A new year has begun: for all refrigeration stakeholders and the IIR, it will certainly be focused on new efforts in terms of environmental protection.

In December 2005, I attended the 11th Conference of the Parties to the United Nations Framework Convention on Climate Change held in Montreal, which also marked the entry into force of the Kyoto Protocol, and also attended the 17th Meeting of the Parties to the Montreal Protocol (MOP-17), held in Dakar, Senegal.

Following these events, I am more than ever convinced that in all countries we must anticipate future technological changes in order to address the replacement of certain refrigerants and meet the challenge of energy efficiency, and that we must implement these changes fast.

In 2006, the IIR intends to launch several specific actions within this context: it will publish a Guide to Energy Saving, an updated version of Ammonia as a Refrigerant, and a bibliography of publications on CO2; another highlight in 2006 will be the 7th IIR-Gustav Lorentzen Conference on Natural Working Fluids.

These environmental concerns must also be a focus of all our other actions. We must see the necessary technological changes as providing an opportunity to highlight the importance and value of our professions. **Happy New Year to you all.**

Didier Coulomb  
Director of the IIR

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**IIR focus**

The IIR, as an intergovernmental organization, participated in this “historic” event which gathered 10 000 people for the largest United Nations Framework Conference on Climate Change (UNFCCC) ever held. The conference held on November 28-December 9, 2005, in Montreal, Canada, was the 11th Conference of the Parties (COP-11) to UNFCCC but also the first Meeting of the Parties to the Kyoto Protocol (MOP-I) since this international agreement came into force in February 2005 thanks to the Russian ratification.

Some 40 decisions were adopted at this conference considered as the “most productive” ever held by R. Kinley, Head of the UNFCCC Secretariat. The key decision was no doubt the “initiating of a process to consider further commitments beyond 2012 for Parties included in Annex I” (38 industrialized countries). This process will be conducted by an open-ended working group of Parties to the Kyoto Protocol which will meet for the first time in May 2006. This process will therefore not include non-Kyoto signatories such as the United States and Australia. The current commitments of the Kyoto Protocol consist in a reduction of the total volume of 6 greenhouse gases (GHGs) in Annex I countries by at least 5% with respect to 1990 levels, during the period 2008-2012. HFCs, widely used as refrigerants in the refrigeration sector, are one of these GHGs. The European Union called for a 50% reduction in worldwide emissions of GHGs by 2050.

A last-minute agreement was also found to launch talks on “strategic approaches for long-term global cooperative action to address climate change under the broader UNFCCC (which comprises parties such as Australia and the United States). On the request of the US delegation, the decision states that the talks “will take the form of an open and non-binding exchange of views, information and ideas […] and will not open any negotiations leading to new commitments”.

The first week saw the adoption of the Marrakech Accords, which provide the rule-book for implementing the Kyoto Protocol. According to R. Kinley, “there is now certainty for a sustained and effective global carbon market”. It was decided to streamline the Protocol’s Clean Development Mechanism which allows developed countries to earn GHG reduction credits from investing in clean development projects in developing countries.

The IIR was very visible during the Montreal Conference: Didier Coulomb delivered a statement during the plenary session of the high-level segment on December 9, in the presence of about 1500 ministers and
delegates. He expressed the position of the IIR focusing on the top-priority challenge for the refrigeration sector to reduce energy consumption – which has 4 times the impact of emissions – by improving the energy efficiency of refrigerating plants, in order to contribute to mitigation of climate change. This statement summarizes an editorial entitled “Global warming: refrigeration-sector challenges” prepared in collaboration with the Science and Technology Council of the IIR.

This editorial was published in Responding to Climate Change (RTCC) which was distributed to all participants in the conference. Jean-Luc Dupont also represented the IIR at this event.

Furthermore, on December 12-16, 2005, Dakar, Senegal, played host to the 17th Meeting of the Parties (MOP-17) to the Montreal Protocol. Didier Coulomb presented a statement on December 16, calling for actions taking into account both protocols for the refrigeration sector. CFCs are also being progressively banned in developing countries and we must promote more energy-efficient solutions for these countries, with less GHG emissions.

Consult the IIR statements at www.iiriir.org, the video of D. Coulomb’s speech in Montreal at http://unfccc.streamlogics.com/unfccc_agenda.asp (December 9, 2005, 10:00 Plenary) and the ISD coverage of MOP-17 (including the IIR’s participation) at www.isd.ca/ozone/mop17

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**IIR events**

**IIR committee meetings**

- The Management Committee (MC) of the IIR met in Paris on November 29, 2005. On November 28, two other meetings took place: the Publications Sub-Committee (PSC) meeting and the meeting of the representatives of the Science and Technology Council to the Management Committee (STC-MC). The main decisions taken were:
  - the necessity to reduce costs and then particularly to expand use of electronic tools (Bulletin linked with Fridoc, etc.);
  - the reduction of uncertainties regarding legal aspects, particularly copyright (requesting of copyright for IIR-co-sponsored conferences);
  - methods of finalizing the International Dictionary of Refrigeration, the course Refrigeration Fundamentals, a guide on energy savings and a publication of a bibliography of recent papers on CO₂;
  - the preparation of various documents for the IIR’s centenary;
  - the updating of certain Informatory Notes;
  - the confirmation of the decision to organize the Gustav Lorentzen Conference in 2008 in Denmark;
  - the publication of the list of research laboratories on the Web site;
  - to ask all the countries which still have not paid their contribution for justification;
  - validation of proposed analytical accounting to be implemented as of January 1, 2006.

**International activities**

**Conferences**

- The 3rd International Conference on Energy Research and Development (ICERD-3) took place in Kuwait City on November 21-23, 2005. This IIR co-sponsored conference emphasized the necessity of energy saving, even in oil-producing countries, in order to preserve resources and mitigate climate change.
- The International Conference on Heating, Refrigerating and Air Conditioning; an IIR-co-sponsored conference, took place in Belgrade, Serbia, on November 30 to December 2, 2005; many papers on the efficiency of refrigerating equipment with different refrigerants were presented.
- Partnerships with other international organizations:
  - Didier Coulomb attended the General Assembly of REHVA (Federation of European heating and air-conditioning associations) in Lausanne, Switzerland, on October 7-8, 2005. It was the occasion to practically implement cooperation with the IIR.
  - Liaison Committee meetings with the Heat Pump Programme of IEA and with ECSLA also took place in November 2005.
  - Didier Coulomb visited UNIDO (United Nations Industrial Development Organization) in Vienna, on November 9, 2005, and discussed common objectives and projects.
- IKK 2005, the 26th IKK-International Trade Fair Refrigeration, Air Conditioning and Ventilation, took place in Hanover on November 2-4, 2005. It attracted 13 670 visitors and 610 exhibitors from 41 countries.
- For the third year running the IIR was visible at IKK, thanks to the kind invitation of DKV, the German Refrigeration Association, who provided a booth. Susan Phalippou, the IIR’s Promotion Manager, displayed IIR products, set up many new contacts and enjoyed seeing many visitors, including Prof. Henk van der Ree (President of the IIR’s Executive and Management Committees), Prof. Horst Kruse (Honorary Member of the IIR), Dr Peter Tomlein (organizer of the Compressors IIR conference series), Mr John Murphy (Institute of Refrigeration Ireland), Miss Christine Kim (KRAIA, Korea) and Mr Rory Macnamara (Editor of Refrigeration & Airconditioning Africa Journal). Mrs Irene Reichert (General Secretary of DKV), Dr Harald Kaiser (Senior President of DKV) and Susan Phalippou held a meeting of the DKV-IIR Liaison Committee and discussed ways of enhancing cooperation.

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**Briefs**

- Dr David Tanner has finished a 2-year mandate as President of AIRAH (The Australian Institute of Refrigeration, Air Conditioning and Heating). Dave has paid tribute to Jennifer Pelvin (Chief Executive) and her staff and highlighted the following achievements: implementation of AIRAH’s current focus on sustainability, the cold chain and commissioning, development of a new constitution, launching of the Graduate Certificate in Air Conditioning, an ongoing flourishing conference programme, strengthened links with the Australian government and development of the Australia/New Zealand Refrigerant Handling Code of Practice in conjunction with New Zealand stakeholders. Dave was Australia’s Delegate to the IIR until recently. The IIR expresses its gratitude to Dave for his major contributions to AIRAH and the IIR and welcomes Dr Stephen White who is now Australia’s Delegate, and Grant Hall, President of AIRAH. Dave remains President of the IIR’s Commission D1. www.airah.org.au
- The UK Institute of Refrigeration (IOR) held in November its annual conference entitled “The future of cooling – opportunities and threats”. Topics covered: LCCP in supermarket refrigeration systems; environmentally acceptable cooling; the EU’s draft F-gas Regulation; the EU’s Energy Performance of Buildings Directive; TEWI, LCCP, LCA and BREEAM environmental assessment methods; minimization of refrigerant leakage; process and building design problems; specific case studies on different refrigerants; cooling of computer-room cabinets. To order the CD-ROM proceedings: www.ior.org.uk

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**Upcoming conferences**

- Innovative Equipment and Systems for Comfort and Food Preservation, an IIR Conference, will be held in Auckland, New Zealand on February 16-19, 2006. Keynote speakers: James Braun, Robert Hesp, Forbes Pearson, Satish Kandlikar and Paul Waide. Register now: mike@irhace.org.nz and p.bansal@auckland.ac.nz
- The 7th IIR-Gustav Lorentzen Conference on Natural Working Fluids will be held in Trondheim, Norway, on May 28-31, 2006. To obtain the second announcement,
Markets: Chillers

- According to a recent market report by BSRIA, an estimated 200,000 units of chillers were shipped worldwide in 2004. The estimated number of centrifugal chillers was 8500 with the USA at the centre of production (3500 units equal to 41% of the market share). China comes second, with a 10% annual increase rate and 1500 units. Japan, Korea and Taiwan follow with 300 units respectively. Dubai in the UAE is also rapidly expanding with demand topping 200 units in 2004 and increasing.

Trends for absorption chillers over 350 kW is mainly confined to the Far East, with China (4000 units), Japan (1600) and Korea (900) in the forefront. The market penetration of the top 4 Japanese manufacturers in China will lead to stronger competition. Smaller but reasonably sized markets are India and Iran with sales of over 300 and 200 units respectively. The total approximate world market is 7500 units.

No single world zone monopolizes the market for reciprocating, scroll and screw chillers (positive displacement chillers), estimated at 184,400 units. Reciprocating chillers are being gradually replaced by scroll or screw chillers, which are considered to be cost effective and have superior features such as compactness, maintainability, easier control and lower noise. JARN, November 25, 2005

Markets: Frozen Food

- Europe
  
  The top 4 European countries in terms of consumption per capita of quick-frozen foods, excluding poultry, are Sweden (46.9 kg), Ireland (46.6 kg), the UK (45.5 kg) and Denmark (45.2 kg). According to the Swiss research institute Food for Thought (FFT) Irish consumption showed the strongest increase with 14% in 2004 to 186 400 tonnes.

Overall, European consumption of quick-frozen food (except poultry) increased by 2% to 11 950 million tonnes. The leading segment was pizza which rose from 9.3% to 18 638 000 tonnes followed by frozen potatoes which rose from 5.2% to 3 million tonnes and frozen fruit that rose from 6.5% to 171 800 tonnes.

Letter VIPS No. 30, November 2005

Russia

The frozen food sector in Russia, in particular seafood, is a dynamic, rapidly developing market. Market figures for frozen fruits and vegetables, including berries and mushrooms rise an average of 30% per year whilst the demand for frozen seafood is catching up with an estimated annual growth of 17% due to concerns for health and overall increased exposure to seafood. Within this segment, the demand for ‘delicacies’ such as octopus, squid, mussels and shrimp is rising by approximately 35% each year according to studies carried out by RosBusinessConsulting (RBC).

www.cee-foodindustry.com

Trends: Air Conditioning

China

According to a report by the Market Economy Research Institute of the State Council Development and Research Centre, China may be facing the risk of stockpiling almost 30 million air-conditioning units in 2006. The total output of air conditioners reached 80 million units during the first half of last year, up 23% year-on-year. Domestic demand is estimated however at 50 million units per year, indicating that the industry is faced with the dilemma of a rapid expansion production for almost a third of the market share, followed by Italy and then the UK with a 20.5 and 18% share respectively.

ARI Statistical Release, December 1, 2005

Briefs

- Controls market boost

In order to comply with the introduction of energy efficiency legislations and to promote ‘green’ solutions, the development of new and advanced products offering enhanced services and monitoring are critical in the European refrigeration controls market, estimated at USD 224.4 M. Despite the current stagnation, the market for refrigeration controls is forecast to grow at 3.1% CAGR (Compound Annual Growth Rate) between 2005 and 2011 to USD 278.5 M thanks to macroeconomic recovery and an increase in supermarket’s investments. According to market research carried out in 2005 on super-market refrigerators, display cabinets, food transportation devices and big industrial refrigerators in Europe, Germany remains the single largest market in Europe, accounting for almost a third of the market share, followed by Italy and then the UK with a 20.5 and 20% share respectively.

Frost & Sullivan Research Report, September 2005

- A refreshing drive

Following an article published by Le Journal de l’Automobile, there is an opening for growth in the French mobile air-conditioning
market. The rate of equipping new vehicles with air-conditioning was 73% three years ago and is close to 80% today. In 2007 an estimated 39% of vehicles in circulation will be equipped with an air-conditioning system (i.e., 12 million).

Le Journal de l'Automobile, No. 914-915, April 22, 2005

UK rise in ready-steady meals

The UK market for chilled, ready-made meals has grown from an estimated GBP 173 M in 1988 to over GBP 1750 M in 2005 and is continuing to evolve, showing that these perishable prepared foods stored at refrigeration temperatures at or below 8°C are satisfying consumer needs and lifestyles.

www.chilledfood.org

Kogas had hoped to buy an extra 10 liquefied natural gas (LNG) cargoes ahead of the peak-demand winter season but is encountering a tight market. Besides annual supplies under term contracts, Kogas has recently been buying more than 30 LNG cargoes a year under spot contracts to meet winter demand. Kogas, the world's single-biggest LNG buyer, is currently South Korea's sole importer and wholesaler of the fuel. Kogas had secured about 20 cargoes in 2005, but needed 5-10 more, a company official said. Hot weather has raised demand in Europe where more LNG was needed to generate electricity to power air conditioners. Korea imports LNG was needed to generate electricity to more, a company official said. Hot weather and wholesaler of the fuel. Kogas had secured a buyer, is currently South Korea's sole importer under spot contracts to meet winter demand. Kogas, the world's single-biggest LNG buyer, is currently South Korea's sole importer and wholesaler of the fuel. Kogas had secured about 20 cargoes in 2005, but needed 5-10 more, a company official said. Hot weather has raised demand in Europe where more LNG was needed to generate electricity to power air conditioners. Korea imports LNG was needed to generate electricity to more, a company official said. Hot weather and wholesaler of the fuel. Kogas had secured a buyer, is currently South Korea's sole importer under spot contracts to meet winter demand. Kogas, the world's single-biggest LNG buyer, is currently South Korea's sole importer and wholesaler of the fuel. Kogas had secured about 20 cargoes in 2005, but needed 5-10 more, a company official said. Hot weather has raised demand in Europe where more LNG was needed to generate electricity to power air conditioners. Korea imports LNG was needed to generate electricity to more, a company official said. Hot weather

www.airproducts.com

Kogas had secured a 120 000-refrigeration-ton (about 420 MW) district-cooling contract with City of Arabia, a huge residential and commercial project in Dubai. Empower will provide energy-efficient district cooling to the Mall of Arabia, the Restless Planet (a dinosaur theme park), 1600 apartments on Wadi Walk and 34 high-rise developments. The project will serve 35 000 residents by 2008.

www.ameinfo.com/cgi-bin/cms/page.cgi?printLink=69590

DKV's Annual Meeting 2005 held on November 16-18 in Würzburg attracted 600 participants from 34 countries; 106 papers were presented. Dipl.-Ing. Karl Loehlein, Linde Cryotechnique CH and Dr.-Ing. Thomas Selker, Trox GmbH, Neukirchen-Vluyn, were elected to the board. The next meeting will be held in Dresden on November 22-24, 2006. The proceedings of the 2005 event and DKV's book on the history of refrigeration, Der DKV und die Geschichte der deutschen Kälte- und Klimatechnik (39.90 €) are on sale: info@dkv.org - www.dkv.org

Mine cooling

Cooling the world's deepest single-shaft mine, the Anglogold Mponeng gold mine in Gauteng, South Africa, is a challenge – the mine is 3.68 km deep and without cooling, temperatures can reach 60°C at the mine face. Six 3.5 MW Eco-Vim refrigeration units are used to produce around 5000 t of ice/day. The system uses chilled water being pumped from the plants to a freezer vessel, in which water is subjected to pressure below triple point conditions, and where water, ice and water vapour exist simultaneously. Some water evaporates and some becomes an ice slurry. Water vapour is drawn off, while the ice slurry is separated into brine and ice on the surface, before the ice is fed to an ice dam underground. The brine is then returned to the plant, while recirculated clarified return water is used to restore the cooling capacity of the ice. Thanks to the IDE (Israeli Desalination Engineering) equipment, pumping costs are typically reduced by 80%, since the mass of water to be pumped is reduced by this amount. Other uses of this technology include combustion air cooling in gas turbines, central air conditioning and cooling in large malls and buildings, ice-based energy storage, process cooling and all-weather snow-making.

www.miningweekly.co.za/min/features/ventilation/show=11438

How to reduce peak electricity demand

The Pentagon activates solar air-conditioning

The solar heating, air-conditioning, power and lighting system installed at the guard station of the Pentagon is one of the most advanced in the US. The system incorporates 12 advanced ways of using solar energy to reduce fossil and electrical energy use, notably in summer.

The new solar-desiccant-evaporative air-conditioning system reduces summer humidity levels of outside air and cools the air before supplying it to the guard section. The dry air allows very efficient evaporative cooling to take place even in humid climates; thanks to evaporative cooling, no humidity is added to the air. This is particularly important for buildings such as laboratories or industrial facilities with 100% outside airflow and high energy use and cost in dehumidifying and cooling the air. This system has reduced dew point by as much as 9°C and reduced dry bulb temperatures by 12°C during a mid-day test in July. A 7°C drop is expected when minor adjustments are made to the water flow and air flow between stages. At peak performance, the existing system has demonstrated 3.6 units of cooling/dehumidification output for every 1 unit of electrical input and all of the electrical input from the utility grid is at night, during “off-peak” hours.

www.eere.energy.gov/femp/news/events/detail.cfm/news_id=8953

California Ice Exploration

Eleven Southern California municipal electric utilities are exploring the use of ice storage to help reduce peak electricity demand during hot summer months, given that 70% of this demand is due to air conditioners. The electric utilities are working on the installation of 10 ice-storage air conditioners at various test sites dotted throughout the state. Southern California Public Power Authority (SCPPA) is putting forward USD 100 000 to purchase and install systems. The proposed systems use lower priced off-peak electricity at night instead of the more expensive peak electricity prices during the day and the air conditioner stores “cool” energy in the form of ice. According to SCPPA’s Executive Director, Bill Carnahan, “shifting the load from on-peak to off-peak hours can significantly lower costs to our customers, conserve energy and reduce air pollution.”

For more information: www.ice-energy.com

Consulting-Specifying Engineer, October 20, 2005

Korea: GHP market success

Korea’s first gas engine driven heat pump (GHP) has been successfully commercialized since October 2005 by LS Cable using its own technology. Given the heavy use of air conditioners during the summer months and peak high energy consumption, the Korean government encourages the use of gas-driven equipment. The Korean GHP market is estimated to be about 150 billion won and was previously entirely dependent on Japanese imports. LS Cable expects to sell 1000 units in 2006, concretizing domestic production of both indoor and outdoor units.

www.jrn.co.jp/New2005_Q4/1108_LSCable.htm

Absorption: triple efficiency

The world’s first triple-effect absorption chiller-heater with a cooling COP (higher calorific value basis) of 1.6 was released in October of last year by Kawasaki Thermal Engineering. This system consists of an ordinary double-effect lithium bromide (LiBr)/H2O cycle with an added high-temperature, high-pressure generator. It provides vast improvements in energy efficiency: 30% reduction in energy used for space cooling and processes compared with other double-effect units available on the market.

JARN, November 25, 2005

Refrigerated transport

Innovative hybrid technology

Carrier Transicold introduced Deltek™ hybrid diesel electric technology to the refrigerated transport industry in October of this year. The ultra-high-performance, EPA-compliant system can be used in multi-temperature applications without compromising the system’s overall capacity. This new technology offers more reliable, easier maintained transport refrigeration systems at the lowest lifecycle costs yet.

www.carrier.com

Truckers’ Delight

North American truckers are set to upgrade their equipment in line with new regulations and due to strong consumer demands for better food safety. The FDA’s hazard analysis critical control points (HACCP) system decrees that shippers and consignees of meat, poultry and seafood must provide details and documents of their food handling and processing. This is according to a new analysis from Frost & Sullivan, who forecast the refrigerated truck industry in North America will reach USD 6.30 billion in revenue in 2011 from USD 1.68 billion in 2004 as “more fleets are purchasing new refrigerated vehicles, which are built with controls and monitoring devices to offer better temperature management.”

MeatProcess.com, October 25, 2005

Briefs

Solar cooling on the rise

The European Solar Thermal Industry Federation (ESTIF) presented its statistics for the European market including all 25 member states. Results showed 12% growth in 2004, predicted to continue into 2005. At the time of the survey there were approximately 70 installations with a total cooling power of 6.3 MW supplied from 17 500 m² of solar collectors. Absorption systems accounted for over 40 installations, of which 16 use desiccant evaporative cooling. www.estif.org

Garden fresh

A new system involving the direct humidification of vegetables in supermarket displays allows for greater freshness and a more appealing product. A recent study carried out in the US has shown the benefits of such a system; in atomised lettuce, only one out of six lettuce is lost as opposed to five when not. Humidification thus means a longer product life and it also reduces the amount of handling since products can remain on display day and night. Given the varied range of installations, i.e. a choice in the size of the drops, the intensity of the spray, cycle programming, automatic cleaning, etc., each shop can quickly integrate the system which it needs. Axima refrigeration France offers not only this process but also system maintenance including replacement of the filters, checking of the circuits, water checks, etc.


A recent study demonstrated that cooling newborns having suffered from oxygen deprivation helps prevent brain damage. Medically induced hypothermia reduced the risk of death by 13% and the risk of cerebral palsy by 11%.


Regulations/Standardization

Europe

During the 2nd Reading by the European Parliament of the draft Regulation on F-gases (fluorinated gases), MEPs finally opted for containment measures and controls for leakage and rejected the proposals of the environment committee to impose gradual bans on F-gases (including HFCs) in refrigerators, air-conditioning systems and stationary products.

The double legal base to be applied to this draft Regulation, as agreed on by EU ministers last year has been agreed by MEPs. A provision was added to allow member states to maintain or adopt stricter F-gas controls if these are in line with their national greenhouse gas reduction targets under the Kyoto Protocol.

MEPs have left virtually unchanged the draft Directive, which aims to regulate the use of F-gases in vehicle air-conditioning systems: ban on fluorinated gases with a GWP of more than 150 in new cars planned from 2011 onwards and in all vehicles from 2017. This threshold would eliminate HFC-134a, but will allow continued use of HFC-152a (GWP = 120).

If these measures are confirmed by the Environment Council, the texts should enter into force in 2007.

MEPs also asked the Commission to develop new legislative proposals by the end of 2008 to deal with non-vehicle air-conditioning systems and refrigeration systems in modes of transport. www.euractiv.com

According to the Waste Electrical and Electronic Equipment (WEEE) Directive Annex II, “Equipment containing gases that are ozone depletors or have a global warming potential (GWP) above 15, such as those
Conferences organized by the IIR

2006

February
16-18
Auckland
New Zealand
Innovative Equipment and Systems for Comfort and Food Preservation
Mike Leggett - mike@irhace.org.nz
Pradeep Bansal - p.bansal@aukland.ac.nz
Fax: +64 9 262 1406
http://www.irhace2006.org.nz

May
28-31
Trondheim
Norway
7th IIR-Gustav Lorentzen Conference on Natural Working Fluids (GL2006)
Trygve Eikevik - Trygve.M.Eikevik@ntnu.no
Fax: +47 7359 3950
http://www.energy.sintef.no/arr/GL2006/

July
17-21
Prague
Czech Republic
Cryogenics 2006 - CryoPrague 2006
Vaclav Chvast - icaris@icaris.cz
Fax: +420 266312113
http://www.icaris.info/CryoPrague2006/

September
13-15
Dinan
France
7th Conference on Phase-Change Materials and Slurries
Michel Leprieur - m.leprieur@pole-cristal.tm.fr
Fax: +33 (0)2 9685 4091

Sept.
27-29
Casta Papiernicka
Slovak Republic
6th International Conference on Compressors and Coolants – Compressors 2006
Peter Tomlein - zvazchkt@isternet.sk
Fax: +421 2 4564 6971 - http://www.isternet.sk/szchkt/

April
19-21
Ohrid
Macedonia
(Redapt of)
Ammonia Refrigeration Technology for Today and Tomorrow
Risto Cikonkov - ristoci@ukim.edu.mk
Fax: +389 2 3099 298

August
21-26
Beijing
China
22nd IIR International Congress of Refrigeration (ICR2007): Refrigeration Creates the Future
Qiu Zhongyue - icr2007@car.org.cn
Fax: +86 10 6843 4679 - http://www.icr2007.org

September
Copenhagen
Denmark
8th IIR-Gustav Lorentzen Conference on Natural Working Fluids (GL2008)
Joachim Paul - jp@mek.dtu.dk
Fax: +45 4591 5215

2007

April
19-21
Ohrid
Macedonia
(Redapt of)
Ammonia Refrigeration Technology for Today and Tomorrow
Risto Cikonkov - ristoci@ukim.edu.mk
Fax: +389 2 3099 298

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China
22nd IIR International Congress of Refrigeration (ICR2007): Refrigeration Creates the Future
Qiu Zhongyue - icr2007@car.org.cn
Fax: +86 10 6843 4679 - http://www.icr2007.org

2008

September
Copenhagen
Denmark
8th IIR-Gustav Lorentzen Conference on Natural Working Fluids (GL2008)
Joachim Paul - jp@mek.dtu.dk
Fax: +45 4591 5215

IIR Conference
B2, E1 with C2, D1 and D2

IIR Conference
B1, B2, E2 with E1

IIR Conference
B1, B2, E1 with E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2, E1 with E2

IIR Conference
B2 with B1, D1

Congress
All Commissions

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2, E1 with E2

IIR Conference
B1, B2, E1 with E2

IIR Conference
B2 with B1, D1

IIR Conference
B1, B2, E1 with E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2, E1 with E2

IIR Conference
B1, B2 with E1, E2

IIR Conference
B1, B2 with E1, E2

International Institute of Refrigeration
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IIR Newsletter is a quarterly publication of the IIR
Managing Editor: Didier Coulomb
Editor: Jean-Luc Dupont
Editorial assistants: Susan Philippou Mitchell, Kate Drynan, Cornelia Keizer, Thomas Michineau
Graphic Design: Arobase Communication

The US
- The US Environmental Protection Agency (EPA) made available to the public for comment information concerning the current and projected use of HCFC-22 and HCFC-142b. EPA foresees using this information in the future when developing regulations. The next major milestone for HCFC phase-out will be January 1, 2010 when, pursuant to EPA regulations, no person may produce or import HCFC-22 or HCFC-142b except for uses such as in equipment manufactured before January 1, 2010.

- EPA also submitted for comments a proposal to determine that HCFC-22 and HCFC-142b are unacceptable substitutes:
  - for HCFC-141b in the foam end-uses of commercial refrigeration and sandwich panels, slabstock and other foam applications and,
  - for CFC-11 and CFC-12 in all foam-end uses.

- www.epa.gov/ozone/snap/foams/NPRMfactsheet.html

New Zealand

NZ Building Act to battle Legionella
Following the recent outbreak of legionellosis in Christchurch, New Zealand, the Department of Building and Housing has reminded building owners and managers of their health and safety responsibilities under the Building Act. Published in the New Zealand Building Code Handbook as amended in April 2004, the model compliance schedule requires monthly testing for the presence of total bacteria and Legionella bacteria. Test results for Legionella greater than or equal to 1000 cfu/ml (colony forming unit/million) should be notified to the District Health Board within 48 hours. Failure to comply with a compliance schedule may invoke fines of up to NZD 200,000.