

How do I know if my refrigerant is an HCFC?

By Phil Chambers BSc, CMIOSH

Reg 29 of the Environmental Protection (Controls on Ozone-Depleting Substances) Regs 2002 (Amended 2008) requires all people to ensure that all HCFCs in refrigeration or air-conditioning equipment are controlled.

In addition, the Fluorinated Greenhouse Gases Regulations 2015 specifies equipment which must have periodic leak checks, based on the global warming potential (GWP) of the gas which determines the threshold of contents in kg at which testing becomes mandatory.

There is evidence that HCFCs (hydrochlorofluorocarbons) damage the ozone layer, hence the reasons for reducing and eventually removing them. [Note that, at present, HFCs (hydrofluorocarbons) are preferable.] But how do we know if we are using HCFCs?

The table below lists common refrigerants and what they are. Simply refer to markings on your equipment to determine which refrigerant is installed. This will be stated either on the equipment external label (typically with air conditioning equipment) or on a vessel within the equipment (typically with chillers). Alternatively check with the supplier, stating the model and serial numbers.

If the refrigerant is an HCFC, then arrange for it to be removed by a person competent to do this and replaced by an acceptable alternative. Note that it must be collected and disposed of correctly, not vented to atmosphere (which would negate the reason for doing this.)

Beware that replacements might have compatibility problems with seals and lubricants, and also may not be as efficient as the present refrigerant. You need to seek advice on this.

Refrigerant	Composition	Type	ODP ¹	GWP ²	Kg ³
R-11	R-11	CFC			
R-12	R-12	CFC			
R-13	R-13	CFC			
R-14	R-14	PFC			
R-22	R-22	HCFC	0.05	1700	3
R-23	R-23	HFC			
R-30	R-30	HCC			
R-32	R-32	HFC			
R-114	R-114	CFC			
R-115	R-115	CFC			
R-123	R-123	HCFC			
R-124	R-124	HCFC	0.02	620	8
R-125	R-125	HFC			
R-143a	R-125	HFC			
R-134a	R-134a	PFC	0	1300	4
R-141b	R-141b	HCFC			
R-142b	R-142b	HCFC			
R-143a	R-143a	HFC	0	4300	1
R-152a	R-152a	HFC			
R-290 (propane)	R-290 (propane)				
R-401A	R-22/152a/124	HCFC	0.37	1100	5
R-401B	R-22/152a/124	HCFC	0.04	1200	4
R-401C	R-22/152a/124	HCFC			
R-402A or B	R-125/290/22	HCFC			
R-403A	R-290/22/218	HCFC			
R-404A	R-125/143a/134a	HFC	0	3300	2
R-405A	R-22/152a/142b/C318	HCFC			
R-406A	R-22/600a/142b	HCFC			
R-407A, B, C, D or E	R-32/125/134a	HFC	0	2000	3
R-408A	R-125/143a/22	HCFC			
R-409A or B	R-22/124/142b	HCFC			

Continued

Refrigerant	Composition	Type	ODP ¹	GWP ²	Kg ³
R-410A or B	R-32/125	HFC			
R-411A or B	R-1270/22/152a	HCFC			
R-412A	R-22/218/142b	HCFC			
R-413A	R-218/134a/600a	HFC			
R-414A or B	R-22/124/600a/142b	HCFC			
R-415A	R-22/152a	HCFC			
R-416A	R-134a/124/600	HFC			
R-417A	R-125/134a/600	HFC			
R-500	R-12/152a	HFC			
R-501	R-22/12	HCFC			
R-502	R-22/115	HCFC			
R-503	R-23/13	HCFC			
R-504	R-32/115	HFC			
R-505	R-12/31	HFC			
R-506	R-31/114	HFC			
R-507A	R-125/143a	HFC			
R-508A or B	R-23/116	HFC			
R-600	R-600 (butane)				

¹Ozone depleting potential

²Global warming potential where 1 is the GWP potential of CO₂

³ Content in kg of gases within a system at which leaks have to be tested for as specified in the Fluorinated Greenhouse Gases Regulations 2015

Strategic Safety Systems Ltd., 8 The Highgrove, Bishops Cleeve, Cheltenham, GL52 8JA, UK

Phone: 01242 679713 Mobile 077680 11667

E-Mail: info@StrategicSafety.co.uk Web site: www.StrategicSafety.co.uk