Numerous Responses Aimed at Environmental Preservation, Including Elimination of Fluoride Coolants

Sanden's retail systems business positions the "environment" as one of its principal area of support and has made accomplishments contributing to environmental protection. Major achievements include measures to reduce the use of ozone-depleting substances and other hazardous substances and activities to help prevent global warming.

Enactment of the Kyoto Protocol especially has caused a shift in the environmental strategies of customers in recent years. In response, our basic stance is "to offer value to our customers from their point of view," and we are providing customers with many proposals and ideas concerning products and technologies to meet their environmental needs. Also, looking to the future, we are studying ways to conform to the projected enactment in Japan of regulations similar to Europe's rules regarding End of Life Vehicles (ELVs), Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS), and Waste from Electric and Electronic Equipment (WEEE), and others, while promoting activities to help customers deal with these regulations.

Markedly Reducing the Use of Ozone-Depleting Substances

In the past, we have used HCFCs in cooling units and thermal insulation. Recently, we switched to HFC, a move that is significantly lowering the release of ozone-depleting compounds. In cooling units, we have replaced HCFC-22 with HFC-404A and HFC-134a. For the production of hard foamed urethane used for thermal insulation, we now use HFC-245fa instead of HCFC-141b. We have started work on developing a foaming process for certain products that does not require CFCs in order to completely eliminate the use of these compounds.

Open-type refrigerator showcase

Substantially Reducing the Use of Hazardous Substances

We have significantly reduced the use of lead, PVC, and other hazardous substances in our retail systems products. In addition, we use lead-free solder for circuit boards, are considering ways to address the RoHS regulations for electronic components, and are studying the use of eco-wiring that uses a PVC-free coating. Another goal is the elimination of hexavalent chromium. This material is used to treat zinc-plated steel panels, screws, and other items used in our products. Plans include a switch to chrome-free materials and greater use of stainless steel.

Greatly Reducing the Use of Substances that Pollute the Air

For interior and exterior showcase coatings, we have changed to powder-based coatings that require no organic solvents. This makes a big contribution to preventing air pollution.

In addition to the activities just mentioned, we will continue to offer value to our customers from their perspective, including eliminating hazardous substances and promoting energy-saving technologies. As part of these activities, in the Akagi Plant, we will use our new experimentation facility to develop energy-saving freezer and air-conditioning systems and thereby take up the challenge of offering additional value to our customers.

Refrigerator showcase for exhibiting items

Taking the Lead in Research Based on Business Policies and Construction of Development and Testing Facilities

In the retail systems business, Sanden is continuing to work to heighten the understanding of environmental preservation while aggressively developing advanced environmental systems. These activities range from the use of a new refrigerant with an ozone-depletion coefficient of zero to protect the ozone layer to ways of preventing global warming by reducing electric power consumption (conservation of energy). In the System Delivery & Maintenance business, in view of the business policies just mentioned, we are taking the lead in the market adaptation research and construction of testing facilities for development as part of our systems for new project development.

Development Project for Energy-Saving, CFC-Free Freezing and Air-Conditioning Systems

In fiscal 2006, we received support from Japan's New Energy Development Organization, an independent national government corporation, for advancing both the development of non-CFC refrigerants and energy-saving technologies in tandem. As part of these activities, we participated in a project for developing next-generation, energy-saving freezer and air-conditioning systems for retail stores, and we began the consideration of creating the necessary infrastructure and comprehensive systems related to these activities.

In these development activities, we built an actual retail store within our research facility and created an actual environment around it to recreate the actual internal and external environment and make it possible to conduct experiments in all types of regional and seasonal surroundings. In addition, by administering experiments from the perspective of the retail store as a whole, we intend to address the issue of the decline in energy efficiency that may arise from shifting to non-CFC refrigerants and work to achieve energy conservation and a high level of energy management. We are expecting to complete this facility during fiscal 2007.

Outline of the Project

This project integrated and advanced technologies related to convenience stores, including showcase technology, and low-pressure freezer control technology, and, by making the efficient use of energy emitted by air conditioners and showcases, realized the objective of shifting to non-CFC refrigerant air-conditioning and showcase systems that are safe and economical, and yielded reductions of 15% or more in energy usage. Also, with the aim of developing NH3 freezer systems and NH3/Prine/ CO_2 two-level freezer systems, the following research themes were covered by the project:

- Determining specifications for a variable environment experimental facility (June 2006)
- Confirmation of basic properties of the NH3 freezer unit
- Pilot production of refrigerator, freezer, and air-conditioning systems