

Eco-Friendly Products of the Shin-Etsu Group

Annual reduction in greenhouse gases of **35 million tons**

We tackle the issues of reducing environmental burden and saving natural resources by developing eco-friendly products. Following are some of the many products we supply that are representative of our contributions to the achievement of the goals of Dr. Hiroshi Komiyama's *Vision 2050*.



Photo provided by TOSTEM CORPORATION

Polyvinyl Chloride (PVC)

Compared with other plastics, PVC is far less dependent on petroleum resources, and coupled with progress in recycling technologies, it makes major contributions to the environment as well.

PVC window frames significantly reduce energy consumption for heating during winter due to their superior thermal insulation. Based on a statistical study, conversion of all houses in Japan from aluminum sashes to PVC window frames would reduce greenhouse gas emissions by 35 million tons annually, based on four-person households with full-time housewives. An experiment at The University of Tokyo yielded a 43 percent reduction.

The Ministry of the Environment and The University of Tokyo have installed PVC window frames because of the high evaluation they have received for reducing greenhouse gas emissions. In addition, PVC window frames have become increasingly popular products because they are covered by the recent ecopoint program established for housing by the Ministry of Land, Infrastructure, Transport and Tourism, the Ministry of Economy, Trade and Industry, and the Ministry of the Environment.

In addition, PVC window frames have proven to be highly effective in addressing needs in urban centers for uses such as soundproofing, crime prevention and condensation prevention.

Silicones for LEDs

LEDs have rapidly gained share in the market for illuminants because they reduce environmental burden. Applications for these products are expanding in areas from display devices such as traffic signals to backlighting for LCD TVs, as well as in automobile headlights and room lights. It is estimated that LEDs can reduce CO₂ emissions by 50 percent or more compared with conventional lighting.

Shin-Etsu makes a substantial contribution to the creation of an environmentally conscious society by manufacturing a variety of highly reliable silicone products that are indispensable to LEDs. These include silicone encapsulating materials to protect LED chips, die-bonding materials to fix LED chips and reflectors to prevent degradation of LED brightness.



Reducing greenhouse gas emissions by up to about **50 percent**



The new Prius
(Photo provided by Toyota Motor Corporation)

Rare-Earth Magnets

Rare-earth magnets contribute to reducing energy and greenhouse gas emissions. With the use of rare-earth magnets for air-conditioner compressor motors, the coefficient of performance has improved between approximately 5 percent and 10 percent. They play a significant role in improving the energy efficiency of heat-pump water heating systems.

Moreover, automobile applications include use for driving the various motors in powertrains for hybrid and electric vehicles, as well as in generators and sensors. Addressing clean energy needs, rare-earth magnets help miniaturize components and reduce greenhouse gas emissions by up to about 50 percent compared with those of gasoline-powered vehicles.

The coefficient of performance has improved between approximately **5 percent and 10 percent**

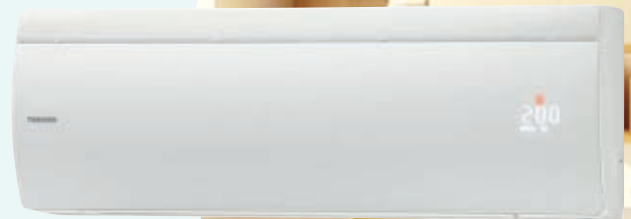


Photo provided by TOSHIBA Corporation



Can reduce greenhouse gas emissions by **50 percent or More**

LED Structure

