Besides its scientific and technological commissions, the IIR has set up working parties dealing with specific topics. These working parties have in some cases provided the IIR’s actions with greater legitimacy and international recognition in state-of-the-art technological fields. The Working Party on Ice Slurries was set up in 1998 and is a good example of how much can be achieved by such a group of experts.

The 6th IIR Workshop on Ice Slurries and the IIR-achieved by such a group of experts. and is a good example of how much can be achieved by such a group of experts.

The success of these 2 conferences, held jointly for the first time, has led to an extension of the scope of this working party, which will now deal with phase-change slurries for refrigeration, air-conditioning and heat-pump applications. The next event, to be held in Marrakech in September 2006, along with subsequent events in the series, will therefore be called IIR Phase Change Slurry Conference.

I seize this opportunity to thank the previous Presidents of this working party, the authors of the handbook and the workshop and conference organizers, particularly Dr Peter W. Egolf and Prof. Michael Kaufeld.

Mrs Laurence Fournaison has taken over as President of the working party-I wish her all the best and am sure she will carry on the tradition of this group. Ice slurries may not appear to be scintillating to the uninitiated, but are in fact a highly promising field.

Didier Coulomb
Director of the IIR

IIR Research Priorities

1. Understanding, improvement and optimization of present equipment and systems: although refrigeration technology is in many cases not new, the heat-transfer processes are complex and require better modelling, flow measurement and investigation of interactions. The design of various components used in refrigeration systems can be improved, thus enhancing energy efficiency and reliability.

2. Performance of new energetic systems: refrigeration can be the source of and benefit from new technologies in the fields of superconductivity, liquefaction of gases, cryogenics, nanotechnologies, etc. Less widely used refrigeration systems such as adsorption-absorption systems are attracting interest in today’s context of environmental issues to be addressed. Combined use of widely used and recent technologies can give rise to new approaches to optimization and must be explored.

3. Optimization of the whole chain, including connected installations: the cold chain, from harvest to the consumer’s plate, forms a single entity. Improving one link in the cold chain is not enough: an overall approach taking into account overall energy consumption and compliance with the temperatures required in order to...
Executive Committee meeting

4. Behaviour of refrigerated and frozen live products: in both the medical and food fields, the use of refrigeration must not induce deterioration of the intrinsic quality of the product, even if refrigeration prevents contamination. Biological systems are fragile. The manner in which cells are frozen must be perfectly mastered in the field of preservation of genetic resources or human and animal tissues. In the case of foods, safety, nutritional value and sensory quality must be maintained.

5. Performance of refrigerants: beyond the value of previous work, targeted research on the properties of refrigerants with no ozone-depleting potential and little or no global warming potential (CO2, hydrocarbons . . . ) is now needed in order to encourage their use where the energy efficiency and running costs of the equipment used are competitive.

6. Improvement of the environment: all of the above-mentioned research can contribute to improvement of the environment, to a small or greater extent. However, specific research focused on improvement of energy efficiency, process and refrigerants, safety, systems enabling waste cold and heat recovery, heat-pump systems, thermal storage, recycling of materials and noise abatement, etc. must be conducted in order to address overall environmental issues.

IIR events

IIR Meetings

- The IIR’s annual statutory meetings took place on June 8-11, 2005 in the beautiful premises of the French Ministry of Research in Paris: Publications Sub-Committee, Science and Technology Council, Management Committee, and Executive Committee. The annual report and the budgets were presented and approved. The various publications projects were examined, the projects linked with the Strategic Planning Committee’s recommendations (catalogue of research institutions, list of research priorities, role of commission members, electronic journals . . . ). The lecture this year was given by Paul Waide, senior policy analyst at the International Energy Agency and was on Energy, Climate and Refrigeration: the international challenge.

ICR2011

- The IIR International Congress of Refrigeration (ICR) takes place every four years. The next one will take place in Beijing, China, in 2007. All IIR member countries voted to select the host country for ICR2011. There were two applicants: the Hashemite Kingdom of Jordan and the Czech Republic. The Czech Republic has been chosen. The Congress will be in Prague in 2011. Please note this date in your diary!

Conferences

- Ohrid
  An IIR conference Ammonia Refrigerating Systems, Renewal and Improvement took place in Ohrid (Macedonia) on May 6-8, 2005. Eighty people from 28 countries attended the conference, which was so highly appreciated that we decided to organize other conferences on this specific topic: ammonia is an old refrigerant with great potential, particularly in Eastern Europe, because of its environmental qualities. The conference was introduced by the Macedonian Ministry of Environment and the Director of the IIR. The proceedings on CD-ROM are available: ififir@ififir.org

From left to right: R. Ciconkov, F. Pearson, A. Lindborg, D. Coulomb

- Las Vegas
  The 8th IEA International Heat Pump Conference (co-sponsored by the IIR) took place in Las Vegas, USA on May 30-June 2, 2005. There were 220 attendees at this very interesting conference on technology that can save energy, both in cooling and heating. It also provided an occasion to compare the development of the heat-pump market and regulations and incentives applied in various countries worldwide.

  The CD-ROM proceedings containing over 125 papers on a wide range of cutting-edge heat-pump topics are available: www.heatpumpcentre.org (Publications, Proceedings, order No. HPP-CONF8).

  Price: 100 €.

- Yverdon
  The co-sponsored conference Second Phase Change Material and Slurry and the 6th IIR Workshop on Ice Slurries took place jointly on June 15-17, 2005. Eighty persons from 20 countries attended the conference, and 27 papers were presented. It was highly appreciated and greatly furthered work on this technology (see the editorial).

IIR at Harfko

- HARFKO and KRAIA’s anniversary
  The 7th HARFKO, organized by KRAIA (Korea Refrigeration and Air-conditioning Industry Association) was held in Seoul on May 25-27, 2005 and attracted 160 exhibitors and visitors from 20 countries. Myriam Armengaud and Susan Phalippou ran the IIR’s stand kindly made available by KRAIA. On May 25, KRAIA, hosted a magnificent dinner commemorating its 30th anniversary. VIPS from KRAIA and SAREK (Korea), the Chinese Association of Refrigeration, the China Refrigeration & Air Conditioning Industry Association, VDKF-IKK (Germany), All India Air Conditioning & Refrigeration Association, JSRAE and JRAIA (Japan), ARI,ASHRAE (USA), and the IIR attended the dinner held at the Tower Hotel in Seoul. Mr Wankeun Lee, Chairman of KRAIA, highlighted KRAIA’s achievements and the leading role played by HARFKO in positioning Korea as a driving force in the refrigeration and air-conditioning industry worldwide.

www.ref.or.kr/englishindex.asp

Briefs

- The IIR’s 100th anniversary
  The IIR, along with several national refrigeration associations, will be 100 years old in 2008 (the first International Congress of Refrigeration took place in 1908).

The French Refrigeration Association (AFF) will organize several events and a joint conference with the IIR in June 2008. We hope many other events will be held in various countries in 2008, which is to be Refrigeration Year.

- Distinctions
  François Billiard, Honorary Director of the
IIR, was awarded the prestigious Charles Tellier Medal by the French Refrigeration Association (AFF).

Nevin Amos, Secretary of Commission D2 and President of the IIR’s Working Party on Cold Chain Optimization, has been awarded the 2005 Tony Barnard Award for Innovation in Refrigeration Technology by a Young Person by the New Zealand National Committee of the IIR.

Eckhard Groll has been awarded the 2005 Wilbur T. Penny Award and Leadership Award for outstanding contributions to the growth and well-being of the IIR and the U.S. National Committee of the IIR.

New IIR publications

- The CD-ROM proceedings of Ammonia Refrigerating Systems, Renewal and Improvement, an IIR conference held in Ohrid, Macedonia, on May 6-8, 2005, comprise 29 papers spanning a wide range of ammonia applications. Key topics: past, present and future use of ammonia, design of modern ammonia systems and technological innovation, energy efficiency of ammonia refrigeration, applications of ammonia refrigeration and ammonia systems in developing countries. Price: 20 €.

Handbook on Ice Slurries – Fundamentals and Engineering is the fruit of work performed by the IIR Working Party on Ice Slurries and contains everything a reader could possibly want to know about ice slurries. Edited by Michael Kaufeld, Masahiro Kawai and Peter W. Egolf, around 50 international experts contributed to this unique book summarizing current knowledge in this field. Topics range from past use, modern applications, perspectives, other phase-change slurries, flow and pressure drop, current and future production methods, pumping, storage and insulation, modelling, melting methods, food processing, comfort cooling and an insight into future applications. Price: 80 € (book + CD-ROM) or 60 € (CD-ROM alone).

Order either or both these publications: ifiir@ifiir.org - www.ifiir.org/2enpubouvrages.php

Call for papers

- Natural Working Fluids 2006: 7th IIR-Gustav Lorentzen Conference will take place on May 29-31, 2006 in Trondheim, Norway, a beautiful cathedral city on a fjord surrounded by forest-clad hills. A call for papers has been launched: the deadlines are September 1, 2005 for titles and abstracts and February 1, 2006 for papers. Contact: Trygve.M.Eikevik@ntnu.no

www.energy.sintef.no/arrijGL2006/

ICR2007

A Call for Papers for the 22nd IIR International Congress of Refrigeration - Refrigeration Creates the Future - was launched on June 30, 2006: abstracts are to be submitted by August 31, 2006. Acceptance will be informed by November 30, 2006. Papers are to be submitted by February 28, 2007. www.icr2007.org/ientech.asp

IIR membership

- Corporate and private membership of the IIR

If you’re already a member, you will be aware of your member benefits. If you’re not, here’s a glimpse: private members get a free subscription to the International Journal of Refrigeration or the Bulletin of the IIR and corporate members get both; all members receive the Newsletter and have permanent free access to the IIR’s Fridoc database containing 75 000 references and growing fast, along with access to member sections of the World site; that’s not all: members have discounts on books and courses, information searches and article orders. Find out more and give your Fridoc database a free trial: sphalippou@ifiir.org

In the news

Trends

- Refrigeration and Food

Given the ever-increasing processing and exportation of food, world food is consuming more and more energy by the day: a trend that threatens to send food prices rocketing overnight if not taken in hand. The US food system alone uses over 10.55 x 10^15 kJ of energy per year, an equivalent of France’s total annual energy consumption. So where does it all go?

Considering the amount of energy consumed between the farm and the consumer in the US, agricultural production accounts for only 21% of the energy consumed, the remainder being divided up between transport (14%), processing (16%), packaging (7%), retailing (4%) and restaurants (7%). It is noteworthy that 32% of total energy used is in home refrigeration and preparation.

Although agriculture is introducing means to use less energy, fruits and vegetables in Western industrial countries often travel 2500-4000 km from farm to store. Growing sectors such as refrigerated jumbo jets use 60 times more energy than sea transport in supplying northern hemisphere markets with fresh produce from places such as South America, South Africa and New Zealand, according to a recent report from the Earth Policy Institute. The processing of just 1 kg of frozen fruits or vegetables requires 7673 kJ of energy and 5200 kJ for packaging and, then, again, energy is needed for refrigeration during transport, at the store, and at home. www.infoshop.org

- Global retail markets feeling the bulge

According to IGD, a market research distributor, China is set to be the world’s second largest food retail market by 2020, an increase driven by the increased spending power and changes in eating habits of the 1.3 billion population. China is fast closing in on the US, agricultural production accounts for only 21% of the global food retail market, with the US set to account for a (declining) 19% of the global food retail market share according to 2020 forecasts, a fall of 3% from 2003 figures. China is forecast to almost double its proportion during this period from 8 to 15%.

With expected growth in all global regions, the annual growth rate is predicted to be 4.8%, worth USD 6353 billion in 2020. The top five food retail markets in 2020 are predicted to be the US, China, Japan, India and Russia. www.igid.com

Markets

- Heat pumps

- Analysis of sales of heat pumps in Austria over 2003 and 2004 has shown good growth in the heating and controlled dwelling ventilation segments. The figures were compiled with the National Ministry for Transportation, Innovation and Technology, with support from the National Austrian Heat Pump Association (BWAP) and the Austrian Heat Pump Promotion Association (LGWA). Sales rose 18.4% (reaching 4700 units) over the period and the most popular systems are brine/water, direct vaporization, water/water and air/water, with market shares of 50%, 26%, 14% and 10% respectively.

- The Dutch heat-pump market shows remarkable growth: of the 5000 heat pumps in use in The Netherlands in 2004, 1500 were purchased in 2004. A compulsory quality scheme ensures that COPs and noise levels are tested. Two new initiatives are promoting the use of heat pumps: i) heat pumps: efficient (at a temperature of 11-23°C) from a sewage plant will be used as a heat source in a system used to heat up to 10 000 residences; and ii) starting in 2006, sea water (at 11-23°C) will be used in The Hague as heat source for a system heating 749 buildings – a world first.

- The heat-pump market in Germany grew 30% in 2004. The German market is experiencing ongoing growth and 12 636 heating units and 3784 hot-water heat pumps were sold in 2004. Around 50% are ground-source systems. In all, Germany now has over 90 000 heat-pump heating systems. These systems enable CO2 emissions to be reduced by at least 170 000 tonnes/year compared with modern low-temperature oil-fired boilers.


- Air conditioning

- Domestic and export sales of Chinese air conditioners set new records in the 2004 refrigeration year (September 2003-August 2004). Sales on the domestic market reached 26 million units and exports reached 25 million units. Export sales were up 52% compared with the previous year, mostly due to increased production in China by companies based abroad. The boom induced temporary shortages of compressors and environmentally friendly refrigerants. The leading manufacturers for the domestic market are Gree, Midea and Haier; each of which sold over 3 million units, followed by Kelon, Aux, Chigo, LG, Matsushita, Shinco and Hisense. JARN, February, 2005.
- According to a study carried out by Eurevent, Europe will have 2200 million m² of air-conditioned space by 2010 and 800 million m² of this will be over 15 years old and in need of replacement, creating a niche for growth in this sector. A major influence on the market will be the new EU Directive on Energy Efficiency which also includes standards on air conditioning equipment.

Source: Eurevent/Cectomaf Review, France
- Sales of air-conditioning units soared in France in 2004. Clim'Info reports that overall sales almost doubled in 2004 compared with 2003. Sales of units with a capacity of less than 17.5 kW expanded the most. Sales of mobile units rose 150% in 2004, reaching a level of 150 000, and sales of monosplit and multisplit units rose 95% and 105% respectively and 80% of split systems sold were reversible. Split systems using inverter (variable-capacity) technology accounted for 28% of all split system sales in 2004, compared with 15% in 2003 and 7% in 2002.

Energy efficiency

- Cold chain storage
There has been a clear improvement in the efficiency of cold stores in the UK over the past 10 years with a 7% increase in specific energy consumption according to a recent UK bench-marking survey. However, bridging the gap between efficiency levels remains to be seen with a massive 78% difference between the most efficient energy-saving cold stores and the least efficient, and it is the large stores that come out on top.

www.ColdChainExperts.com

- US refrigeration efficiency
Commercial refrigeration manufacturers developed a Consensus Agreement that is to be put forward to the US Department of Energy (DOE) and members of Congress in the hope that it shall be included in new energy efficiency legislation. According to the American Council for an Energy-Efficient Economy (ACEEE), the creation of refrigeration energy efficiency standards could reduce electricity use in the US by approximately 2.3 billion kWh per year by 2020 with the introduction of more efficient units. This agreement targets commercial refrigerators, freezers and refrigerator freezers used in restaurants, stores and commercial buildings and extension to ice-cream freezers, self-contained cabinets without doors and remote condensing products is recommended.

- What is claimed to be the first 20 SEER (Seasonal Energy Efficiency Rating) residential air conditioner has been introduced by Lennox Industries, USA. The X2C1 air conditioner has a two-stage scroll compressor and operates on two levels: a high level for cooler weather and a low level that will be operable 80% of the time. It uses R-410A and has a low sound level.

ASHRAE HVAC&R Industry, March 31, 2005

Brieves

- Non-CFC chillers
According to the 2005 annual survey carried out by the Air-Conditioning and Refrigeration Institute (ARI) on chiller manufacturers, the replacement and conversion of CFC chillers, as specified by the Montreal Protocol in 1995 is proving to be slower than expected in the US. Over a period of 10 years, 46 703 units, i.e. 58% of the 80 000 CFC chillers in use in the US at the end of 1995, have been either replaced or converted. However, the pace of this phase-out has been slower than expected, partly due to federal tax laws which require depreciation of the chillers over 39 years, thus ensuring a steady demand for non-CFC units for at least another decade. An estimated 37 300 CFC chillers using mostly CFC-11 or CFC-12 refrigerants remain in service.

www.ari.org/pr/2005/04-23-chillers.html
- Nestlé Japan’s Himeji factory’s natural gas cogeneration system won the 9th New Energy Award in recognition of its high degree of innovation. The Himeji plant is used to produce soluble coffee cryogenically and has high energy efficiency (92%, whereas conventional plants have 70-80% efficiency) and low CO₂ emissions (reduced by up to 32 000 tons/year compared with the former plant). Features of the 6750-kW power-generating plant include a suction air-cooling system using the vaporization heat of the liquefied natural gas (LNG) stored in a satellite unit and use of exhaust heat from the heat recovery boiler. Nestlé Japan plans to set up a similar plant at its Shimada factory and has also developed an HCFC-free cascade freezing system.

www.nestle.com/Our_Responsibility/Environment/News/News%23%29+japan+Group+New+Energy+Award+received.htm
- Penguins, offices and seafood
Who has created a penguin environment at San Diego’s Seaworld, ice thermal-storage systems for office towers in Japan and seafood preservation systems for a large Chilean producer? The answer is Sunwell Technologies Inc., a Canadian firm specialized in ice-slurry technology. Sunwell exports 90% of its production to 25 countries worldwide.

www.edc.calgarpinfo/pubs/exportwise/summer04/p19_e.htm
- ASHRAE’s new President, Lee Burgett, took over from Ron Vallort during ASHRAE’s annual meetings held on June 25-29, 2005. Lee Burgett is a consultant to Trane and other companies.

jdundlo@ashrae.org

- The European Intermodal Research Advisory Council, set up on May 3, 2005, forms the basis for coordinated intermodal research strategy for Europe. Composed of some 50 key players from large intermodal businesses, intermodal rail and road operators, terminal operators, logistic freight integrators, short sea shipping operators, ports, terminal handling, freight villages and ICT equipment suppliers, EIRAC will produce an intermodal research strategy for Europe. Composed of some 50 key players from large intermodal businesses, intermodal rail and road operators, terminal operators, logistic freight integrators, short sea shipping operators, ports, terminal handling, freight villages and ICT equipment suppliers, EIRAC will produce an Intermodal Strategic Research Agenda with the European Commission, the European Intermodal Working Group+New+Energy+Award+received.htm

Penguins, offices and seafood

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www.eirac.net

- Institute of Refrigeration UK (IOR) publications
On sale: proceedings of papers presented to the IOR, including discussions. The latest CD-ROM includes 2003 and 2004 presentations on: risk assessment model for hydrocarbon refrigerants; temperature prediction software for refrigerated container cargoes; thermal decontamination of food; enhanced heat transfer in internal condensation of refrigerants; reducing the ozone-depleting potential and improving efficiency of domestic refrigerators; air conditioning for the future using CO₂; air conditioning for aircraft.

Price: £23.50 for members and £47 for non-members. www.ior.org.uk

- Cryolog, a French company set up in 2002, is providing innovative traceability solutions: an adhesive label containing microorganisms that changes colour and becomes opaque when the product on which it is placed has been subjected to temperature abuse. It is linked to the bar code and prevents sales at check-out level where temperature abuse has occurred or after the expiry date. Applications include chilled foods, caterers’ meals, and vaccines. It has won two French prizes for innovation and is generating promising economic spin-offs.

www.cryolog.com/enterprise_fr.html

Out of the ordinary

- Is that watermelon too big for your fridge?
Producers have caught on to the fact that most European consumers can’t fit 6 kg watermelons in their fridges. Solinda, a miniature watermelon variety, has been launched in the UK. It has no black pips, weighs a mere kilo or two and has been bred naturally over a 10-year period by Syngenta Seeds.

Evening Standard (UK), June 24, 2005

- Ice cube?
A giant ice cube has appeared in Minneapolis and isn’t going to melt. Described by its Swiss architect, Jacques Herzog, as “A big ice cube for Ice City,” the cube is in fact an extension to the Walker Art Center. The icy appearance of the recently inaugurated silvery 5-storey edifice has been achieved by use of aluminium-mesh panels. Renowned for avant-garde projects, Herzog and de Meuron also designed the Tate Modern in London, a jewel-like Prada store in Tokyo and the 2008 Olympic Stadium in Beijing. Newsweek, March 28, 2005.

Britain’s Culture Department has decided to give listed building protection to the Red House cold store, which is part of the former fish market in London’s historic Smithfield Market. The Red House is thought to be the oldest cold store in Britain and is considered to be an architectural gem within a very vibrant market.


www.savebritishheritage.org/smithfield-quotes.htm
Green light for VIP project

The EU’s sustainable development project aiming to reduce energy consumption has led to the recently concluded Vacuum Insulating Panels (VIP) project, initiated in 2001. According to the designers, these panels provide 5-7 times more insulating capacity than current technologies; the innovative design of a thermal insulation panel wrapping made of a laminate of several layers of plastic, which is then vacuum sealed, will serve to enhance conventional thermal insulation materials used in buildings, packaging for isothermal transport of products and for use in fridges and freezers. In addition, these VIPs require neither a modification of their thickness nor a reduction in the useful volume of the transport unit or storage element. With large input from Gaiker, the consortium developed a technology with a view to the recycling and recovery of these new VIPs during the manufacturing stage, offering a considerable environmental benefit. These systems double the service life of the isothermal wrappings and reduce energy consumption by almost 10% throughout the entire life span (about 15 years) of a fridge. www.sciencedaily.com/releases/2005/05/050528002231.htm

Hydrogen update

Torild Skogsholm, Norway's Minister of Transport and Communication, has announced that Norway intends to create a hydrogen highway. The NOK 30 million (roughly 3.8 million €) Hydrogen HyNor project will make it possible to drive from Oslo to Stavanger in hydrogen-powered vehicles. Hydrogen Cars Business Magazine, vol. 3, No. 2, June 2005.

The world’s first fuel-cell purpose-built motorbike has been developed by the British firm Intelligent Energy. The ENV (Emissions Neutral Vehicle) bike not only looks good; it also demonstrates the real applicability of fuel cell technology. The CORE fuel cell system, which is completely detachable from the bike, is a compact and efficient fuel cell, capable of powering anything from a motorboat to a small domestic property. Intelligent Energy says the bike concept is new and offers a glimpse of the future: “In the none-too-distant future...” “people will be able to use a bike like ENV to leave work in an urban environment, drive to the countryside, detach the CORE and attach it to another vehicle, such as a motorboat, before going on to power a log cabin with the very same fuel cell, which could then be re-charged from a mini hydrogen creator, the size of a shoebox.” www.h2cars.biz/artman/publish/htmlprinter_686.shtml

Mete Kaliki Cool!

An USD 3-4 million deep-seawater cooling system is to form part of a USD 100 million redevelopment project underway in Hawaii to meet the island’s air-conditioning requirements. The system, to be designed by the Honolulu Board of Water Supply, would conserve the energy and freshwater currently used in traditional air-conditioning systems. The 21 367.7 m² International Market Place system plans to pump cold seawater from approximately 300 metres below the property through a closed system into a heat exchanger to store freshwater circulating in the air-conditioning system. Warm seawater would then be re-injected into an adjacent saltwater aquifer system to maintain the existing water table before being used in buildings to reduce the temperature. The project, if the test determines that the water is cold enough to function within the system, should normally commence late 2005 or early 2006. www.honoluluadvertiser.com

Regulations/Standardization

China’s new national standard for the minimum allowable energy efficiency levels related to room air conditioners officially entered into force on March 1, 2005. This standard classifies household appliances into five grades according to their power rating and stipulates that the minimum allowable EER values must be 2.3-2.6.

- The State Environmental Protection Administration of China recently announced
that China — the current world’s largest CFC-producing and consuming country — will totally phase out CFC production by 2010. 

Source: JARN, May 25, 2005

“F-gases”

According to the European Cold Storage and Logistics Association (ECSLA), the schedule of the draft European “F-gases” Regulation — which aims to improve the containment of fluorinated gases and impose restrictions on the marketing and use of these gases in car air-conditioning systems — should be the following:

- November 2005: Commission position European Parliament 2nd reading;
- 2nd quarter 2006: entry into force.

The European Commission recently organized a study on the economic and environmental impact of a future extension of the “F-gases” regulation to foams and mobile refrigeration in road transport. The main options considered by the Commission for limiting emissions are: improving of handling/maintenance of refrigerated transport through registration of operators and phase-out of use of HFCs in refrigerated transport/or foam blowing.

### Traceability in Finland

The Finnish government has announced a clampdown on the traceability of fruit and vegetables. Finland’s Plant Production Inspection Centre, National Food Agency, provincial governments and municipal food control authorities will work together to check compliance with enforcement of rules on fruit, vegetables and wild products. The campaign will focus on the compulsory information all operators in the food chain require in order to ensure traceability and is within the framework of regulation EC/178/2002 on the traceability of food and feed. The new “one up-one down system is designed to inform all players who have delivered a product to them or to whom they have delivered the product and focuses on national measures regarding food safety and information exchanges are rising fast.

**www.foodproductiondaily.com**

### Conferences co-sponsored by the IIR

**2005**

- **London** — United Kingdom — September 4-7
  - International Conference on Compressors and their Systems
  - Madeline Willis — Fax: +44 (0)20 7222 9881
  - m.willis@imeche.org.uk — Web site: www.imeche.org.uk
  - Commission: B2

- **Oslo** — Norway — September 29-30
  - International Conference on Small Scale LNG in Europe
  - Lid Olaussen — Fax: +47 2294 7501
  - lid.olaussen@tekna.no — Web site: www.tekna.no/intconf/
  - Commission: A2

- **London** — United Kingdom — November 10
  - 13th Annual Conference of the IoR: the Future of Cooling: Opportunities and Threats
  - Miriam Rodway — Fax: +44 (0)20 8773 0165
  - miriam@ior.org.uk — Web site: www.ior.org.uk
  - Commissions: B1, B2, E1, E2

- **Kuwait City** — Kuwait — November 21-23
  - 3rd International Conference on Energy Research and Development (ICERD-3)
  - Dr Walid Chaikoun — Fax: +96 847131 or 4817234
  - icerd@kuo1.kuniv.edu.kw — Web site: www.icerd.org
  - Commissions: B2, E1, E2

- **Belgrade** — Serbia and Montenegro — November 30-December 2
  - International Conference on Heating, Refrigerating and Air Conditioning
  - Branislav Todoric — Fax: +38 11 337 0364
  - smetsi@sunet.yu
  - Commissions: B1, B2, E1, E2

### 2006

- **Prague** — Czech Republic — May 17-19
  - 17th Air-conditioning and Ventilation Conference 2006
  - Milos Lain — Fax: +420 221 082 201
  - atic2006@unipg.it — Web site: www.atic2006.org
  - Commission: B1, B2

- **Gyeongju** — South Korea — May 21-23
  - 3rd Asian Conference on Refrigeration and Air Conditioning (ACRA2006)
  - Min Soo Kim — Fax: +82 2 883 0179
  - minslim@itnu.ac.kr — Web site: www.acra2006.org
  - Commissions: B2, E1 with B1, E2

- **West Lafayette** — USA — July 17-20
  - 11th International Refrigeration and Air Conditioning Conference at Purdue
  - Eckhard Groll — Fax: +1 765 494 0787
  - herlconf@ecn.purdue.edu
  - Commission: B1, B2 with E1, E2

- **Prague** — Czech Republic — July 17-21
  - 17th Air-conditioning and Ventilation Conference 2006
  - Min Soo Kim — Fax: +82 2 883 0179
  - minslim@itnu.ac.kr — Web site: www.acra2006.org
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