Shin-Etsu Silicones
Business Guide
Corporate Data (as of March 31, 2008)

President & CEO : Chihiro Kanagawa
Date of Establishment : September 16, 1926
Capital : ¥ 119,419 million
Number of Employees* : 20,241
Net Sales* : ¥ 1,376,364 million
(Fiscal year ended March 31, 2008)

* Including 69 consolidated subsidiaries
Shin-Etsu Chemical History

1926  Started out as Shin-Etsu Nitrogen Fertilizer Co., Ltd.
(The name was changed to Shin-Etsu Chemical Co., Ltd. in 1940)
1953  Silicone production initiated
1957  PVC, caustic soda and chlorine production initiated
1962  Cellulose derivative production initiated
1967  High-purity rare earths production initiated
1972  Rare earth magnets developed
1973  Epoxy molding compounds developed
1979  Synthetic quartz production initiated
1980  Synthetic pheromones developed
1993  Full-scale production of preforms for optical fibers initiated
1996  Simcoa Operations Pty. Ltd. acquired in Australia
1998  Photoresist business initiated
1999  Commercialization of liquid fluoroelastomers achieved
2001  300mm silicon wafer production initiated
      Asia Silicones Monomer Ltd. founded in Thailand
      Shin-Etsu Silicones (Thailand) Ltd. founded in Thailand
      Shintech's Louisiana Plant completed
2002  Zhejiang Shin-Etsu High-Tech Chemical Co., Ltd. founded in China
2003  Shin-Etsu Silicones of America, Inc., Freeport Plant completed
      Shin-Etsu Silicone International Trading (Shanghai) Co., Ltd. founded in China
2005  New high-performance technology for neodymium rare earth magnets developed
2007  Shin-Etsu Chemical and Toppan Printing jointly developed new leading-edge photomask blanks for finer-pitch 45nm and 32nm photolithography.
Net Sales by Business Segment

- **Electronic Materials**: 41%
- **Inorganic, Organic Chemicals**: 51%
- **Functional Materials & Others**: 8%
- **Silicones**: 15%

Sales: 1,376.4 billions of yen

2007.4~2008.3 Consolidated
Net Sales by Market Segment

Sales
1,376.4 billions of yen

2007.4~2008.3 Consolidated

- Japan: 32%
- Asia and Oceania: 30%
- North America: 20%
- Europe: 13%
- Others: 5%

Net Sales by Market Segment
"Silicone" is a generic term referring to a class of synthetic polymers based on a framework of alternating silicon and oxygen (siloxane) bonds with at least one organic group attached to the silicon via a direct carbon to silicon bond.

- Heat and cold resistance
- Electrical insulation
- Water repellency
- Low surface tension
- Low coefficient of friction and resistance to severe weather condition
Shin-Etsu Silicones Manufacturing Process

- **Silicon Metal**
- **Methanol**
- **Hydrogen Chloride**
- **Others**

1. **Methyl Chloride**
   - **Reaction & Distillation**
     - **Hydrolysis**
     - **Purification**
     - **Modification**
     - **Polymerization**
     - **Methyl Chloro Silanes**
     - **Phenyl Chloro Silanes**
     - **Vinyl Chloro Silanes**
     - **Fluoroalkyl Chloro Silanes**

2. **Reaction & Distillation**
   - **FLUID**
   - **RUBBER**
   - **LIQUID RUBBER**
   - **RESIN**
   - **CARBON FUNCTIONAL SILANE**
Silicone is used broadly in various forms.
Applications

Silicone can not always be seen, but they are everywhere you look.

- Electrical
- Electronics
- Automotive
- Machines
- Chemical
- Textile
- Food
- Construction
## Shin-Etsu Silicones History

### JAPAN

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1949</td>
<td>Silicones preliminary research</td>
</tr>
<tr>
<td>1953</td>
<td>Silicones full scale production</td>
</tr>
<tr>
<td>1976</td>
<td>Silicone-Electronics Materials Research Center opened</td>
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<tr>
<td>1994</td>
<td>Gunma Complex and Naoetsu Plant qualified for ISO 9001</td>
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<tr>
<td>1995</td>
<td>Takefu Plant qualified for ISO 9002</td>
</tr>
<tr>
<td>1996</td>
<td>Gunma Complex qualified for ISO 14001</td>
</tr>
<tr>
<td>1998</td>
<td>Takefu Plant qualified for ISO 14001</td>
</tr>
<tr>
<td>1999</td>
<td>Naoetsu Plant qualified for ISO 14001</td>
</tr>
<tr>
<td>2001</td>
<td>Takefu Plant qualified for ISO 9001</td>
</tr>
<tr>
<td>2003</td>
<td>The 50th anniversary of silicone industrialization</td>
</tr>
</tbody>
</table>

### OVERSEAS

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>Shin-Etsu Silicones of America, Inc. founded</td>
</tr>
<tr>
<td>1986</td>
<td>Shin-Etsu Silicone Korea Co., Ltd. founded</td>
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<tr>
<td>1987</td>
<td>Shin-Etsu Silicone Taiwan Co., Ltd. founded</td>
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<tr>
<td>1989</td>
<td>Shin-Etsu Silicones Europe B.V. founded</td>
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<tr>
<td>1990</td>
<td>Shin-Etsu Singapore Pte. Ltd. founded</td>
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<tr>
<td>1991</td>
<td>Shincor Silicones, Inc. in USA founded</td>
</tr>
<tr>
<td>2001</td>
<td>Shin-Etsu Silicones (Thailand) Ltd. founded Asia Silicones Monomer Limited founded</td>
</tr>
<tr>
<td>2002</td>
<td>Zhejiang Shin-Etsu High-Tech Chemical Co., Ltd. founded</td>
</tr>
<tr>
<td>2003</td>
<td>Shin-Etsu Silicones of America, Inc. Freeport Plant started operations Shin-Etsu Silicone International Trading (Shanghai) Co., Ltd. founded</td>
</tr>
<tr>
<td>2004</td>
<td>Asia Silicones Monomer Limited and Shin-Etsu Silicones (Thailand) Ltd. started operations</td>
</tr>
<tr>
<td>2007</td>
<td>Shin-Etsu Silicone International Trading (Shanghai) Co., Ltd. opened a new branch in Guangzhou</td>
</tr>
</tbody>
</table>
Shin-Etsu Silicones Worldwide Network

North & South America
2. Shin-Etsu Silicones of America, Inc.
3. Shin-Etsu Silicones of America, Inc. Freeport Plant (Organo Functional Silane)

Europe
4. Shin-Etsu Silicones Europe B.V.

Japan
1. Shin-Etsu Chemical Co., Ltd.

Asia & Oceania
5. Shin-Etsu Silicone Korea Co., Ltd.
6. Shin-Etsu Silicone Taiwan Co., Ltd.
7. Shin-Etsu Singapore Pte. Ltd.
10. Asia Silicones Monomer Limited
11. Shin-Etsu Silicones (Thailand) Ltd.
12. Shin-Etsu Singapore Pte. Ltd. India Liaison Office
Research & Development

Silicone-Electronics Materials Research Center

■ Silicone-Electronics Materials Research Center

Specialty Chemicals Research Center

■ Specialty Chemicals Research Center

Silanes
Fluids
Elastomers

Silicone-Electronics Materials Research Center (Japan)
Specialty Chemicals Research Center (Japan)
We have obtained many patents not only in Japan but also in the U.S. each year.

Accumulated Patents in U.S.

(Registered patents)


1970: 9
1975: 30
1980: 87
1985: 160
1990: 362
1995: 830
2000: 1162
2005: 1534

(Year)
Manufacturing Plants (Japan)

**Gunma Complex**
- Isobe Plant
- Matsuida Plant
- Gobara Plant


**Naoetsu Plant**

**Takefu Plant**

Manufacturing Plants (AMERICA and EUROPE)

**AMERICA**
- SESA
- SESA Freeport Plant

**EUROPE**
- SESE

ISO 9001: 2000
Manufacturing Plants (ASIA)

**TAIWAN**
- Sin-Etsu Silicone Taiwan Co., Ltd.


**KOREA**
- Shin-Etsu Silicone KOREA Co., Ltd.


**THAILAND**
- Sin-Etsu Silicones (Thailand) Ltd.
- Asia Silicones Monomer (JV with GE)


**CHINA**
- Zhejiang Shin-Etsu High-Tech Chemical Co., Ltd.
The Policy of Manufacturing

**Quality & Environmental preservation**
- ISO9001
- ISO14001

**Stable Supply**
- Total control from raw material to production
- Reliable supply system

**Meeting Worldwide Standards**
- Japan Industrial Standards (JIS)
- American Society for Testing Materials (ASTM)
- Underwriters Laboratories (UL)
- U.S. Military Specification (MIL)
- Thousands of specific customer requirements
Total control over production of raw materials assures high quality and reliable supply.

- Ensure quality and quantity of the raw materials
- Standardization for all plants and improvement of process capability
- Commitment to automation
- Better delivery
- Check and analyze the quality of products and raw materials, and feed back quality information to the production dept.
- Improve the inspection technology

Plants: Purchasing, Production, Inspection
Shin-Etsu Silicones always challenges the unlimited potential of silicones.