

The F-Gas Regulation (EU 842/2006) and Implementing Measures

Tim G.A. Vink

Director Regulatory Affairs, Compliance & QA
Honeywell Fluorine Products Europe

Agenda

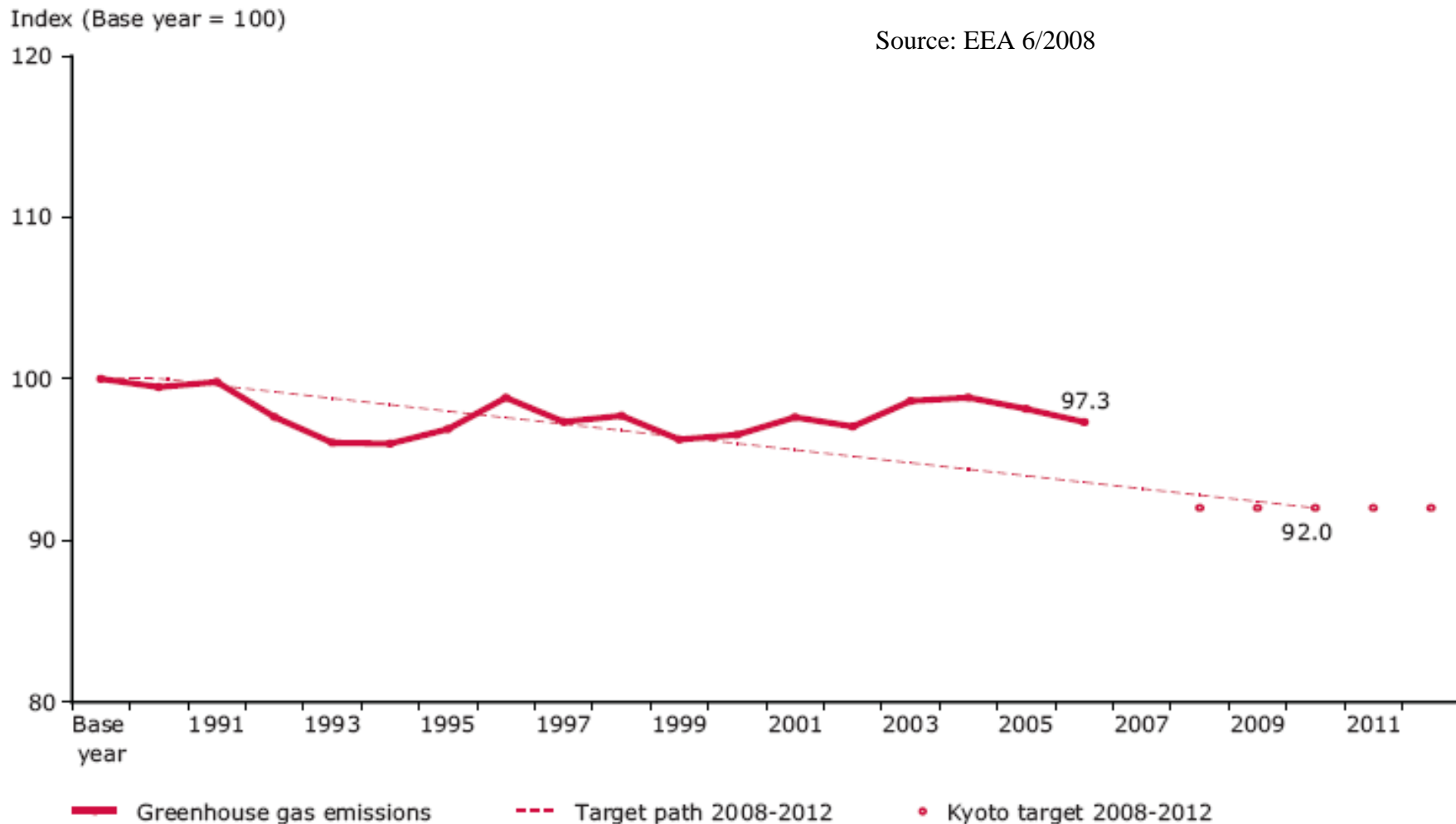
- Context
- Key Provisions in the F-Gas Regulation for the R & AC Industry
- Implementing Actions at European Level
- Implementing Actions at selected national level
- Critical Issues – Assessment
- Beyond “Kyoto”
- Conclusions

F-Gas Regulation (EU 842/2006) – The Context

- Part of the EU's Kyoto Commitment (-8% vs baseline 1990 emissions), or 336 million tonnes CO₂-equivalent (ECCP-1)
- Estimated Baseline Emissions of Fluorinated Greenhouse Gases: 65 million tonnes CO₂-equivalent (1995), or 2%
 - Expected to grow to 98 million tonnes CO₂-equivalent in 2010
- Target is to freeze at 65 million tonnes CO₂-equivalent in 2010
 - Major conversion from HCFCs to HFCs taking place in 2000 – 2005 timeframe
 - Conversion predicated on availability of HFCs
 - Emission reduction through containment
 - Cost effective – proven technology
 - Focus on energy efficiency
 - Improved designs
 - Tailored fluids

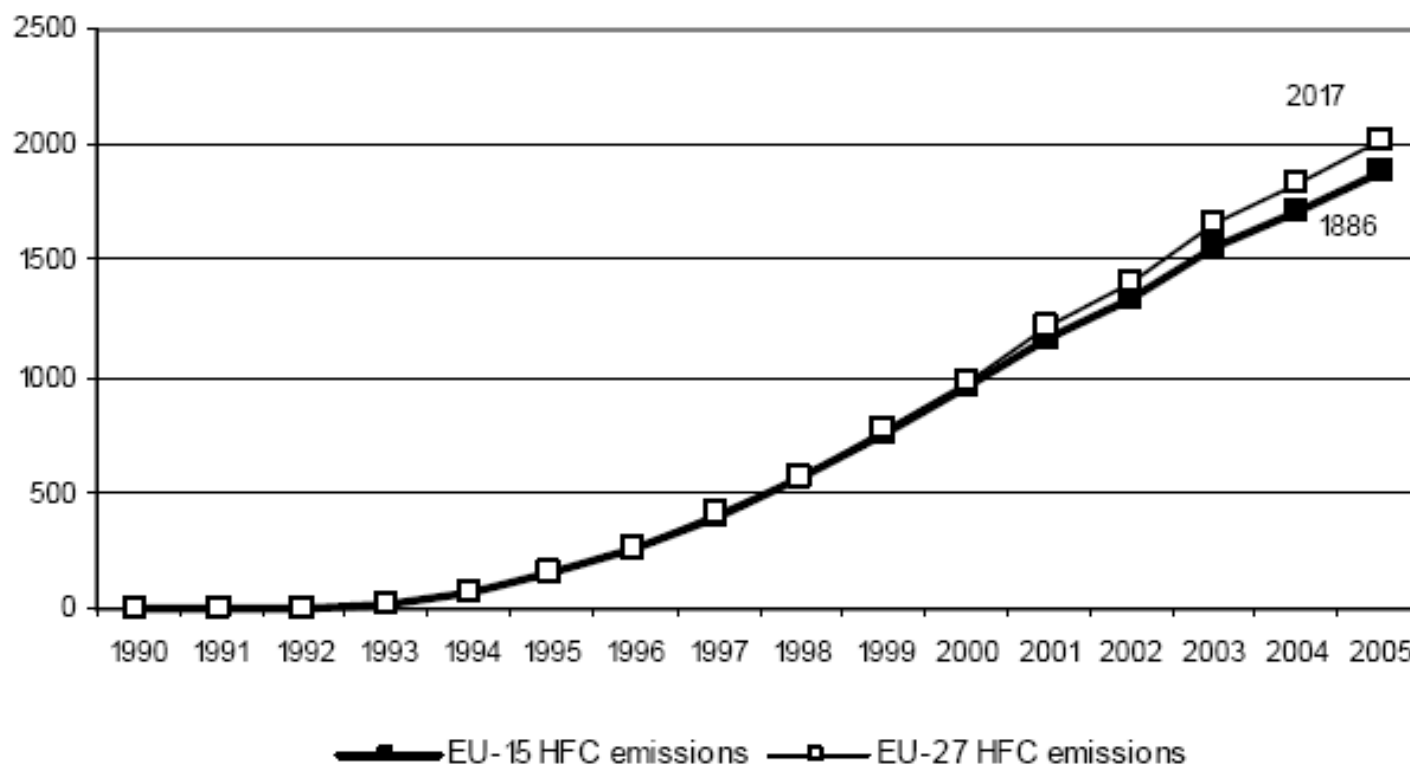
CO₂-savings from Energy Efficiency

Figure ES.2 EU-15 GHG emissions 1990–2005 compared with target for 2008–2012 (excl. LULUCF)



Honeywell F-Gas emissions growing from zero base

Figure 66: Trend of HFC emissions refrigeration and air conditioning of the EU-15 and the EU-27



Source: EEA 2007a

- Between 1990 and 2005, HFC emissions from refrigeration and air conditioning equipment increased from almost zero to almost 35 Mt CO₂ equivalent in EU-15. Between 2000 and 2005 emissions increased by almost 100 %.

..... But Relatively Modest

Table ES.2 Overview of EU-27 GHG emissions and removals from 1990 to 2006 in CO₂-equivalents (Tg)

Greenhouse gas emissions	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Net CO ₂ emissions/ removals	3 984	3 732	3 789	3 732	3 726	3 672	3 688	3 746	3 699	3 790	3 814	3 827	3 755
CO ₂ emissions (without LULUCF)	4 392	4 141	4 242	4 154	4 142	4 076	4 100	4 179	4 155	4 263	4 283	4 258	4 258
CH ₄	603	546	539	522	508	497	484	469	459	449	436	429	424
N ₂ O	525	464	470	468	445	423	422	416	405	405	409	404	392
HFCs	28	41	47	54	55	48	47	46	48	53	54	58	62
PFCs	20	14	13	11	10	10	8	8	9	8	6	6	5
SF ₆	11	16	15	14	13	11	11	11	10	9	9	9	10
Total (with net CO ₂ emissions/removals)	5 171	4 812	4 873	4 800	4 757	4 661	4 660	4 695	4 631	4 714	4 729	4 733	4 647
Total (without CO ₂ from LULUCF)	5 579	5 221	5 326	5 222	5 174	5 065	5 072	5 128	5 087	5 187	5 198	5 163	5 150
Total (without LULUCF)	5 572	5 214	5 320	5 216	5 167	5 058	5 066	5 121	5 080	5 180	5 191	5 157	5 143

Source: EEA 6/2008

Note: Includes all HFC-emissions, incl HFC-23 process emissions

EU Regulation on F-Gases: Containment Provisions (art 3)

- Art. 3: Operators shall use all measures which are technically feasible and do not entail disproportionate cost:
 - prevent leakage of these fluorinated greenhouse gases; and
 - as soon as possible repair any detected leakage.
- Operators shall ensure that they are inspected for leakage by certified personnel who comply with the requirements of Article 5, according to the following schedule:
 - 3 kg – 30 kg: at least once every twelve months, this shall not apply to equipment with hermetically sealed systems, which are labelled as such and contain less than 6 kg of fluorinated greenhouse gases;
 - < 300 kg: at least once every six months;
 - >300 kg: at least once every three months
- Re-inspection within one month after a leak has been repaired.
- Operators shall maintain records:
 - on the quantity and type of fluorinated greenhouse gases installed, any quantities added and the quantity recovered during maintenance, servicing and final disposal.
 - other relevant information including the identification of the company or servicing technician who performed the maintenance or servicing
 - dates and results of the inspections and leakage detection checks

Records will provide data

- Commission Regulation 1516/2007 of 19 December 2007 establishing standard leakage checking requirements for stationary refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases
 - Direct and indirect methods permitted
 - Presumption of leakage conditions:
 - (a) a fixed leakage detection system indicates leakage;
 - (b) the equipment produces abnormal noises or vibration or ice formation or insufficient cooling capacity;
 - (c) indications of corrosion, oil leaks and component or material damage at possible leakage points;
 - (d) indications of leakage from sight glasses or level indicators or other visual aids;
 - (e) indications of damage in safety switches, pressure switches, gauges and sensor connections;
 - (f) deviations from normal operational conditions indicated by the parameters analysed, including readings from real time electronic systems;
 - (g) other signs indicating refrigerant charge loss.
 - Testing prior to commissioning mandatory

EU Regulation on F-gases: Recovery (art 4), Qualifications (art 5)

- Recovery by qualified personnel mandatory for
 - Stationary Refrigeration, AC and Heat Pumps
 - Solvent systems, Fire protection systems and High Voltage switchgear
 - Containers
- Minimum training requirements and mutual certification for personnel and companies established by July 4th, 2007
 - Implementation by July 4th, 2008
- After July 4th, 2009, F-gases may only be supplied to certified personnel/companies

- Commission Regulation 303/2008 of 2 April 2008 establishing minimum requirements and the conditions for mutual recognition for the certification of companies and personnel as regards stationary refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases
 - Certification issued by independent Certification Bodies
 - For Staff category I (“high”) to IV (leak checking only)
 - Examination by evaluation body/bodies
 - Practical and Theoretical tests
 - Until 4 July 2011 interim certificates may be issued
 - Not mandatory
 - Mutual Recognition for Certificates
 - Not interim certificates
 - Translation may be required
 - OEM activities and repair at OEM sites exempt.

Implementation (ctd)

- Commission Regulation 307/2008 of 2 April 2008 establishing minimum requirements for training programmes and the conditions for mutual recognition of training attestations for personnel as regards air-conditioning systems in certain motor vehicles containing certain fluorinated greenhouse gases
 - Reference to MAC Directive (Passenger cars and light trucks only)
 - Attestation only – limited requirements
- Commission Regulation 308/2008 of 2 April 2008 establishing, pursuant to Regulation (EC) No 842/2006 of the European Parliament and of the Council, the format for notification of the training and certification programmes of the Member States

- Annual reporting requirements for
 - Producers
 - Im/Exporters
- Production/Imports/Exports
 - Including Expected Emissions
- Destruction
- Member States shall establish reporting systems for the relevant sectors referred to in this Regulation, with the objective of acquiring, to the extent possible, emission data.

Implementation

- Commission Regulation 1493/2007 of 17 December 2007 establishing the format for the report to be submitted by producers, importers and exporters of certain fluorinated greenhouse gases
 - Excludes “embedded” im/exports

Labeling (art 7)

- Equipment must be labeled “adjacent to the service point”:
 - Identification of the F-gas(es) in the system
 - Contains Fluorinated Greenhouse Gas(es) covered by the Kyoto Protocol
 - Quantity
 - GWP
 - Indication if the equipment is Hermetically sealed
- Information on Fluorinated Greenhouse gases must be included in the Manuals, including the GWP

Implementation

- Commission Regulation 1494/2007 of 17 December 2007 establishing the form of labels and additional labelling requirements as regards products and equipment containing certain fluorinated greenhouse gases
 - Includes insulation foam in equipment
 - Avoided too prescriptive language on “indelible”

Honeywell Implementation at National Level

- Germany
 - Draft Ordinance on Fluorinated GHGs
 - Maximum leakage rates under normal operating conditions
 - 3,2,1% depending on charge size and type (pre-filled, assembled)
 - Higher rates for older equipment
 - Mandatory Recovery and Return to Suppliers
 - Certification
 - Labelling in German
- UK
 - Fluorinated GHG Regulations 2008 (SI-41)
 - Implements F-Gas Regulation
 - Certification & Training
 - City & Guilds Schemes
 - Construction Industry Training Board
- France
 - Decree 2007/737 (Fluorinated GHGs in R/AC)
 - Executive order of 20-Dec-07: certifying bodies
 - Executive order of 20-Dec-07: reporting by certified operators

- Implementation is well under way
 - Some risk of Market Fragmentation (language requirements)
 - Certification will be major challenge
 - Indispensable for weeding out poor performers
 - Emissions growing, need focus on containment
 - Certification is critical element
 - Recovery, Recycling and Reclamation need development
 - Waste Regulations seen as a barrier
 - EPEE/EFCTC are actively supporting compliance drive
www.figaroo.org
- Need to maintain focus on overall goal: emission reduction of GHGs
 - CO₂ emissions growing
 - Energy Efficiency
 - Improved designs
 - Design for maintenance
 - Need reliable “bottom-up” data
 - Logbooks & records

2011 is just around the corner – need to show improvement

After Kyoto 2008 - 2012

- February “2020” package
 - 20% (30%) GHG reductions vs 2005
 - 20% increased energy efficiency
 - 20% renewables
- Need to demonstrate that F-gases are part of the solution
 - Accurate Logbooks
 - Improved performance
 - New applications – Heat Pumps, Heat Recovery

R-22 Conversion 2010 -2015: major challenge

Honeywell

THANK YOU!