

# Oasis Strives To Use Earth Friendly Technology



HC is a **GREEN** Alternative to CFC and HFC Refrigerant

In the 1970's, scientists discovered the dangerous impact that CFC's have in the Earth's atmosphere. They were destroying the ozone layer which protects the Earth from UV-B radiation which causes genetic damage to the cells of people, animals and plants.

At the time almost all refrigerated products were using CFC's as their refrigerant.

In 1987, an international treaty (Montreal Protocol) was signed. This began the phase out of so-called Ozone Depleting Substances such as CFC's and HCFC's. Refrigerators then began to use HFC refrigerants (such as R134a). These substances do not harm the ozone layer, but are classed as greenhouse gases with a high Global Warming Potential (GWP) – R134a has a GWP of 1,350 which means that 1kg of R134a emitted to the atmosphere has the same effect on global warming as 1.35 tons of CO<sub>2</sub>. Environmentalists have been trying for many years to limit the use of HFC refrigerants – this culminated in the publication earlier this year of the EC F-Gas Regulation which will ban the use of HFC refrigerants in Europe from 2020.

## Use of Hydrocarbons

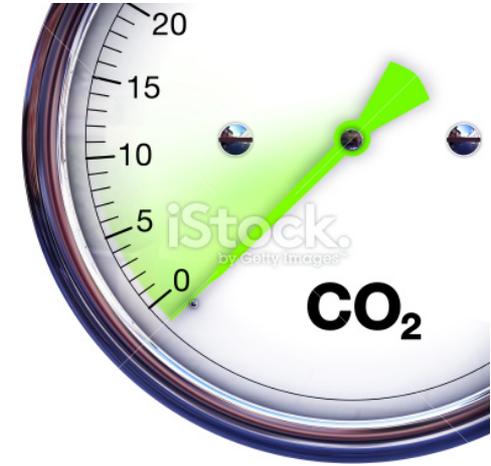
If your refrigerator at home is less than 20 years old, then it almost certainly contains hydrocarbon (HC) refrigerants. The move from CFC's that destroyed the ozone layer to HC refrigerants has been led by the environmental organization Greenpeace. The first Greenfreeze™ refrigerators were introduced in 1992 in Germany – since then over 700 million Greenfreeze refrigerators (representing 40% of the global market) have been manufactured and sold.

## Benefits of Hydrocarbons

Reduction in GWP from 1,350 (R134a) to <3 (R600a) helps to combat global warming and climate change



Independent testing carried out for OASIS has indicated that 25% less electrical power is consumed using the refrigerant R600a rather than R134a in a water cooler.



## Safety of Hydrocarbons

The major concern regarding the use of HC refrigerants such as R600a is the flammability of the gas. This is a valid concern –after all R600a (or isobutane) is the fuel used in cigarette lighters. However, stringent European safety standards for the use of HC refrigerants have been in place for a number of years. OASIS has independently and successfully tested the ecooler range against all European safety standards related to the use of flammable refrigerants.





## Key results are shown below:

- Refrigerant charge:
  - Standard(1): Maximum allowed refrigerant charge is 150g
  - ecooler: Actual gas charge is 20g
  
- Gas leak:
  - Standard(1): In case of a refrigerant leak, the concentration of gas measured at the appliance's electrical components must not exceed 75% of the Lower Explosive Limit (LEL)(2)
  - ecooler: Maximum concentration of gas measured at 38% of LEL

### Notes:

(1) See "EN 60335-2-24:2010 Safety of Household and Similar Electrical Appliances. Part 2: Particular requirements for refrigerators, food freezers and ice makers"

(2) A gas will only ignite if the gas/oxygen mixture lies within a certain range. LEL defines the minimum concentration of gas that can ignite. In order for the mixture to ignite the concentration must be greater than the LEL and a source of ignition (e.g. hot surface, electrical spark) must occur simultaneously