



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

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### **CFC AND HCFC PHASE-OUT DELIVERS CLIMATE BENEFITS FAR LARGER THAN THE KYOTO PROTOCOL REDUCTION TARGET**

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Scientists from the Netherlands and the United States obtained a surprising result when they calculated the contribution to climate protection from the phasing out and reduction of [ODS \(Ozone Depleting Substances\)](#) like CFCs and [HCFCs](#).

The research, led by the [Netherlands Environmental Assessment Agency](#), points out that the [Montreal Protocol](#) actually provided dual benefits; its aim was to repair the ozone layer but it has also reduced potential global warming far more than the Kyoto Protocol should accomplish.

The 1987 Montreal Protocol led to the reduction of production, use and emission of ODS, and the [ozone layer](#) is thereby [starting to recover](#).

However ODS are also greenhouse gases that contribute to the radiative forcing of climate change and the researchers calculated that, without the Montreal Protocol, over the period 1990 to 2010 this climate impact would have been equivalent to 8 Gigatonnes of CO<sub>2</sub> per year. This is much larger than the whole Kyoto Protocol target of 2 Gigatonnes CO<sub>2</sub> equivalent from the required reductions in all greenhouse gases (CO<sub>2</sub>, methane, nitrous oxide, HFCs, PFCs and SF<sub>6</sub>).

The scientific paper is:

Velders G.J.M., S.O. Andersen, J.S. Daniel, D.W. Fahey and M. McFarland, The importance of the Montreal Protocol in protecting climate, *Proc. Nat. Acad. Science*, **104(12)**, 4814-4819, 2007

and is available at <http://www.pnas.org/cgi/reprint/0610328104v1.pdf>

### **HFC BLOWN SPRAY FOAM FOR THE BUILDING RENOVATION IN EUROPE**

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Building renovation is a policy imperative in Europe, to improve the [Energy Efficiency of Buildings](#). [Thermal insulating Spray Foam](#) can play an important role for this renovation, with [HFC blowing agents](#) contributing efficiency in three main areas:

- Better thermal performance than alternative blowing agents
- Optimal product fire performance
- Increased process safety

The use of insulation foams is growing because they can play a key role in the energy efficiency improvement of the building stock to be renovated.



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Spray foam is cost effective and HFC blown foams can offer the most environmentally effective solution provided that appropriate end-of-life recovery or destruction measures reduce the emission of HFCs in the atmosphere.

The 2010 Review of the EU [F-Gas Regulation](#) should consider the climate benefits of HFC-blown Insulating Spray Foams, taking into account their low short-term emissions (which were previously over-estimated) and long service lifetime.

<http://www.sprayfoam.org/SPFA%20-%202006%20Blowing%20Agent%20Presentation%20-%2001.pdf>

### AUTOMOTIVE TECHNOLOGY CAN HELP PROTECT THE CLIMATE

The [Mobile Air Conditioning Climate Protection Partnership](#) is continuously presenting new maintenance equipment such as recycling machines and electronic leak detectors, which will significantly reduce annual emissions of HFC refrigerants from [MAC](#) maintenance operations.

Leak-tight replacement parts and improved service procedures, now under development, will further reduce refrigerant emissions.

New recycling machines are able to recover a larger portion of the HFC refrigerant during repair, avoiding its emission to the atmosphere. They can recover an average of 120 grams more HFC-134a refrigerant than previous system, a significant improvement compared to an average charge of 750g per system. Using these machines could allow a huge reduction in HFC emissions, if one considers the 20-25 million MAC repairs per year.

New recycle equipment can precisely recharge the AC system after its repair, which is important because it avoids overcharge and improves energy efficiency.

New leak detector technology will help service professionals to identify very small leaks in vehicle air conditioning systems, which is not feasible with current diagnostic technology. The new detectors will avoid most refrigerant escaping into the atmosphere before leaks are detected.

New standards have also been developed by the Society of Automotive Engineers (SAE) to certify the new maintenance equipment. The most important for Europe is standard SAE J2727 (R134a Mobile Air Conditioning System Leakage Chart) which<sup>2</sup> provides a rating value for analyzing the leakage of MAC systems, and will eventually be adopted as an EU standard in the context of the [EU Regulation on MAC](#).

Source : <http://www.epa.gov/cppd/mac/>



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### EMISSIONS AND SALES OF FLUOROCARBONS FOR 2004

AFEAS has published the [2004 emissions and sales](#) of Fluorocarbons from responding companies. Data, which do not include production in Russia, Korea, India and China, are available through 2004 for CFCs 11, 12, 113, 114 and 115, HCFCs 22, 124, 141b and 142b and HFCs 134a, 125 and 143a.

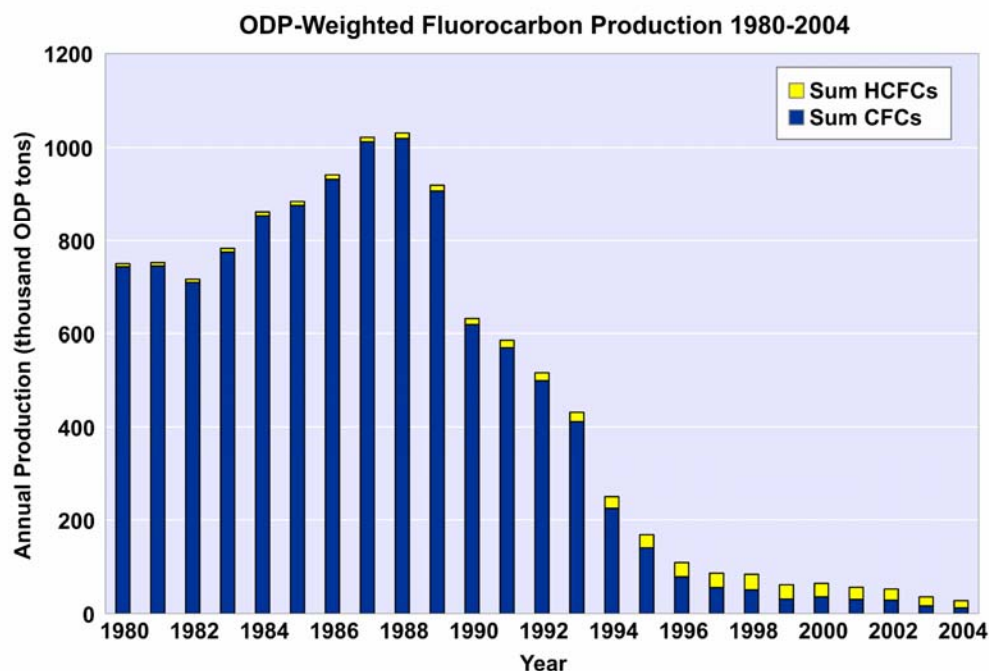
However, as the AFEAS CFC data now capture only 16% of the global total estimated from the UNEP database, it has been decided that the collection of CFC data from the AFEAS companies will cease with the current report.

*All of the production and sales data through 2004 is available for download at the AFEAS [Data Download Page](#).)*

The reported Production of [ODS](#) (ozone depleting substances) by AFEAS reporting companies, expressed in ODP-tonnes, is less than 2% of that in the peak year, 1988, and is now down to the level of the late 1940s.

Production of HCFCs reported to AFEAS has fallen significantly since 1996, while the increase in total HFC production, although significant, has been relatively modest.

As illustrated in the following plot, the production of CFCs and HCFCs by AFEAS reporting companies, weighted according to the ozone depletion potential (ODP) of each compound, has been reduced by 97% from the peak year, 1988.

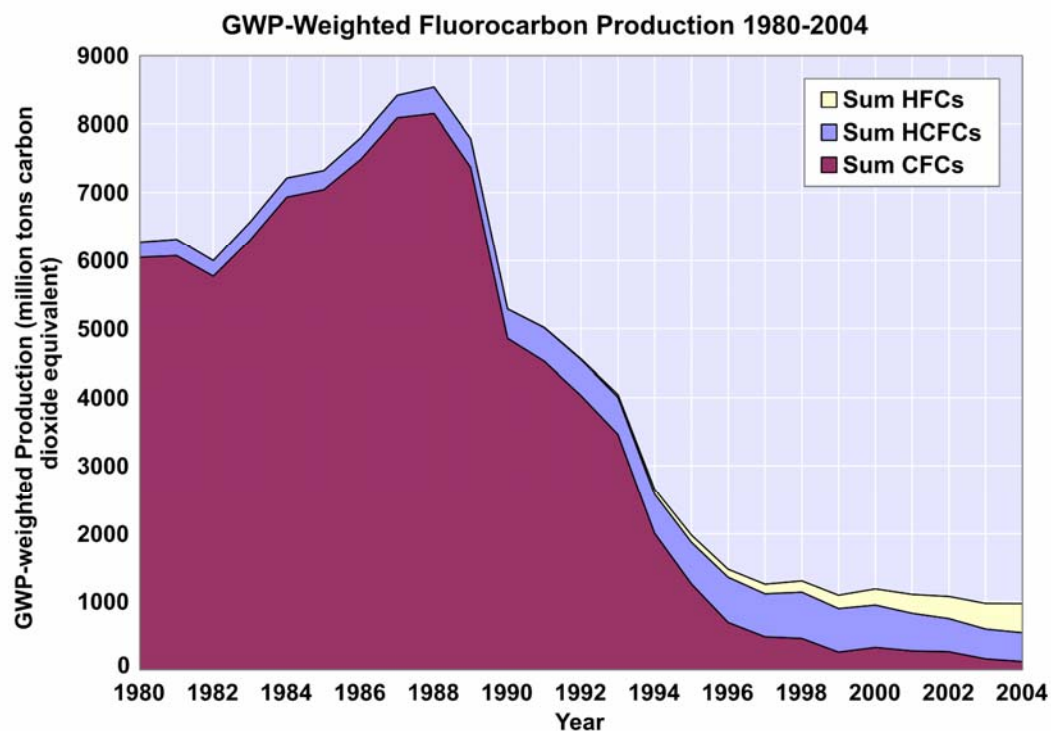




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Similarly, the production expressed in [GWP weighted tonnes](#) has declined by about 89% from 1988, the peak year.



An estimate of atmospheric releases of the individual HCFCs and HFCs is also provided.

### **NEW LINKS ADDED**

#### **Regulatory Pages**

- [Kyoto Protocol](#)
- [Action on climate change post 2012](#)

have been updated and completed

#### **Library – Public Reports - OZONE**

[2006 ASSESSMENT REPORT OF THE TECHNOLOGY AND ECONOMIC ASSESSMENT PANEL](#)