
</tbody>
</table>

2. **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 > sand, stone, wind
Create energy from the nature.

Silicone! Eco friendly material made from sand. Widely used from daily supplies, car, space aviation, to medical industries.

OVERVIEW OF THE SILICONE RUBBER

Silicone rubber’s special features such as “Organosiloxanes Polymer” has been originated from its unique molecular structure that they carry both inorganic and organic properties unlike other organic rubbers. In other words, due to the Si-O bond of Silicone Rubber and its inorganic properties, Silicone Rubber is superior to ordinary organic rubbers in terms of heat resistance, chemical stability, electrical insulating, abrasion resistance, weatherability and ozone resistance etc...

With these unique characteristics, Silicone Rubber has been widely used to replace petrochemical products in various industries like aerospace, munitions industry, automobile, construction, electric and electronics, medical and food processing industry. Recently, these scopes of silicone application have been expanding at a great speed by the demand of industries that want more reliable elastomer.

Silicone is being used extensively as a core material in overall aspects of a wide range of industries

- Automotive
- Medical
- Home products
- Personal care
- Electric
- Electron
- Baby products
- Railroad
- Aerospace
PROPERTIES OF SILICONE RUBBERS

Silicone rubber has special characteristics that other materials don’t have, such as heat resistance, cold resistance, electric properties, flame retardancy, non-toxic, radiation resistance and more.

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 acrical 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 super 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 10^10 Ω-cm and 10^13 Ω-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 Ω-cm to 10^3 Ω-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, artistic parts, and shield materials for high voltage cables.

Radiation Resistance
Compared 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, silicone 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.

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.

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

Also, HCR 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 Polyorganosiloxane (Silicone Polymer) and Silica with various additives to grant diversified characteristics. We call this stage for Silicone Rubber as “Base Compound”. Then this “Base Compound” is catalyzed, pigmented with roll and cured by press molding and extrusion etc.

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

HR-1901U Series are up grade general-purpose silicone rubber which are used for wide range of applications. There is mill workability, mold release ability. There are good mechanical properties.

Typical Properties

<table>
<thead>
<tr>
<th>Test Method</th>
<th>HR-1911U</th>
<th>HR-1912U</th>
<th>HR-1913U</th>
<th>HR-1914U</th>
<th>HR-1915U</th>
<th>HR-1916U</th>
<th>HR-1917U</th>
<th>HR-1918U</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams Flex</td>
<td>ASTM D 1415</td>
<td>160</td>
<td>160</td>
<td>140</td>
<td>140</td>
<td>130</td>
<td>130</td>
<td>110</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 1530</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
<td>0.98</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D 2240</td>
<td>30</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>55</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>ASTM D 412</td>
<td>10.0</td>
<td>7.5</td>
<td>6.5</td>
<td>6.0</td>
<td>5.5</td>
<td>5.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
<td>500</td>
<td>400</td>
<td>300</td>
<td>200</td>
<td>150</td>
<td>100</td>
<td>60</td>
</tr>
<tr>
<td>Tear Strength (kgf/cm)</td>
<td>ASTM D 624</td>
<td>6.0</td>
<td>8.0</td>
<td>9.5</td>
<td>9.0</td>
<td>8.5</td>
<td>8.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Rebound Resilience (%)</td>
<td>ASTM D 347</td>
<td>40</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>ASTM D 395</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Linear Shrinkage (%)</td>
<td>3.9</td>
<td>3.6</td>
<td>3.5</td>
<td>3.7</td>
<td>3.9</td>
<td>3.6</td>
<td>3.3</td>
<td>3.3</td>
</tr>
</tbody>
</table>

There are Special grades of silicone rubber that is specially designed as super shore A hardness 90±3 with unique properties for contact applications. These grades are:

- HR-1951U(T): Hardness 90 shore A, Transparent
- HR-1961U(T): Tensile Strength (MPa) 10, Elongation (%) 10
- HR-1971U(T): Tear Strength (kgf/cm) 10, Rebound Resilience (%) 10

APPLICATIONS:

- High pressure and high elongation property
- Excellent processability in molding & injection
- Excellent physical properties
- Food contact parts, packing
- Automotive parts

LOW HARDNESS SILICONE RUBBER

There are Grade have a low hardness. (Shore A 5 ~ 20) in the cure State. There can be used in Silicone rubber products such as sporting goods and medical articles that require a soft feel.

Typical Properties

<table>
<thead>
<tr>
<th>Test Method</th>
<th>HR-1991U(T)</th>
<th>HR-2290U(T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams Flex</td>
<td>ASTM D 1415</td>
<td>100</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 1530</td>
<td>1.01</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D 2240</td>
<td>8</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>ASTM D 412</td>
<td>3.5</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
<td>1000</td>
</tr>
<tr>
<td>Tear Strength (kgf/cm)</td>
<td>ASTM D 624</td>
<td>4</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>ASTM D 395</td>
<td>21</td>
</tr>
<tr>
<td>Linear Shrinkage (%)</td>
<td>4.4</td>
<td>4.4</td>
</tr>
</tbody>
</table>

APPLICATIONS:

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

SUPER HIGH HARDNESS SILICONE RUBBER

There are Special grades of silicone rubber that is specially designed as super shore A hardness 90±3 with transparent color.

Typical Properties

<table>
<thead>
<tr>
<th>Test Method</th>
<th>HR-1901U(T)</th>
<th>HR-2200U(T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams Flex</td>
<td>ASTM D 1415</td>
<td>100</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 1530</td>
<td>1.04</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D 2240</td>
<td>10</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>ASTM D 412</td>
<td>5.5</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
<td>150</td>
</tr>
<tr>
<td>Tear Strength (kgf/cm)</td>
<td>ASTM D 624</td>
<td>12</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>ASTM D 395</td>
<td>20</td>
</tr>
<tr>
<td>Linear Shrinkage (%)</td>
<td>4.4</td>
<td>4.4</td>
</tr>
</tbody>
</table>

APPLICATIONS:

- Keytop of keypad
- O-ring, Gasket, Seals
- Food Contact article (Kitchenware, bottles)
### HIGH TEAR STRENGTH SILICONE RUBBER

There are grades specially designed for high tear strength property with various curing agents such as 2,4-DCLBP, 2,5-DHBP. There are used for applications such as parts with complicated shapes, large molded parts, etc.

**Features**
- High Tear Strength & High Tensile Strength
- Comply with Reg. 22 CFR 177.2600
- Excellent Extrusion Processability & Molding Processability
- Good Temperature Resistance (220°C)
- High Transparent

**Applications**
- High Property Articles
- Medical Rubber Articles (Tubing, Hose)
- Food Contact Articles
- Aircraft Articles
- Automotive article (Muffler hanger)

### SUPER HIGH TEAR STRENGTH GRADE

55, 75 Hardness (Shore A), high mechanical strength, Silicone Rubber Base, especially suitable for products which requires high tear strength.

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

**Applications**
- Extrusion and molding
- Calendaring and Sheeting
- Automotive Parts

### LOW COMPRESSION SET SILICONE RUBBER

This is specially designed for excellent compression Sets with post cure

**Features**
- Low Compression Set
- Excellent Extrusion Processability & Molding Processability

**Applications**
- O-rings
- Packing
- Gasket
- Shaft
- O-Ring
- Seal

### STEAM RESISTANCE SILICONE RUBBER

HR-370 series are very special grade which are specially designed & modified for high steam resistant for use direct steam & boiling water contacted applications such as rice jaw packing, electric pot packing etc.

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

**Applications**
- Extrusion and molding
- Calendaring and Sheeting
- Automotive Parts
METAL CASTING SILICONE RUBBER

There are specially designed silicone rubber for low temperature melting alloy metal casting and plastic polymer casting.

Catalog: HC-B/1, 8phr (77°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Methods</th>
<th>MC-56</th>
<th>MC-62</th>
<th>MC-70</th>
</tr>
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<tbody>
<tr>
<td>Tear Resilience</td>
<td>ASTM D 412</td>
<td>10</td>
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<tr>
<td>Hardness</td>
<td>ASTM 378</td>
<td>55</td>
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<tr>
<td>Elongation (%)</td>
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<td>50</td>
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<tr>
<td>Tear Strength (kgf)</td>
<td>ASTM D 392 'C'</td>
<td>17</td>
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</tr>
</tbody>
</table>

**FEATURES**
- High Mechanical Property
- High Heat Resistance
- Low Shrinkage
- High Elongation
- Produced comply with FDA/Reg. 21CFR, 177.2600

**APPLICATIONS**
- Alloy Casting
- Art Accessory Casting
- Ring Casting
- Other Casting

ELECTRIC CONDUCTIVE SILICONE RUBBER

There are specially designed electro conductive silicone rubber for use in special applications as below.

Catalog: HC-B/1, 8phr (77°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Methods</th>
<th>HC-1280U</th>
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<tr>
<td>William’s Flexibility</td>
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<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
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<td>200</td>
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<td>Tear Strength (kgf)</td>
<td>ASTM D 392 'C'</td>
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<tr>
<td>Linear Shrinkage (%)</td>
<td>ASTM K 649</td>
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<tr>
<td>Volume Resistivity (Ω·cm)</td>
<td>ASTM D 249</td>
<td>5</td>
<td>5</td>
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</tr>
</tbody>
</table>

**FEATURES**
- High conductivity
- Excellent mechanical properties
- Excellent electrical properties
- Excellent thermal stability
- Flame retardant (UL94V-0, V-1 Level)

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

THERMAL CONDUCTIVE SILICONE RUBBER

There are designed for high thermal conductivity and high electrical insulation properties.

Catalog: HC-B/1, 8phr (77°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Methods</th>
<th>HR-7700EU</th>
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<tr>
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<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
<td>450</td>
<td>300</td>
<td>100</td>
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<tr>
<td>Tear Strength (kgf)</td>
<td>ASTM D 392 'C'</td>
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<td>10</td>
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<tr>
<td>Linear Shrinkage (%)</td>
<td>ASTM K 649</td>
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<td>3.1</td>
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<td>Volume Resistivity (Ω·cm)</td>
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<td>1015</td>
<td>1015</td>
<td>1015</td>
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<tr>
<td>Flame Retardancy</td>
<td>UL-94</td>
<td>V-1/V-0</td>
<td>V-0/V-0</td>
<td>V-0/V-0</td>
</tr>
</tbody>
</table>

**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

FLAME RETARDANT SILICONE RUBBER

There are specially designed for excellent flame retardant property and heat stability to be complied UL94V-0 on thickness.

Catalog: HC-B/1, 8phr (77°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Methods</th>
<th>HR-7700EU</th>
<th>HR-7707BU</th>
<th>HR-7708EU</th>
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<td>Tear Strength (kgf)</td>
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<tr>
<td>Linear Shrinkage (%)</td>
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<td>3.2</td>
<td>2.5</td>
</tr>
<tr>
<td>Volume Resistivity (Ω·cm)</td>
<td>ASTM D 249</td>
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<td>1015</td>
<td>1015</td>
</tr>
<tr>
<td>Flame Retardancy</td>
<td>UL-94</td>
<td>V-1/V-0</td>
<td>V-0/V-0</td>
<td>V-0/V-0</td>
</tr>
</tbody>
</table>

**FEATURES**
- Flame Retardant UL94V-0, (UL-E-9818)
- 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 packet)
- PDP, TFT-LCD Lamp holder
- Special Wires
**WIRE & CABLE SILICONE RUBBER**

There are specially designed wire & cable insulation to be complied UL AWG wires and various lead wires.

- **Compliance:**
  - UL 30000
  - UL 3103
  - UL 3111
  - UL 3112
  - UL 3123

- **Applications:**
  - Power control cables
  - Automotive harnesses
  - Motors
  - Generators
  - Control cables
  - Instrument cables

- **Typical Properties:**
  - Volume Resistivity (Ω.cm)
  - Elongation (δ)
  - Tensile Strength (kgf/cm²)

- **Compressive Setting:**
  - 177°C×10min / 200°C×4hrs

- **Color:**
  - White

**HIGH VOLTAGE INSULATOR SILICONE RUBBER**

There are specially designed silicone rubber compounds for high voltage insulator application, which require excellent performance in contaminated environments.

- **Applications:**
  - Gaps, Electrical Insulation
  - High Voltage Insulator, Surge Arrester

- **Typical Properties:**
  - Volume Resistivity (Ω.cm)
  - Tensile Strength (kgf/cm²)
  - Elongation (δ)

- **compression Setting:**
  - 177°C×10min / 200°C×4hrs

**HIGH TRANSPARENT SILICONE RUBBER**

There are highly transparent and mechanically strong Silicone rubbers.

- **Applications:**
  - Baby Nipples
  - Medical tubing
  - Food contact articles
  - High tear strength articles

**OIL BLEED SILICONE RUBBER**

There are special silicone rubbers for self-sealing grommets and connectors of automobile industries.

- **Applications:**
  - Wire harness connectors, grommets, single wire gasket, flat gaskets
  - Industrial O-Ring, Oil Seal

**INSTRUCTION OF USE**

- This product is supplied with cat. A (Ready to use) but without color. The suitable curing temperature is 180°C – 185°C compression molding and injection molding process.

**HANDLING AND SAFETY**

- See MSDS

**SPECIFICATION**

- All our technical information data should not be used as a specification.

**STORAGE AND WARRANTY**

- The warranty period is 6 months from date of shipment.
- Must be stored cool/dark place
**HIGH HEAT RESISTANCE SILICONE RUBBER**

There are specially designed for use in high temperature application in range of 250°C~315°C in limited period.

**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
- Auto clave Packing
- Glass tube handling of Pads

**ADDITION CURE SILICONE RUBBER**

There are specially designed for Addition cure AD-1100 series complies with BfR & FDA Food contact article.

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

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

**ADDITION CURE SILICONE RUBBER (GRNURAL PURPOSE)**

There are specially designed for Addition cure AD-3900 series complies with BfR & FDA Food contact article.

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

**APPLICATIONS**
- Food Contact article (Hoses, Tubing, Packing)

**CLOSED CELL SPONGE SILICONE RUBBER**

There are specially designed compounds for making closed cell sponge articles. The SPG compounds are very suitable for continue extruded profiles producing by hot air and hot liquid system.

**FEATURES**
- Excellent high & low temperature resistant
- 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
- OA fluids
- Many suitable application

**FABRICATION TECHNIQUE**
- Soften & Catalyst Mixing
- SPG Compounds must be pre-softening in the 2-roll mill for 3-5 min. and add suitable catalyst HC-2, 1.5~2.5phr depend on density and curing condition.
- The catalyst must be well dispersed with SPG compounds. And pigment can be added in those stages together with HC-2.
- The mixing temperature must be kept within 50°C in any cases.
- Extrusion, Foaming, Curing
- Cold extruder is required (less 50°C)
- HWT Tunnel : 1st zone : 150~190°C / 2nd Zone : 180~200°C / 3rd Zone : 200~250°C
- Post Cure : 180~200°C / 4hrs

**DIFFICULTIES**
- There are many difficult factors on the fabrication specially dimension control and profile shape, hardness control, density control. Etc…
- All the technical and right products can be made only by longer experience.
HIGH PROPERTY EXTRUSION MOLDING SILICONE RUBBER

There are specially designed as high performance base to be used for wide range of applications with Extrusion, Press molding, Injection molding.

Catalyst: HC-8/1.8phr (171°C×10min / 200°C×4hrs)
Catalyst: HC-2/1.5phr (116°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>HR-700UV</th>
<th>HR-500UV</th>
<th>HR-300U</th>
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<tbody>
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<td>Hardness</td>
<td>ASTM D 2240</td>
<td>52</td>
<td>52</td>
<td>52</td>
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<tr>
<td>Tensile Strength (kgf/cm²)</td>
<td>ASTM D 412</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Tear Strength (kgf/in)</td>
<td>ASTM D 514.5</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>JIS K 6255</td>
<td>630</td>
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<td>630</td>
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<tr>
<td>Density (g/cc)</td>
<td>ASTM D 5850</td>
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</tr>
<tr>
<td>Volume Resistivity (Ω cm)</td>
<td>ASTM D 257</td>
<td>792</td>
<td>792</td>
<td>792</td>
</tr>
<tr>
<td>Rebound Resilience (%)</td>
<td>ASTM D 395</td>
<td>1767</td>
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<td>1767</td>
</tr>
<tr>
<td>Physical Property</td>
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<td>285</td>
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</tr>
<tr>
<td>Electrical Property</td>
<td></td>
<td>200</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

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

SPACER PANEL SILICONE RUBBER

This is specially designed Thin thickness Sheet and high elastic silicone rubber for specific applications.

Catalyst: HR-2/1.5phr (180°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
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</tr>
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<tr>
<td>Hardness</td>
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<td>Tensile Strength (kgf/cm²)</td>
<td>ASTM D 412</td>
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<tr>
<td>Tear Strength (kgf/in)</td>
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<td>60</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>JIS K 6255</td>
<td>600</td>
</tr>
<tr>
<td>Density (g/cc)</td>
<td>ASTM D 5850</td>
<td>1.08</td>
</tr>
<tr>
<td>Volume Resistivity (Ω cm)</td>
<td>ASTM D 257</td>
<td>792</td>
</tr>
<tr>
<td>Rebound Resilience (%)</td>
<td>ASTM D 395</td>
<td>1767</td>
</tr>
<tr>
<td>Physical Property</td>
<td></td>
<td>285</td>
</tr>
<tr>
<td>Electrical Property</td>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>

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

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

OIL RESISTANT SILICONE RUBBER

There are specially designed silicone rubber for the better oil resistance Specially to the ASTM D1 oil than other general silicone rubber grades.

Catalyst: HC-6/1.5phr (177°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>HR-700UV</th>
<th>HR-500UV</th>
<th>HR-300U</th>
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<tbody>
<tr>
<td>Hardness</td>
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<tr>
<td>Tensile Strength (kgf/cm²)</td>
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<tr>
<td>Tear Strength (kgf/in)</td>
<td>ASTM D 514.5</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Elongation (%)</td>
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<tr>
<td>Density (g/cc)</td>
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<td></td>
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</tr>
<tr>
<td>Volume Resistivity (Ω cm)</td>
<td>ASTM D 257</td>
<td>792</td>
<td></td>
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<tr>
<td>Rebound Resilience (%)</td>
<td>ASTM D 395</td>
<td>1767</td>
<td></td>
<td></td>
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<tr>
<td>Physical Property</td>
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</tr>
<tr>
<td>Electrical Property</td>
<td></td>
<td>200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

APPLICATIONS
- O-Ring, Automotive Rubber Parts, Seals.

HIGH VOLTAGE CABLE SILICONE RUBBER

This is a specially designed silicone rubber for high dielectrics break down voltage and excellent other electrical properties, which are, required special silicone rubber cables.

Catalyst: HR-2/1.5phr (180°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Properties</th>
<th>Test Method</th>
<th>HR-2/1.5phr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardness</td>
<td>ASTM D 2240</td>
<td>60</td>
</tr>
<tr>
<td>Tensile Strength (kgf/cm²)</td>
<td>ASTM D 412</td>
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<tr>
<td>Tear Strength (kgf/in)</td>
<td>ASTM D 514.5</td>
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<td>Elongation (%)</td>
<td>JIS K 6255</td>
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<tr>
<td>Density (g/cc)</td>
<td>ASTM D 5850</td>
<td>1.08</td>
</tr>
<tr>
<td>Volume Resistivity (Ω cm)</td>
<td>ASTM D 257</td>
<td>792</td>
</tr>
<tr>
<td>Rebound Resilience (%)</td>
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<td>1767</td>
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<tr>
<td>Physical Property</td>
<td></td>
<td>285</td>
</tr>
<tr>
<td>Electrical Property</td>
<td></td>
<td>200</td>
</tr>
</tbody>
</table>

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

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

INTRODUCTION
OVERVIEW OF THE SILICONE RUBBER
HR- HIGH CONSISTENCY SILICONE RUBBER
LRH - LIQUID SILICONE RUBBER
HTY - ROOM TEMPERATURE VULCANIZATION
SL - SILICONE SHEET
PSE - PRESSURE SENSITIVE ADHESIVE
CML - COMPOUND FOR MOLDED PARTS CERTIFICATES

| Properties Change After Heat Aging Test (ASTM D 570) |
|------------|-------------|-------------|
| Hardness Change (point) | -3 | -3 |
| Tensile Strength (%) | -10 | -10 |
| Elongation (%) | -10 | -10 |
| Volume (%) | -10 | -10 |

We will always engage on the development for better techniques and products.
HIGH CONSISTENCY SILICONE RUBBER

NO POST CURE SILICONE RUBBER

There are specially designed general-purpose silicone rubber, which reach optimum balance of properties without post cure.

Catalog: HC-8/1.8phr (77°C×10min / No Post Cure)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Method</th>
<th>HR-MPC-150U</th>
<th>HR-MPC-1500U</th>
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<tbody>
<tr>
<td>Colors</td>
<td>ASTM D 1500</td>
<td>Transparent</td>
<td>White</td>
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<td>William’s Flexibility</td>
<td>ASTM D 792</td>
<td>110</td>
<td>260</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 2240</td>
<td>1.11</td>
<td>1.42</td>
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<tr>
<td>Hardness</td>
<td>ASTM D 2240</td>
<td>82</td>
<td>80</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>ASTM D 412</td>
<td>5.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
<td>450</td>
<td>150</td>
</tr>
<tr>
<td>Tear Strength (kgf/cm)</td>
<td>ASTM D 412</td>
<td>10</td>
<td>11</td>
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<tr>
<td>Notched Flexural Inc.</td>
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<td>Compression Set (%)</td>
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<td>35</td>
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<tr>
<td>Linear Shrinkage (%)</td>
<td>ASTM D 412</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

| (Compression Set: 177°C×22hrs) |

- FEATURES
  - Excellent elastic properties.  
  - Post cure is not required in case of industrial usage (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.

GENERAL PURPOSE GRADE FOR AUTOMOTIVE SILICONE RUBBER

It is a silicone rubber which has great compression set and elongation that can be applied to O-RING for cars and GASKET.

Catalog: HC-8/1.8phr (77°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Method</th>
<th>HR-GSD0EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colors</td>
<td>ASTM 1500</td>
<td>Translucent</td>
</tr>
<tr>
<td>William’s Flexibility</td>
<td>ASTM D 792</td>
<td>110</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 2240</td>
<td>1.11</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D 2240</td>
<td>82</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>ASTM D 412</td>
<td>5.5</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D 412</td>
<td>450</td>
</tr>
<tr>
<td>Tear Strength (kgf/cm)</td>
<td>ASTM D 412</td>
<td>10</td>
</tr>
<tr>
<td>Notched Flexural Inc.</td>
<td>ASTM D 412</td>
<td>20</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>ASTM D 335</td>
<td>20</td>
</tr>
<tr>
<td>Linear Shrinkage (%)</td>
<td>ASTM D 412</td>
<td>4</td>
</tr>
</tbody>
</table>

| (Compression Set: 177°C×22hrs) |

- FEATURES
  - Great compression set 
  - Outstanding mechanical characteristic (Great elongation) 
  - Outstanding working property

- APPLICATIONS
  - Normal press molding product 
  - O-RING, GASKET 
  - Car component 
  - High elasticity product

HIGH TRANSPARENT, HIGH TEAR STRENGTH SILICONE RUBBER

There are specially designed for use in high transparent and high mechanical strength applications in food and medical industries.

Catalog: HC-8/1.8phr (77°C×10min / 200°C×4hrs)

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Test Method</th>
<th>HB-1130U</th>
<th>HB-1140U</th>
<th>HB-1150U</th>
<th>HB-1160U</th>
<th>HB-1170U</th>
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</thead>
<tbody>
<tr>
<td>Colors</td>
<td>ASTM 1501</td>
<td>180</td>
<td>140</td>
<td>79</td>
<td>62</td>
<td>79</td>
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<tr>
<td>William’s Flexibility</td>
<td>ASTM D 792</td>
<td>110</td>
<td>170</td>
<td>110</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>ASTM D 2240</td>
<td>1.11</td>
<td>1.42</td>
<td>1.12</td>
<td>1.19</td>
<td>1.19</td>
</tr>
<tr>
<td>Hardness</td>
<td>ASTM D 412</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>ASTM D 1500</td>
<td>70</td>
<td>80</td>
<td>70</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Elongation (%)</td>
<td>ASTM D 1500</td>
<td>90</td>
<td>95</td>
<td>90</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Tear Strength (kgf/cm)</td>
<td>ASTM D 1500</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Notched Flexural Inc.</td>
<td>ASTM D 1500</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>ASTM D 335</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Linear Shrinkage (%)</td>
<td>ASTM D 412</td>
<td>4</td>
<td>4</td>
<td>3.9</td>
<td>3.9</td>
<td>3.9</td>
</tr>
</tbody>
</table>

| (Compression Set: 177°C×22hrs) |

- FEATURES
  - High transparency.  
  - High tear, tensile strength 
  - Comply with FDA Reg. 21 CFR, 177-2600 
  - Excellent for extrusion, molding, injection.

- APPLICATIONS
  - Baby Nippies (HR-1140) 
  - Goggles (HR-1250, 1160, 1170) 
  - Medical products 
  - Food contact products 
  - High mechanical products

ADDITIONS FOR SILICONE RUBBER

There are can be variously selected for the customer’s purpose. There should be added on two-roll mill before cure.

CURING AGENTS

<table>
<thead>
<tr>
<th>Name</th>
<th>Chemical Composition</th>
<th>Additive Range</th>
<th>Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC-2</td>
<td>2,4-Diiodothiophenol (40%)</td>
<td>1.2 ~ 1.8</td>
<td>HAC Coating Thix Tube Molding</td>
</tr>
<tr>
<td>HC-3</td>
<td>Diaryl Phosphate</td>
<td>1.0 ~ 2.0</td>
<td>General Molding, Steam Cure</td>
</tr>
<tr>
<td>HC-4</td>
<td>2,5-Dimethyl-2,5-bis(2-benzylthio)hepane (50%)</td>
<td>0.8 ~ 1.3</td>
<td>All Compression Molding Conductive Rubber</td>
</tr>
<tr>
<td>HC-8</td>
<td>2,5-Dimethyl-2,5-bis(2-benzylthio)hepane (50%)</td>
<td>1.6 ~ 2.4</td>
<td>High Heat Resistant Conductive Rubber</td>
</tr>
<tr>
<td>HC-15K</td>
<td>Special Resin (25%)</td>
<td>1.8 ~ 2.5</td>
<td>Anti Yellowing/蟲地衣 CONTACT</td>
</tr>
<tr>
<td>HC-20 A</td>
<td>Phalanx Crisis</td>
<td></td>
<td>HAC Molding</td>
</tr>
<tr>
<td>HC-25 A</td>
<td>Phalanx Crisis</td>
<td></td>
<td>HAC Molding</td>
</tr>
</tbody>
</table>

HC-DAY cure agent is very effective for Less Days, No or Less Yellowing. More Transparent purpose curing, but it may be little some about mold releasing, if the mold is not chrome plate.

ADDITIONS

<table>
<thead>
<tr>
<th>Name</th>
<th>Color &amp; Type</th>
<th>Functions</th>
<th>Additional Amount [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zn-A</td>
<td>White Powder</td>
<td>Improve Molding Resistance</td>
<td>0.1 ~ 0.5</td>
</tr>
<tr>
<td>CA-1</td>
<td>-</td>
<td>Improve Molding Resistance</td>
<td>0.1 ~ 0.5</td>
</tr>
<tr>
<td>AI-100</td>
<td>Light Yellow Powder</td>
<td>Improve Heat Resistance (267°C)</td>
<td>0.5 ~ 1.0</td>
</tr>
<tr>
<td>AI-100</td>
<td>Clear Powder</td>
<td>Improve Heat Resistance (267°C)</td>
<td>0.2 ~ 0.5</td>
</tr>
<tr>
<td>Y-R</td>
<td>Red Powder</td>
<td>Improve Heat Resistance (267°C)</td>
<td>0.2 ~ 0.5</td>
</tr>
<tr>
<td>FS-1</td>
<td>White Powder</td>
<td>Flame Retardant (94V-1)</td>
<td>3.0 ~ 8.0</td>
</tr>
<tr>
<td>FS-2</td>
<td>Black Powder</td>
<td>Flame Retardant (94V-1)</td>
<td>3.0 ~ 8.0</td>
</tr>
<tr>
<td>Softener</td>
<td>Clear Powder</td>
<td>Improve Surface, Mold Flow</td>
<td>1.0 ~ 3.0</td>
</tr>
<tr>
<td>CB-1</td>
<td>White Tire Paste</td>
<td>Medium Compression Set</td>
<td>1.0 ~ 3.0</td>
</tr>
</tbody>
</table>
### Introduction

HCR is a HIGH CONSISTENCY SILICONE RUBBER. We will always engage in the development for better techniques and products.

### Table of Properties

<table>
<thead>
<tr>
<th>Type of Silicone Rubber</th>
<th>Grade No.</th>
<th>Color</th>
<th>Density</th>
<th>Viscosity</th>
<th>Hardness</th>
<th>Tensile</th>
<th>Tear</th>
<th>Hardness</th>
<th>Volume</th>
<th>Air Cure</th>
<th>Thermoplastic (°C)</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose Molding</td>
<td>HC-2/1.5</td>
<td>Brown</td>
<td>1.07</td>
<td>100</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>30</td>
<td>23</td>
<td>25</td>
<td>Molded</td>
</tr>
<tr>
<td>General Purpose Molding</td>
<td>HC-8/1.8</td>
<td>Black</td>
<td>1.05</td>
<td>200</td>
<td>4</td>
<td>1.1</td>
<td>-</td>
<td>1</td>
<td>80</td>
<td>23</td>
<td>24</td>
<td>Molded</td>
</tr>
<tr>
<td>High Heat Resistance</td>
<td>HC-2/1.5</td>
<td>Red</td>
<td>1.10</td>
<td>120</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>40</td>
<td>24</td>
<td>25</td>
<td>Molded</td>
</tr>
<tr>
<td>High Heat Resistance</td>
<td>HC-8/1.8</td>
<td>Blue</td>
<td>1.15</td>
<td>200</td>
<td>4</td>
<td>1.1</td>
<td>-</td>
<td>1</td>
<td>80</td>
<td>23</td>
<td>24</td>
<td>Molded</td>
</tr>
<tr>
<td>High Heat Resistance</td>
<td>HC-2/1.5</td>
<td>Green</td>
<td>1.12</td>
<td>120</td>
<td>4</td>
<td>2</td>
<td>-</td>
<td>2</td>
<td>40</td>
<td>24</td>
<td>25</td>
<td>Molded</td>
</tr>
<tr>
<td>High Heat Resistance</td>
<td>HC-8/1.8</td>
<td>Yellow</td>
<td>1.13</td>
<td>200</td>
<td>4</td>
<td>1.1</td>
<td>-</td>
<td>1</td>
<td>80</td>
<td>23</td>
<td>24</td>
<td>Molded</td>
</tr>
</tbody>
</table>

### Notes

1. TL(Translucent), NO(Natural Gray), TR(Transparent), BW(Bridge White), SB(Silver Black), D(Green Gray), W(White), G(Gray), NW(Natural White), Y(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. HD-2: 2,4-dichlorobenzyl peroxide 50% in silicone
   HD-3: 2,5-dimethyl-2,5-dihydroxyhexane 20% in silicone
   HD-4: 2,6-dimethyl-2,5-dihydroxyhexane 20% in silicone

### High Consistency Silicone Rubber

HCR HIGH CONSISTENCY SILICONE RUBBER
LSR
LIQUID SILICONE RUBBER

- Automotive
- Electric/Electronics/Mobile
- Home Products
- Medical/Baby Product
- ETC

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 degree of 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 does not generate volatiles or residue during the curing process and it makes LSR possible to be used that required inertness for example pacifier, diving mask, medical tube, snorkel and bakeware.
APPLICATIONS OF LIQUID SILICONE
LSR is a material suitable for numerous uses from automobiles, spaceships, high-voltage insulators to sculptures, baby products, etc. Copying machine roller / High-voltage insulators / Keypads / Anode caps / Connector seals / Diaphragm & valves / O-ring, Gaskets & Seal / Diving mask & snorkels / Baby nipple / Wire seal / Grommet

SUPPLY CAPACITY AND CONTAINER SIZE
Both A and B are supplied. The inside diameter is as follows.
20KG : 282mm (Can)  200KG : 572mm (Drum)

What are manufactured for injection molders in general can be used.

STORAGE
LSR should be stored in a cool and dark place with good ventilation and no 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 the mixture is inside of a cold mixer and injection molder at the mixture ratio of 1:1, it can be used for up to 3 days. The new one should be supplied from the 4th day.

- 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.
- As the pot life is subjected to change depending on storage conditions, a close attention should be paid.

ECONOMICS OF LSR

PROPERTIES OF LSR
- Thermal resistance
- Ultraviolet resistance and Ozone resistance
- Weatherability
- Excellent dielectricity at high temperatures
- Bio-compatibility

AFTER LSR MOLDING
- No chemical by-products
- The only product itself
- No need to remove by-products

PROCESS
1. LSR, packed in 20kg or 200kg, is supplied in types of A and B for easy use.
2. After the dispenser pumps liquid A and liquid B, they are transported to the static mixer.
3. While they are transported to the static mixer, additional components can be added.
4. Curing takes place within a few seconds between 170℃-230℃

   Caution
   1. In order for curing not to happen before LSR enter the mold, the temperature of the nozzle and cylinder should be lowered to about 20℃.
   2. Demolding what is cured at an extremely high temperature (above 200℃) can produce volatile materials. It is recommended to use a system which will remove them.

POST CURE
Most of silicone rubbers are to have the best properties after curing. Compression set, however, can increase in case of post-curing at 200℃. At this temperature, a fire can break out due to an emission of the volatile siloxane. Thus, fresh air should be supplied into the post-curing oven for secondary hardening (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. Depending on the curing temperature, linear shrinkage usually increases.

Take LSR 200/50. At 173℃ and with the thickness of 2mm, its linear shrinkage is as following.

Non Post-cured  2.7%±0.5%
Post-cured  3.9%±0.5%

COMPATIBILITY WITH OTHER SUBSTANCES
The LSR catalyst, which is cured by addition reaction, cannot be cured or can be incompletely cured due to many substances. The above phenomenon is possible to happen with such substance which are the rubbers cured by sulfuric or organotin compounds, the substances cured by amine, amide, azide, and so on.
## ADDITION CURVE

<table>
<thead>
<tr>
<th>Type Of LSR</th>
<th>Grade</th>
<th>Color</th>
<th>Specific Gravity</th>
<th>Viscosity (cP)</th>
<th>Hardness</th>
<th>Tensile Strength</th>
<th>Elongation</th>
<th>Year</th>
<th>Redundant Resistence</th>
<th>Compression Set</th>
<th>Application</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose, High Temp.</td>
<td>1.12</td>
<td>TP 1.12</td>
<td>0.85/0.20</td>
<td>85</td>
<td>75</td>
<td>90</td>
<td>70</td>
<td>15</td>
<td>80</td>
<td>350</td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>Lightweight, High Temp.</td>
<td>1.08</td>
<td>TP 1.12</td>
<td>0.85/0.20</td>
<td>85</td>
<td>75</td>
<td>90</td>
<td>70</td>
<td>15</td>
<td>80</td>
<td>350</td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>High Temp.</td>
<td>1.06</td>
<td>TP 1.12</td>
<td>0.85/0.20</td>
<td>85</td>
<td>75</td>
<td>90</td>
<td>70</td>
<td>15</td>
<td>80</td>
<td>350</td>
<td>25</td>
<td>70</td>
</tr>
</tbody>
</table>

## CONDENSATION

<table>
<thead>
<tr>
<th>Type Of LSR</th>
<th>Grade</th>
<th>Color</th>
<th>Specific Gravity</th>
<th>Viscosity (cP)</th>
<th>Hardness</th>
<th>Tensile Strength</th>
<th>Elongation</th>
<th>Year</th>
<th>Redundant Resistence</th>
<th>Compression Set</th>
<th>Application</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Purpose, High Temp.</td>
<td>1.12</td>
<td>TP 1.12</td>
<td>0.85/0.20</td>
<td>85</td>
<td>75</td>
<td>90</td>
<td>70</td>
<td>15</td>
<td>80</td>
<td>350</td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>Lightweight, High Temp.</td>
<td>1.08</td>
<td>TP 1.12</td>
<td>0.85/0.20</td>
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<td>90</td>
<td>70</td>
<td>15</td>
<td>80</td>
<td>350</td>
<td>25</td>
<td>70</td>
</tr>
<tr>
<td>High Temp.</td>
<td>1.06</td>
<td>TP 1.12</td>
<td>0.85/0.20</td>
<td>85</td>
<td>75</td>
<td>90</td>
<td>70</td>
<td>15</td>
<td>80</td>
<td>350</td>
<td>25</td>
<td>70</td>
</tr>
</tbody>
</table>

### Notes:
1. TP (Translucent, TP (Translucent), RBN (Reddish Brown)
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. It can differ the color and different curing condition, the value will be different.
HRS RTV 2K is fire-stop material and 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 to be blown and cured two or three times within 1 ~ 5 minutes and stiffens to become a closed cell sponge-type elastomer.

Now, HRS RTV 2K is used as fire-stop material for skyscrapers, hotels, department stores, nuclear power plant, thermal power plants, chemical plants, refineries where the demand for a perfect fireproof sealing material is on the rise. Also, HRS RTV 2K Foam effectively seals the opening of buildings to protect human from harmful gases.
WHAT IS THE SILICONE RTV FOAM?

It is Silicone Foam blown and cured at normal temperature. It is designed to make use of the original properties of silicone resin mainly composed of Silicon 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 stiffens to become a closed-cell sponge-type elastic body.

HR-PS-80 (LOW DENSITY SILICONE RTV)

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 (MEDIUM DENSITY SILICONE RTV)

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)

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.

HR-BS-924 (BOOT FABRIC)

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 sealing. 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.

### Sildent™ Light Body

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>15-20 mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>45 sec (in the mouth)</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More than 1 min</td>
</tr>
<tr>
<td>Setting Time (min)</td>
<td>4 min (in the mouth)</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 20%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>within 0.2%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>&gt; 99.5%</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 10%</td>
</tr>
<tr>
<td>Setting Time (min)</td>
<td>4 min (in the mouth)</td>
</tr>
</tbody>
</table>

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

### Sildent™ Heavy Body

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>31 ~ 41 mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type Auto-Mixing</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More than 1 min</td>
</tr>
<tr>
<td>Setting Time (min)</td>
<td>4 min (in the mouth)</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 20%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>within 0.11%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>&gt; 99.5%</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 10%</td>
</tr>
</tbody>
</table>

- **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™ Regular Body

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>31-36 mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>Jar Type Manual-Mixing(60 sec)</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More than 1 min</td>
</tr>
<tr>
<td>Setting Time (min)</td>
<td>4 min (in the mouth)</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 10%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>within 0.2%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>&gt; 99.5%</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 10%</td>
</tr>
</tbody>
</table>

- **Benefits**
  - Excellent elastic recovery
  - Hydrophilic properties for excellent flow in wet environment
  - High tear strength from deformation
  - Long lasting dimensional stability
  - Excellent detail reproduction

### Sildent™ Putty

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>35 ~ 50 mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>Jar Type Manual-Mixing(60 sec)</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More than 1 min</td>
</tr>
<tr>
<td>Setting Time (min)</td>
<td>5 min (in the mouth)</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>within 10%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>within 0.11%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>&gt; 99.5%</td>
</tr>
</tbody>
</table>

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

**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.**

---

**Introduction**

- **SR-Silicone rubber**
- **LSR-Liquid Sillicone rubber**
- **RTV - Room Temperature Vulcanization**
- **LSS-Light Silicone Sheet**
- **PS-Polyurethane adhesive**
- **OM-Anti-oxidation Sillicone for Prosthetic Liner Certification**

We will always engage on the development for better techniques and products.
### Physical & Mechanical Property Standard

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>Min. 35mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type</td>
</tr>
<tr>
<td></td>
<td>Auto-Mixing</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More Than 60sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base: Yellowgreen</td>
</tr>
<tr>
<td></td>
<td>Catalyst: White</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>Min. 2.0% / Max. 20%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>Min. 99.5%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>Max. 0.2%</td>
</tr>
<tr>
<td>Reproducibility (μm)</td>
<td>20μm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (μm)</td>
<td>50μm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

#### BENEFITS
- Fast working and setting time
- Hydrophilic properties for excellent flow in wet environment
- Excellent elastic recovery
- Long-lasting dimensional stability

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

---

### Physical & Mechanical Property Standard

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>Min. 36mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type</td>
</tr>
<tr>
<td></td>
<td>Auto-Mixing</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More Than 40sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base: Yellowgreen</td>
</tr>
<tr>
<td></td>
<td>Yellowgreen</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>Min. 2.0% / Max. 20%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>Min. 99.5%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>Max. 0.2%</td>
</tr>
<tr>
<td>Reproducibility (μm)</td>
<td>20μm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (μm)</td>
<td>50μm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

#### BENEFITS
- Extremely fast setting time of 100 min
- High hardness
- Outstanding occlusal details and accurate bite registration
- Easy to trim and grind

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

---

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type</td>
</tr>
<tr>
<td></td>
<td>Auto-Mixing</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More Than 30sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base: Yellow</td>
</tr>
<tr>
<td></td>
<td>White</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>Min. 0.0% / Max. 20%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>Min. 93.5%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>Max. 0.2%</td>
</tr>
<tr>
<td>Reproducibility (μm)</td>
<td>50μm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (μm)</td>
<td>50μm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

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

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

---

### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type</td>
</tr>
<tr>
<td></td>
<td>Auto-Mixing</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>More Than 30sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base: Yellow</td>
</tr>
<tr>
<td></td>
<td>White</td>
</tr>
<tr>
<td>Strain in Compression (%)</td>
<td>Min. 0.0% / Max. 20%</td>
</tr>
<tr>
<td>Recovery from deformation (%)</td>
<td>Min. 93.5%</td>
</tr>
<tr>
<td>Linear Dimensional change (%)</td>
<td>Max. 0.2%</td>
</tr>
<tr>
<td>Reproducibility (μm)</td>
<td>50μm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (μm)</td>
<td>50μm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

#### BENEFITS
- Fast working and setting time
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- Easy to remove from mouth

#### INDICATIONS
- Crown and bridge impressions
- Inlay and onlay impressions
- Functional impressions
- Implant impressions
- Denture and partial denture impressions
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...
Importance of Thermal Conductivity 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 shapes and sizes of components, including protrusions and recessed areas.

- **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.
We will always engage on the development for better techniques and products.

<table>
<thead>
<tr>
<th>Type</th>
<th>Grade No.</th>
<th>Thickness (mm)</th>
<th>Color</th>
<th>Hardness (Shore D)</th>
<th>Specific Gravity (g/cm³)</th>
<th>Tenacity (kgf/1000mm)</th>
<th>Elongation (%)</th>
<th>Tensile Strength (kgf/mm²)</th>
<th>Charpy Impact (kgf·cm)</th>
<th>Heat Resistant Level (UL94)</th>
<th>Application</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR-TS SERIES</td>
<td>TSP-4501</td>
<td>0.5-4.5</td>
<td>WS/GP</td>
<td>30-80</td>
<td>2.4</td>
<td>30-70</td>
<td>65-150</td>
<td>3x10^(-3) ASTM D 237</td>
<td>1.9 ASTM D 150</td>
<td>V-0 LA 94</td>
<td>Heat dissipation of MPU</td>
<td>Excellent heat conductivity</td>
</tr>
<tr>
<td></td>
<td>TSP-4502</td>
<td>0.5-4.5</td>
<td>WS/GP</td>
<td>30-80</td>
<td>2.7</td>
<td>30-70</td>
<td>65-150</td>
<td>1x10^(-3) ASTM D 237</td>
<td>2.0 ASTM D 150</td>
<td>V-0 LA 94</td>
<td>Heat dissipation of MPU</td>
<td>Excellent heat conductivity</td>
</tr>
<tr>
<td></td>
<td>TSP-4503</td>
<td>0.5-4.5</td>
<td>WS/GP</td>
<td>30-80</td>
<td>2.9</td>
<td>30-70</td>
<td>65-150</td>
<td>1x10^(-3) ASTM D 237</td>
<td>2.8 ASTM D 150</td>
<td>V-0 LA 94</td>
<td>Heat dissipation of MPU</td>
<td>Excellent heat conductivity</td>
</tr>
<tr>
<td></td>
<td>TSP-4504</td>
<td>0.5-4.5</td>
<td>WS/GP</td>
<td>40-50</td>
<td>2.9</td>
<td>30-70</td>
<td>65-150</td>
<td>1x10^(-3) ASTM D 237</td>
<td>3.0 ASTM D 150</td>
<td>V-0 LA 94</td>
<td>Heat dissipation of MPU</td>
<td>Excellent heat conductivity</td>
</tr>
<tr>
<td></td>
<td>TSP-4505</td>
<td>0.5-4.5</td>
<td>WS/GP</td>
<td>40-50</td>
<td>3.0</td>
<td>30-70</td>
<td>65-150</td>
<td>1x10^(-3) ASTM D 237</td>
<td>2.8 ASTM D 150</td>
<td>V-0 LA 94</td>
<td>Heat dissipation of MPU</td>
<td>Excellent heat conductivity</td>
</tr>
<tr>
<td></td>
<td>TSP-4506</td>
<td>0.5-4.5</td>
<td>WS/GP</td>
<td>45-50</td>
<td>3.1</td>
<td>30-70</td>
<td>65-150</td>
<td>1x10^(-3) ASTM D 237</td>
<td>2.6 ASTM D 150</td>
<td>V-0 LA 94</td>
<td>Heat dissipation of MPU</td>
<td>Excellent heat conductivity</td>
</tr>
</tbody>
</table>

**Note:**
- 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.

**HR-SILICONE SHEET**

<table>
<thead>
<tr>
<th>Type</th>
<th>Grade No.</th>
<th>Thickness (mm)</th>
<th>Color</th>
<th>Hardness (Shore D)</th>
<th>Specific Gravity (g/cm³)</th>
<th>Tenacity (kgf/1000mm)</th>
<th>Elongation (%)</th>
<th>Tensile Strength (kgf/mm²)</th>
<th>Charpy Impact (kgf·cm)</th>
<th>Heat Resistant Level (UL94)</th>
<th>Application</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR-40</td>
<td>0.0-1.0</td>
<td>WS/GP</td>
<td>0.3-7.5</td>
<td>0.8</td>
<td>0.9-1.5</td>
<td>10-45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>HR-50</td>
<td>0.0-1.0</td>
<td>WS/GP</td>
<td>0.3-7.5</td>
<td>0.8</td>
<td>0.9-1.5</td>
<td>10-45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>HR-60</td>
<td>0.0-1.0</td>
<td>WS/GP</td>
<td>0.3-7.5</td>
<td>0.8</td>
<td>0.9-1.5</td>
<td>10-45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>HR-70</td>
<td>0.0-1.0</td>
<td>WS/GP</td>
<td>0.3-7.5</td>
<td>0.8</td>
<td>0.9-1.5</td>
<td>10-45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>HR-80</td>
<td>0.0-1.0</td>
<td>WS/GP</td>
<td>0.3-7.5</td>
<td>0.8</td>
<td>0.9-1.5</td>
<td>10-45</td>
<td>-</td>
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<tr>
<td></td>
<td>HR-90</td>
<td>0.0-1.0</td>
<td>WS/GP</td>
<td>0.3-7.5</td>
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<td>0.9-1.5</td>
<td>10-45</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note:**
- 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.
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, its application is increasingly expanding into the areas including films used in electrical/electronic processes or heat resistance protection and LCD protective liquid crystal film, etc. with its types becoming increasingly more segmented.
**1. PSA-PROCESS FILMS**

<table>
<thead>
<tr>
<th>Type</th>
<th>SP-6802</th>
<th>SP-9902</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>Nonvolatile Content (%)</td>
<td>61 ~ 65</td>
<td>&gt;99</td>
</tr>
<tr>
<td>Viscosity (cP)</td>
<td>30,000 ~ 60,000</td>
<td>40,000 ~ 60,000</td>
</tr>
<tr>
<td>180° Peel Adhesion (g/25mm)</td>
<td>&gt;1,000</td>
<td>0.5 ~ 1.0</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Type</th>
<th>SP-4028</th>
<th>SP-6227</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>Nonvolatile Content (%)</td>
<td>38 ~ 42</td>
<td>60 ~ 64</td>
</tr>
<tr>
<td>Viscosity (cP)</td>
<td>20,000 ~ 60,000</td>
<td>80,000 ~ 120,000</td>
</tr>
<tr>
<td>180° Peel Adhesion (g/25mm)</td>
<td>1.0 ~ 2.0</td>
<td>1.0 ~ 2.0</td>
</tr>
</tbody>
</table>

**Features**
- Improved coating surface and leveling ability
- Adhesion adjustment by product request

**• APPLICATION**
- Protective tape / film
- LCD protection films
- Flexible / electronic process film
- Coating films and masking tape

---

**4. PSA-LOW TEMPERATURE HARDENING FILMS**

<table>
<thead>
<tr>
<th>Type</th>
<th>SP-7001LT</th>
<th>SP-7061LT</th>
<th>SP-6803LT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>Nonvolatile Content (%)</td>
<td>68 ~ 72</td>
<td>68 ~ 72</td>
<td>60 ~ 64</td>
</tr>
<tr>
<td>Viscosity (cP)</td>
<td>30,000 ~ 50,000</td>
<td>5,000 ~ 25,000</td>
<td>5,000 ~ 25,000</td>
</tr>
<tr>
<td>180° Peel Adhesion (g/25mm)</td>
<td>2</td>
<td>25</td>
<td>&gt;1,000</td>
</tr>
</tbody>
</table>

**Features**
- Low temperature (80℃) curing products applicable to special material films (PO, PP)

**• APPLICATION**
- Protective tape / film
- LCD protection films
- Electric / electronic process film
- Coating films and masking tape

---

**5. PSA-TPU, CPP FILMS PROTECTION**

<table>
<thead>
<tr>
<th>Type</th>
<th>SP-6061LT</th>
<th>SP-6081LT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
<td>Clear</td>
</tr>
<tr>
<td>Nonvolatile Content (%)</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td>Viscosity (cP)</td>
<td>5,500</td>
<td>4,000</td>
</tr>
<tr>
<td>180° Peel Adhesion (g/25mm)</td>
<td>27</td>
<td>50</td>
</tr>
</tbody>
</table>

**Features**
- Low temperature (70℃) curing products (2min), CPP film 40µm + PSA 20µm

**• APPLICATION**
- Protective tape / film
- LCD protection films
- Electric / electronic process film
- Coating films and masking tape
EMULSION
SILICONE FOR PERSONAL CARE

- Skin care
- Make up
- Hair care
- Sun care
- Body care

EMULSION
SILICONE FOR PERSONAL CARE

Silicone Emulsion is insoluble silicons which silicone oil is evenly dispersed in water without using any organic solvent. It is composed of surfactant, oil, silicone oil and other additives. The market demand for silicone emulsion is increasing due to its characteristics of Eco-Friendly products.

Silicone has low surface tension, excellent water repellency, colorless, tasteless and odorless. It’s very safe and widely used to make skin/body care products, sun care product, shampoo, hair care products such as treatment and color cosmetic products.
CHARACTERISTICS OF SILICONE FOR COSMETIC

- Volatile Silicone
- Fluids: Dimethicone Fluid
- Plant modified Fluids
- Silicon Fluid Blends (Gem Blends)
- Silicone Crosspolymer
- Dimethicone Copolyols
- Silicone Emulsions
- Silicone Resins
- Silicone Resin: Polymethylsiloxane (PMISQ)
- Alkyldimethicones
- Vinyl Dimethicone Fluids
- Gel Silicone Polymers

SILICONE OIL GRADE
- Silicone oil used for cosmetic is normally transparent, odorless, physiologically inertness that is highly secure for human body
- Useful for improving quality and performance of cosmetics due to its great spreadability, application, sticky less, water repellency, heteroplastic, inertness of other materials. So, it can be applied for skin care, make-up, foundation, hair care, sun care and body care and etc

SILICONE ELASTOMER GEL/POWDER GRADE
- Swelling low viscosity (volatile and non-volatile) oil and Cross Polymer together to make elastic silicone to bring cushioning for cosmetics
- Bring higher viscosity, and reduce sticky effectively
- Absorb face surface sebum to make smooth skin
- Give Softness, Soft focus, Silky Touch, Matt characteristics

SILICONE GUM (Dimethiconol) GRADE
- Dimethiconol is a heavy molecular weight silicone, based on dimethisiloxane, which has hydroxyl group in the end
- Dimethiconol is used for wound healing, scar improvement, and also FDA approved its usage as over-the-counter drugs for skin protection component
- Great spreading power due to low surface tension, great gloss lubrication and outstanding feeling
- Gives soft sense of usage and appliance and also prevents bubbles to grow in manufacturing
- As skin emollient, it vitalizes skin and hair, and also keep the skin moisty from making protective film on skin

SILICONE RESIN GRADE
- Great skin adhesive power to keep the skin moisty for long time
- Great skin adhesive power that is indelible from water, sweat or sebum
- Can be applied for skin care, make-up, waterproof, BB cream and etc

NEW UV ABSORBER FOR COSMETIC SUNSCREENS
- Composed benzotriazole with silicone which has great compatibility with solvent
- Low skin stimulation, great feeling and appliance and high water repellency
- Block UVA and UVB at the same time, absorbs ultraviolet energy to convert into thermal energy

SILICONE EMULSIONS GRADE
- Silicone Emulsion is made from water, silicone oil, surfactant and other additives
- Unique sense of usage
- Silicone emulsion can be applied to antifoaming agent, release agent, water-repellenting agent, raw material for cosmetic, fiber disposal agent and so on

HRS FOR YOUR BEAUTY

01	Silicone is widely used in personal care for its advantages of water repellency, lubrication, low surface tension, safety, great usability and appliance, gloss, great moisturizing effect and nontoxic.

02	Silicone can be applied for 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 so on.

03	Selective application for product development from various dosage form of silicone.
### Volatile Silicone Fluids

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
</table>
| HRC-D100     | Cyclopentasiloxane | • Excellent spreading  
• Volatile carrier  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |
| HRC-D200     | Dimethicone | • Excellent spreading  
• Volatile carrier  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |
| HRC-D2000    | Dimethicone | • Excellent spreading  
• Volatile carrier  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |
| HRC-DE-65    | Dimethicone | • Excellent spreading  
• Volatile carrier  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |

### Volatile Silicone Fluids

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
</table>
| HRC-D4       | Dimethicone | • Excellent spreading  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |
| HRC-D10      | Dimethicone | • Excellent spreading  
• Volatile carrier  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |
| HRC-DC220C   | Dimethicone | • Excellent spreading  
• Volatile carrier  
• Low surface tension  
• Leaves no oily residue or build up and an excellent dry non-greasy feel |

### Dimethicone Fluids

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
</table>
| HRC-01       | Dimethicone | 5 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-04       | Dimethicone | 6 | • Good spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-05       | Dimethicone | 10 | • Good spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-06       | Dimethicone | 20 | • Good spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-08       | Dimethicone | 50 | • Good spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-10       | Dimethicone | 100 | • Good spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-100      | Dimethicone | 200 | • Good spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |

### Phenyl modified fluid

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
</table>
| HRC-FTM20    | Phenyldimethicone | 0.45 | • Reduce stickiness  
• Reduce tackiness  
• Excellent spreading  
• Non-tacky emollient  
• Good compatibility with cosmetic ingredients  
• Resistant to oxidation  
• Good anti-adhesive and anti-blocking characteristics  
• Imparts gloss, softness and better manageability to hair |

### Alkyl(dimethicones

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
</table>
| HRC-CE340    | Cetyl Dimethicone | 50 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-CAM43    | Caprylyl Dimethicone | 30 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |

### Vinyl Dimethicone Fluids

<table>
<thead>
<tr>
<th>Product Name</th>
<th>INCI Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
</table>
| HRC-100      | Vinyl Dimethicone | 106 | • Reduce stickiness  
• Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-200      | Vinyl Dimethicone | 20 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-2000     | Vinyl Dimethicone | 1,006 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-3,000    | Vinyl Dimethicone | 1,506 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |
| HRC-8,000    | Vinyl Dimethicone | 10,000 | • Excellent spread  
• Non-tacky emollient  
• Low surface tension  
• Skin lubricity |

### Introduction

- ** orientation of the silicone rubber**
- ** high-strength silicone rubber**
- ** liquid silicone rubber**
- ** room temperature vulcanization (RTV) silicone rubber**
- ** pressure sensitive adhesive**

We will always engage on the development for better techniques and products.
**EMULSION**

**SILICONE FOR PERSONAL CARE**

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### SILICONE ELASMOMER GEL GRADE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>HPC Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRC-SP6659</td>
<td>Cyclopentasiloxane (and) Dimethicone</td>
<td>250,000 ~ 500,000</td>
<td>Can be suitable for Skin care, Hair care, antiperspirant/deodorants. Color cosmetics, Sunscreens and anhydrous products. It is excellent for use as a prime lubricant for lotions and creams. Provides emollience to skin, providing a dry smooth feel. Excellent film former. Can be resistant to wash-off and rub-off resistant.</td>
</tr>
<tr>
<td>HRC-SF177S</td>
<td>Dimethicone</td>
<td>950,000 ~ 990,000</td>
<td>Can be suitable for Skin care, Hair care, antiperspirant/deodorants. Color cosmetics, Sunscreens and anhydrous products. It is excellent for use as a prime lubricant for lotions and creams. Provides emollience to skin, providing a dry smooth feel. Excellent film former. Can be resistant to wash-off and rub-off resistant.</td>
</tr>
<tr>
<td>HRC-SP6008</td>
<td>Dimethicone/Crosspolymer</td>
<td>450,000 ~ 500,000</td>
<td>Can be suitable for Skin care, Hair care, antiperspirant/deodorants. Color cosmetics, Sunscreens and anhydrous products. It is excellent for use as a prime lubricant for lotions and creams. Provides emollience to skin, providing a dry smooth feel. Excellent film former. Can be resistant to wash-off and rub-off resistant.</td>
</tr>
</tbody>
</table>

---

### GUM BLENDS GRADE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>HPC Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRC-CD658</td>
<td>Dimethicone</td>
<td>7,500 ~ 9,000</td>
<td>Can be suitable for Skin care, Hair care, antiperspirant/deodorants. Color cosmetics, Sunscreens and anhydrous products. It is excellent for use as a prime lubricant for lotions and creams. Provides emollience to skin, providing a dry smooth feel. Excellent film former. Can be resistant to wash-off and rub-off resistant.</td>
</tr>
<tr>
<td>HRC-C1DL (EWG Score: 1)</td>
<td>Cyclopentasiloxane (and) Dimethicone</td>
<td>0.5,000 ~ 7.500</td>
<td>Can be suitable for Skin care, Hair care, antiperspirant/deodorants. Color cosmetics, Sunscreens and anhydrous products. It is excellent for use as a prime lubricant for lotions and creams. Provides emollience to skin, providing a dry smooth feel. Excellent film former. Can be resistant to wash-off and rub-off resistant.</td>
</tr>
</tbody>
</table>

---

### SILICONE ELASMOMER POWDER GRADE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>HPC Name</th>
<th>Appearance / Package option</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRC-SMS</td>
<td>Trimethylsiloxysilicate</td>
<td>5g to 100g (bulk/Bag)</td>
<td>Silicone Powders are essential for long-lasting, wash-off resistant and film forming benefits in skin care formulations.</td>
</tr>
</tbody>
</table>

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### RESIN POWDER GRADE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>HPC Name</th>
<th>Appearance (Particle size)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRC-TMS</td>
<td>Trimethylsiloxysilicate</td>
<td>White to off-white flakes / 10㎛</td>
<td>Silicone Powders are essential for long-lasting, wash-off resistant and film forming benefits in skin care formulations.</td>
</tr>
</tbody>
</table>

---

### RESIN BLENDS GRADE

<table>
<thead>
<tr>
<th>Product Name</th>
<th>HPC Name</th>
<th>Viscosity (cSt at 25°C)</th>
<th>Features &amp; Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HRC-TMS2050</td>
<td>Cyclopentasiloxane (and) Dimethicone</td>
<td>400</td>
<td>Silicone Powders are essential for long-lasting, wash-off resistant and film forming benefits in skin care formulations.</td>
</tr>
<tr>
<td>HRC-TMS1000</td>
<td>Dimethicone (and) Trimethylsiloxysilicate</td>
<td>200</td>
<td>Silicone Powders are essential for long-lasting, wash-off resistant and film forming benefits in skin care formulations.</td>
</tr>
<tr>
<td>HRC-TMS1050</td>
<td>Isostearate (and) Dimethicone</td>
<td>18</td>
<td>Silicone Powders are essential for long-lasting, wash-off resistant and film forming benefits in skin care formulations.</td>
</tr>
</tbody>
</table>

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**EMULSION**

**SILICONE FOR PERSONAL CARE**

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**INTRODUCTION**

**OF THE SILICONE RUBBER**

**HIGH FUNCTIONAL SILICONE RUBBER**

**LIQIUD SILICONE RUBBER**

**LOW TEMPERATURE VULCANIZATION**

**SILicone SHEET**

**P bachelor Degree in SILICONE ADHESIVES, SILICONE, FOR PERSONAL CARE APPLICATIONS**

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**We will always engage on the development for better techniques and products.**

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**HRC SILENCIO TECHNOLOGY 60 _62**
NEW UV ABSORBER FOR COSMETIC SUNSCREENS

**Product Name** | **HIC Name** | **Appearance** | **Features & Benefits**
--- | --- | --- | ---
HRC-ES2060 | Dimethiconol (and) TEA-dodecylbenzenesulfonate | Liquid | - Excellent Compatibility with solvents.
- Excellent UV absorber

HRC-ES2060 is a very good additive for 2-in-1 products. In 2-in-1 shampoos, it improves the wet combing and imparts a soft feel to the hair as well as improving shine.

**Benefits**
- Improves wet combing
- Gives the hair a soft feel
- Improves shine

**EMULSIFYING AGENT**

**Product Name** | **HIC Name** | **Viscosity (cSt at 25℃)** | **HLB** | **Features & Benefits**
--- | --- | --- | --- | ---
HRC-GF045 | PEG-30 Dimethicone | 450 | 4.50 | - HRC-GF045 is designed to form fluid W/O emulsions for skin care, sun care and color cosmetics.
- Allows smooth and easy emulsification
- Provides light slip, excellent emulsification, and emulsion stability
- Good stability to emulsion emulsions
- Does not give a heavy effect on dried hair

HRC-GF120S | CetylPEG/PPG-10/1 Dimethicone | 1230 | 5.00 | - Non-ionic W/O emulsifier which is based on silicone.
- Low viscosity of 200,000 to 400,000 cSt.
- Provides light slip, excellent emulsification, and smooth emulsion formation
- Suitable for cold process

HRC-GF2068 | PEG/PPG-22 Dimethicone | 280 | 8.00 | - Recommended for applications that need a surface tension depressant and improved mixing properties.
- Acts as a surface tension depressant and emulsifier for W/O emulsions
- Provides softness and slipperiness without a slippery feeling
- Does not give a heavy effect
- Improves emulsion stability and emulsification

HRC-ES2060B | PEG-12 Dimethicone | 380 | 12.00 | - HRC-ES2060B can be used on an extensive cosmetic product range such as shampoos and hair treatments, spray-on conditioners, dry shampoos, hair sprays, and waxes, lotions, and hair treatment products. Provides softness and slipperiness to hair and creams, as well as surface tension depressant, improves foam stability and density when foaming is desired.

**SILICONE EMLUSIONS GRADE**

**Product Name** | **HIC Name** | **Viscosity (cSt at 25℃)** | **Features & Benefits**
--- | --- | --- | ---
HRC-ES2060 | Dimethiconol (and) TIA-dodecylbenzenesulfonate | 20 | - HRC-ES2060 is a very good additive for 2-in-1 products. In 2-in-1 shampoos, it improves the wet combing and imparts a soft feel to the hair as well as improving shine.
- Improves wet combing
- Gives the hair a soft feel
- Improves shine

HRC-ES5500 | Dimethiconol (and) Laureth-4 (and) Sodium Cocoylethyl Hydroxysulfate | 5,000 | - Excellent compatibility with nonionic, cationic, and anionic surfactants
- Excellent stability
- Easy formulation and application of aqueous formulations
- Improves wet combing
- Prevents the hair from developing static electricity
- Leaves no residual build-up

HRC-OL31S | Dimethiconol (and) Laureth-12 (and) Cetyl Alcohol | 1,000 | - Excellent emulsion stability, easy to preserve
- It is acid and water dispersible
- It is easy to apply to shampoos
- Can be easily removed with soap
- Excellent film penetration and adhesion

**UNIQUE SILICONE GRADE**

**Product Name** | **HIC Name** | **Appearance** | **Viscosity (cSt at 25℃)** | **Features & Benefits**
--- | --- | --- | --- | ---
HRC-LS-2000A | Way Dimethicone and 5%, Silica | Colorless, Translucent Paste | 20,000 - 40,000 | - This 2-part blended crosslinkable transparent gel can be used in skin care and colour cosmetics and woundcare applications.
- Has the ability to thicken other silicone oils.
- Recommended usage level of 1.5 weight ratio mixture 1:0.5 – 10%

HRC-LS-2000B | Way Dimethicone and 5%, Silica and Hydrogen Dimethicone | Colorless, Translucent Paste | 10,000 - 30,000 | - Forms a clear, gel-like layer

HRC-LS-3000A | Way Dimethicone and 5%, Silica | Colorless, Translucent Paste | 20,000 - 40,000 | - Forms a clear, gel-like layer

HRC-LS-2000B | Way Dimethicone and 5%, Silica | Colorless, Translucent Paste | 20,000 - 40,000 | - Forms a clear, gel-like layer

HRC-DM-3000A | Way Dimethicone and 5%, Silica and Quartz | White Paste | 38,000 - 40,000 | - This 2-part blended crosslinkable transparent gel can be used in skin care and colour cosmetics and woundcare applications.
- Has the ability to thicken other silicone oils.
- Recommended usage level of 1.5 weight ratio mixture 1:0.5 – 10%

HRC-DM-3000B | Way Dimethicone and 5%, Silica and Hydrogen Dimethicone and Quartz | White Paste | 38,000 - 40,000 | - Forms a clear, gel-like layer