



# EFCTC NEWSLETTER

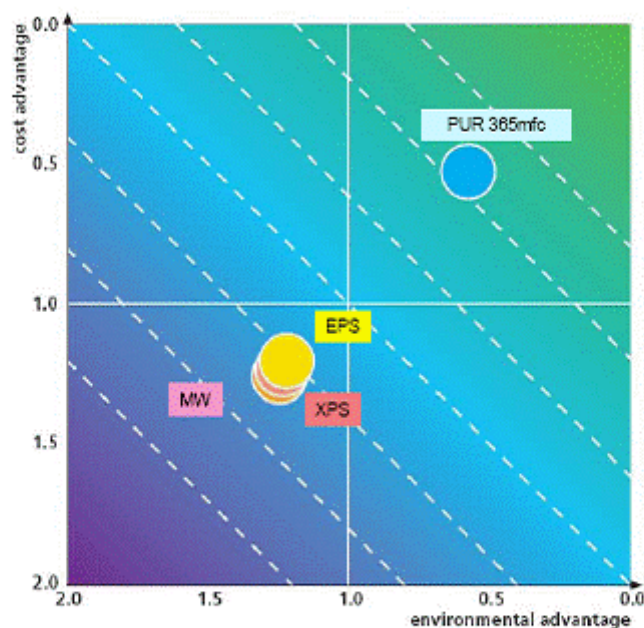
## An update on fluorocarbons and sulfur hexafluoride

ISSUE 44 – March 2007

### HFC BLOWN POLYURETHANE FOAMS – AN ECO-EFFICIENT SOLUTION FOR THE INSULATION OF EXISTING BUILDING STOCK

[HFC-365mfc](#) blown polyurethane [foam](#) is the most eco-efficient way for roof insulation, as shown by a study presented at a recent conference.

Eco-efficiency, a concept combining both an environmental [Life Cycle Analysis](#) and a complete Life Cycle Cost Evaluation (incorporating investment, operation and maintenance of a system), has already been used in the case of [Supermarket refrigeration](#).



: Eco-Efficiency Comprising Life Cycle Costs and GWP for Spanish roof insulation

At constant cost, HFC blown insulating foam can insulate more than twice the surface area achieved when using other insulation materials.

Flat roof constructions are very popular in southern Europe where insulation standards have generally been lower in the past. Polyurethane spray foams offer several advantages for renovation, since they can be applied on difficult or irregular shapes, because the strong adhesion of the foam and the substrate can contribute to



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the structural strength. Furthermore, spraying foam is a rapid process, leading to significant manpower savings.

The 160 million buildings in the EU use [over 40% of Europe's energy](#) and create over 40% of its carbon dioxide emissions, and that proportion is increasing. New buildings can be designed to be energy efficient, but, as the percentage of building renovation is in the order of 0.2% per annum, renovation of existing buildings presents the largest potential to save energy.

Source : [RAPRA Conference](#)

### **MOBILE AIR CONDITIONING LIFE CYCLE CLIMATE PERFORMANCE [LCCP] HARMONIZATION**

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[Category : Refrigeration and Air Conditioning]

Many comparisons exist of [complete life cycle \(LCCP\) or partial life cycle \(TEWI\) analysis](#), which are useful to evaluate the environmental impact of different refrigerants in [Mobile Air Conditioning](#).

However, as the assumptions and the methodology used can have a large impact on the conclusions, the German [VDA](#), Japan [JAMA](#) and American SAE have agreed to work together to agree a common approach.

A working group has been set up, which will propose a new standard for estimating the Life Cycle Climate Performance (LCCP) of the various refrigerants, considering energy consumption and greenhouse gases (GHG) emissions.

The Working Group is expected to propose conclusions in the Spring of 2007

Source : <http://www.sae.org/events/aars/presentations/2006-williamhill.pdf>

### **HFC-134a ONE OF THE 'GREEN' METHODS FOR PRODUCING AN ANTIMALARIAL DRUG**

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To replace hexane as solvent for the extraction of artemisinin - a natural compound known for its anti-malarial properties – HFC-134a is one of the [solvents](#) under investigation by a consortium of European universities and companies.



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Large scale production of artemisinin is based on extraction with hexane, a solvent that is both toxic and explosive, making it damaging to the environment and expensive to handle safely.

The challenge is to develop and test a series of new 'green' technologies, more efficient, safer and more environmentally friendly.

The consortium will work on three cleaner and more cost-effective extraction technologies, involving alternative solvents such as supercritical carbon dioxide (scCO<sub>2</sub>), HFC-134a, ionic liquids (ILs) and ethanol.

These solvents work more efficiently, and are also much safer, and have a much lower environmental impact in use.

[http://cordis.europa.eu/fetch?CALLER=EN\\_NEWS&ACTION=D&SESSION=&RCN=27123](http://cordis.europa.eu/fetch?CALLER=EN_NEWS&ACTION=D&SESSION=&RCN=27123)

### **COLD STORAGE CAPACITY PER CAPITA, A GLOBAL GLIMPSE**

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[Category : Refrigeration and Air Conditioning]

The [IIR](#) has calculated the refrigerated-warehouse capacity per capita by country, based on [IARW](#) (International Association of Refrigerated Warehouses) list of [public refrigerated capacity](#) in 2006.



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Country	liters per capita	Volume (10 <sup>6</sup> m <sup>3</sup> )
Netherlands	550.9	9
Finland	344.1	1.8
Denmark	330.2	1.8
Norway	325.3	1.5
Ireland	320.0	1.3
Australia	293.3	6.0
USA	231.1	69.0
Japan	217.2	27.7
Canada	208.9	6.8

The table only shows the 2006 capacities > 200 l/capita.  
Data concerning countries such as New Zealand (294 l/capita in 2002), are missing.

The list is topped by the Netherlands (551 l/capita), a relatively-low-population country with immense port facilities, followed by other highly developed countries, with insufficient domestic agricultural resources or a strong dependency on frozen foods, or eating habits based around seafood, along with the normal refrigeration facilities (as in several Northern countries or Japan).

Other factors seem to be related to technical or economic conditions, but probably also to cultural factors.

In comparison, Brazil has 14.4 l/capita, Poland 7.8 and Turkey 4.3.

Source : <https://www.iifiir.org/en/news.php?rub=5&nl=28&id=1512>

### NEW LINKS ADDED

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#### OFFICIAL ORGANIZATIONS - USA

EPA Climate Change Site : comprehensive information on the issue of climate change  
<http://www.epa.gov/climatechange/> (replacing an outdated link).