

# Glossary for Our Major Products

## ■ Polyvinyl chloride (PVC)



PVC is a general-purpose plastic. PVC is mostly made of chlorine, which accounts for about 60% of the raw materials used. Chlorine comes from salt, a material in abundant supply worldwide. This differs from most other plastic compounds, which use petroleum for their main feedstock. Therefore, PVC helps to conserve limited resources. PVC is easy to process, environmentally friendly, easy to recycle, and highly durable. Infrastructure and materials for houses account for about 70% of the applications for PVC. PVC is also used in household products. As a material that plays a key role in a multitude of products, PVC contributes to our lives and our societies.

## ■ Caustic soda

Caustic soda is produced by the electrolysis of industrial salt. It is widely used in the chemical industry as a basic material. It is used in products such as synthetic textiles, paper and pulp, soap and food. There are also many uses for caustic soda in the inorganic chemical products field.

## ■ Silicone



Silicone is a material that can be produced in various physical forms, such as an oil, resin, rubber. It is a highly functional material featuring various properties such as resistance to heat, cold and electrical insulation. It has many uses such as home appliances, automobiles, cosmetics, toiletries, homebuilding materials and other products that contribute to people's daily lives.

## ■ Cellulose derivatives



Cellulose derivatives are made from natural pulp and nature-friendly material. The Shin-Etsu Group succeeded at developing cellulose derivative products with a variety of characteristics to match specific applications. Uses for this material include pharmaceuticals, toiletries, building construction and civil engineering materials and ceramics.

## ■ Silicon metal



Silicon metal is produced by the endothermic reduction of quartz. This is a key raw material in the production of silicone, semiconductor silicon, synthetic quartz, solar cells and many other products.

## ■ POVAL (polyvinyl alcohol)



POVAL is a water-soluble synthetic resin used as an ingredient in vinylon synthetic fibers, POVAL film and PVB resin. Also it is used as fiber processing agents, adhesives, vinyl chloride polymer stabilizers and inorganic binders. It is suitable for a broad range of applications in Japan and overseas.

## ■ Synthetic pheromones



Synthetic pheromones represent a mating disruption method for pest control. The idea is to use an artificially synthesized scent, synthetic pheromones, to disrupt mating communication between male and female pests that are harmful to agriculture and grains in warehouse, thus preventing them from mating and lowering the population density of the next generation of these pests. Synthetic pheromones have a very low environmental impact because they use the

power of nature. Natural enemies of harmful insects and beneficial insects are not affected. In Europe and the United States, synthetic pheromones are used by growers of apples, peaches and grapes. In Japan, applications are conducted in orchards and fields where vegetables such as bell peppers and also sugar cane and teas are grown. The use of synthetic pheromones to control harmful insects is increasing steadily worldwide.

### ■ Semiconductor silicon



Silicon wafers are used as substrates of semiconductor devices, which are vital to electronics such as PCs, smartphones, digital home appliances and automotive devices. Technological requirements on these wafers have

become more sophisticated over the years as the down-sizing and the performances of electronic equipments have rapidly advanced. The Shin-Etsu Group uses its advanced R&D and manufacturing technology to develop high-quality wafers and support its customers with a stable supply.

### ■ Rare earth magnets



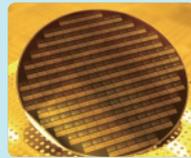
Rare earth magnets have a magnetic force of about 10 times more powerful than ferrite magnets. They contribute to energy saving, size reduction, lighter weight and higher efficiency in automotive-related products such as for hybrid vehicle and home appliances.

### ■ LED packaging materials



High-performance LED packaging materials require a variety of characteristics, such as transparency, resistance to heat, light and humidity, and permeability for gases. Sealing LEDs by molding or potting with these materials results in LEDs that feature long-term reliability.

### ■ Photoresists



Photoresists are a photosensitive material that is vital to the formation of microscopic circuit lines on silicon wafers. Products with uncompromising qualities are required, because they significantly influence the performance of semiconductor devices.

### ■ Photomask blanks



Photomask blanks are the base material of photomasks that are used as the patterning templates of circuits during the semiconductor lithography process. Shin-Etsu Group's photomask blanks are

highly evaluated by device makers as an essential material for cutting-edge semiconductor manufacturing processes.

### ■ Synthetic quartz products



Synthetic quartz is the key raw material of optical fiber and has the characteristic of superior light transmission. In an ordinary glass sheet, light attenuates in about 2 meters. However, in the case of synthetic quartz, light can reach a distance of about 100km. It is used as a preform for optical fiber, a photomask substrate for semiconductor lithography and a lens of stepper for semiconductor lithography. In addition, it is used as a large size photomask substrate for flat panel display (FPD) lithography. It is supporting the development of the advanced information society.