DM
Dental Impression Materials

SPECIALIST IN
SILICONE RUBBER TECHNOLOGY
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Thanks for your interest. We will make every effort to meet your service requirements by developing new technologies and products through continuous research and development.

Contents

03 INTRODUCTION
04 HRS HISTORY
06 DM / Dental Impression Materials
08 Sildent Light Body
09 Sildent Regular Body
10 Sildent Heavy Body
11 Sildent Putty
12 HCR, LSR, RTV, SS
14 CERTIFICATES
HRS Co., Ltd. was established in 1981 and developed silicone rubber compounds for the first time in Korea. We have focused on silicone rubber business for the last 34 years. Now we have a variety of products such as HCR, LSR, RTV, TSP (thermal conductive silicone rubber) and DM (Dental Impression Materials).

We developed the technologies of silicone rubber compounding, siloxane polymer composition, and special functional polymer composition by ourselves. We have developed more than 200 grades of silicone rubber materials for the use of electricity and electronics, information and telecommunication, consumer electronics, automobile, machinery, medical tools and various backbone industries, and that have been sold in Korea and overseas countries. We are specialized in silicone rubbers and run environmental-friendly management as well as being certified ISO 14001.

Our annual production capacity is over 13,500 tons from two factories in Pyeongtaek and Asan. We are expanding our markets in Europe and North America as well as Asia and Middle East.
**SEOUl Office**

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

**Pyeongtaek Plant**

- **Main Businesses**
  - HCR Silicone Rubber
  - LSR Silicone Rubber
  - RTV(F/S) Silicone Rubber
  - Silicone Gum/Polymer
  - Dental Impression Materials

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**1978~1985**

1978.05 Established Hae Ryong Trading Company (Importing business of silicone rubber)

1981.07 Incorporated as Hae Ryong (started developing the manufacturing technology of silicone rubber Compound)

1983.10 Awarded for New Material development by the minister of the Ministry of commerce and industry

1985.03 Changed the company name to Hae Ryong Silicone Co., Ltd. Moved to the new factory in Gimpo City

1985.12 Acquired UL-94V0

**1986~1990**

1986.08 Developed the technology for primary synthesis of silicone gum for the first time in the country through a collaborate research with Korea Advanced Institute of Science and technology (KAIST)

1987.06 Developed the basic technology for silicone gum compounding

1990.09 Signed a contract with Bayer AG in Germany for technological affiliation and sales in Southeast Asia

**1991 ~ 1995**

1991.07 Developed the technology of manufacturing general purpose silicone rubber for molding. UL standard certification was acquired and started domestic and overseas sales. (for the first time in Korea)

1991.10 Established sales agents in Southeast Asia (8 Countries including Taiwan and Malaysia)

1993.05 Supplied and installed Fire Stop Seal for the 3rd and 4th Yeonggwang nuclear power plant (the first localization in the country)

1993.11 Developed the technology of manufacturing silicone RTV foam (the project to develop basic industrial technologies implemented in collaboration with National Industrial Technology Center)
**ASAN PLANT**

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

**CHINA PLANT**

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

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**1995 ~ 2000**

- **1995. 11** Exported silicone rubber amounting over US$5,000,000.00 for the first time in the country (received the tower of 5 million dollar export as the prize). Awarded the medal of commendation from the governor of Gyeonggi-do for the merits of export (no.2222) *The tower of 5 million US dollar export*
- **1995. 12** Acquired the certification for EM mark (silicone RTV foam) - National Industrial Technology Center no. 95-61
- **1996. 10** Acquired ISO 9001 certification.

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**2000 ~ 2007**

- **2000. 05** Listed in KOSDAQ
- **2002. 11** The company acquired the patent for the addition-cure type low hardness silicone rubber with excellent magneto-adherence.
- **2004. 08** The construction of Pyeongtaek factory was completed (production facility for silicone polymer, HCR and LSR)
- **2005. 06** The patent for shielding silicone rubber of self-adhesive electromagnetic waves was registered.
- **2006. 08** Representative directors changed (collaborative representative directors; Kang Sung-Ja, Ji Won-Yeong)
- **2007. 03** Hae Ryong Silicone Company Limited — HRS Co., Ltd.
- **2007. 07** Established strategic alliance with Dow Corning Corporation for HCR business
- **2007. 10** Acquisition of co-patent with Comtech Chemicals Ltd for *Manufacture process of low hardness and low viscosity silicone foam*
- **2007. 11** Acquired ISO-14001

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**2008 ~**

- **2008. 10** The construction of Asan factory was begun.
- **2008. 11** Exported silicone rubber amounting over US$10,000,000.00 *The tower of 10 million US dollar export*
- **2010. 07** Supply Agreement between HILTI and HRS
- **2011. 05** SUZHOU HAERYONG SILICONE CO., LTD. was established in China
- **2012. 10** Acquired the patent for Silicone polymer composition for backlight unit buffer spacer material of LCD
- **2013. 03** Acquired the patent for semi-conductive liquid silicone polymer composition and manufacturing method thereof
- **2014. 06** Acquired the patent for thermal conductivity liquid silicone rubber composition and manufacturing method thereof
Sildent Light Body

Sildent Regular Body

Silicone Technology HRS
**TECHNICAL DATA**

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>&gt; 36 mm</td>
</tr>
<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>Base : Catalyst</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>within 1min 40sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base : Green</td>
</tr>
<tr>
<td>Curing Time (min)</td>
<td>4min (in the mouth)</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>within 10 %</td>
</tr>
<tr>
<td>Resilience (%)</td>
<td>&gt; 99.5 %</td>
</tr>
<tr>
<td>Size Change (%)</td>
<td>within 0.2 %</td>
</tr>
<tr>
<td>Reproducibility (mm)</td>
<td>0.02 mm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (mm)</td>
<td>0.05 mm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

**PACKAGING**
- 5 cartridges (Base + Catalyst), 50ml each

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

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

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>31 ~ 41 mm</td>
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<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type</td>
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<tr>
<td>Mixing Ratio</td>
<td>Base : Catalyst</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>within 1min 40sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base : Blue</td>
</tr>
<tr>
<td>Curing Time (min)</td>
<td>4min (in the mouth)</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>within 10 %</td>
</tr>
<tr>
<td>Resilience (%)</td>
<td>&gt; 99.5 %</td>
</tr>
<tr>
<td>Size Change (%)</td>
<td>within 0.2 %</td>
</tr>
<tr>
<td>Reproducibility (mm)</td>
<td>0.05 mm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (mm)</td>
<td>0.02 mm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

• PACKAGING
  - 5 cartridges (Base + Catalyst), 50ml each

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

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

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
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</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>within 35 mm</td>
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<tr>
<td>Mixing Time (sec)</td>
<td>Cartridge Type  Auto-Mixing</td>
</tr>
<tr>
<td></td>
<td>Tube Type  30 sec</td>
</tr>
<tr>
<td>Mixing Ratio</td>
<td>Base : Catalyst  1 : 1</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>within 1min 40sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base : Purple Catalyst : White</td>
</tr>
<tr>
<td>Curing Time (min)</td>
<td>4min (in the mouth)</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>within 10 %</td>
</tr>
<tr>
<td>Resilience (%)</td>
<td>&gt; 99.5 %</td>
</tr>
<tr>
<td>Size Change (%)</td>
<td>within 0.2 %</td>
</tr>
<tr>
<td>Reproducibility (mm)</td>
<td>0.05 mm reproduce</td>
</tr>
<tr>
<td>Affinity with plaster (mm)</td>
<td>0.05 mm reproduce</td>
</tr>
</tbody>
</table>

* storage temperature 12°C to 25°C

• PACKAGING
- 5 cartridges (Base + Catalyst), 50ml each

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

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

<table>
<thead>
<tr>
<th>Physical &amp; Mechanical Property</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (mm)</td>
<td>18.88</td>
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<tr>
<td>Mixing Time (sec)</td>
<td>Jar Type Manual-Mixing (60sec)</td>
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<tr>
<td>Mixing Ratio</td>
<td>Base : Catalyst 1 : 1</td>
</tr>
<tr>
<td>Working Time (sec)</td>
<td>3min 50sec</td>
</tr>
<tr>
<td>Color</td>
<td>Base : Violet Catalyst : White</td>
</tr>
<tr>
<td>Curing Time (min)</td>
<td>5min (in the mouth)</td>
</tr>
<tr>
<td>Compression Set (%)</td>
<td>2.4</td>
</tr>
<tr>
<td>Resilience (%)</td>
<td>99.5</td>
</tr>
<tr>
<td>Size Change (%)</td>
<td>0.11</td>
</tr>
<tr>
<td>Reproducibility (mm)</td>
<td>75, reproduce</td>
</tr>
</tbody>
</table>

*storage temperature 12°C to 25°C*

**PACKAGING**
- Base 300ml + Catalyst 300ml 2 jars + 2 spoons

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

**BENEFITS**
- Short setting time in mouth.
- Non-greasy, satiny smooth, extremely easy to mix
- No bubbles
- Good mechanical properties.
- Excellent detail reproduction.
- Hydrophilic
HIGH CONSISTENCY SILICONE RUBBER

Silicone Rubber is classified into HCR (High Consistency Silicone Rubber) 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.

Millable Type Silicone Rubber is composed mainly of Polyorgarnosiloxan(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.

ROOM TEMPERATURE VULCANIZATION

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.
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.

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...
Lampshade with light diffusion
Silicone Layer

Silicone Lampshade

Silicone Embo Type Sheet

Self-stickiness Thermal Sink-pad

Self-stickiness EMI

Low Specific Gravity Silicone

Low Hardness and Low Specific Gravity Silicone Foam

Buffer sheet for the compression of an ACF

Silicone polymer composition for backlight unit buffer spacer material of LCD

* The data and information presented in this catalog may not be relied upon to represent standard values. HRS. Co., Ltd, reserves the right to change such data and information, in whole or in part, in this catalog, including product performance standards and specifications without notice.

Users are solely responsible for making preliminary tests to determine the suitability of products for their intended use. Statements concerning possible or suggested uses made herein may not be relied upon, or be construed, as a guarantee of no patent infringement.
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