



# EFCTC NEWSLETTER

## An update on fluorocarbons and sulfur hexafluoride

**ISSUE 46 – May 2007**

### **SF<sub>6</sub> USAGE FOR A MORE EFFICIENT USE OF WIND POWER PRODUCTION**

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The EU Commission is subsidising a study of using SF<sub>6</sub>-insulated high-voltage transmission lines to create a reliable link from offshore wind parks to the European grid.

The network would be based on gas-insulated power transmission technology, since this is particularly well suited for high power transmission. SF<sub>6</sub>-filled transmission lines have been operating safely and reliably in all parts of the world for many years. They offer higher capacity compared with conventional cables.

The study will examine how far it is possible to solve the problem of irregular power generation by wind force without complicated and expensive storage technology.

The idea is to make more effective use of wind power with the aid of a joint high-voltage network between European cities such as Hamburg, Rotterdam and London and offshore wind parks bordering the North Sea, in Denmark, Germany, Netherlands, Belgium, France and the United Kingdom.

This North Sea network could also be used for exchanging energy in the whole region and could thus help boost electricity trading within Europe.

Source : <http://www.engineerlive.com/oil-and-gas-news/17433/improving-the-reliability-of-wind-power.shtml>

### **INNOVATIVE HFC CHILLER TECHNOLOGY IN TOKYO AMERICAN EMBASSY**

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The first air cooled [HFC chillers](#) equipped with magnetic levitation bearings (Mag-Lev) were recently installed at the American Embassy in Tokyo, Japan. The installation has a refrigeration power of 2520 kW, provided by twelve 210 kW modules equipped with magnetic bearings and installed on the roof of the embassy.

Electricity savings of about 40-50 % compared to piston compressors or approximately 30 % compared to the most efficient screw compressors are expected.



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Oil-free design will reduce the system maintenance, since no lubricant is needed.

Eliminating oil circulation will reduce abrasion and improve the heat exchange, providing a life long high [energy efficiency](#).

Magnetic levitation will provide the lowest sound level of any other chiller.

Magnetic levitation has been known for many years, but reliable electronic control required for keeping the shaft within acceptable tolerance was not available until recently.



Source : [http://www.ashrae.org/doclib/20070314\\_TokyoFinal030907.pdf](http://www.ashrae.org/doclib/20070314_TokyoFinal030907.pdf)

### HFC REFRIGERATION FOR LIQUID THERMAL SHOCK CHAMBERS

HFC refrigeration is introduced in a new range of liquid to liquid thermal shock chambers. Liquid thermal shock chambers are used for semiconductor testing, and also for electronic, electrical, automotive components and small sub-assemblies. This technique is typically conducted to apply very strong, repetitive thermal stress to test pieces, by transferring them between separately controlled hot and cold baths.

An HFC driven refrigerated cooling ring above the hot bath helps to limit evaporative losses of the costly perfluorinated inert fluid used in the test.

Improvements in the refrigeration design have reduced power consumption by 52%, and noise levels to as low as 61dB. The refrigeration change also reduces the chamber footprints by more than 15%.

This form of testing provides a very rapid temperature shock recovery of conditions, and can significantly reduce testing time by requiring shorter soaks and fewer cycles.



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Source : <http://www.processingtalk.com/news/unm/unm114.html>

### **RECYCLING OF WASTE REFRIGERATION EQUIPMENT CONTAINING HYDROCARBONS**

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Processing of all discarded appliances in a modern recycling plant, irrespective of the contained fluids, scores better on all key environmental indicators than any other treatment mode currently being practiced, notably if prior sorting of appliances is performed.

The EU "Directive on Waste Electrical and Electronic Equipment ([WEEE](#))" requires that refrigerants and blowing agents contained in the cooling circuits and the insulating foam in appliances must be recovered before being disposed of.

This concerns CFCs, HCFCs and HFCs and Hydrocarbons (HC). The [EU Commission has confirmed](#) that any of these agents must be removed and properly treated or destroyed.

Furthermore, a [LCA](#) (Life Cycle Assessment) study has concluded that the best environmental approach for recycling HCs from WEEE is to process such appliances together with CFC-containing appliances in a single specialist recycling plant. The study makes it clear that simply removing HC-containing appliances from the waste stream and processing them without recovering HCs is not environmentally acceptable.

Today's advanced recycling plants are able to process waste refrigeration appliances irrespective of the refrigerant in the [cooling circuit](#) or the blowing agent in the polyurethane [insulating foam](#). Waste appliances can thus be treated directly without the need for prior sorting them into CFC-containing or HC-containing categories.

Source : [http://www.ral-online.org/html\\_engl/detail.php?id=211](http://www.ral-online.org/html_engl/detail.php?id=211)

### **NEW ON OUR SITE**

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[RISK ASSESSMENT OF FLUOROCARBONS CHEMICALS](#) has been updated with the latest information on the dossiers prepared for fluorocarbons for discussion at the OECD, under ICCA HPV program