



Management of waste refrigerant gases

EPA Position Paper – November 2009

The current views of the Agency in relation to the management of waste refrigerant gases, and in particular R22 and other HCFC refrigerants, is outlined below. This document replaces the previous EPA Position Paper on Waste Refrigerant Gases, issued in June 2009 and takes into account the recast of the Regulation 2037/2000 on ozone depleting substances (ODS Regulation) and stakeholder comments. Any comments on this document should be addressed to ods@epa.ie.

The aim of this document is to provide clarity on the proper management of waste refrigerant gases. A number of scenarios are presented as guidance to clarify key issues for end-users and contractors. If you have a specific situation that is not covered in the guidance you are advised to contact the EPA (via ods@epa.ie or in writing to Resource Use Unit, Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate). Please note that the EPA will consider any site specific issue that you may present but will not respond to non specific scenarios.

Introduction

In determining the proper management of waste refrigerants, the definition of waste (according to the legislation controlling the management of waste) and the definitions of recovery, recycling and reclamation of refrigerant gases (according to legislation controlling refrigerant gases) must be considered.

Definition of recovery, recycling and reclamation (ozone depleting substances (ODS))

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer has been reviewed and recast. The Recast (Regulation (EC) No. 1005/2009) was published on 31 October 2009, and will apply from 1 January 2010. Regulation (EC) No. 1005/2009

amends some of the definitions of the original ODS Regulation. Key definitions now presented in the Recast are:

- "**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; and
- "**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.

Regulation (EC) No. 1005/2009 has provided clarity on the use of recycled and reclaimed HCFCs until 31 December 2014, when a complete ban on the use of HCFCs will enter into force, as follows:

- **recycled HCFCs** may be used for the maintenance or servicing of existing refrigeration, air-conditioning and heat pump equipment, provided that they have been recovered from such equipment and may only be used by the undertaking which carried out the recovery as part of maintenance or servicing or for which the recovery as part of maintenance or servicing was carried out; and
- **reclaimed HCFCs** may be placed on the market and used for the maintenance or servicing of existing refrigeration, air-conditioning and heat pump equipment, provided that the container is labelled with an indication that the substance has been reclaimed and with information on the batch number and name and address of the reclamation facility.

Definition of waste

Waste is defined in Section 4(1) of the Waste Management Act 1996, as amended, as "*any substance or object... which the holder discards or intends to discard or is required to discard, and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved*". Under Section 32 of the Waste Management Act 1996, as amended, a holder of waste, "*shall not hold, transport, recover or dispose of waste in a manner that causes or is likely to cause environmental pollution*". Temporary storage of waste is defined in Section 5(3) of the Waste Management Act 1996, as amended, as follows: "*... a reference to the temporary storage of waste shall, without*

prejudice to any particular provision that may be made pursuant to section 39(6), be construed as a reference to the storage of waste for a period not exceeding 6 months”

Ultimate management of waste refrigerant gases

Once a decision has been taken to discard a recovered refrigerant (i.e. where there is no further certain use for it by the end-user on his/her organisations’ sites or by the contractor), it is considered a hazardous waste and must therefore be managed in accordance with the relevant waste legislation.

Transport of waste refrigerant gases

Waste refrigerant gases must be brought to an appropriately authorised waste facility when taken from an end-user site. The following options apply for the movement and management of waste refrigerant gases:

1. A contractor who has made a Prior Annual Notification (PAN) to the EPA, and where the EPA has acknowledged the PAN as provided for in the legislation, can transport the waste refrigerant gas from the end-user site to an authorised waste management facility, as outlined in their Prior Annual Notification and in accordance with Article 30 of the Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007). In this instance, the refrigeration and air conditioning (RAC) contractor becomes the holder of the waste and must fulfil the general duty on a holder of waste set out in Section 32 of the Waste Management Act, as amended.
2. An end-user can make their own arrangements for the proper management of the waste refrigerant. In this instance, the end-user remains the holder of the waste and must fulfil the general duty on a holder of waste set out in Section 32 of the Waste Management Act, as amended.

Storage of waste refrigerant gases

The storage of waste refrigerant gases is not permitted on any site (other than temporary storage at the site of generation), unless that site is specifically authorised to do so. Appropriate authorisation will be one of the following:

1. Waste Licence issued by the EPA;
2. Waste Facility Permit issued by the relevant local authority;
3. Certificate of Registration issued by the relevant local authority.

Under no circumstances can a contractor store the waste refrigerant gas on their own site without having one of the appropriate authorisations listed above.

Questions and Answers regarding the management of refrigerant gases

Both end-users and RAC contractors may encounter a number of scenarios when equipment containing refrigerant gases is being serviced, maintained or decommissioned. These scenarios are addressed in the questions and answers presented below from both an end-user's and a contractor's perspective.

Questions and answers for End-users of Refrigerant Gases

- 1. Question** – What qualifications should I look out for when selecting a contractor?

Answer – *Your contractor should currently hold City and Guilds Certificate in Handling Refrigerants Scheme 2078. In addition, your contractor should be making plans to become qualified to City and Guilds (Level 2 Award in F-gas Regulation, No. 2079) standard or FETAC Level 5 (Specific Purpose Certificate in Handling F-gas Refrigerants 5S0108) standard, by 4 July 2011.*
- 2. Question** – I have a critical system running on R22 and I am worried that my contractor won't be able to get recycled or reclaimed R22 after 31 December 2009. Can I get my contractor to recover the R22 from the system and replace with virgin R22 before 31 December 2009 and keep the recovered gas for future maintenance or servicing needs?

Answer – *No. The European Commission has confirmed that such a practice is not in keeping with Regulation 2037/2000 on ozone depleting substances, or the Recast (Regulation (EC) No. 1005/2009). The EPA does not consider the complete exchange of usable HCFC with virgin R22 a maintenance or servicing operation.*
- 3. Question** – I have a system on my site containing R22, and there appears to be a leak. If my contractor recovers the gas from the system and repairs the leak, can he/she charge the recovered gas back into the same system?

Answer – *Yes, the recovered gas should be passed through a recovery unit to ensure it is recycled and then it can be charged back into the same system by your contractor.*

4. **Question** – I have a system on my site containing R22. If my contractor recovers the R22 and replaces it with another type of gas, can the R22 he/she has recovered be used to service and maintain another R22 system on my site?

Answer – Yes, the recovered R22 must be passed through a recovery unit to ensure it is recycled and then it can be charged into another system on your site.

5. **Question** – I have five separate large chillers on my site, each containing R22, which I plan to decommission over an 18-month timescale. As each chiller is decommissioned, can I keep some recovered R22 onsite for service or maintenance on the remaining R22 chillers until they are all decommissioned?

Answer – Yes, but with the following provisos:

- a. The recovered R22 should be recycled onsite using a basic cleaning process;*
- b. The retention of recycled R22 onsite should be reported immediately to the EPA via email (ods@epa.ie) detailing how much recovered gas is being held on site, the capacity of remaining chillers and when your change-over programme is planned to be finalised;*
- c. The quantity of R22 retained onsite should be in proportion to the demonstrated need for recycled R22, vis-à-vis the chillers remaining in use onsite i.e. there should be reasonable certainty regarding the future use of the recovered R22 to be retained. Refer to point 6 below regarding the approval to be sought from EPA for the appropriate quantity of recovered gas to be retained;*
- d. Relevant records must be maintained regarding the quantities of R22 recovered, recycled and reused onsite and these should be made available for inspection by EPA inspectors during normal operating hours of the site;*
- e. Recovered R22, for which you and your contractor have no further demonstrated need, must be managed as a hazardous waste. This should be collected in a purpose built designated recovery cylinder; and,*
- f. No R22 must be used in maintenance or servicing after 31 December 2014.*

6. **Question** – How will I know how much recovered R22 is justified for the future need of plant on my site?

Answer – This will depend on the quantity of gas recovered, the gas charge of the equipment remaining and the capacity for safe storage of recovered gas on your site. This must ultimately be agreed with the EPA, and will be dealt with on a case-by-case basis. If, in the opinion of the EPA, a reasonable certainty of use is not demonstrated

for the quantity of recovered R22 being retained, the EPA reserves the right to direct an end-user to discard such quantities of recovered refrigerant as hazardous waste. If you wish to discuss this with the EPA email details of your site and situation to ods@epa.ie for consideration.

7. **Question** – I am planning to have a large chiller on my site decommissioned, it contains about 600kg R22 gas. Can I keep the recovered gas for maintenance and servicing of two small split air conditioning units?

Answer – No. Small split air conditioning units typically contain less than 10kg of refrigerant gas. Therefore, the retention of 600kg of R22 for future maintenance and servicing of such units would not be justified (refer to point 5c. above).

8. **Question** – My contractor has recovered R22 from systems on my site and I have no further need for it. What should I do with the gas?

Answer – The following options are available to you:

- a. You can reuse the recovered gas on another site within your organisation, as long as it has been recycled (i.e. subjected to a basic cleaning process);*
- b. You can arrange to have the recovered gas collected and managed as a hazardous waste by engaging the services of a hazardous waste contractor. All such movement should be made in purpose built designated recovery cylinders. You should confirm with your contractor that the recovery cylinder is their property and that they agree to allowing the waste company to remove it from your site before shipment.*
- c. Where your contractor has a Prior Annual Notification (PAN), you can allow him/her to move the R22 to an appropriately permitted waste facility. You can check that a PAN has been made by your contractor by referring to www.ozone.ie. All such movement should be made in purpose built designated recovery cylinders. You should obtain documentary proof from your contractor that the gas was accepted by the waste management facility.*
- d. You can allow your contractor to remove it from your site for reuse on other sites that he/she services subject to the following provisos:*
 - 1) Your contractor must have submitted a Prior Annual Notification to the EPA to allow him/her to remove recovered gas from your site. You can check this on www.ozone.ie*

2) *You should ensure that your contractor plans to reuse the recycled gas on another site that he or she is maintaining or servicing. The receiving site is required to maintain records of recovered gases coming from your site, including its source.*

9. **Question** – What is a Prior Annual Notification?

Answer – A Prior Annual Notification (PAN) is a notification that your contractor may have submitted to the EPA, to allow him/her to transport waste, returned or recovered refrigerant gases in appropriate containers, without the need for a waste collection permit or CI forms. A CI form is normally needed for transport of hazardous waste, but the Prior Annual Notification specifically provides an exemption for waste refrigerants. Before allowing your contractor to remove waste refrigerant gases from your site you should confirm that they do have a PAN. More information on this is available on the EPA webpage at www.ozone.ie.

10. **Question** – How do I know if my contractor has used recycled or reclaimed HCFC in the maintenance or servicing of equipment on my site?

Answer – Any equipment that is maintained or serviced using recycled or reclaimed HCFCs must be labelled with an indication of the type of substance and its quantity contained in the equipment. Where your contractor is using recycled R22 you should ensure that he/she advises you in writing of the source of the R22 and you should maintain this information on your records for future inspection by EPA inspectors.

11. **Question** – Am I required to keep any particular records of recycled or reclaimed HCFCs used during maintenance or servicing?

Answer – Yes, any undertaking (end-user or contractor) using recycled or reclaimed HCFCs during maintenance or servicing must keep a record of the supplier of reclaimed HCFCs and of the source of the recycled HCFCs. Such records should be available for inspection by the EPA.

12. **Question** – What is a purpose built designated recovery cylinder?

Answer – A purpose built designated recovery cylinder is one which can be obtained from a refrigerant gas wholesaler and should be approved for use with the type of refrigerant to be recovered. It should be checked to ensure its integrity and fitness to

use prior to connection. It should have indelible marking to clearly differentiate it from stock refrigerant containers and should be labelled to indicate the refrigerant, the type of oil, any possible contamination, the weight of the cylinder and the quantity of refrigerant contained.

Questions and answers for Contractors using Refrigerant Gases

1. **Question** – What qualifications should I have for handling refrigerants?

Answer – You should currently hold City and Guilds Certificate in Handling Refrigerants Scheme 2078. In addition, you should be making plans to become qualified to City and Guilds (Level 2 Award in F-gas Regulation, No. 2079) standard or FETAC Level 5 (Specific Purpose Certificate in Handling F-gas Refrigerants 5S0108) standard, by 4 July 2011. Further information on training courses is available from Refrigeration Skillnet (www.refrigerationskillnet.ie).

2. **Question** – Can I recover R22 from a system and charge with virgin gas before 31 December 2009, and keep the recovered gas for use from 1 January 2010?

Answer – No. The European Commission has confirmed that such a practice is not in keeping with Regulation 2037/2000 on ozone depleting substances. The EPA does not consider the complete exchange of usable HCFC with virgin R22 a maintenance or servicing operation.

3. **Question** – Can I recover refrigerant gas from a system on my client's site, service the system, and return the gas to the same system on that site?

Answer – Yes, the refrigerant gas is not being discarded and is therefore not a waste. If the gas has undergone a basic cleaning process, it is considered recycled.

4. **Question** – I have recovered R22 from a system on my client's site. Can I use it for maintenance or servicing of other equipment on that same site?

Answer – Yes, the recovered R22 should be recycled on-site and can then, with the end-user's permission, be used for maintenance or servicing of other equipment on that site.

5. **Question** – Can I recover refrigerant gas from a system on my client's site and charge the system with a different type of gas?

Answer – Yes, but what you do or the end-user does with the recovered gas must comply with the waste legislation and the requirements set out in the ODS Regulations.

6. **Question** – My client has a critical system running on R22 and I am worried that recycled or reclaimed R22 might be in short supply after 31 December 2009. Can I

recover the R22 from the system and replace with virgin R22 before 31 December 2009 and keep the recovered gas for future maintenance or servicing needs?

Answer – No. The European Commission has confirmed that such a practice is not in keeping with Regulation 2037/2000 on ozone depleting substances, or the Recast (Regulation (EC) No. 1005/2009). The EPA does not consider the complete exchange of usable HCFC with virgin R22 a maintenance or servicing operation.

7. **Question** – I have recovered R22 from a system on my client’s site and I have no use for it. Can I leave it on my client’s site for him to deal with?

Answer – Yes, but you should advise your client that they must ensure that the recovered gas is managed properly and that there must be a reasonable certainty that the quantities retained will be used. If, in the opinion of the EPA, a reasonable certainty of use cannot be demonstrated for the quantity of recovered R22 being retained, the EPA reserves the right to direct the end-user to discard such quantities of recovered refrigerant as hazardous waste. Purpose-build recovery designated cylinders should be used for the recovered gas.

8. **Question** – I have recovered R22 from a system on my client’s site. Can I take it away for my use on another client’s site?

Answer – Yes, as long as the recovered gas is recycled, you can use it in equipment on which you are carrying out maintenance or servicing. You are required to maintain records of the source of any recovered gas that you remove from a site and have used on another end-user’s site.

9. **Question** – I have recovered R22 from a system on my client’s site and I have no further use for the gas. Can I give/sell the recovered gas to another contractor who I know needs it?

Answer – No, recycled HCFC can only be used by your client on that site or any other site within their organisation, or by you on that site or another site on which you are carrying out maintenance or servicing. This means that the recovered gas cannot be given/sold by you or your client to any other contractor for maintenance or servicing on an unrelated site.

10. **Question** – My client has 5 separate R22 chillers onsite and we have agreed a 18-month plan for their decommissioning. Can I leave some recovered gas onsite until the final system is decommissioned?

Answer – Yes, but with the following provisos:

- a. *The recovered R22 should be recycled onsite using a basic cleaning process;*
- b. *Your client must ensure that the retention of recycled R22 onsite is reported to the EPA;*
- c. *The quantity of R22 retained onsite should be in proportion to the demonstrated need for recycled R22, vis-à-vis the chillers remaining in use onsite i.e. there should be reasonable certainty regarding the future use of the recovered R22 to be retained;*
- d. *Your client and you should maintain relevant records regarding the quantities of R22 recovered, recycled and reused onsite;*
- e. *Recovered R22, for which there is no further demonstrated need, must be managed as a hazardous waste; and,*
- f. *No R22 must be used in maintenance or servicing after 31 December 2014.*

11. **Question** – If I use recycled or reclaimed HCFCs during maintenance or servicing, do I need to use any special labels?

Answer – Yes, any equipment that is maintained or serviced using recycled or reclaimed HCFCs must be labelled detailing the type of substance and its quantity contained in the equipment.

12. **Question** – Am I required to keep any particular records of recycled or reclaimed HCFCs used during maintenance or servicing?

Answer – Yes, any undertaking (contractor or end-user) using recycled or reclaimed HCFCs during maintenance or servicing must keep a record of the supplier of reclaimed HCFCs and of the source of the recycled HCFCs. Such records should be available for inspection by the EPA.

13. **Question** – What is a purpose built designated recovery cylinder?

Answer – A purpose built designated recovery cylinder is one which can be obtained from a refrigerant gas wholesaler and should be approved for use with the type of refrigerant to be recovered. It should be checked to ensure its integrity and fitness to use prior to connection. It should have indelible marking to clearly differentiate it from

stock refrigerant containers and should be labelled to indicate the refrigerant, the type of oil, any possible contamination, the weight of the cylinder and the quantity of refrigerant contained.

14. Question – What happens when I submit a Prior Annual Notification?

***Answer** – The EPA will assess the details provided in your Prior Annual Notification (PAN) and, where acceptable, will issue an acknowledgement, as provided for by the legislation. A list of those contractors who have made PAN for which an acknowledgement has been given, will be listed on the EPA website at www.ozone.ie.*