



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

**ISSUE 43 – February 2007**

### **COOLING CARS WITH LESS FUEL**

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An IEA workshop "[Cooling Cars with Less Fuel](#)" held in Paris in October 2006 was another opportunity to round up the latest information on way to decrease the fuel consumed in [Mobile Air Conditioning](#).

Key findings from the various presentations:

- No clear evidence that the environmental impact of CO<sub>2</sub> systems is better than for HFC-134a.
- Performance in small cars remains an unsolved issue.
- Efficiency calculations like TEWI or [LCCP](#) should be transparent (presently data from various sources are impossible to compare).
- Using current technologies optimum refrigerant charge in the range of 250 g to 300 g is possible, while the actual charge can vary between 550 and 900 g. This over charge is thus more than sufficient to cover the entire lifetime of a MAC system (provided leakage is kept under control).
- Indeed, the average emission rate of recent vehicles is in the range of 10 g/yr. Leaky systems are either ill-assembled systems or using poor quality components, these can be overcome.

Key messages were delivered:

- One Global Standard is expected for the EU, USA and Japan.
- Start with implementing [HFC-134a I-MAC 30/50](#) worldwide.
- Adjust the pace of the EU HFC-134a phase-out to allow the development of alternatives or the improvement of HFC-134a LCCP performance.
- Introduce alternatives where and when proven safe, environmentally superior, and cost-effective over a lifetime of ownership.

See also the News [MOBILE AIR CONDITIONING TORINO CONFERENCE HIGHLIGHTS ADVANCES IN IMPROVED HFC134A SYSTEMS](#)

### **HFCs REPRESENT LESS THAN 0.4 % OF THE ANNUAL GREENHOUSE GAS INDEX**

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In 2005 non [ODS](#) (HFC-134a and SF<sub>6</sub>) represented 0.37 % of the global Greenhouse Gases contribution to Climate Change, based on measured atmospheric concentrations of these gases.



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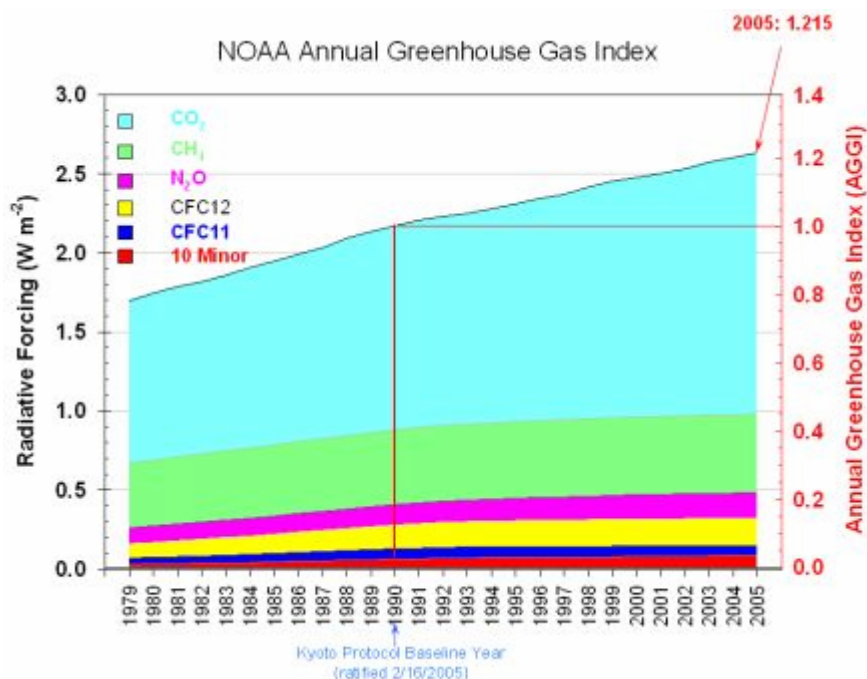
## An update on fluorocarbons and sulfur hexafluoride

The [NOAA Earth System Research Laboratory](#) has developed the [Annual Greenhouse Gas Index](#) (AGGI), which provides a simple means of tracking the annual increase in greenhouse gases in the atmosphere. The NOAA AGGI will be included in the annual Greenhouse Gas Bulletin issued by the World Meteorological Organization (WMO) in November.

The AGGI is based on the analyses of atmospheric levels of greenhouse gases: CO<sub>2</sub>, methane, nitrous oxide, ODS, HFCs and SF<sub>6</sub>, measured since 1979 by NOAA's global sampling network. Concentrations are converted into radiative forcing (ability of each gas to trap heat) to produce a Global Radiative Forcing value. The AGGI is then calculated by referencing the Global Radiative Forcing for each year to its baseline value for the year 1990, set at AGGI = 1.0. In 2005, AGGI reached a value of 1.215.

Since 1979, the instantaneous radiative forcing by CO<sub>2</sub> has increased from about 60% to 63% of the total forcing, while the CFC contribution has been declining, which has tempered the increase in the net radiative forcing considerably.

The AGGI diagram shows the small radiative contribution of 3 % for the so-called "10 minor halogen gases", which are mainly ODS. With the help of data received from NOAA, we have established that, within the minor halogen gases, HFCs and SF<sub>6</sub> actually contribute only 0.37 % of the total AGGI.





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Source : <http://www.noaanews.noaa.gov/stories2006/s2621.htm> and private communication

### **GERMAN HISTORICAL MUSEUM EXTENSION DESIGNED BY I. M. PEI , COOLED WITH HFC-134a**

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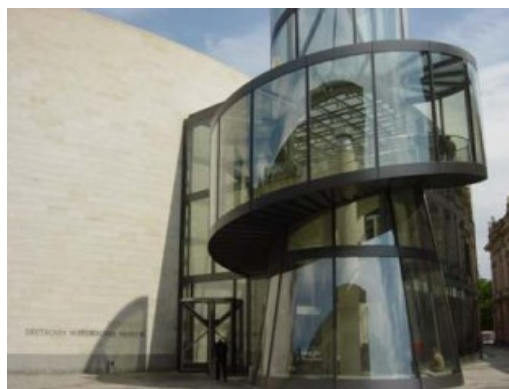
The "Deutsches Historisches Museum" (DHM), *German Historical Museum*, was founded in 1987 on the occasion of the 750th anniversary of the founding of Berlin. It is situated in the Zeughaus building, the oldest structure on the Unter den Linden Avenue in central Berlin.

In 2004 an extension to the DHM, designed by I. M. Pei, was completed. In 2006 the restoration of the Zeughaus building, founded in 1695, was completed and the DHM Museum opened.

The [cooling](#) of the new wing building is provided by three HFC-134a chillers, with a total refrigeration capacity of 1,800 kW split into two separate refrigerating circuits ensure operational safety.

The screw-type compressors have 30% higher performance compared with standard compressors, and the vibration-free design and noise protection for the compression pipes ensure that the units are especially quiet to run.

The control system is designed to achieve considerable cost savings in part-load operation, which typically makes up 80% of operating time for comfort air conditioning.



Source:

[http://www.bsee.co.uk/news/fullstory.php/aid/3844/Carrier\\_provides\\_climate\\_control.html](http://www.bsee.co.uk/news/fullstory.php/aid/3844/Carrier_provides_climate_control.html)



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### COMPANIES REDUCING SF<sub>6</sub> EMISSIONS RECEIVE US EPA AWARDS

At its [4th International Conference on SF<sub>6</sub> and the Environment](#) utilities company Southern California Edison (SCE) received an award from the U.S. EPA [Sulfur Hexafluoride Emission Reduction Partnership](#), for its achievements regarding SF<sub>6</sub> management practices and emission reduction activities. Since 2001 SCE has reduced its SF<sub>6</sub> emissions by 32 percent, reaching an emission rate lower than the overall average of 8 percent for the Partnership, which is remarkable given the company's size and the amount of SF<sub>6</sub> equipment it maintains.

SF<sub>6</sub> emissions are expected to remain below 1990 levels beyond the year 2010.

Other awards were given to companies active in the field of [Magnesium Casting](#), for optimizing their melt protection systems and for researching alternative melt protection technologies.

Source:

<http://yosemite.epa.gov/opa/admpress.nsf/7c02ca8c86062a0f85257018004118a6/3f57f056a6ad737f8525723400683a1a1:OpenDocument>

### NEW LINKS ADDED

#### **REFRIGERATION – Italy**

**ATF** (in Italian)

Associazione dei Tecnici del freddo italiani e dei Frigoristi del condizionamento e della refrigerazione

<http://www.associazioneatf.org>

#### **OFFICIAL ORGANIZATIONS**

**DG ENVI**

The EU's Contribution to Shaping A Future Global Climate Change Regime. Key elements for the EU's post-2012 strategy

[http://ec.europa.eu/environment/climat/future\\_action.htm](http://ec.europa.eu/environment/climat/future_action.htm)