

International Ozone Day: CFCs out, Hydrocarbons in

International Ozone Day falls on the 16th (Sunday). The Ozone Layer in the atmosphere came under international scrutiny after a hole was discovered in it in 1985. Scientists blamed the excessive use of certain chemicals for this situation.

Although several alternatives to Chlorofluorocarbons (CFCs) have been proposed and are already in use, the best solution seems to be hydrocarbon refrigerants. The technology is just coming into developing countries, although most refrigerators and airconditioners sold in Europe are based on HC refrigerants.

Swisscontact, the Swiss Foundation for Technical Cooperation, is popularising the technology in Sri Lanka.

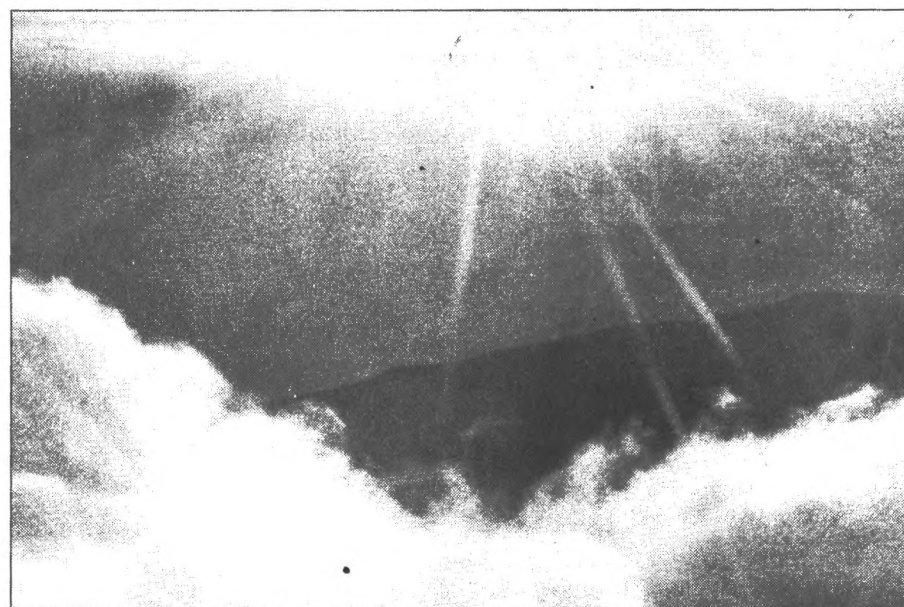
"Most of us are aware that there is a protective ozone layer, which surrounds our earth at a height of about 15 to 25 km. to protect humans, animals and plants from an excess of energy-rich ultraviolet rays. In 1985 scientists found out that excessive and uncontrolled use of certain chemicals results in a gradual depletion of the ozone layer. An increase in the incidence of skin cancer has been attributed to that. In 1987, an international treaty was crafted in Montreal, Canada, to regulate the global phase-out and eventually eliminate the use of chemicals that are known to destroy this precious ozone layer. The chief offender among these Ozone Depleting Substances (ODS) is a class of chemicals known as Chlorofluorocarbons, or more popularly as CFC. In addition their tendency to absorb heat contributes to global warming-causing a rise in the earth's surface temperature, that in turn causes a rise in sea levels.

CFC gases are most widely used as refrigerants in room and car air conditioners and refrigerators. These substances often leak out of the equipment and escape into the atmosphere eventually dam-

aging the ozone layer. CFCs are also used as propellants in cosmetic sprays where the CFCs are directly released to the atmosphere.

Under the Montreal Protocol, Sri Lanka had to eliminate the manufacture and import of new equipment containing ODS by the end of 1999. If absolutely necessary ODS can be used for servicing old equipment until end of 2004, and thereafter only recovered and recycles ODS

aging the ozone layer! Hydrochlorofluorocarbons (HCFC) are another popular replacement but again have the similar disadvantages as HFCs. In fact there next in line for phase out and elimination from use on a global scale. There are other suitable alternatives. Swisscontact, the Swiss Foundation for Technical Co-operation, has been promoting Hydrocarbon (HC) refrigerants as environmentally friendly alternatives to



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can be used for any process. Since CFC production is to be halted, viable alternatives are needed.

On more recent models of refrigerators we see stickers reading "CFC Free! Environment friendly" but the most commonly used CFC substitute - Hydrofluorocarbons or HFC (also called R-134a) - happens to be a greenhouse gas, in that it contributes to the warming of the atmosphere.

So the next time your car air conditioner or refrigerator needs to be recharged with refrigerant, check with the service personnel which refrigerant is being used. You could be in fact still causing global warming while basking in the satisfaction of not dam-

CFCs for many years. HC refrigerants have been successfully introduced to Costa Rica, Indonesia and the Philippines and in 1998 Swisscontact brought this environmentally friendly technology to Sri Lanka. Over 90% of all new refrigerators in Europe are charged with Hydrocarbon refrigerants.

Hydrocarbon refrigerants consist of mixture of Propane and Isobutane, which have no ozone depleting and negligible global warming properties. They have been used as refrigerants since 1867, and have been successfully used as CFC substitutes without modifications to the refrigeration system. In other words they are used as "drop-in" substitutes where the existing

refrigerant (CFC, HCFC or HFC) is evacuated and the system is charged up with Hydrocarbon. No technical modifications such as changing the compressor or lubricant oil are required in con-

with Hydrocarbon becomes cheaper than HFCs, though more expensive than CFCs. The change over to HC does not require the replacement of any parts in good working condition. This is an example of environmental protection being accompanied by economic benefits.

Swisscontact is introducing Hydrocarbons while training technicians, instructors and retailers, developing skill standards and safety regulations.

These are integral parts of the HC introduction programme since Hydrocarbons are flammable. Proper handling and application is essential.

The consumer need not be paranoid about the flammability risk since only a small amount of Hydrocarbon, typically less than a full teacup, is used to charge a domestic refrigerator or a room or car air conditioner.

This quantity is hardly sufficient to cause an explosion even within a confined area.

In addition, Hydrocarbons are now used as propellants in cosmetics sprays and pose no significant threat to the consumer.

At present Swisscontact imports Hydrocarbon refrigerators for pilot project and training purposes only. Swisscontact along with competent local companies is working on the market launch of Hydrocarbon refrigerants."

Another important area of Hydrocarbon refrigerants is economic benefits. The amount of Hydrocarbon needed is typically 40% of the amount of CFC needed to achieve the same degree of refrigeration. This small quantity of refrigerant exerts less pressure on the compressor, which results in longer compressor lifetime. Experiments conducted by Swisscontact on a room air conditioner revealed a 15% reduction in electricity consumption, thanks to favourable physical properties of hydrocarbons over CFCs and HFCs.

Recharging your equipment



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