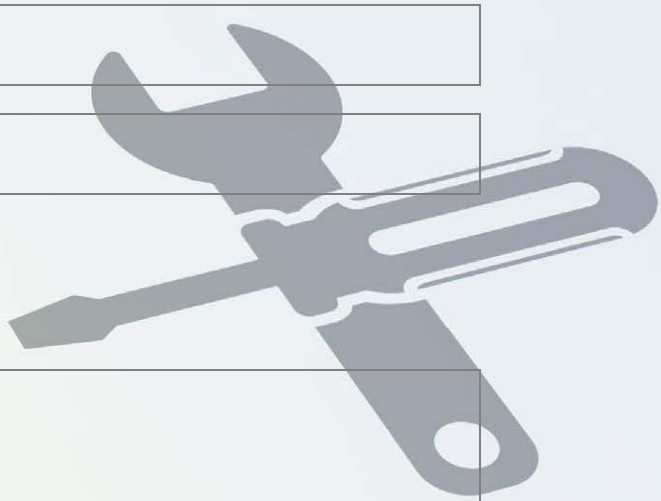
Log book for refrigerating units

in accordance with
Regulation (EC) No. 517/2014 (F-Gas Regulation),
Regulation (EC) No. 1005/2009 (Regulation on Ozone Depleting Substances),
EN 378-4 Para. 4.3 Operation/Maintenance
EN 378-2 (08/2012) Art. 6.4.3.5,
Regulation (EC) 303/2008 (requirements),
Regulation (EC) 1516/2007 (leakage check)

System / unit designation:

System / unit number:

Inventory number:



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1 NOTES ON THE REGULATION

Excerpts from Regulation (EC) No. 517/2014 of the European Parliament and of the Council of the 16th of April 2014 concerning fluorinated greenhouse gases

CHAPTER II Article 3 **Prevention of emissions of fluorinated greenhouse gases**

(1) The intentional release of fluorinated greenhouse gases into the atmosphere shall be prohibited where the release is not technically necessary for the intended use.

(2) Operators of equipment that contains fluorinated greenhouse gases shall take precautions to prevent the unintentional release ('leakage') of those gases. They shall take all measures which are technically and economically feasible to minimise leakage of fluorinated greenhouse gases.

(3) Where a leakage of fluorinated greenhouse gases is detected, the operators shall ensure that the equipment is repaired without undue delay. Where the equipment is subject to leak checks under Article 4(1), and a leak in the equipment has been repaired, the operators shall ensure that the equipment is checked by a certified natural person within one month after the repair to verify that the repair has been effective.

(4) Natural persons carrying out the tasks referred to in points (a) to (c) of Article 10(1) shall be certified in accordance with Article 10(4) and (7) and shall take precautionary measures to prevent leakage of fluorinated greenhouse gases. Undertakings carrying out the installation, servicing, maintenance, repair or decommissioning of the equipment listed in points (a) to (d) of the Article 4(2) shall be certified in accordance with Article 10(6) and (7) and shall take precautionary measures to prevent leakage of fluorinated greenhouse gases.

CHAPTER II Article 4 **Leak checks**

(1) Operators of equipment that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO2 equivalent or more and not contained in foams shall ensure that the equipment is checked for leaks. Hermetically sealed equipment that contains fluorinated greenhouse gases in quantities of less than 10 tonnes of CO2 equivalent, shall not be subject to leak checks under this Article, provided the equipment is labelled as hermetically sealed...

(2) Paragraph 1 applies to operators of the following equipment that contains fluorinated greenhouse gases:
   a) stationary refrigeration equipment;
   b) stationary air-conditioning equipment;
   c) stationary heat pumps;
   d) stationary fire protection equipment;
   e) refrigeration units of refrigerated trucks and trailers;
   f) electrical switchgear;
   g) organic Rankine cycles.

(3) The leak checks pursuant to paragraph 1 shall be carried out with the following frequency:
   a) for equipment that contains fluorinated greenhouse gases in quantities of 5 tonnes of CO2 equivalent or more, but of less than 50 tonnes of CO2 equivalent: at least every 12 months; or where a leakage detection system is installed, at least every 24 months;
   b) for equipment that contains fluorinated greenhouse gases in quantities of 50 tonnes of CO2 equivalent or more, but of less than 500 tonnes of CO2 equivalent: at least every six months or, where a leakage detection system is installed, at least every 12 months;
   c) for equipment that contains fluorinated greenhouse gases in quantities of 500 tonnes of CO2 equivalent or more: at least every three months or, where a leakage detection system is installed, at least every six months...

Chapter II Article 6 **Record keeping**

(1) Operators of equipment which is required to be checked for leaks pursuant to Article 4(1), shall establish and maintain records for each piece of such equipment specifying the following information:
   a) the quantity and type of fluorinated greenhouse gases installed;
   b) the quantities of fluorinated greenhouse gases added during installation, maintenance or servicing or due to leakage;
   c) whether the quantities of installed fluorinated greenhouse gases have been recycled or reclaimed, including the name and address of the recycling or reclamation facility and, where applicable, the certificate number;
   d) the quantity of fluorinated greenhouse gases recovered;
   e) the identity of the undertaking which installed, serviced, maintained and where applicable repaired or decommissioned the equipment, including, where applicable, the number of its certificate;
   f) the dates and results of the checks carried out under Article 4(1) to (3);
   g) if the equipment was decommissioned, the measures taken to recover and dispose of the fluorinated greenhouse gases.

(2) Unless the records referred to in paragraph 1 are stored in a database set up by the competent authorities of the Member States the following rules apply:
   a) the operators referred to in paragraph 1 shall keep the records referred to in that paragraph for at least five years.
   a) undertakings carrying out the activities referred to in point (e) of paragraph 1 for operators shall keep copies of the records referred to in paragraph 1 for at least five years.

The records referred to in paragraph 1 shall be made available, on request, to the competent authority of the Member State concerned or to the Commission. To the extent that such records contain environmental information, Directive 2003/4/EC of the European Parliament and of the Council or Regulation (EC) No 1367/2006 of the European Parliament and of the Council shall apply as appropriate....

The regulation can be found in full under www.eur-lex.europa.eu.

National regulations and laws concerning the leakage of fluorinated greenhouse gases must be reviewed and observed as well.

These tasks may only be performed by certified skilled persons in accordance with Regulation (EC) 1 005/ 2009 (article 23); Regulation (EC) 517/2014; Regulation (EC) 303/2008 (article 4 and 5) and Carbon Chemicals Regulation (§5).

2 OPERATOR

Company / Name	
Contact person	
Street, house no.	
Postal code, city	
Country	

3 LOCATION

Company / Name	
Street, house no.	
Postal code, city	
Country	

4 ASSEMBLER OF SYSTEM

Company / Name	
Street, house no.	
Postal code, city	
Country	
Certification number	

5 SERVICE CENTER

Company / Name	
Contact person	
Street, house no.	
Postal code, city	
Country	
Certification number	

6 GLOBAL WARMING POTENTIAL (GWP) OF THE REFRIGERANT

Refrigerant	R134a	R404A	R507	R449A	R452A	R407F	R744[a] (CO_2)	R23			
GWP	1430	3920	3990	1397	2141	1824	1	14800			
Group	a1	a1	a1	a1	a1	a1	a1	a1			

a. The F-Gas Regulation does not apply to R744 (CO_2). The leak test must be conducted according to the specifications in EN 378-4 Appendix D.

7 PERMISSIBLE SPECIFIC REFRIGERANT LOSS ANNUALLY

Fill quantity/Type of unit	**Date unit installed**		
	before July 1, 2005	**between July 1, 2005 and June 30, 2008**	**after June 3, 2008**
Refrigeration units with fill quantities of at least 3 kg	1 %	1 %	1 %
Application set up at the location with refrigerant fill quantity of less than 10 kg	8 %	6 %	3 %
Application set up at the location with refrigerant fill quantity of between 10 and 100 kg	6 %	4 %	2 %
Application set up at the location with refrigerant fill quantity of more than 100 kg	4 %	2 %	1 %
valid since	2011-07-01	2011-07-01	2008-08-01

8 SYSTEM DATA

Type			
Unit number			
Year of production			
Startup			
Refrigerant circuits	1	2	3
Available Yes/No			
Refrigerant type			
Charge weight in kg			
Permissible specific refrigerant loss in %			
GWP of refrigerant			
CO_2 equivalent in t: $\frac{\text{Fill quantity [kg] x } GWP_{refrigerant}}{1000}$			

Requisite test interval for systems ≥ 5 t CO_2 equivalent (according to Regulation (EU) No. 517/2014) without leak detection system			
annually 5 - 50 t CO_2 equivalent			
biannually ≥ 50 - 500 t CO_2 equivalent			
quarterly ≥ 500 t CO_2 equivalent			
Requisite test interval for systems ≥ 5 t CO_2 equivalent (according to Regulation (EU) No. 517/2014) with leak detection system			
every 2 years 5 - 50 t CO_2 equivalent			
annually ≥ 50 - 500 t CO_2 equivalent			
biannually ≥ 500 t CO_2 equivalent			

Requisite test interval for systems < 5 t CO_2 equivalent (according to EN 378-4)			
annually for fill quantity ≥ 3 kg			
biannually for fill quantity ≥ 30 kg			
quarterly for fill quantity ≥ 300 kg			

9 REFRIGERANT CIRCUIT 1 - LEAK TESTS

Date of test	Tightness requirement		Skilled person / Certification number	Specific refrigerant loss kg per test	Specific refrigerant loss in % per year
	met	not met			

Date of test	Tightness requirement		Skilled person / Certification number	Specific refrigerant loss kg per test	Specific refrigerant loss in % per year
	met	not met			

10 REFRIGERANT CIRCUIT 2 - LEAK TESTS

Date of test	Tightness requirement		Skilled person / Certification number	Specific refrigerant loss kg per test	Specific refrigerant loss in % per year
	met	not met			

Date of test	Tightness requirement		Skilled person / Certification number	Specific refrigerant loss kg per test	Specific refrigerant loss in % per year
	met	not met			

11 REFRIGERANT CIRCUIT 3 - LEAK TESTS

Date of test	Tightness requirement		Skilled person / Certification number	Specific refrigerant loss kg per test	Specific refrigerant loss in % per year
	met	not met			

Date of test	Tightness requirement		Skilled person / Certification number	Specific refrigerant loss kg per test	Specific refrigerant loss in % per year
	met	not met			

12 MAINTENANCE / REPAIR

Date	Report	Skilled person

13 PROCESSING AND DISPOSAL OF THE REFRIGERANT / OIL

Date	Refrigerant circuit	Refrigerant / oil	Type of refrigerant / oil 1 = new 2 = recycled 3 = processed	filled quantity	quantity disposed of	Report	Skilled person / Certification number

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