

## AIR CONDITIONING &amp; REFRIGERATION

# TIME TO PHASE OUT

## F gas support looks at the future for HCFCs in refrigeration and air-conditioning equipment

**THE NEW YEAR BRINGS** in the final stages in the phase-out of ozone depleting substances (ODS), for those using hydrochlorofluorocarbons (HCFCs) as refrigerants, including the commonly used refrigerant R22. The phase-out of ODS was first initiated by The Montreal Protocol back in 1987. This international treaty brought together nations that were concerned about the thinning of the ozone layer. These nations agreed to take action to try to reverse this impact especially as concern was increasing over the levels of ultraviolet radiation that were being monitored and links to significant health and environmental effects.

In 2000 the European Regulation on Substances that Deplete the Ozone Layer (EC/2037/2000) came into force. This European Regulation introduced bans on substances that were well known as ozone-depleting chemicals, such as CFCs (chlorofluorocarbons). It also put in place the phase-out plan for HCFCs.

HCFCs are commonly used as refrigerants and were developed as replacements for CFCs. They have ended up with a transitional role moving users from CFCs that had ozone depleting potentials (ODPs) of 0.6-1.0 to HCFCs with ODPs of 0.02-0.1. Many users of HCFCs have moved to hydrofluorocarbons (HFC) that are implicated in global warming but not ozone depletion. It was reported in 2006 that "The Montreal Protocol is working: There is clear evidence of a decrease in the atmospheric burden of ozone-depleting substances and some early signs of stratospheric ozone recovery."<sup>1</sup> This improvement only strengthens the need to continue the efforts to reduce the use of ozone-depleting substances.

### NEW REGULATION

With the New Year comes a new regulation. The Ozone Regulation that has been around for ten years will be revoked and replaced by a recast Ozone Regulation (EC/1005/2009) on 1 January 2010. The new regulation strengthens the emission controls on HCFCs in use and clarifies some of the requirements in relation to their use in servicing and maintenance of refrigeration and air-conditioning (RAC) equipment, which is the main use still allowed.

From 1 January 2010 the use of virgin HCFCs is banned. The Regulation only allows the use of reclaimed or recycled HCFCs. It is quite clear that it is not possible to stockpile virgin HCFCs before the ban for use after the ban comes into place. Those relying on equipment that uses HCFCs for their cooling requirements should urgently consider their imminent and future needs.

The definitions of the terms used by the Regulation should be noted as these terms are used interchangeably by the industry

and it is important to be clear that those working with HCFCs understand and use the terminology correctly. The following are three important definitions:

- **Recovery** – means the collection and the storage of controlled substances from products and equipment or containers during maintenance or servicing or before disposal.
- **Recycling** – means the reuse of a recovered controlled substance following a basic cleaning process.
- **Reclamation** – means the reprocessing of a recovered controlled substance in order to meet the equivalent performance of a virgin substance, taking into account its intended use.

Given that most RAC systems leak to a certain degree, all users of HCFC equipment must plan to manage their operations without virgin refrigerant after December 2009. Doing nothing is not a sustainable option. The potential consequences if mission-critical equipment

service or maintain equipment.

**Labelling:** When recycled or reclaimed HCFCs have been added to equipment this equipment should then be labelled to show the type of refrigerant and the total refrigerant charge contained in that equipment.

**Record keeping:** When recycled or reclaimed HCFC refrigerants are added to a system a record needs to be kept which should show:

- What refrigerant has been added, in what quantity and who (name of person or company) did this servicing or maintenance.
- Who supplied the reclaimed HCFCs and of the source of recycled HCFCs.

**Reclaimed HCFCs:** Any reclaimed HCFCs that are placed on the market, i.e. that are available to buy, should be labelled to show the HCFCs have been reclaimed and have information on the batch number showing the name and address of the reclamation facility.

**Recycled HCFCs:** No recycled HCFCs may be placed on the market – so these may not be sold. Recycled

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fails, without sufficient refrigerant on-hand to enable an effective repair, are very serious.

The Regulation provides end users with a window of five years to use reclaimed and recycled HCFC refrigerants. After which time the follow-on ban comes into place that closes the door on further maintenance of equipment that relies on HCFCs.

As from 1 January 2015 the use of recycled and reclaimed HCFCs is banned. This means that no further maintenance of the refrigeration circuit can be undertaken using HCFCs. The definition of "use" in the regulation should be noted at this point. Use means the utilisation of controlled substances or new substances in the production, maintenance or servicing, including refilling, of products and equipment or in other processes.

### RECLAIMED OR RECYCLED HCFCs

In the five year window from January 2010 until the end December 2014, when the use of reclaimed and recycled HCFCs is allowed, those using this refrigerant to service and maintain equipment should be aware that there are new rules that need to be followed:

**Virgin HCFCs:** Use of virgin HCFCs is banned from 1 January 2010. Only use recycled or reclaimed HCFCs to

HCFCs may only be used by either the undertaking, which carried out the recovery (in most cases the refrigeration contractor), or the undertaking for which the recovery was carried out (the owner). For example, the owner could use the recycled HCFC in RAC equipment at other sites they operate from, but they cannot sell recycled HCFC to a third party.

"Placing on the market" means the supplying or making available to third persons within the Community for payment or free of charge.

### USING HCFC CONTAINING EQUIPMENT

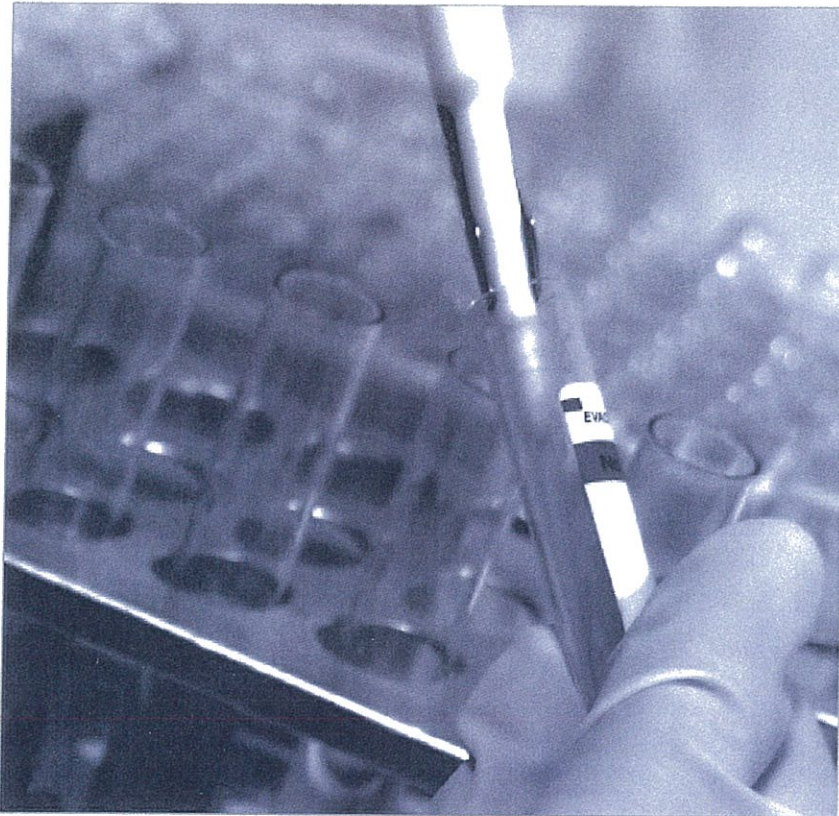
For operators of equipment that contains HCFCs the following requirements apply (regardless of whether they are doing any servicing or maintenance that requires recycled or reclaimed HCFC to be added to the refrigerant circuit):

**Leak checks.** Equipment containing 3kg or more of an HCFC refrigerant must be checked for leakage. The leak checking regime has now been amended to mirror that required for HFCs; see Table for leak testing frequencies.

**"Checked for leakage"** means that the equipment or system is examined for leakage using direct or indirect measuring methods, focusing on those parts of the equipment or system most likely to leak. The frequency of testing depends on the refrigerant charge and system type.

**Leak repairs.** Leaks identified must

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be repaired within 14 days using all measures that are technically feasible and do not entail disproportionate cost.

Record keeping. Records must be kept for all systems containing an HCFC refrigerant charge of 3kg or more. These records should show the quantity and type of refrigerant added and the quantity recovered during maintenance, servicing and final disposal of the equipment. Records also need to show other relevant information including the identification of the company or technician performing the maintenance or servicing, as well as the dates and results of the leakage checks carried out.

Records shall be made available on request to the competent authority of a Member State and to the Commission.

Training and certification. All HCFC refrigerant handling activities (installation, recovery during servicing, maintenance, and leak checks) must be carried out by suitably certified personnel. To work with HCFCs the required qualifications are City and Guilds 2078 or Construction Skills CITB J01 or, alternatively, one of the new qualifications gained to comply with the EC F gas Regulation (e.g. City and Guilds 2079 or Construction Skills CITB J11).

*F-Gas Support is a Government funded team set up to help organisations understand their obligations under these Regulations. It is being run on behalf of Defra and the devolved administrations.*

FREQUENCY	NORMAL SYSTEMS	HERMETICALLY SEALED SYSTEMS
None	Less than 3 kg	Less than 6 kg
Annual	3 kg to 30 kg	6 kg to 30 kg
6-monthly	30 kg to 300 kg	30 kg to 300 kg
Quarterly	Greater than 300 kg	Greater than 300 kg

Notes  
 1. Scientific Assessment of Ozone Depletion: 2006, [www.esrl.noaa.gov/csd/assessments/2006/report.html](http://www.esrl.noaa.gov/csd/assessments/2006/report.html)

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DX Electrica can ensure that you are covered for your F Gas regulations. We are also Low Carbon Consultants so we can advise you on the current energy legislation as well as carrying out air conditioning and chiller inspections.

We are associates of Cavendish Engineers, a building services company that has been running for over 15 years. Earlier this year they reached the finals for both 'M and E Contractor of the Year' award 2009 and 'Best Service and Maintenance Provider,' which highlighted our level of



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