EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

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UK PROJECT TO INVESTIGATE REFRIGERANT LEAKS

The UK Institute of Refrigeration (IOR) has been granted funding for the "Real Zero" project, aiming to investigate refrigeration equipment in order to recommend how to best deal with leaks.

Indeed, although the F-Gas Regulation requires equipment owners to address leakage issues, it does not offer technical advice on how to prevent leakage in existing or future systems.

Mainly as a result of poor maintenance, it is believed that some refrigeration systems may leak more than 20% of their charge to the atmosphere per year.

The investigations will cover Air Conditioning and Refrigeration equipments installed at retailers, commercial and industrial food processing sites.

The results of investigations will be analyzed to identify the main sources of refrigerant leakage, how these can be reduced, in order to identify key issues for action, such as:

- Optimum system refrigerant charge;
- reasons for current leakage problems (design issues, service and maintenance practice etc);
- barriers to reducing leakage;
- recommendations for actions to reduce leakage, and the associated cost-benefit.

As a result, the IOR intends to publish of guidance notes for equipment owners on:

- Why leakage matters and what it costs;
- common leak points;
- how to identify leakage risk points in cooling equipment;
  key issues for specifying design and installation of new leak-free systems;
  how to prevent and remedy leaks as part of regular maintenance;
- case studies of major leakage issues and reduction measures in various types of systems.

Source : http://www.ior.org.uk/ior_general.php?r=6HEVNHGHAG

THE HCFC-22 PHASE-OUT CHALLENGE

Regulation 2037/2000 on Ozone Depleting Substances (ODS), article 5, specifies the following deadlines regarding HCFCs:

- January 1, 2010: prohibition of the use of virgin HCFCs in the maintenance and servicing of all equipment;

o January 1, 2015: prohibition of the use of all HCFCs, including recycled HCFCs.

There is in addition a review clause which might bring forward the 2015 time frame to 2012. These deadlines will probably pose important problems in many EU countries, where a large HCFC-22 bank still exists.

Two main challenges will have to be met within the EU: the first one is the shortage of HCFC-22 for maintenance purposes when, by January 2010, only recycled material will be allowed. It is important that the repetition of what happened in 1994 with the CFC phase-out should be avoided. At that time, having mandated an earlier CFC phase-out, the Commission was forced subsequently to authorize non-EU CFC imports because the user industry was not yet ready to use HCFC substitutes.

The second challenge will be the lack of qualified personnel, who are already required for the implementation of Regulation 842/2006.

In the case of France for instance, an enquiry has revealed an estimated bank of 18,300 tons of HCFC-22, corresponding to over a million installations needing to be converted. If only one quarter of this number i.e. 250,000 units were adapted of replaced before 2010, nearly 3,000 installations per week would need significant changes.

HCFC-22 users are therefore strongly encouraged by the authorities to start retrofitting or replacing their current equipment, as delayed action could lead to a shortage of qualified staff capable of performing the work required.

Sources : https://www.iifiir.org/en/news.php?rub=2&page=1&id=1734
http://www.refripro.eu/en/04-tendencies/02-technical-articles.html

IS CO_2 AN EFFICIENT REFRIGERANT?

Energy efficiency plays a key role in the choice of a refrigerant. According to the present state of the art, the subcritical use of CO_2 is a widely accepted and in many cases also energy efficient solution in Low Temperatures cascades combined with other refrigerants on the high pressure side (see for example SUPERMARKET REFRIGERATION EQUIPMENT USING HFCS THE ENERGY AND COST EFFICIENT SOLUTION).

The situation, however, is different when it comes to its transcritical use. Component manufactures widely agree that there is still a need for R&D work before it will be possible to speak of energy-efficient use of CO_2.

In some applications such as very large packaged chillers for example (as those used for district cooling), HFC-134a refrigerant is the best possible solution.

Other alternatives such as ammonia and hydrocarbons are comparable to CO_2 (no ODP, very low GWP), but both products are flammable and ammonia is also toxic, a real danger as confirmed by a number of recent serious accidents.

Source : http://www.refripro.eu/en/04-tendencies/02-technical-articles.html
http://scanref.com/fileadmin/previous_issues/2008/ScanRef_3_08.pdf (page 27)

SF_6 CIRCUIT BREAKER WINS SWEDISH ENVIRONMENTAL PRIZE

Svenska Kraftnät, the Swedish National Grid, has awarded an SF_6 based disconnecting circuit breaker (DCB – see note) their 2007 Environmental Prize, an honour that will be shared this year with an expert in butterflies.

Rewarded DCBs contain SF_6 as an insulation medium, keeping their size down, requiring less space and allowing easier installations, as they eliminate the need for separate disconnectors on each side of the circuit breaker. The smaller number of installed components also increases the grid safety and reliability.

Environmentally, DCBs perform very well since SF_6 losses at almost zero and energy losses consequently CO2 emissions are reduced compared to conventional equipment.

The DCB has become almost standard for the Swedish National Grid and just recently, the hundredth unit was ordered.

The prize was shared with a butterfly expert, Ingemar Frycklund, whose studies have shown that several butterfly species threatened with extinction can find a protected place to live under power lines.

Note: Disconnecting circuit breaker – DCB, are circuit breakers where the breaker's own contacts, which are protected in the SF_6 breaking chamber, also provide the disconnecting function. The DCB thus replaces the conventional combination of circuit breaker and adjacent disconnectors

Source : http://www.voltimum.co.uk/news/7173//ABB-s-disconnecting-circuit-breaker-wins-Swedish-environmental-prize.html

NEW ON OUR SITE: LINKS ADDED

Official organizations - INTERNATIONAL ORGANISATIONS - Information Sources – Ozone:
http://www.fluorocarbons.org/en/linx_5.html#is

UNEP - HCFCs News
http://www.unep.fr/ozonaction/news/hcfcnews.htm
News and current information related to HCFCs, drawn from diverse sources worldwide.

Applications of Fluorocarbons – refrigeration – USA:
http://www.fluorocarbons.org/en/linx_03.html#Re

USA
ASHRAE consumer information Web page
http://www.ashrae.org/education/page/857
Saving Energy and ASHRAE Resources to Improve Energy Efficiency

UK
UK IOR
www.ior.org.uk
Institute of Refrigeration, an Independent organisation, run for refrigeration and air conditioning professionals.

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