



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

ISSUE 12 - April 2004

First reading of F-gas Regulation: EFCTC welcomes the overall outcome beneficial to the environment and the society

“Regarding the stationary air conditioning, refrigeration and foams applications, we note that the proposed Regulation puts the emphasis on F-gas containment, which is the original and reasonable objective of the Commission’s proposal” underlined Nick Campbell, chairman of EFCTC. However EFCTC regrets that the same emphasis on containment was not given for Mobile Air Conditioning (MAC). The alternative solutions will not be necessarily more efficient than the use of the energy efficient “enhanced HFC systems” and these alternatives were not tested on real car fleet.

See the full Press release on the [Press room](#)

HFC-410A shows better environmental performance than propane in tests for medium temp commercial refrigeration systems

Medium temperature commercial refrigeration equipment designed to use hydrofluorocarbon (HFC) refrigerant HFC-410A performs better in a life cycle climate performance (LCCP) analysis than equipment designed for propane, a flammable hydrocarbon (HC) refrigerant with special safety requirements, according to a study by the Center for Environmental Energy Engineering (CEEE) at the University of Maryland.

See the full report (pdf) on: <http://www.icarma.org/green/documents/GreenReportFinal-030404.pdf>

SF₆ use in switchgear systems: result of a Life Cycle Analysis

SF₆ is used in [high and medium voltage switchgear systems](#), where it performs the dual extremely important functions of insulation and arc-quenching.

An earlier life cycle assessment (LCA) (1) on high-voltage (110kV to 380kV) switchgear had demonstrated clear advantages from SF₆ insulation technology in a power supply network. This assessment was taking into account present practices of minimising leakage and handling losses and of recycling consistently SF₆.



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

This showed that the focus on the global warming potential (GWP) of SF₆ is misleading and that a global approach is necessary to fully appraise the total environmental benefits of SF₆ in the systems in which it is used.

However, in medium-voltage (MV) applications this global performance of SF₆ still needed to be demonstrated. Therefore, a LCA study was commissioned by a group of companies (equipment manufacturers, grid operators, producer) and subject to critical and independent peer-review.

The study covers MV (between 1 and 30kV) switchgear used in systems including transformer substations, ring-main units, consumer substations. Again and despite a high GWP, SF₆ was shown to be environmentally preferable to alternative technologies. The results confirm also the need of a “system approach” to adequately evaluate the performance in such applications.

(http://www.zvei.org/energie/energie_data/news.htm#Ökobilanz).

Source: Mersiowsky I., “Life Cycle Assessment – SF₆-GIS Technology for Power Distribution – Medium Voltage”, November 2003

(1) Preisegger, Duerschner, Klotz, Koenig, Kraehling, Neumann, Zahn "Life Cycle Assessment - Electricity Supply Using SF₆ Technology", IPCC workshop, Noordwijkerhout, September 1999

HFCS: Insulation gases for high performance XPS foams

In the past, in order to obtain the best insulation effectiveness, extruded polystyrene (XPS) insulation panels were blown with CFCs, which were replaced later by HCFCs. As the Protocol of Montreal imposed the HCFCs themselves to be replaced, manufacturers developed a dual range of panels: when maximal thermal effectiveness is not essential, CO₂ is used with solvents as blowing agent; however, when this optimal thermal effectiveness is necessary, HFCs have to be used to obtain the lowest thermal conductivity of foam. It is to note that this better thermal performance will reduce the energy losses – and thus indirectly the CO₂ emissions of the application where it is used.

Source: XPS manufacturer

See also [EFCTC brochure on HFCs for insulation foams](#)



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

The growing air conditioning market: the essential role of HFCs

Air conditioners worldwide show a fundamental tendency of steady increase. At a global level, the demand for 2002 was estimated at 44 million air conditioners (growing to 52 million units in 2006). The European market is forecasted to grow from 3 million units in 2002 to around 3.7 million in 2006.

In terms of shipments, the US, China and Japan are the three main producers. Concerning the refrigerants used, the most marked shift to HFCs (R-407C and increasingly R-410A) is in Japan - where more than 50% of room air conditioners produced are HFC models - and in Europe.

In application of recent regulations (US, Japan), manufacturers have substantially improved the energy efficiency of air-conditioning equipment over the past few years. For example, in Japan, the target Coefficient of Performance level (COP) for 2004 is nearly twice as high as that in 1985 while in the US, certain manufacturers are now marketing unitary air conditioners using HFCs (R-410A) are achieving SEER (Seasonal Energy Efficiency Ratio) ratings of 16 and up to 19.5.

Sources: <http://www.iifiir.org/newsletter15.asp>, Japan Air Conditioning, Heating & Refrigeration News, and Japan Refrigeration and Air conditioning Industry Association

Maintenance: a new Web site dedicated to education activities for instructors, technicians and students on U.S. certification and of HFCs accreditation programs

Containment and maintenance are essential in the responsible use of HFCs. In this context the initiative of ARI (Air conditioning and Refrigeration Institute) assists training programs nationwide in the US to strengthen vocational and technical school education for entry-level technicians who install, service and maintain equipment. ARI points out that in the US, 20 000-22 000 new technicians and installers are needed each year in the heating, ventilation, air conditioning and refrigeration industry. Under the direction of the ARI Education and Training Committee, the effort combines the talents and resources of manufacturers, contractors, wholesalers, and educators, among others in an ongoing program of upgrading technician competency. :

<http://www.ari.org/edu>.



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

NEW ON OUR SITE

BROCHURES ON HFCs AND CLIMATE AVAILABLE IN POLISH

Our Brochure “[GREENHOUSE GASES EMISSIONS – What has led to their most significant reduction?](#)”, already available in English, French, German, Italian and Spanish, has now been translated into [POLISH](#). Soon, the brochure on HFCs, air conditioning and refrigeration and more information on fluorocarbons will be available in Polish language on our website. For reprint requests: vbe@cefic.be

More on our web site: <http://www.fluorocarbons.org>

See also: [news](#) – [links](#) to relevant web sites