

# Products for a Low Carbon Society

## PVC (PVC Window Frames)

PVC contributes greatly to the environment. It relies less on petroleum than other types of plastics, and a high percentage is recycled.

PVC window frames have been attracting increasing attention in recent years. Windows are estimated to be responsible for 58% of the heat that is lost from a house during the winter and for 73% of the heat that enters a house during the summer. PVC's thermal conductivity is one-thousandth of that of aluminum. Replacing an aluminum window with one made of PVC will cut the loss of heat through windows by about one-third. Furthermore, PVC reduces the formation of condensation. With these attributes, PVC windows can play a role in creating living environments that are healthy and energy-efficient.

In Japan, PVC interwindows are used in buildings of the Ministry of the Environment and the University of Tokyo. The benefits of using these windows resulted in their inclusion among products eligible for the home eco-point system for housing, designated by the Ministry of Land, Infrastructure, Transport and Tourism. The selection of PVC windows to help keep the temporary housing warm for the victims of the Great East Japan Earthquake further demonstrates the increasingly widespread use of these windows.



**PVC window frames;**  
The office of the Japanese Minister of the Environment has windows that use PVC window frames.

## Rare-earth Magnets

Rare-earth magnets are used in motors for hybrid and fuel cell vehicles, air conditioners, and other products. Using these powerful magnets improves the coefficient of performance (efficiency of energy consumption), which in turn helps to conserve energy and lower CO<sub>2</sub> emissions.

Wind turbine motors are a relatively new application for these magnets. Equipping motors with rare-earth magnets reduces the size and weight of the power generation system and lowers noise as well. The ability to generate electricity efficiently is another important benefit of using rare-earth magnets.



Hybrid vehicles



Wind generators



Air conditioners