



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

**ISSUE 74 – February 2010**

### EU F-GAS EMISSION REDUCTION TARGET BY 2010 WILL BE MET

According to information released by [ENDS](#) (Europe's environmental news and information service - requires subscription), a European Commission spokesperson indicated that Europe could meet its target of F-gas emissions in EU-15 under around 75 million tonnes of CO<sub>2</sub> equivalent by 2010.

The EU [F-Gas Regulation](#) target was to reduce emissions of fluorinated gases by [around 23 million tonnes](#) of CO<sub>2</sub> equivalent by 2010, down from predicted "business as usual" emissions of 98 million tonnes in 2010.

According to the latest data submitted to the UNFCCC, EU-15 emissions were around 69 million tonnes in 2007, and EU-27 emissions around 77 million tonnes. They should increase only moderately since then.

### EU F-GAS REGULATION REVIEW UNDERWAY

The EU Commission has launched the [F-Gas Regulation Review](#), as mandated by Article 10 of the Regulation: "By 4 July 2011, the Commission shall publish a report based on the experience of the application of this Regulation".

The Commission intends to look at the effectiveness of the current Regulation and to investigate future international regulation intending to a phasing down of F-Gases, particularly [HFCs](#).

A service contract has been awarded, whose main objectives are:

- a) Reviewing international and national markets and policies on F-Gases;
- b) assessing the effectiveness of the present regulation;
- c) developing implementing options for an international emission reduction arrangement for HFCs and other F-gases and identifying technically feasible, effective, efficient and consistent options for further EU action;
- d) analysing the economic, social and environmental impacts of identified options.

Consultations with stakeholders from the relevant sectors are foreseen.

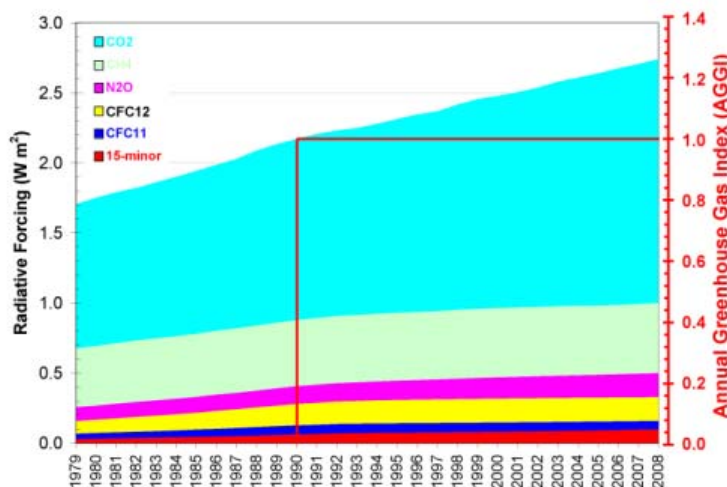
Source : <http://www.dgmarket.com/tenders/np-notice.do~4839796>



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

### HFCS REPRESENT LESS THAN 0.6 PER CENT OF GREENHOUSE GAS EMISSIONS



In 2008, [HFCs](#) represented 0.55 % of the atmospheric level of greenhouse gases, as communicated by the US [NOAA](#) global observing networks.

The 2008 [AGGI \(Annual Greenhouse Gas Index\)](#) update includes results for [Halon 2402](#) and 4 additional HFCs : HFC-152a, HFC-23, HFC-143a, and HFC-125, so that the total HFC impact is higher than in previous [2007](#) and [2006](#) results that only included HFC-134a.

The figure reveals the high share of radiative forcing results for the major gases, accounting for about 96% of the total, while the 15 minor halogenated gases contribute the remaining 4%. The major gases include CFC-11 and CFC-12 but exclude all other [ODS](#).

Thanks to the [CFC AND HCFC PHASE OUT](#), it is estimated that the global radiative forcing (ability of all greenhouse gases to trap heat), which reached  $2.740 \text{ W/m}^2$  in 2008, would have been  $0.2 \text{ W/m}^2$  higher, that means about one-half of the  $0.4 \text{ W/m}^2$  increase due to  $\text{CO}_2$  alone since 1990.

$\text{CO}_2$  dominates the total forcing with more than 63% of the total and its increase since 1990 was about 35%. The slowdown in the methane growth rate and the decline in the CFCs have tempered the increase in the net radiative forcing considerably.



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

CO<sub>2</sub> and nitrous oxide are the only gases that continue to increase at a regular rate. CO<sub>2</sub> has accounted for about 80% of this increase in radiative forcing since 1979.

NOAA developed the [AGGI](#), based on the analyses of atmospheric levels of greenhouse gases: CO<sub>2</sub>, methane, nitrous oxide, CFCs 11 and 12, and 15 other "Minor Gases" (other ODS excluding HCFCs, HCFCs, HFCs and SF<sub>6</sub>). Within HFCs are included HFC-134a, HFC-152a, HFC-125, HFC-143a, and HFC-23.

Using global air sample analyses the AGGI is updated annually.

Source: [NOAA's AGGI](#) and data received from the US [NOAA](#) global observing networks.

### **SF<sub>6</sub> USED IN A UNIVERSITY PROJECT TO UNDERSTAND THE GLOBAL CLIMATE SYSTEM**

---

A British research project to support Antarctic research into the growing environmental impact of CO<sub>2</sub> emissions will use a calibration mixture containing SF<sub>6</sub> ([sulphur hexafluoride](#)).

The [ANDREX](#) project (Antarctic Deep Water Rates of Export) is to research the role of the Southern Ocean in the global climate system.

ANDREX is a joint project of scientists from four UK research centres: [the National Oceanography Centre Southampton \(NOC\)](#), the [British Antarctic Survey](#), the [University of East Anglia](#), and the [University of Manchester](#).

A cylinder containing a calibration gas mixture with 30 parts per trillion (ppt) of SF<sub>6</sub> will accompany the research team from the University's School of Environmental Sciences on its voyage to the Weddell Sea in Antarctica in March 2010.

Since the Industrial Revolution, the world's oceans have absorbed approximately 30% of all anthropogenic carbon dioxide (CO<sub>2</sub>) emitted into the atmosphere.

As global emissions have increased, oceanic uptake has also grown in magnitude. Can ocean continue to absorb CO<sub>2</sub> at the pace at which it is being added to the atmosphere is an existing concern.

Tracer chemicals are used to assess the rate of absorption as anthropogenic CO<sub>2</sub> cannot be measured directly. SF<sub>6</sub> can act as a proxy for the absorption of anthropogenic CO<sub>2</sub> in the sea.



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

For determining SF<sub>6</sub> concentrations in seawater samples the 30 ppt gas mixture will be used as both a reference and calibration gas.

One of the researchers, Dr Peter Brown at the University of East Anglia, commented, "It is critical to improve our understanding of the oceans' ability to absorb anthropogenic carbon dioxide from the atmosphere and store it over long timescales."

Source : <http://www.gasworld.com/news.php?a=4399>

### SCIENCE UPDATE - RELATING GLOBAL WARMING POTENTIALS TO MOLECULAR STRUCTURE

---

Researchers at NASA and Purdue University have conducted theoretical studies to relate the Global Warming Potentials ([GWP](#)) of greenhouse gases (which are well known) to their molecular structures (Ref 1). However, the assertion that "nobody has ever delineated these properties", would appear misleading. In fact, the work does not alter the [GWP values](#) which are taken into account in both the Rio Convention and the Kyoto Protocol when aggregating Greenhouse Gas emissions from the various sources.

Reference 1: Bera PB, Francisco JS and Lee TJ, Identifying the Molecular Origin of Global Warming, J. Phys. Chem. A, 113, 12694-12699, 2009

### NEW ON WWW.FIGAROO.ORG

---



[Freezing HFC emissions, Reduction of HFC-emissions in commercial refrigeration in the Netherlands by the STEK-regulation-an actor study](#)

### NEW LINKS ADDED

---

**The IOR Air conditioning and Heat Pump Institute**

[http://www.ior.org.uk/ior\\_general.php?r=34EZB01TAA](http://www.ior.org.uk/ior_general.php?r=34EZB01TAA)