Air Refrigerant

Air absorbs or releases heat as it is compressed or expanded and can therefore be used directly as a refrigerant to cool air.Today, air refrigerant can be used at extremely low temperature ranges of around -60°C. It is expected that air refrigerant will become more widely used because fluorocarbon refrigerants such as HCFC22 and HFC23 with high ODP and GWP were used in this temperature range.

Air refrigerant freezer

＜Features of air refrigerant＞
● non-toxic, odorless ● non-flammable
● Simple structure without coolers or ducts is possible by cooling air directly.
＜Usage Example＞Very low temperature freezers, rapid freezing devices

Hydrocarbon Refrigerants (HC)

Hydrocarbons such as propane and isobutane are known as flammable refrigerants. Since these refrigerants do not deplete the ozone layer, have a lower Global Warming Potential and have high energy efficiency, they are rapidly becoming popular in highly-sealed equipment such as domestic refrigerators. Recently, their safety has been improved and they are being commercialized in commercial applications.

Fluorocarbon-Free vending machine

＜Features of hydrocarbon refrigerants＞
● odorless ● inflammable
● Rapidly becoming popular for domestic refrigerators due to their high efficiency
＜Usage Example＞domestic refrigerators, commercial air-conditioners, vending machines

Major National Policies

Project for Promotion of Introduction of Refrigeration Equipment with Natural Refrigerants and High Energy Efficiency

Refrigerators, freezers and air conditioning devices in distribution warehouses, large retailing stores, etc., are generally in use at all times, and require enormous amounts of energy.

Recently, "Energy-Efficient Natural Refrigerant-Freezers" are being developed using natural refrigerants (substances such as ammonia that exist in the natural world) which have a smaller impact on the environment, and are more energy-efficient than current products,. These devices not only reduce carbon-dioxide (CO_2) emissions, but also prevent the emission of fluorocarbons which have a greater impact on the greenhouse effect than CO_2. However, their initial cost, which is higher than current devices using fluorocarbons as refrigerant, is currently a barrier to their wider use.

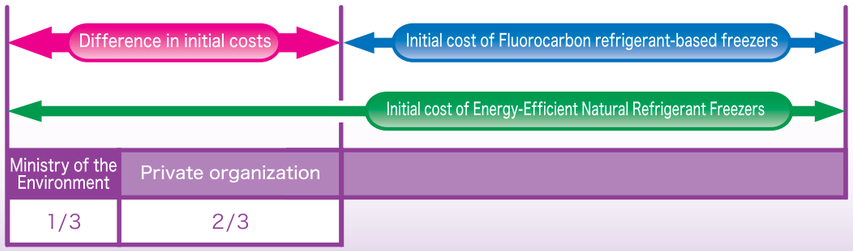
For this reason, the Ministry of the Environment is providing a subsidy of one third of the difference between the initial cost of "Energy-Efficient Natural Refrigerant-Freezers" and that of Fluorocarbon refrigerant-based devices to businesses that introduce them, in order to encourage their broader use. (subsidy schedule: 2008~2012).

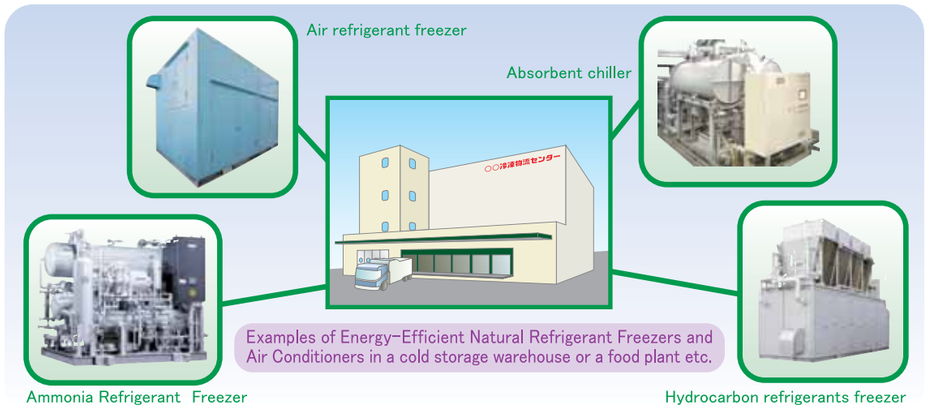
Reference URL: http://www.env.go.jp/earth/ondanka/biz_local.html

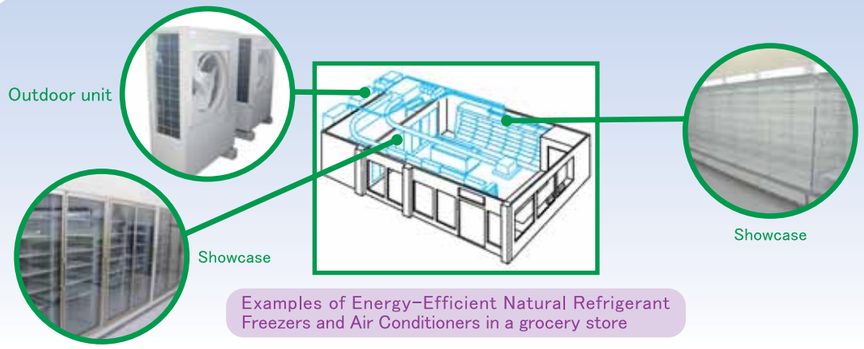
(For further details, please refer to the "FY 2008 Subsidies for Carbon-Dioxide Emission Control Business, etc., Energy-Efficient Natural Refrigerant-Freezer Promotion Business" on this web page in Japanese.)

Subsidy details

1. Subsidy target	Private businesses, etc.
2. Subsidy target facilities and businesses	Businesses introducing Energy-Efficient Natural Refrigerant Freezers when replacing the current freezers or newly establishing the facility
3. Proportion of subsidy	One third (1/3) of the difference between the initial cost of the Energy-Efficient Natural Refrigerant Freezer and the Fluorocarbon refrigerant-based device







In introducing refrigerators and air-conditioners, it is essential to choose a product, taking into account the refrigerant used, as well as the energy-efficiency, in the light of prevention of climate change.