EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

ISSUE 75 – March- 2010

FRENCH AFCE POSITION PAPER STRESSING THE CONTINUED IMPORTANCE OF HFCs IN REFRIGERATION

In a recent position paper on HFCs and refrigeration industry, the French AFCE (Alliance Froid Climatisation Environnement) asked regulators not to limit the use of HFCs in applications where technically, industrially, environmentally and economically proven alternatives do not practically exist.

Although alternative fluids, like hydrocarbons, ammonia, CO_2, can be used in specific applications, because of technical limitations, of poorer energy efficiency, of safety concerns or of local regulations, their introduction cannot be easily envisaged in all the many fields where the use of HFCs is established.

AFCE remind us that middle to high cooling power units in the range of 100 kW and higher, which are present in the food or the chemical industry, the health sector, or in district cooling, refrigeration units are built for a lifetime of 15 to 40 years. Modifications are not easy without a considerable loss in energy efficiency. This would be detrimental to the climate, since the *effective* CO_2 impact due to their energy consumption represents 5 to 10 times the *potential* CO_2 impact of any HFC release from an ill-maintained unit.

France and the EU have put in place the F-Gas Regulation aiming at strongly reducing all HFCs emissions, and it would be premature to introduce different or stronger regulations before having assessed the effectiveness of its implementation.

The British ACRIB (Air Conditioning and Refrigeration Industry Board) has reacted similarly, saying that, by focusing on restrictions on one specific refrigerant fluid, there is a risk that the industry will be forced into making system design decisions which compromise system efficiency - and therefore contribute to increased carbon emissions in the long term.

HFC-134a USED IN THE MONTPELLIER (FRANCE) TRIGENERATION PLANT

HFC-134a compressors deliver part of the cooling needs in the trigeneration plants built for the city of Montpellier (France).

A trigeneration plant delivers simultaneously electricity, heat and cooling. There are five heat and cold production plants in the city of Montpellier for which:

- Electricity is produced by gas engines.
- Waste heat from the gas engines is used to produce warm water distributed in the central heating networks.
- District cooling cold water is obtained by combining gas fired absorbers and HFC-134a refrigeration systems.

For further information about EFCTC and to unsubscribe: fluorocarbons@cefic.be
Cefic/EFCTC – Avenue E Van Nieuwenhuyse 4, Box 2 – 1160 Brussels
Tel : 32 2 676 72 65 – Fax : 32 2 676 72 41

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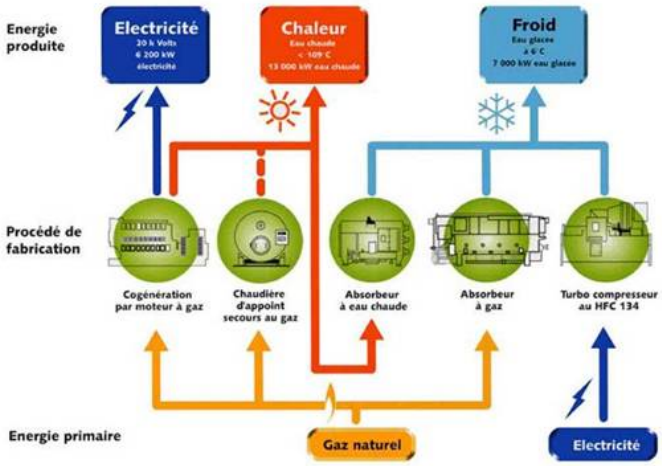
Installed in 2000 for the town hall sector, “Hôtel de Ville” was the first trigeneration plant built in Montpellier. The plant runs on natural gas and has an additional HFC refrigeration unit to complement the cooling requirement.

Accompanying the development of the city three sectors in the city of Montpellier are connected to heating and district cooling networks, that provide a total production capacity of around 10 MW electricity, 50 MW heating and 25 MW cooling. HFC-134a refrigeration units deliver 17 MW of the cooling.

A cold water network of 5 km provides cooling needs to users such as hospitals, ice rinks, an aquarium or a planetarium, in addition to offices and buildings as commonly done.



Source : http://www.serm-montpellier.fr/fr/contenu/chaleur_tri.htm

HFCs IN PRECISION COOLING FOR COMPUTER CENTRES

IT Data Rooms or Computer Centres generate a lot of heat and special equipment is necessary to provide the precise, year-round cooling required by sensitive electronics while protecting them from the environmental hazards of temperature, humidity and dust.

Because of their reliability, energy efficiency, flexibility and high safety level, HFCs are the selected refrigerants used in specifically designed precision cooling units.

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Cooling systems play an increasingly critical role in protecting sensitive IT systems from extreme variations in temperature and humidity that can cause system failure, degrade performance, and shorten equipment life—particularly in the high-density environments that have become common in enterprise data centres.

Computers Centres precision cooling systems have to meet specific design requirements:

- Very narrow temperature control (in the range 20 to 25 C with a precision of +/- 0.3 C).
- Humidity control (45-50% relative humidity).
- Dust and particle filtration.
- High reliability and built-in redundancy with multiple circuits.

These requirements make them very different from usual comfort cooling under a number of aspects. Essentially they require a much higher cooling density, precise humidity control and year round constant cooling.

Heat densities in electronics environments are very high; they can go from 750 W/m^2 to load densities as high as 2000 to 3000 W/m^2, and the demand is relatively constant during the year, while comfort cooling loads are around 150 W/m^2 and are operating during warm days only.

Dense loads of electronics generate a dry heat that the cooling system must address. It must avoid an above-normal humidity level which can lead to the corrosion of switching circuitry, and also avoid a lower humidity level that could cause static discharges and damage the electronics. A lower level of relative humidity is the more likely scenario in a data centre typically cooled all days long and every day.

Source: Equipment manufacturer

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More info (in French): http://conseils.xpair.com/conseil-consulter_savoir_faire-climatisation_salles_informatiques.html

EPEE COMMITMENT TO IMPROVE THE ENERGY EFFICIENCY OF REFRIGERATION AND AIR CONDITIONING EQUIPMENT

EPEE, the European Partnership for Energy and the Environment, has as key priorities the improvement of energy efficiency of refrigeration, air conditioning and heat pump equipment as well as the use of renewable energy technologies.

Under this priority, EPEE and its members intend to

- Promote the European Directive on Renewable Energies at EU Member State level to make sure that all heat pump types, whether aerothermal or geothermal, are recognized as renewable energies and as such included in national subsidy schemes.
- Foster the responsible handling of refrigerants and their careful selection in order to achieve energy efficient systems.
- Help to implement the European Ecodesign Directive by providing technical information on Refrigeration and Air Conditioning equipment.

EPEE is committed to increase the energy efficiency of Refrigeration and Air Conditioning Equipment and of Heat Pump equipment, and by doing so is supporting the EU objectives of increasing energy efficiency by 20%.

EPEE therefore will work closely with EU institutions to make sure that all the solutions our industry is able to provide will be taken into account.

NEW ON FLUOROCARBONS.ORG

Factsheets

FS nr 14 has been replaced by “Lessons from replacing CFCs in Europe”

FS nr 18 – “Selecting and Using GWP values for Refrigerants” (New).

Regulatory developments – Copenhagen Corner – Concluding Remarks

NEW ON WWW.FIGAROO.ORG

France – F-Gases stakeholders declaration to be filed by March 31st, 2010 (in French).

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Tel : 32 2 676 72 65 – Fax : 32 2 676 72 41