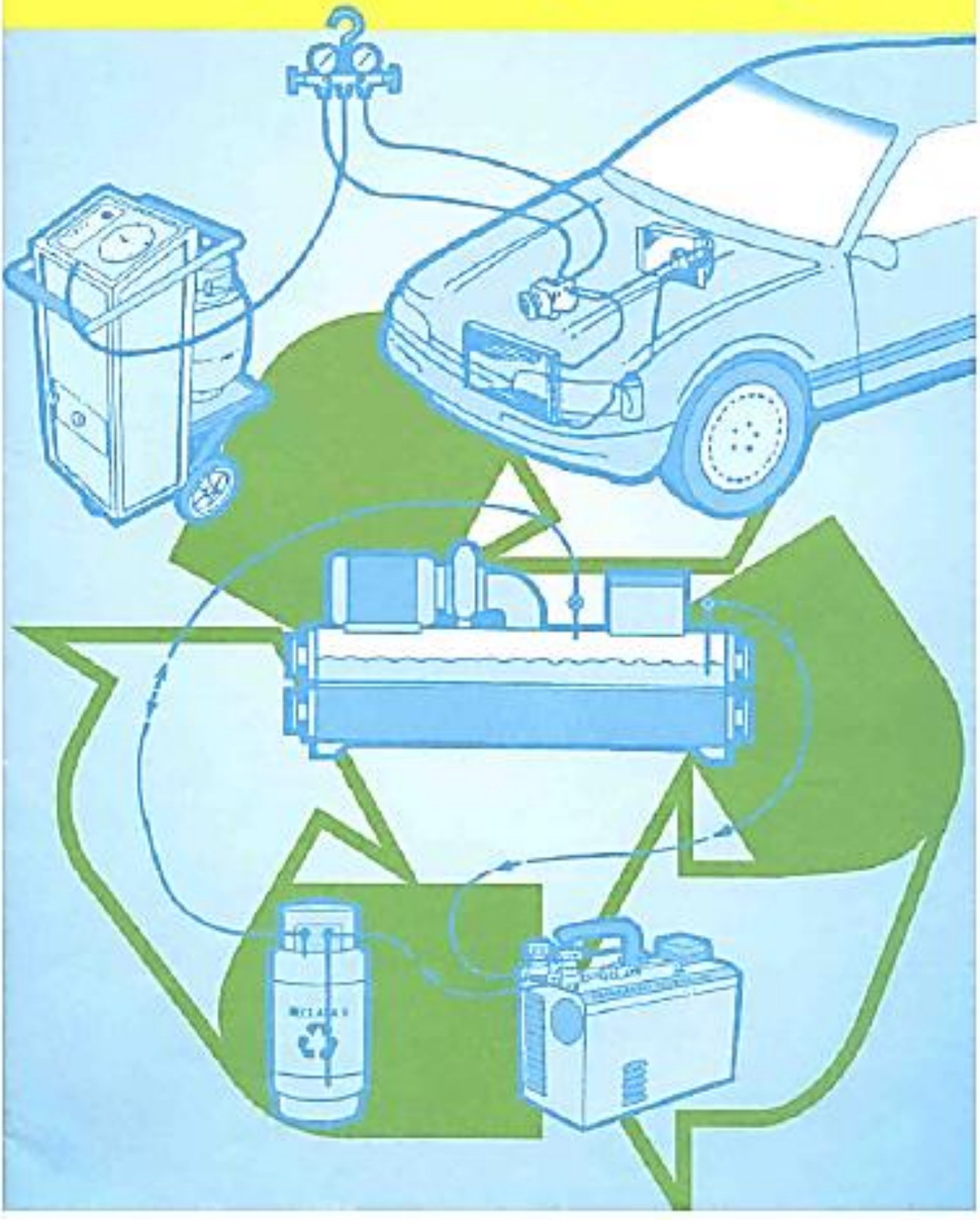
A Concise Guide to the Ozone Layer Protection (Controlled Refrigerants) Regulation



A Concise Guide to the Ozone Layer Protection (Controlled Refrigerants) Regulation

Air Science & Modelling Group
Environmental Protection Department
Hong Kong Special Administrative Region Government
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The Ozone Layer Protection (Controlled Refrigerants) Regulation

1. Introduction

The purpose of the Regulation is to ban the venting to the atmosphere of controlled refrigerants used in motor vehicles and large refrigeration equipment. The controlled refrigerants, if released, will further damage the ozone layer that protects us from harmful ultra violet radiation.

The Regulation covers several key areas:

- Prohibiting deliberate venting of controlled refrigerants from any:
  - motor vehicle air-conditioners; or
  - refrigeration equipment which has more than 50 kilograms of controlled refrigerant charge.
- Equipment to recover, recycle or reclaim controlled refrigerants.
- Penalties for non-compliance.
- Power for the Director of Environmental Protection (DEP) to declare a substance to be a controlled refrigerant.
- Requiring record to be kept in relation to the addition of controlled refrigerants to, or removal from, motor vehicle air-conditioners and large refrigeration equipment.

This explanatory booklet contains information that is deliberately simplified. It serves only as an introduction to the understanding of the Regulation. In case of doubt, the reader is advised to read the Regulation itself. The descriptions in brackets following the headings refer to the relevant section numbers of the Regulation. The Regulation is on sale at the Government Publication Centre. It can also be found in the web site *www.e*legislation*.gov.hk.*

This booklet also has an Appendix 1 entitled "Code of Good Practice to Reduce the Emissions of Refrigerants into the Atmosphere". The practices described are not statutory requirements but represent guidelines to good practice for servicing of air-conditioning and refrigeration equipment.

Enquiries concerning the Regulation and other general information on recovery or recycling of controlled refrigerants may be made to the Air Science & Modelling Group of the Environmental Protection Department at the following address:

Address	**Telephone**	**Facsimile**
33/F., Revenue Tower, 5 Gloucester Road, Wan Chai, Hong Kong	2594-6593 2594-6225	2827-8040

The following booklets provide general information about the use and control of the ozone depleting substances. They are available free of charge from the Environmental Protection Department:

- Ozone Layer Protection And You
- A Concise Guide to the Ozone Layer Protection Ordinance

2. Commencement date of the provisions of the Regulation (Section 1)

This Regulation came into operation on 1 January 1994.

3. Definitions (Section 2)

‘controlled refrigerant’ means a scheduled substance which the Director has by notice in the Gazette, declared to be a controlled refrigerant. At present, these scheduled substances are CFC-11, CFC-12 and CFC-115;

‘motor vehicle’ means a mechanically propelled vehicle for use on roads;

‘motor vehicle air-conditioner’ means an air-conditioner or heat pump that is designed to cool or heat the driver’s or passenger’s compartment of a motor vehicle and which utilizes for that purpose a controlled refrigerant;

‘recover’ means to remove a controlled refrigerant from refrigeration equipment or a motor vehicle air-conditioner and to store it in a container designed for the purpose of storing refrigerant;

‘recycle’ means, in relation to a controlled refrigerant, to purify or distil it, or to treat it in any other way so as to made it suitable for reuse;

‘refrigerant charge’, in relation to refrigeration equipment, means the maximum quantity of controlled refrigerant the refrigeration equipment is intended to hold for the purposes of its operation, and for this purpose that quantity shall be determined :-

(a) by reference to the design and specifications of the refrigeration equipment; or
(b) in the absence of information on the design and specifications of the refrigeration equipment, by a method of estimation commonly used by manufacturers of refrigerators or air-conditioners;

‘refrigeration equipment’ means a machine or machinery which :-

(a) is designed to cool or freeze or to function as a heat pump;
(b) utilizes for the purpose a controlled refrigerant; and
(c) is installed on premises other than domestic premises,

but does not include equipment in which the refrigerant charge is 50 kg or less or a motor vehicle air-conditioner.

4. Prohibition on releasing controlled refrigerant (Section 5)

Any person who allows any controlled refrigerant used, or intended for use, in refrigeration equipment or a motor vehicle air-conditioner to escape into the atmosphere commits an offence and is liable to a fine of $100,000. If a person can prove that either:

- he had taken all reasonable precautions and exercised all due diligence to prevent the escape;
- the escape occurred due to an accident beyond his control; or

- it was necessary to allow the escape due to an emergency and in order to prevent danger to the health or safety of another person;

he can use these reasons as defences against a charge under this section.

5. Control of recycling of controlled refrigerant (Section 6)

Any person who recovers or recycles a controlled refrigerant must

- use equipment approved by the DEP; and
- operate the equipment according to the instructions issued by the equipment's manufacturer.

Appendix 2 shows the list of equipment approved by DEP for the recovering and recycling of controlled refrigerants. The list will be updated from time to time and the latest version can be obtained free of charge from the Air Policy Group of the Environmental Protection Department or downloaded from the EPD website.

A person who fails to comply with this requirement commits an offence and is liable to a fine of $100,000.

6. Records to be kept in relation to refrigeration equipment and motor vehicle air-conditioners (Sections 7 and 8)

The owner or occupier of any premises in which there is refrigeration equipment shall keep in the premises up-to-date records of:

- the dates on which controlled refrigerant was removed from that equipment; and
- the dates on which any replacement of controlled refrigerant was added to that equipment; and
- the amount of refrigerant involved.

The records should be kept for at least one year. A person who fails to comply with this requirement commits an offence and is liable to a fine of $100,000.

Similarly, any person who carries out servicing, repairing or decommissioning of motor vehicle air-conditioners shall keep records of:

- the total number of motor vehicle air-conditioners serviced, repaired or decommissioned; and
- the total amount of controlled refrigerant added or removed each month.

The record for at least the past 12 months should be retained. A person who fails to comply with this requirement commits an offence and is liable to a fine of $100,000.

The above records shall be available on demand for inspection by the Authority or an authorized officer.

Appendix 1

Code of Good Practice to Reduce the Emissions of Refrigerants into the Atmosphere

Routine Servicing of Equipment

1. All servicing of air-conditioning or refrigeration equipment should be carried out by properly trained personnel.

2. Do not use refrigerant gas for cleaning purposes.

3. The manufacturer's recommended routine servicing procedures should be followed and in particular, the following must be checked, tightened, and replaced when necessary:

(i) all refrigerant piping joints,

(ii) all refrigerant valve stem glands,

(iii) all refrigerant service valve caps,

(iv) all blanking plates over gauge points,

(v) all compressor gaskets,

(vi) all shaft seals, control bellows, or possible leakage points.

4. Before refrigerant is added to the system, make sure the causes of the leakage are identified and all leakages are repaired.

5. When a leak is located, isolate that part of the system to minimize the loss of refrigerant. If it is impossible to isolate that part of the system, pump the refrigerant charge to the plant receiver or to a properly designed container.

6. Use vacuum pump to remove the air and moisture instead of using refrigerant to purge all connecting lines or hoses before charging the system.

7. Never vent refrigerant to the atmosphere. Always recover and re-use refrigerant during servicing to minimize the discharge to the atmosphere.

Cleansing and Flushing a Contaminated System after a Hermetic or Semi-Hermetic Compressor Failure or Motor Burn Out

1. Follow the manufacturer's recommended procedures and isolate as many parts of the system as possible.

2. Remove the contaminated refrigerant into properly designed refillable containers using an approved recovery unit. Great care should be taken not to over-fill a container. Different refrigerant gases should not be mixed in the same container.

3. When the system or the isolated part is empty, the component parts should be removed, capped off, and cleaned with a proper solvent as recommended by the manufacturer. Use non - ozone depleting substances (non-ODS) solvent whenever possible. If ODS solvent is used, ensure that the components are in a closed circuit to minimize any emission of the ODS to the atmosphere.

4. After cleaning, the components should be re-assembled in the system with new replacement parts.

5. If ODS solvent is used, the system should be deep-evacuated to recover the solvent vapour into a container that can be sealed after use. The system should then be pressurized and a thorough leak test carried out before recharging with refrigerant.

Recovery and Recycling Refrigerants

1. When filing up a refrigerant container, never exceed the designed maximum working pressure or carrying capacity, however temporarily.

2. Contaminated refrigerant decanted into a refrigerant container may corrode the container. Competent engineer should regularly examine the container to determine if it is fit for continued service under design conditions.

3. To avoid the danger of mixing different refrigerants, transfer a refrigerant to receiving containers which were used previously only to store the same refrigerants.

Appendix 2

List of Approved Refrigerant Recycling/Recovery Equipment

Please click here to visit the EPD website for the updated information:
http://www.epd.gov.hk/epd/english/environmentinhk/air/ozone_layer_protection/wn6_info_equipment.html