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.

Hydrocarbon refrigerants freezer

<Features of hydrocarbon refrigerants>
- odorless
- inflammable
- greater water-heating efficiency than carbon dioxide refrigerant
- 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 and air-conditioners which use natural refrigerants such as Ammonia and CO_2 face difficulties in deployment because of their high capital cost.

To promote such equipment, Ministry of the Environment subsidizes companies that introduce Refrigeration Equipment with Natural Refrigerants and High Energy Efficiency with one third of the difference in capital costs between such equipment and fluorocarbon based equipment with the equivalent capacity.(Period : FY2008-FY2012)

Reference URL: http://www.env.go.jp/earth/ondanka/biz_local/20_03/index.html

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.