



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

**ISSUE 77 – May 2010**

### **HFC AIR CONDITIONING FOR THE MODERN TATE GALLERY IN LONDON**

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One of Britain's modern architectural icons, the Tate Modern Gallery, is refreshed using three of the largest [HFC-134a](#) compressors produced by a renowned manufacturer.

The three HFC coolers are installed in a complex purposely installed in a wing of the building and have a cooling power of 3,600 kW. The wing is equipped with acoustic isolation in order to respect the strict noise guidelines for residential areas.



The refrigeration equipment delivers cold water which is distributed throughout this imposing building, to refresh various air distribution systems, from [air conditioners](#) in the bar at the entrance to ventilo-convectors in areas open to the public.

The three HFC coolers are operating with a sophisticated control system to manage with precision a very variable cooling charge. The screw compressors working with R134a, ensure the permanent cold-water temperature control simultaneously optimizes the [energy consumption](#).

The five gallery levels are all air conditioned to maintain the necessary thermo-hydrometric conditions, in all seasons, required for the optimal conservation of the exposed works of art in the presence of crowds of visitors, who represent an important pollution source.



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The variety of completely different requirements for [air conditioning](#) is apparent on the ground floor, which hosts the art library, considered the greatest in Europe, a theatre for projections and seminars and a great auditorium. The Modern Tate, once an electrical power plant on the London Bankside along the Thames, was built between 1947 and 1963. Today after its transformation, it is a new modern architecture artwork and hosts the impressive Tate collection for contemporary art.

Source : Manufacturer Information

### **A NEW MONITORING SOLUTION FOR SF<sub>6</sub> CIRCUIT BREAKERS**

One of the very first stand-alone remote monitoring solutions for all SF<sub>6</sub> containing circuit breakers has recently been introduced to the market.

It can provide remote monitoring for any [high-voltage equipment](#) filled with SF<sub>6</sub>, including gas-insulated switchgears or power circuit breakers.

The new system will help industry to reduce their overall SF<sub>6</sub> usage, improving efforts to [detect and capture gas leaks](#) as soon as possible.

It has been introduced to help industry to face future provisions, by the [US EPA](#) or in Europe, requiring utilities to document, report and reduce the amount of SF<sub>6</sub> gas leaked into the environment, aiming at reducing the environmental impact of SF<sub>6</sub> gas used in circuit breakers.

Regularly programmed maintenance will be less necessary and in the case of a fleet of SF<sub>6</sub> circuit breakers, the system can help to prioritize and determine corrective actions, vastly simplifying the accounting of SF<sub>6</sub> usage.

Source: Manufacturer Information

### **INNOVATIVE R-407C DOMESTIC HEAT PUMP PRODUCT AWARDED A PRESTIGIOUS DISTINCTION BY THE AUSTRIAN GOVERNMENT**

The prestigious prize for Environmental and Energy Technology in the category "Energy & Efficiency" was awarded by the Austrian State to a highly efficient line of R-407C based air-water [heat pumps](#).

The award recognized the project for enabling heat pump technology to provide domestic heating from [renewable energy sources](#) in refurbished buildings. This innovation was considered to be a representing milestone in the development of this technology.



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The development of the newly designed evaporator was claimed to increase significantly air-water heat pumps efficiency.



The air-water heat pump is divided into two parts:

- An outdoor specially designed energy efficient evaporator, through which a noiseless fan blows air;
- the heat pump itself (compressor, condenser, electronics) installed inside the building, delivers warmth closer to where it is used, so that there are practically no losses in the heat distribution system.

Only refrigerant lines connect the heat pump and the evaporator, avoiding complex and noisy air ducts. No frost protection is needed, since the refrigerant cannot freeze even in the case of lengthy downtimes.

The use of non-flammable and of low toxicity R-407C allows the heat pump to be installed in buildings without safety restrictions. Away from the outside weather, maintenance work can be performed comfortably and safely even during the winter.

Source: Producer Information

### **HFC BLOWN FOAM FOR SPECIALLY INSULATED REFRIGERATED REEFERS**

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A global reefer manufacturer uses [HFC blown foam](#) for specially insulated refrigerated reefers, because of its achieved higher insulation performance.

Reefer refrigerated transport containers are designed for outside temperatures ranging from  $-60^{\circ}\text{C}$  to  $35^{\circ}\text{C}$ . They therefore require high performance insulation foam to keep the inside temperature in the prescribed range while reducing cooling requirements and energy associated greenhouse gas emissions.

Reefers' cooling is obtained either by autonomous cooling systems (based on [HFC-134a](#) in most cases), or by the ship's own cooling unit. Average container ships



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transport 5 to 6,000 [TEU](#) (standing for "20 foot equivalent unit", the standard container size).

Reefer insulation is mostly polyurethane foam. The HFC blowing agent has been selected for its better thermal conductivity performance.

Other blowing agents, which have been evaluated such as pentane or cyclo-pentane, present a lower thermal conductivity performance.

### **NEW ON FLUOROCARBONS.ORG**

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[Heat Pumps page](#)

[EPEE PR](#) : EPEE advocates the usage of heat pumps to reach the 2020 targets.

### **NEW ON WWW.FIGAROO.ORG**

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[AFCE](#) Octobre 2009 - Colloque Effet de Serre VIII – Présentations (in French).

<http://www.figaroo.org/fr/index.php?page=the-regulation>

- Contrôle des Emissions des HFC: Point de vue des Producteurs de Fluorés.
- Les HFC en Europe: Enjeux actuels et futurs.

<http://www.figaroo.org/fr/index.php?page=case-studies>

- Réduction de la charge en fluide frigorigène: Les stratégies.
- Exemple de progrès en grande distribution.