

# Arthur Friedrichs Kältemittel GmbH

*... informs !*

## Definitions and regulations on "F-gases"

### What does GWP mean?

The environmental damage potential of a substance is shown by the GWP (Global Warming Potential) value. It shows the greenhouse potential of a substance relative to the greenhouse potential of carbon dioxide (CO<sub>2</sub>) whose value is defined as 1.0. This means that the greenhouse potential of other substances is measured in relationship to CO<sub>2</sub>. The GWP value is given for a period of 100 years.

### Example:

R134a has a GWP value of 1.430. It causes 1.430 times as much global warming as CO<sub>2</sub> over 100 years.

## **What are F-Gases?**

Fluorinated greenhouse gases, the so called F-gases have a great effect on the climate. Their contribution to the greenhouse gas emission in the EU is ca. 2 percent. Depending on the substance the greenhouse potential can be as high as 23000 times that of carbon dioxide. F-gases are used in a manner similar to the way CFC and halons were used earlier. They are used in fire protection systems, electrical switchgear and foaming agents. The largest F-gas group are the so called HFC refrigerants (hydro fluorocarbons). They are used in various cooling and air conditioning systems, e.g. R134a, R404A, R410A.

## **EU-Regulations**

Since 2006 the use of F-gases is regulated by the regulation (EC) No 842/2006 (F-Gas regulation) and the directive 2006/40/EG for the emission from air conditioning systems in motor vehicles. Besides certain bans the regulations contain requirements.

## Regulation (EC) No 842/2006

Requirements...

- on leak testing for cooling and air conditioning systems, thermal heat pumps, fire protection systems
- on the reclamation of F-gases
- for the training and certification of the personnel that is involved in the control and maintenance of the respective systems and
- on the labelling of certain products.

## Directive 2006/40/EG

Air conditioning systems containing fluorinated greenhouse gases with a GWP of above 150 will be forbidden step by step. The directive is valid for passenger cars (vehicles of the class M1) and light commercial vehicles (vehicles of the class N1, group 1).

In a **first phase** leaks on air conditioning systems that are designed for fluorinated greenhouse gases with a greenhouse potential of above 150 are to be monitored.

As a transitional measure, air conditioning systems where the leakage rate exceeds certain limits will be forbidden (40g/a for systems with one refrigerant vaporiser or 60g/a for systems with two refrigerant vaporisers). This measure applies to all new vehicle types starting 21. June 2008 and for all new vehicles starting 21. June 2009.

In a **second phase** air conditioning systems that are designed to contain fluorinated greenhouse gases with a greenhouse potential of above 150 will finally be completely forbidden. The ban applies to all new vehicle types starting 1. January 2011 and for all new vehicles starting 1. January 2017.