



Permitting of Refrigerant Handlers
Residential & Commercial HVAC Systems

This is to certify that I have read and understood the following 6-pages of conditions for a permit for an individual to handle refrigerants. This permitting process is authorised by the Environmental Authority and administered by the Department of Environment and Natural Resources under the 'Permissions' requirements of the Clean Air Act 1991, Rules 1993 and Regulations 1993. By signing this document I agree to operate in a manner that is consistent with these requirements and the conditions stated herein.

PLEASE PRINT CLEARLY:

Name:		Company:	
Email:		Mailing Address:	
Tel:		Cell:	
I Have Access to a Refrigerant Recovery Unit for all HVAC Jobs and I Use it to Recover All Refrigerant in Accordance with this Permit:			YES / NO:
Signature:		Date:	
Permit No. #:	C		

Background

A worldwide effort is underway to control the amount and type of synthetic refrigerants that reach the atmosphere. Bermuda has obligations under the Montreal protocol 1987 to manage and report the import, usage and disposal of Ozone Depleting Substances (ODS, *i.e.* Refrigerants). Training by Bermuda College with a permit and conditions issued by Bermuda Government is necessary to manage the usage and disposal of refrigerants.

Overview of Objectives

This certification process for refrigerant handlers is mandated for all individuals who handle or manage refrigerants in domestic and commercial HVAC systems. This 'permission' under the *Clean Air Rules 1993* to handle Controlled Chemicals, specifically ODS as listed in the *Clean Air Regulations 1993*,

requires personnel to pass a course and/or assessment to US EPA Section 608 of the US Clean Air Act 1990 at Bermuda College for HVAC systems in residential or commercial premises. Equivalent qualifications will also be accepted such as City and Guilds Certificate in Handling Refrigerants Scheme 2078 or 2079-11 or 2079-12. These qualifications will be used by Bermuda College to determine whether the person meets the requirements of being classed as a 'Certified Technician' in the HVAC industry.

Bermuda College will determine the equivalency of any alternative HVAC qualifications to the standard set forth in US EPA Section 608. Once this assessment at Bermuda College is complete the individual can obtain a 'Permission,' or Permit, from the Department of Environment and Natural Resources (DENR) to allow such ODS Controlled Chemicals to be handled. The duration of the Permit is for a 5 year period which is in line with the duration of the assessment period under US EPA and Bermuda College. The cost of the Permit is \$220 per 5-year period. Check the Bermuda Government Fees Regulations for updates to the fee. Maintaining the 5-year US EPA 608 qualification is encouraged by DENR but is not necessary if the person has worked continuously in the HVAC industry and has attended at least one meeting at Bermuda College over each 5 year period to be informed of changes to legislation and updates to international best practice. However, the Government 5-year Permit will need to be kept current with the above conditions being met.

It shall be noted that under the *Clean Air Regulations 1993* (Section 5) it is unlawful for any person to vent refrigerants of any type to the atmosphere except under, and in accordance with, a valid permission issued to him by the Authority for this purpose.

This refrigerant handling permit addresses the environmental concerns associated with the correct handling and waste management practices of refrigerant gases. The permit will ensure that permit holders are aware of the latest requirements of the Montreal Protocol, subsequent Amendments and *Clean Air Regulations 1993*. Permit holders are expected to also have other qualifications, to be determined by the Department of Workforce Development or equivalency in other developed jurisdictions (*i.e.* UK, US, Canada, etc) to demonstrate that they are qualified to install or service HVAC equipments.

Applicability

The following personnel WILL require a permit if they undertake the following activities:

- Installation, Servicing, Maintenance of Residential and Commercial HVAC systems.
- Purchasing and importation of bulk refrigerant gases in cylinders.

The following personnel WILL NOT require a refrigerant handlers permit:

- Engineers or mechanics of vehicle-based air conditioning refrigerants. DENR would encourage that all vehicle mechanics meet US EPA Method 609 for vehicle-based refrigerants.
- Activities such as the installation of self contained, non-split, window HVAC units that do not require any filling of refrigerant gases will not require a refrigerant handlers permit.

The following categories of personnel are EXEMPT from needing to be a Certified Technician before they can handle refrigerants:

- Trainees are exempt for up to 2 years, but they must work under the direct supervision of a Certified Technician and must be enrolled in a recognised training course to obtain certification.
- Personnel only undertaking brazing, soldering or welding on a piece of HVAC equipment are exempt if they hold a recognised qualification to undertake such activities AND if they are supervised by a 'Certified Technician.'

Requirements

The requirements set forth in this document are authorised under the *Clean Air Act 1991* and associated *Rules 1993*, and *Regulations 1993* and also under the good practice set forth in US EPA Section 608.

These requirements cover the following management processes:

1. Certification of Refrigerant Handlers
2. Safe Disposal of Refrigerated Equipment
3. Repair of Systems with Substantial Leaks
4. Recovery/Recycle Equipment
5. Acceptable Levels of Pressure for Recovery
6. Reuse of Recovered Refrigerant
7. Reporting

1. Certification of Refrigerant Handlers

Refrigerant may only be sold by, or sold to, or handled by qualified personnel who have been certified with a 'Permit' by the Department of Environment and Natural Resources. The attached flow diagram (Figure 1) describes the process for first time applicants and experienced applicants to follow. Depending on existing qualifications and experience the process requires the applicant to register at Bermuda College¹ for either:

- Course (full or refresher) and test to US EPA 608 or
- US EPA 608 test-only or
- If a person already has valid US EPA 608 Certification (or equivalent) and can demonstrate that they have been working continuously in the HVAC industry for 5-years or more since then the Permit may be re-issued upon application providing the person has attended at least one meeting at Bermuda College. The meeting will provide details of updates to legislation and changes to international best practice over the past 5+ years since their last Permit or US EPA Section 608 certificate (or equivalent qualification) was issued.

The course and test is to the requirements of US EPA Section 608 of the US *Clean Air Act 1990* and can be taken through Bermuda College to achieve the qualification of 'Certified Technician'. Bermuda College will also consider equivalency of valid alternative qualifications from other countries. 'Certified Technicians' will hold the same authority and responsibilities in Bermuda as their qualification would allow in the US.

A 'Permit' for refrigerant handlers is currently available from the Department of Environment & Natural Resources. Refrigerants may only be sold or handled by qualified personnel who have been certified by the Department of Environment & Natural Resources as a 'Certified Technician'. Furthermore, no individual may handle, charge, recover, or dispense refrigerant in any manner unless they are a 'Certified Technician' under the Bermuda College assessment criteria and permitted to do so by the Department of Environment and Natural Resources.

The course at Bermuda College will address the proper procedures for recovery and handling of refrigerant, aspects of ozone depletion and its effects, and knowledge of Bermuda's *Clean Air Act 1991* and *Regulations 1993* and international regulations.

¹ Contact Mr Ornette Fough at Bermuda College on Tel: 236-9000 or Ofough@college.bm.

Before an individual can be certified, they must provide a company-signed letter indicating that the organisation that employs them has at least one approved recovery unit (in good working order) that can be deployed either (i) with every service vehicle or, at the very least (ii) to every HVAC job site that is undergoing servicing or removal of HVAC units.

2. Safe Disposal of Refrigerated Equipment

When taking equipment or appliances out of service that hold refrigerant and oils they are required to have their oils and refrigerant recovered to the vacuum levels described herein. This recovery shall be done by Certified Technicians at the point of dismantling. Small quantities of domestic non-split units may be brought to the Airport Waste Management Facility for oil and refrigerant removal. The requirement to recover refrigerant shall apply to all appliances, even those that contain the newer refrigerant blends, as these are known to behave as strong greenhouse gases.

Before being delivered to the Airport Facility for disposal or to the Governemnt Quarry (by arrangement), all refrigerated equipment and appliances must have a yellow sticker with the generator number (Government Permit Number) attached to it to certify that the refrigerant and oil have been removed. Stickers are available from the Pollution Control Section of the Department of Environment and Natural Resources. HVAC pumps shall also be drained of oil and the oil disposed of to approved Government facilities (*i.e.* Tynes Bay Drop Off Facility or Sallyport Hazardous Waste Facility).

3. Repair of Systems with Substantial Leaks & Reporting

Certified Technicians who service refrigerant systems that have a refrigerant capacity greater than 50 pounds shall notify the Environmental Engineer of the Department of Environment and Natural Resources by email (pollutioncontrol@gov.bm) within 24 hours or the next business day if the following amounts of refrigerant have been lost:

- Greater than 15% per 1-year for systems providing 'Comfort Cooling', or
- Greater than 35% per 1-year for systems providing 'Commercial Refrigeration' (*i.e.* refrigerators, freezers, computer server centre cooling, etc)

Furthermore the Certified Technician shall also notify the owner of the leaking equipment and their requirement to have it repaired.

4. Recovery/Recycle Equipment

A refrigerant recovery/recycle machine is required to be deployed either (i) with every service vehicle or, at the very least (ii) to every HVAC job site that is undergoing servicing or removal of HVAC units. Equipment used for recovery and/or recycling of refrigerant from residential/commercial air conditioning and refrigeration systems shall be certified by a national entity for such use. It shall have the capability of self-purging itself to leave no liquid refrigerant in the unit after completion of use.

5. Acceptable Levels of Pressure For Recovery

Residential/commercial refrigeration and air conditioning systems shall be recovered to a vacuum of 100 microns (*i.e.* 0.0039 inches of mercury absolute, 0.00193 psi, 0.013 kPa) and be held there for 5 minutes before opening the system for service.

Exceptions to the recovery levels: Some minor releases are necessary or difficult to prevent. It is acceptable to vent minor amounts of refrigerant in the following situations:

- Purging of hoses or hose connections to eliminate noncondensable gases. It is recommended that

- low loss fittings at the ends of all service hoses be used to keep such emissions to a minimum.
- Venting of dilute amounts of a compliant refrigerant appropriate to the HVAC system that is mixed with nitrogen gas for the purpose of leak detection.
- Small leaks in equipment not classified as substantial.
- Accidental leaks occurring when practising good faith efforts to capture and control refrigerants. These accidental releases shall be deemed “de minimus.”

Using refrigerant gases to clean heat exchangers or any other component is NOT permissible.

6. Reuse or Disposal of Recovered Refrigerant

Recovery of refrigerant is only the first step in containing refrigerant removed from a system. The recovered refrigerant may be dispensed by any of the following three ways:

- i) For refrigerant that has been removed by either recovery or recycling equipment from a residential or commercial appliance, it is acceptable to charge the refrigerant back into the original system, or any other system of the same refrigerant type.
- ii) Refrigerant removed from residential/commercial systems that can not be reused or recycled can be brought, by appointment, to the Ministry of Public Works Refrigerant Reclamation Facility, Sallyport, Dockyard. Tel: 278-0562. This Government facility re-packages and exports the waste refrigerant to the US for thermal destruction at a subsidised and competitive price of \$10 per pound.
- iii) Refrigerant removed from residential/commercial systems that can not be reused or recycled can also be sent overseas for processing by companies who possess an 'Export Permit' issued by the Department of Environment and Natural Resources. Application for an Export Permit for a Controlled Chemical can be found at: <https://www.gov.bm/online-services/import-use-or-export-controlled-chemicals>.

It is expected that the owners of appliances will bear the cost of recovery and dispensing of refrigerant. The most economical and cost competitive method of dealing with recovered refrigerant is to reuse it according to step (i) above.

7. Reporting Requirements

The following information shall be reported to the Department of Environment and Natural Resources annually for the January to December period by the 31st March of the following year:

- Notify the Department of Environment and Natural Resources in writing (via email to pollutioncontrol@gov.bm) if you change employment to a new company in the HVAC industry.
- Numbers of HVAC systems drained prior to equipment disposal (*i.e.* Numbers of yellow stickers attached and signed by the Certified Technician).
- Amount of refrigerant and type that is disposed of via the disposal options provided in Section 6 above.

Advice Note

1. The approved training and certification course for refrigerant handlers or test-only to US EPA Section 608 is held at the Bermuda College at a frequency that is aligned to the demand. For enrollment and further information on the course, contact the Faculty of Adult and Continuing Education, (Tel: 236-9000). You are encouraged to contact the College as soon as possible to schedule the course and test, test-only or for assessment of your existing qualifications before the Government Permit can be applied for.

FIGURE 1. Flow Diagram of the Permitting Process for Refrigerant Handlers

