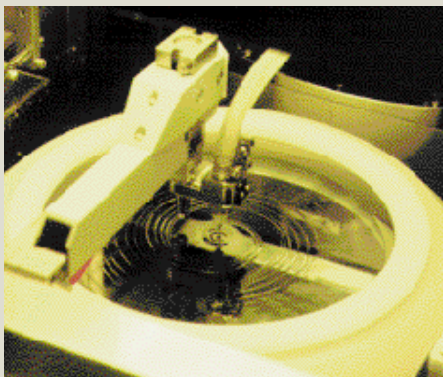


## Pioneering R&D Centers and Cutting-Edge Products

Shin-Etsu continues to enrich life through new technologies and products. The Shin-Etsu Group has more than eight R&D centers throughout Japan. Five centers are introduced below in connection with products they have developed. The major centers not included here are the PVC Research Center and the Silicones-Electronics Materials Research Center.



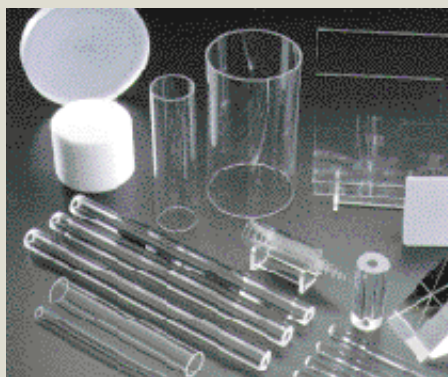
Lithium Tantalate (LT)



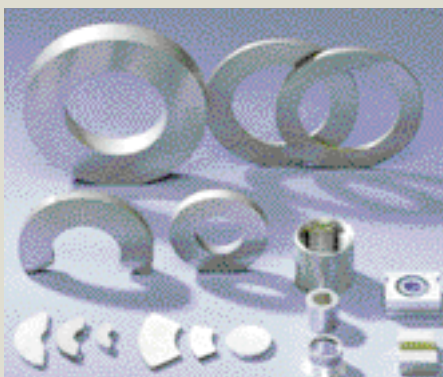
Photoresists



Silicon Wafers



Diffusion Tubes of Quartz



Magnets

### Lithium Tantalate (LT) Wafers for Mobile Phones

*Surface Acoustic Wave (SAW) filters, which use lithium tantalate wafers, contribute to the high functionality of today's mobile phones. Shin-Etsu's Advanced Functional Materials Research Center is developing materials that will be used in the next generation of information technologies.*

### Photoresists Bringing IC Designs Down to 120 Nanometers

*There seems to be no limit to reductions in the size of integrated circuits. Photoresists are photosensitive materials used in the lithography process. The Specialty Chemicals Research Center conducts research into photoresists for use in leading-edge KrF excimer lasers, and is working on photoresists for the next generation of lithography technologies using ArF, F2, electron beams and other illumination sources.*

### Silicon Wafers Used for IC Devices

*The jewel of modern industry, semiconductors, are made from silicon wafer substrates. Shin-Etsu Handotai's research centers in Shirakawa and Isobe are working to create silicon wafers with a larger diameter and improved surface flatness.*

### Diffusion Tubes of Quartz for IC Processing

*Processed, high-grade quartz products are used in diffusion tubes, smelting equipment, and other stages of the semiconductor manufacturing process. Quartz products are also essential in optical fiber and optical communications parts. The research center of Shin-Etsu Quartz Products Co. Ltd., a joint venture between Shin-Etsu and Heraeus Quarzglas International GmbH, is developing quartz products for a broad range of applications from fundamental research through processing technologies at Koriyama.*

### Magnets — Beyond Voice Coil Motors

*Shin-Etsu's Magnetic Materials Research Center conducts research into areas ranging from the development of magnetic materials to magnetic field design technologies. The main demand for these materials has been for use in voice coil motors, but use in nonelectronics industries is on the increase.*