



INTERNATIONAL INSTITUTE OF REFRIGERATION  
INSTITUT INTERNATIONAL DU FROID

# Publications

2016|17

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## Handbook on Indirect Refrigeration and Heat pump Systems

Indirect systems with secondary fluid circuits have long been used for systems where there are many places to be cooled or where long pipes are required, such as in artificial ice rinks, commercial refrigeration and ground-source heat pumps with long collector tubes in the ground. Indirect systems have come into focus to an ever-increasing extent because of requirements governing tighter constructions in order to minimize refrigerant leakage from plants as well as changing legislation implemented in order to achieve the phasing-out of various types of CFC, HCFC and high-GWP refrigerants.

Ed. IIF-IIR, 2015

→ p. 20

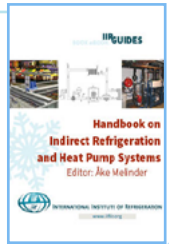


42 €

E-Book, English

55 €

Print Version, English



## 24<sup>th</sup> International Congress of Refrigeration: Improving Quality of Life, Preserving the Earth

IIR International Congresses of Refrigeration, ICR, are milestone events. IIR congresses have been held once every 4 years since 1908. Each congress brings together large numbers of refrigeration stakeholders from all parts of the world. At each ICR, cryology, gas processing, thermodynamics, equipment and systems, biology and food technology, storage and transport, air conditioning, heat pumps, and energy recovery are all covered in depth, and important technical issues are discussed.

These proceedings presented during the 24<sup>th</sup> International Congress of Refrigeration (ICR2015) held in Yokohama, Japan, on August 16-22, 2015, comprise 643 papers and 13 keynotes.

Ed. IIF-IIR Cong., 2015

→ p. 11



130 €

CD-ROM, English



## 11<sup>th</sup> International Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning

These 32 proceedings are devoted to Supercooling effect; Rheological parameters of PCM slurries; Heat capacity and conductivity, DSC measurements; Building applications; PCM applications in heat exchangers and enhancing heat conductivity of PCM; Particle size and properties of (ice) slurries; Salt and CO<sub>2</sub> hydrate slurries; Encapsulated PCM and hot PCM; Ice slurry, novel techniques; Energy; Environment

Ed. IIF-IIR, 2016

→ p. 22



30 €

CD-ROM, English



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## INTERNATIONAL INSTITUTE OF REFRIGERATION

**T**he International Institute of Refrigeration (IIR) is the only independent intergovernmental science and technology based organisation with over 100 years' experience in all fields of refrigeration!

An international organisation of 60 member countries and a network of more than 400 experts in all fields of refrigeration across the globe.

A major player in the economic and environmental domains. The IIR promotes knowledge of refrigeration and associated technologies and addresses key issues including food safety, health, energy saving and energy efficiency, global warming...

**IIR Members.** The IIR offers distinct membership categories adapted to your needs and objectives:

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- Reductions on IIR publications and IIR partner publications, including conference proceedings
- Access the International Dictionary of Refrigeration, available in 11 languages
- Eligibility to join objective-specific Working Groups
- Discounts on IIR conference and congress registration fees (equal to a 1-year membership fee)

And much more!

**Be a part of an ever-growing international network at the heart of leading developments in the refrigeration sector.**

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or contact us: +33 (0)1 42 27 32 35 | [iif-iir@iifiir.org](mailto:iif-iir@iifiir.org)

**T**he International Institute of Refrigeration (IIR) is the international reference organisation in all fields of refrigeration.

*Its purpose is to disseminate scientific and technical information.*

*As a result, it has developed its own publication policy for all kinds of content, available in both electronic and printed formats, accessible from the IIR website, [www.iiffir.org](http://www.iiffir.org), or via a more conventional purchase process.*

*I urge you to browse this catalogue in search of high quality documentation. Each of these publications, from Informatory Notes to guides, through to conference proceedings or standard reference documents, has been drafted by one of the IIR experts and submitted for review to a panel of first-class carefully selected specialists. The information you will come across is both verified and selective. This is truly essential.*

*Technologies evolve rapidly due to growing environmental constraints, in turn intensifying the major global issues at stake. With its intergovernmental status involving many different countries as well as experts from both academic and industrial backgrounds selected in accordance with transparent procedures, the IIR can take great pride in being both skilled and impartial.*

*Taking advantage of IIR information resources is a major asset if you wish to understand and keep abreast of scientific, technical, economic and regulatory developments. Purchasing a publication is only one step. The IIR offers many more knowledge-based and networking tools.*

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*Enjoy!*

**Didier Coulomb**

*Director General of the International Institute of Refrigeration*

**Bienvenue dans ce catalogue des publications 2016/17** de l'IIF où vous trouverez nos ouvrages les plus récents, ainsi que nos ouvrages de référence.

Dans les deux premiers chapitres A et B sont répertoriés les ouvrages de base, les publications et comptes rendus de conférences. Ils peuvent être disponibles au format papier, PDF ou CD-ROM, distingués de la façon suivante dans ce catalogue :



Dans le dernier chapitre C, vous sont présentés les services d'information propres à l'IIF.

L'intégralité de nos publications reste, elle, accessible depuis notre site web.

Vous pouvez retrouver et commander en ligne nos ouvrages et comptes rendus de conférences :

- dans notre boutique en ligne sur [www.iifir.org](http://www.iifir.org), en cliquant sur la rubrique **publications/boutique en ligne**
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Vous avez également la possibilité de commander une publication en complétant le bon de commande figurant à la dernière page de ce catalogue et en nous le renvoyant par le moyen de votre choix.

**Welcome to the IIR 2016/2017 Publications Catalogue** where you will find our latest publications and reference documents.

The first two chapters A and B list our basic documents, publications and conference proceedings. They are available in print, PDF or CD-Rom formats, featured in the catalogue as follows:



The IIR's Information Services are presented in the last chapter C.

You can access all our publications on our website.

You can find and order our publications and conference proceedings online:

- in our online store at [www.iifir.org](http://www.iifir.org) by clicking on **publications/bookshop**
- using the large number of links provided in the PDF version of this catalogue.

The online ordering process, via a secure payment system, is the easiest and quickest way to pay and receive your desired publications.

All you need to do is find your chosen publication using the search engine in the online bookshop:

- either by typing in the publication title
- or simply by typing in the IIR code once you have clicked on "Advanced search".

Make sure you log in first before ordering! If you are already an IIR member or registered on our site, just type in your email address, as well as your password, in the "Login/Register" space on the right-hand side of the page.

If you are not registered yet, please click on the "Register" link in that same space to create an IIR account.

You may also order a publication by filling in the order form included on the last page of this catalogue and returning it to us using the method of your choice.

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**1 - Reference Documents**  
*Documents de référence*

**Technique du Froid - Cours de base**

Ce cours présente l'ensemble des principes fondamentaux relatifs à la production du froid ainsi que les composants d'une installation frigorifique, les frigorigènes et les lubrifiants utilisés, ainsi que les systèmes de contrôle. Il constitue, sous un format attractif, un outil d'enseignement très didactique à l'intention des techniciens et ingénieurs : chaque page comporte à la fois des schémas ou des photos illustrant le thème abordé et un texte synthétisant les connaissances essentielles se rapportant à ce thème.

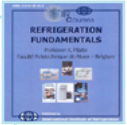
Thèmes principaux : Fondamentaux du froid - Cycle de compression de vapeur (mono et bi-étagés) - Caractéristiques des frigorigènes - Lubrifiants - Composants d'une installation frigorifique à compression de vapeur (compresseur, échangeurs, dispositifs de détente) - Conception des installations - Systèmes de contrôle

**Refrigeration Fundamentals**

This course deals with refrigeration fundamentals, components of refrigeration plants, the refrigerants and lubricants used, and control systems. It is an attractive and valuable teaching tool that technicians and engineers will find highly useful: each page comprises diagrams and/or photos illustrating the theme covered, and a text summarizing key knowledge in the specific field dealt with.

Main topics: Refrigeration fundamentals - Vapour compression cycles (single and two-stages) - Refrigerant properties - Lubricants - Components of a vapour-compression refrigerating plant (compressor, exchangers, expansion devices) - Plant design - Control systems

**Ed. IIF-IIR, 2005 (in English), 2006 (en français)**



160 €  
220 €

English. ISBN: 2-913149-45-6. Code: PIL-CDA  
 Français. ISBN: 2-913149-53-7. Code: PIL-CDF

English. ISBN: 2-913149-54-5. Code: PIL-PAPA. colour. 200 p.  
 Français. ISBN: 2-913149-55-3. Code: PIL-PAPF. couleur. 187 p.

**100 ans au service du développement du froid et de ses applications**

Cette brochure a été réalisée conjointement par l'IIF et l'AFF (Association Française du Froid) à l'occasion de leur centenaire en 2008. Après un historique du froid et des grands inventeurs qui ont contribué à son développement, les différentes technologies de production de froid sont présentées ainsi que leurs derniers développements. Les différentes applications du froid sont également détaillées : la cryogénie (liquéfaction des gaz, supra-conductivité, etc.), la conservation de denrées alimentaires et les différentes étapes de la chaîne du froid, le conditionnement d'air, les applications relatives à la santé (cryochirurgie), à la biologie et aux loisirs. 30 communications.

**100 years at the Service of the Development of Refrigeration and its Applications**

This booklet was jointly prepared by the IIR and the French Refrigeration Association (AFF) in order to mark the centenaries of both organizations in 2008. It retraces the history of refrigeration and the great pioneers who achieved progress in the field, then presents various refrigeration technologies along with the latest developments. Various applications are presented in an in-depth manner: cryogenics (gas liquefaction, superconductivity, etc.), preservation of foodstuffs and various links in the cold chain), air conditioning, applications in the health (cryosurgery) and biological domains and in leisure activities. 30 papers.

**Ed. AFF/IIF-IIR, 2008**



15 €

English. ISBN: 2-9523651-2-1. Code: 100-years. colour. 80 p.  
 Français. ISBN: 2-9523651-2-1. Code: 100-ans. couleur. 80 p.

**1 - Reference Documents**  
*Documents de référence*

**Serving the Needs of Mankind: a History of Refrigeration**

This 40-minute DVD produced for the 21<sup>st</sup> IIR International Congress of Refrigeration held in Washington DC in August 2003 retraces the history of refrigeration from prehistoric times to today and touches on future challenges and potential developments. Divided into 5 chapters (Prehistory to 1860; 1860 to 1914; 1914 to 1945; 1945 to 1973; and 1973 to the Present), it provides a comprehensive review of key developments in refrigeration and air conditioning, describes the achievements of major pioneers and technological breakthroughs in a huge range of applications, including food preservation, transport and storage; domestic refrigeration and comfort; medicine; animal husbandry; space; cryogenic cooling; heat pumps; and energy efficiency. Lively narration, music and colourful images make it a valuable teaching tool and an excellent means of raising awareness of how far refrigeration has come and how refrigeration does indeed serve the needs of mankind and will continue to do so.



Ed. USNCIIR, 2005



35 € English. Code: DVD-HOR

**Essai pour une histoire du froid artificiel dans le monde**

Cet ouvrage, réalisé par R. Thévenot, retrace l'évolution de la science et des techniques du froid des origines à nos jours, classées en quatre grandes époques : avant 1875, 1875-1914, entre les deux guerres et après 1945. Avant d'exposer les développements des applications du froid dans tous les domaines, il fait une large part aux branches fondamentales de la science du froid : la physique et la thermodynamique. Complété par 13 listes chronologiques des événements notoires par domaine d'activité et par des biographies sommaires de 65 personnalités de l'histoire de la science et de la technique du froid, ce livre est d'un grand intérêt pour tous ceux qui souhaitent avoir une connaissance complète en la matière.

**History of Refrigeration throughout the World**

This book, written by R. Thévenot, traces the development of refrigeration science and engineering from its earliest beginnings to the present, divided into four periods: before 1875, 1875-1914, between the two World Wars and after 1945. Following a review of refrigerating applications in all sectors, a large section is devoted to the basic sciences of refrigeration: physics and thermophysics. With 13 chronological lists of historic events in each sector, and brief biographies of 65 outstanding individuals in the history of refrigeration, this book is useful for everyone wishing to acquire in-depth knowledge of refrigeration.



Ed. IIF-IIR



40 € English. Code: HOR. black & white. 507 p.  
Français. Code: HDF. noir & blanc. 507 p.



**1 - Reference Documents**  
*Documents de référence*

**Économies d'énergie dans les domaines  
 du froid, du conditionnement d'air et  
 des pompes à chaleur**

Ce guide présente de manière synthétique et didactique l'ensemble des solutions permettant de diminuer la consommation énergétique des installations de froid et conditionnement d'air, y compris les pompes à chaleur. Il s'agit là d'un enjeu essentiel puisque ces installations représentent environ 15 % de l'électricité consommée au niveau mondial. Ces solutions portent à la fois sur la conception, la conduite et la maintenance des divers composants des installations (compresseurs, condenseurs, dispositifs de détente, évaporateurs, etc.) et prennent en compte le choix du frigorigène. Plusieurs cas concrets d'installations à haute efficacité énergétique sont présentés ainsi qu'une bibliographie très complète, sans oublier les principales réglementations et normes applicables.

L'objectif est de vous permettre d'augmenter vos bénéfices grâce aux conseils pratiques contenus dans ce guide tout en améliorant l'efficacité de votre système frigorifique et en réduisant ses coûts de fonctionnement.

Thèmes principaux : Théorie du froid - Réduction des charges calorifiques - Choix du frigorigène - Possibilités en termes de conception - Conduite performante de l'installation - Possibilités de récupération d'énergie - Accumulation d'énergie et froid naturel - Normes et réglementations - Cas d'étude - Références - Bibliographie

**Saving Energy in Refrigeration,  
 Air-Conditioning and Heat-Pump  
 Technology**

This guide presents, in a concise and didactic manner, all solutions making it possible to reduce the energy consumption of refrigeration and air-conditioning systems, including heat pumps. This is a vital issue as these systems consume approximately 15% of worldwide electricity. These solutions apply to the design, operation and maintenance of various systems (compressors, condensers, expansion devices, evaporators, etc.) and take refrigerant selection into account. Several practical cases of highly energy-efficient systems are presented, as well as an extensive bibliography and an overview of the main applicable regulations and standards. It is hoped that you will be able to improve the efficiency of your refrigeration system, reduce running costs and increase profits by using the practical suggestions contained in this guide.

Main topics: Theory of refrigeration - Reducing heat loads - Choice of refrigerant - Design opportunities - Energy-efficient operation - Heat recovery opportunities - Energy storage and natural cooling - Standards and regulations - Case studies - References - Bibliography

**Ed. IIF-IIR, 2008 (En); 2009 (Fr)**



50 €

English. ISBN: 978-2-913149-66-3. Code: SAV2. colour. 115 p.  
 Français. ISBN: 978-2-913149-71-7. Code: NRJ2. couleur. 131 p.

**2 - Proceedings of IIR Congresses**  
*Comptes rendus de Congrès de l'IIF*

**24<sup>th</sup> International Congress of Refrigeration: Improving Quality of Life, Preserving the Earth**

IIR International Congresses of Refrigeration, ICR, are milestone events. IIR congresses have been held once every 4 years since 1908. Each congress brings together large numbers of refrigeration stakeholders from all parts of the world. At each ICR, different topics are covered in depth, and important technical issues are discussed.

These proceedings presented during the 24<sup>th</sup> International Congress of Refrigeration (ICR2015) held in Yokohama, Japan, on August 16-22, 2015 comprise 643 papers and 13 keynotes.

- Main Topics: A1: Cryophysics, cryoengineering  
 A2: Liquefaction & separation of gases  
 B1: Thermodynamics & transfer processes  
 B2: Refrigerating equipment  
 C1: Cryobiology, cryomedicine  
 C2: Food science & engineering  
 D1: Refrigerated storage  
 D2: Refrigerated transport  
 E1: Air conditioning  
 E2: Heat pumps, energy recovery  
 S: Sustainable and high performance buildings

Location: Yokoama, Japan - 643 papers + 13 keynotes (in English)

**Ed. IIF-IIR Cong., 2015**



**130 €** English. ISBN: 978-2-362150-12-8. Code: CRYOKO2015



**23<sup>rd</sup> International Congress of Refrigeration: Refrigeration for Sustainable Development**

These proceedings presented during the 23<sup>rd</sup> International Congress of Refrigeration (ICR2011) held in Prague, Czech Republic, on August 21-26, 2011 comprise 593 papers.

- Main Topics: A1: Cryophysics, cryoengineering  
 A2: Liquefaction & separation of gases  
 B1: Thermodynamics & transfer processes  
 B2: Refrigerating equipment  
 C1: Cryobiology, cryomedicine  
 C2: Food science & engineering  
 D1: Refrigerated storage  
 D2: Refrigerated transport  
 E1: Air conditioning  
 E2: Heat pumps, energy recovery

Location: Prague, Czech Republic - 593 papers (in English)

**Ed. IIF-IIR Congr., 2011**



**80 €** English. ISBN: 978-2-913149-88-5. Code: CRPRAG2011



**3 - Tables and Diagrams**  
*Tables et diagrammes*

**Properties of Secondary Working Fluids\* for Indirect Systems (\*Secondary Refrigerants or Coolants, Heat Transfer Fluids)**

This greatly expanded 2<sup>nd</sup> edition of a booklet entitled "Thermophysical Properties of Liquid Secondary Refrigerants" responds to rising use of secondary refrigerant systems used in applications ranging from solar heating at high temperatures to freezers in supermarkets. It comprises comprehensive data on a number of aqueous solutions of ethylene and propylene glycol, ethanol, glycerol, ammonia, chlorides and potassium salts.

An entire chapter is devoted to: freezing point, density, specific heat, thermal conductivity, viscosity, boiling point, vapour pressure, surface tension and specific conductance. The book and DVD also deal with the selection of a suitable secondary refrigerant, technical calculations and computer treatment of data. Vital issues such as toxicity, the environmental impact and corrosion are covered.

Charts make it possible to compare commercial products and to perform comparisons of fluids with respect to energy transport, pressure drop and heat transfer. An entire chapter is devoted to carbon dioxide and another chapter deals with fine crystalline ice slurry.

Dozens of tables and charts enable readers to obtain data on 14 working fluids.



Ed. IIF-IIR, 2010



70 € English. ISBN: 978-2-913149-83-0+76-2. Code: AKE2-DVD. colour.

**Refrigerant Cycle Data: Thermophysical Properties of Refrigerants for Applications in Vapour-Compression Systems**

The aim of this booklet is to give the most important thermophysical property data for a number of different refrigerants with applications to vapour-compression systems in an easily accessible form. Tables are given for basic cycles at different evaporating and condensing temperatures. The tables also provide information on the pressure ratio, volumetric capacity and isentropic compression work. The coefficients of performance (COPs) of cycles with isentropic compression are given, as is the thermodynamic efficiency of each cycle (with the Carnot cycle used as reference). Moreover, the influence of modifying the basic cycle by subcooling of liquid before throttling and superheating the vapour before compression (internal as well as external) is illustrated. Data are provided for the following refrigerants: R32, R125, R134a, R152a, R290 (propane), R404A, R407C, R410A, R507, R508A, R600a (isobutane), R717 (ammonia), R744 (carbon dioxide, including transcritical cycles) and R1270 (propylene).



Ed. IIF-IIR, 2007



35 € English. ISBN: 978-2-913149-58-8. Code: RECYDA. black & white. 58 p.

**3 - Tables and Diagrams**  
**Tables et diagrammes**

**Propriétés thermophysiques  
des fluides frigorigènes**

Ces brochures bilingues (français-anglais), visent à répondre aux besoins de l'industrie et de l'ingénierie (calculs des équipements de production du froid et de transfert de chaleur) ainsi qu'à ceux des enseignants et étudiants.

Elles fournissent :

- l'équation de base du frigorigène (uniquement pour les R134a, R22, R123, R717, R14)
- des tables concernant : l'état saturé, la vapeur surchauffée (s'il y a un astérisque \*), les propriétés physiques du frigorigène
- un diagramme du frigorigène

**Thermophysical Properties of  
Refrigerants**

These bilingual booklets (English-French) are suited not only to industrialists and engineers (computations involved in the design of refrigeration and heat transfer equipment), but also to teachers and students.

They provide:

- a basic equation for each refrigerant (only for R134a, R22, R123, R717, R14)
- tables on: saturated states, superheated vapour (for those marked with an asterisk \*), physical properties of the refrigerant
- a diagram of the refrigerant



**Ed. IIF-IIR**



20 €

- R14. Code: BRO14, 1982
  - R290 (propane)\*. Code: BRO290, 2001
  - R600a (isobutane)\*. Code: BRO600a, 2001
  - R717 (ammonia-ammoniac)\*. Code: BRO717, 1982
  - R744 (carbon dioxide-CO<sub>2</sub>/dioxyde de carbone-CO<sub>2</sub>)\*. Code: BRO744, 2003
  - NH<sub>3</sub>-H<sub>2</sub>O (ammonia-water/ammoniac-eau). Code: BROEA, 1993
  - HFC R134a. Code: BRO134a, 1992
  - HFC R134a\*. Code: BRO134a, 1995
  - HFC R404A \*. Code: BRO404A, 2001
  - HFC R407C \*. Code: BRO407C, 2001
  - HFC R507 \*. Code: BRO507, 2001
  - HCFC R22 \*. Code: BRO22, 1981
  - HCFC R123 \*. Code: BRO123, 1995
- English & French/black & white  
Anglais & Français/noir & blanc

**Enthalpy diagrams/Diagrammes enthalpiques**

**Ed. IIF-IIR**



10 €

- HFC. Code: si-R134a
  - HCFC. Code: si-R22, Code: si-R123
  - Others: Code: si-R717, Code: si-R14
  - Ammonia-water (Enthalpy-Entropy): Code: umAE1, Code: umAE2, Code: umAE3
- English & French/black & white  
Anglais & Français/noir & blanc

**3 - Tables and Diagrams**  
*Tables et diagrammes*

CA 134a  
Diagramme n° 4 (table 51) R134a

**Cahier de 25 diagrammes**

Un service particulièrement destiné aux étudiants. Les diagrammes les plus importants sont publiés sous forme de cahier, qui contient 25 diagrammes du même type. Ils aident les étudiants en fournissant des informations de base sur le comportement des différents fluides et couples.

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**Ed. IIF-IIR**



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 - Code: CAAEAL (Ammonia-water pair/Couple ammoniac-eau)  
 black & white/English & noir et blanc/français.



25 €

Pads of entropy diagrams/Cahier de diagrammes entropiques  
 - Code: CAAEOP (Ammonia-water pair/Couple ammoniac-eau)  
 English & French/black & white  
 Anglais & Français/noir & blanc

**1 - Cryoengineering and Liquefaction of Gases**  
*Cryotechnique et liquéfaction des gaz*

1.a – Ouvrages | Publications

**Cryogénie : ses applications en supraconductivité**

Cet ouvrage rassemble des fascicules techniques réalisés par les Techniques de l'Ingénieur sur les propriétés physiques des fluides et des substances aux basses températures.

**Ed. Techniques de l'Ingénieur, 1995**



30 € Français. ISBN: 2-903633-77-0. Code: CRYOTI. noir & blanc. 108 p.

1.b – Comptes rendus | Proceedings

**13<sup>th</sup> Cryogenics 2014**

These proceedings contain 43 papers as well as 9 posters presented at this 13<sup>th</sup> IIR international conference, in April 7-11, 2014, held in Prague, Czech Republic, and provide an exceptional insight into the state of the art.

Main topics: Superconducting Magnet - Cryobiology - Cryosurgery - Cryopreservation - Cryogenics - Cryorefrigerator - Cryotemperature - Cryotherapy - LNG - Liquid helium - Hydrogen - Liquefaction - Separation - Superconduction

Location: Prague, Czech Republic - 43 papers + 9 posters (in English)

**Ed. IIF-IIR, 2014**



35 € English. ISBN: 978-2-362150-02-9. Code: 2014-1



**12<sup>th</sup> Cryogenics 2012**

These proceedings contain 51 papers and 28 posters presented at this international conference, held in Dresden, Germany, on September 11-14, 2012, and provide an exceptional insight into the state of the art.

Main topics: Cryogenics in particle physics and fusion - Superconductivity and its applications - Superconductivity and very low temperatures - Cryocoolers and liquid helium - Cryotherapy and cryobiology - Air separation - CO<sub>2</sub> sequestration - Liquefied Natural Gas (LNG) - Liquid hydrogen - Rare gases

Location: Dresden, Germany - 51 papers + 28 posters (in English)

**Ed. IIF-IIR, 2012**



40 € English. ISBN: 978-2-913149-93-9. Code: 2012-4



**1 - Cryoengineering and Liquefaction of Gases**

*Cryotechnique et liquéfaction des gaz*

1.b – Comptes rendus | Proceedings

**15<sup>th</sup> International Conference & Exhibition on Liquefied Natural Gas  
 LNG 15 – GNL 15**

The proceedings of this IIR conference co-organized by the IIR and held on April 24-27, 2007, in Barcelona, Spain, cover the entire LNG chain and deal with numerous aspects of LNG: globalization, technical, operational, project development and execution, safety and security.

Main topics: Challenges and opportunities related to the emergence of LNG - New trends in LNG processing - Market challenges for a growing LNG industry - Export/import terminals - What are suppliers doing to meet market requirements? - Shipping and transfer - Training and sustainability

Location: Barcelona, Spain

Ed. GTI, 2007



40 € English. ISBN: 1-58222-999-6. Code: GNL15-LNG15

**2 - Refrigerants**

*Frigorigènes*

2.a – Ouvrages | Publications

**CO<sub>2</sub> as a Refrigerant**

A first edition, the IIR guide “CO<sub>2</sub> as a Refrigerant” highlights the application of carbon dioxide in supermarkets, industrial freezers, refrigerated transport, and cold stores as well as ice rinks, chillers, air-conditioning systems, data centers and heat pumps. This guide is for design and development engineers needing instruction and inspiration as well as non-technical experts seeking background information on a specific topic.

Author: A. B. Pearson

Ed. IIR Technical Guide, 2014



30 € English. ISBN: 978-2-362150-06-7. Code: CO2-eb. 123 p.

40 € English. ISBN: 978-2-362150-05-0. Code: CO2-pap. colour. 123 p.

**Ammonia as a Refrigerant**

This third edition of the IIR’s acclaimed guide to ammonia has been completely updated to take into account the latest trends, cost-effective solutions and legislation.

Main topics: Thermophysical properties of ammonia - Exposure to ammonia, safety precautions - Design of ammonia installations - Ammonia applications - Future prospects - Standards and regulations - Bibliography

Author: A. B. Pearson

Ed. IIF-IIR, 2008



50 € English. ISBN: 978-2-913149-66-3. Code: AURA2008. colour. 88 p.



## **2 - Refrigerants** *Frigorigènes*

### *2.b – Comptes rendus | Proceedings*

#### **11<sup>th</sup> IIR-Gustav Lorentzen on Natural Working Fluids (GL2014)**

This was the 11<sup>th</sup> event in a highly successful series of international IIR conferences on natural refrigerants. The proceedings comprise 114 papers, 3 keynotes and 3 plenary lectures dealing with the following themes among others: commercial and supermarket refrigeration, R290, ejectors, emission and energy saving, safety and risk, CO<sub>2</sub> system, refrigerant charge reduction, CO<sub>2</sub> heat pump, other natural refrigerants, properties and future refrigerants, heat transfer and heat exchangers, LCCP, air and water, sorption systems and ammonia.

Main topics: Carbon dioxide - Hydrocarbons - Ammonia - Natural refrigerants - Supermarkets - Heat pumps - Heat transfer and Heat exchangers - Sorption - Energy savings

Location: Hangzhou, China - Papers: 114 papers + 3 keynotes + 3 plenary lectures (in English)

**Ed. IIF-IIR, 2014**



**50 €** English. ISBN: 978-2362150-04-3. Code: 2014-3



#### **10<sup>th</sup> IIR-Gustav Lorentzen on Natural Working Fluids (GL2012)**

This was the 10<sup>th</sup> event in a highly successful series of international IIR conferences on natural refrigerants. The proceedings comprise 143 papers dealing with the following themes among others: CO<sub>2</sub> ejector systems, components and heat pumps, CO<sub>2</sub> in supermarket systems, secondary refrigerants, thermal storage, hydrocarbon compressors and systems, ammonia compressors, chillers and heat pumps, heat exchangers and heat transfer, safety issues, solar absorption systems, absorption fundamentals, sorption desiccants, fin-tube technology and energy savings.

Main topics: Carbon dioxide - Hydrocarbons - Ammonia - Secondary refrigerants - Supermarkets - Ejectors - Heat pumps - Compressors - Sorption - Energy savings

Location: Delft, the Netherlands - Papers: 143 papers (in English)

**Ed. IIF-IIR, 2012**



**50 €** English. ISBN: 978-2-913149-90-8. Code: 2012-1



#### **4<sup>th</sup> Conference on Thermophysical Properties and Transfer Processes of Refrigerants**

The proceedings of this fourth key event, held in Delft, The Netherlands, on June 17-19, 2013, comprise 70 papers: 4 keynotes and 66 papers. These papers deal with the following themes: Absorption, boiling heat transfer, condensation and two-phase flow, condensation in tubes, cycle performance/heat exchangers, desiccants and slurries, energy storage and distribution, gas coolers, high temperature heat pumps, Life Cycle Climate Performance (LCCP), magnetic refrigeration control, nanofluids, and thermophysical properties

Main topics: Advances in condensation - Advances in evaporation - Cycle performance with low GWP refrigerants and high temperature heat pumps - Energy storage and nanofluids - Sorption processes and magnetic refrigeration systems - Thermodynamic and transport properties of refrigerants and slurries.

Location: Delft, the Netherlands - Papers: 66 papers + 4 keynotes (in English)

**Ed. IIF-IIR, 2013**



**40 €** English. ISBN: 978-2-913149-99-1. Code: 2013-3





**2 - Refrigerants**  
*Frigorigènes*

*2.b – Comptes rendus | Proceedings*

**3<sup>rd</sup> Conference on Thermophysical Properties and Transfer Processes of Refrigerants**

The proceedings of this third key event in a series comprise 61 papers along with 15 abstracts of papers presented during joint sessions within the framework of the 17<sup>th</sup> Symposium on Thermophysical Properties. The keynote presentations cover competition between synthetic and natural refrigerants, and heat-driven cooling cycles. The focus of the papers is on: new refrigerants including trans-1,3,3,3-tetrafluoropropene, 2,3,3,3-tetrafluoropropene (HFO-1234yf) and HFEs; evaporation; lubricants, nanofluids and CO<sub>2</sub> systems; condensation; cycle regulation; heat transfer; transfer properties; simulation, control and optimization; unique applications; simulation, control and optimization of CO<sub>2</sub> systems; experimental thermodynamics; heat exchangers; improving system efficiency; application of refrigerants with low global warming potential; flow.

Main topics: Refrigerants with low global warming potential - CO<sub>2</sub> (systems, heat transfer, simulation, control, optimization) - Improving system efficiency - Condensation - Current issues in heat transfer - Heat exchangers - Lubricants - Nanofluids - New fluids

Location: Boulder, USA - Papers: 61 papers + 15 abstracts (in English)

**Ed. IIF-IIR, 2009**



**40 €** English. ISBN: 978-2-913149-70-0. Code: 2009-5



**3<sup>rd</sup> IIR Workshop on Refrigerant Charge Reduction in Refrigerating Systems**

These proceedings contain 8 keynote PowerPoint presentations, 13 full papers and 2 industrial PowerPoint presentations made at this IIR workshop held in Valencia, Spain, on October 25-26, 2012.

The keynotes deal with: Refrigerant mass measurement and charge distribution; refrigerant mass estimation; optimal refrigerant charge; design of reduced charge systems; low-charge ammonia shell and tube evaporators: latest development.

The papers deal with a broad range of crucial charge issues, including: mapping the energy consumption of household refrigerators; heat transfer coefficient and pressure drop during evaporation; flow boiling in minichannels; infrared thermography measurements; finned heat exchanger development; experimental assessment of a drop-in substitute for R22; effect of certain design parameters and refrigerant fluids; fouling behavior of heat exchangers; new plate design.

Main topics: Charge reduction - Developments in microchannel technology - Reducing emissions and leakage - Charge distribution and sizing - Refrigerant mass measurement - Design of reduced charge systems - Refrigerant charge optimization - Low-charge ammonia shell-and-tube evaporators - Energy consumption - Heat transfer coefficient and pressure drop - Flow boiling - Minichannels - Infrared thermography measurements - Heat exchanger development - Replacement of R22 and R404A - Effect of certain design parameters and refrigerants - Fouling behavior - Plate design

Location: Valencia, Spain - 8 keynote PowerPoint presentations + 13 full papers + 2 industrial PowerPoint presentations (in English)

**Ed. IIF-IIR, 2012**



**25 €** English. ISBN: 978-2-913149-95-3. Code: RCR3



**2 - Refrigerants**  
**Frigorigènes**

**2.b – Comptes rendus | Proceedings**

**6<sup>th</sup> Conference on Ammonia and CO<sub>2</sub> Refrigeration Technology**

These proceedings contain 54 papers presented at this sixth IIR international conference on ammonia technology, held in Ohrid, Macedonia. This conference on Ammonia and CO<sub>2</sub> Refrigeration Technologies focused on intensifying global trend towards using natural refrigerants, such as ammonia and carbon dioxide in various refrigeration applications worldwide.

Main topics: Design of modern ammonia and new CO<sub>2</sub> systems and technological innovations - Improving energy efficiency - Various applications - Technical guidelines - Safety regulations

Location: Ohrid, Macedonia (FYROM) - 54 papers (in English)

**Ed. IIF-IIR, 2015**



**35 € English. ISBN: 978-2-362150-08-1. Code: 2015-2**



**5<sup>th</sup> Conference on Ammonia Refrigeration Technology**

These proceedings comprise the 24 papers presented during this fifth IIR international conference on ammonia technology, held in Ohrid, Macedonia, organized by the Faculty of Mechanical Engineering, University Ss. Cyril & Methodius, Skopje, Macedonia, on May 9-11, 2013. The papers cover a wide range of topics including: making ammonia plants safer; past, present and future use in the food industry; heat pumps and economic aspects; heat pump optimization; use of ammonia in cold stores in China; use and misuse of standards; direct-expansion ammonia evaporators; practical experience in the Balkans; trigeneration systems with ammonia-water absorption chillers; hybrid cycles.

Main topics: Safety of ammonia plants - Past, present and future use - Ammonia heat pumps - Environmental considerations - Standards - Practical experience - Ammonia chillers - Ammonia-water absorption chillers - Optimization

Location: Ohrid, Macedonia (FYROM) - 24 papers (in English)

**Ed. IIF-IIR, 2013**



**25 € English. ISBN: 978-2-913149-98-4. Code: 2013-2**



**3 - Refrigeration Technologies**  
**Technologies frigorifiques**

**3.a – Ouvrages | Publications**

**Handbook on Indirect Refrigeration and Heat Pump Systems**

Indirect systems with secondary fluid circuits have long been used for systems where there are many places to be cooled or where long pipes are required, such as in artificial ice rinks, commercial refrigeration and ground-source heat pumps with long collector tubes in the ground. Indirect systems have come into focus to an ever-increasing extent because of requirements governing tighter constructions in order to minimize refrigerant leakage from plants as well as changing legislation implemented in order to achieve the phasing-out of various types of CFC, HCFC and high-GWP refrigerants.

Main topics: Direct and indirect systems - Indirect system solutions - Components - Secondary fluids - Corrosion - Environmental aspects - Projecting and dimensioning - Design and control of system - System construction and installation - Optimization of indirect systems

Author: Åke Melinder

Ed. IIF-IIR, 2015



42 € English. ISBN: 978-2-36215-011-1 Code: AKE-HBI-eb. 231 p.

55 € English. ISBN: 978-2-36215-010-4. Code: AKE-HBI-pap. 231 p.



**Froid industriel**

Cet ouvrage présente de manière pratique et détaillée la conception, l'exploitation et la maintenance d'une installation, après des rappels importants sur les technologies de production du froid. Les aspects environnementaux font l'objet d'un chapitre complet.

Thèmes principaux : Production du Froid - Thermodynamique et transferts thermiques - Cycles thermodynamiques et production de froid - Fluides frigorigènes - Machine frigorifique mono-étagée - Compresseurs à pistons - Rendement d'un compresseur - Cycle bi-étagé - Dimensionnement - Compression de vapeur - Modélisation numérique - Aspects environnementaux - Technologie du froid - Composants - Matériels spécifiques - Systèmes frigorifiques - Applications du froid - Dégivrage - Huiles frigorifiques - Études de cas

Ed. Dunod, 2005



50 € Français. ISBN: 210-0-053-01-9. Code: FROI-IND. noir & blanc. 512 p.



**Handbook on Ice Slurries - Fundamentals and Engineering**

This handbook 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 Kauffeld, Masahiro Kawaji and Peter W. Egolf, around 50 international experts contributed to this unique CD-ROM summarizing current knowledge in this field.

Main topics: Thermophysical properties - Fluid dynamics - Thermodynamics and heat transfer - Ice slurry production - Transport - Storing/melting and mixing - Melting ice slurries in heat exchangers - Direct contact chilling and freezing of foods in ice slurries - The control of ice slurry systems - Optimization of ice slurry systems - Present and future applications

Ed. IIF-IIR, 2005



65 € English. ISBN: 2-913149-44-8. Code: ICE-HB-CD-2005



**3 - Refrigeration Technologies**  
*Technologies frigorifiques*

**3.a – Ouvrages | Publications**

**Regenerative Thermal Machines (Stirling and Vuilleumier cycle machines) for Heating and Cooling**

Stirling and Vuilleumier cycle machines are again being used in refrigerating applications.

Main topics: Thermodynamic principles - Research and development in various regions - Vapour compression systems using Stirling cycles - Heat pumps and chillers using Stirling cycles - Vuilleumier machines - Thermoacoustic machines and pulse-tube refrigerators - Perspectives



Ed. IIF-IIR, 2000



60 € English. ISBN: 2-913149-05-7. Code: KAGAWA. black & white. 202 p.

**3.b – Comptes rendus | Proceedings**

**5<sup>th</sup> Jordanian IIR International Conference on Refrigeration and Air Conditioning**

These proceedings contain 22 papers and 3 keynotes. The 5<sup>th</sup> Jordanian IIR conference on Refrigeration and Air Conditioning is the fifth of its kind in Jordan since it was first convened in 1988 and is designed to address the various aspects of the presently active Refrigeration and Air conditioning works in the country and the region. It aims at providing a forum for scientific exchange among scholars and professionals and consequently identify emerging trends, opportunities and challenges in HVAC & R engineering. The themes were actually grouped to address refrigeration and air-conditioning environmental issues, including new and alternative refrigerants and cycles assisted with solar energy.

Location: Aqaba, Jordan - 22 papers + 3 keynotes (in English)

Ed. IIF-IIR, 2015



25 € English. ISBN: 978-2-362150-09-8. Code: 2015-1



**4<sup>th</sup> Jordanian IIR International Conference on Refrigeration and Air Conditioning**

The proceedings of this 4<sup>th</sup> event in a series, held in Amman, Jordan, on September 10-12, 2012, comprise 26 papers on a range of refrigeration technologies, with a strong focus on solar technology, buildings and energy savings. Among the subjects dealt with by the plenary speeches and papers: cooling of buildings in unconventional manners, energy efficiency standards and labels for appliances, R152a, R600a, R290 and R600a mixtures as alternatives to R134a, comparison of R134a and R410A, innovative photovoltaic cooling and heating technology with heat recovery, simulation and modeling of absorption and adsorption systems and improvement of the performance of such systems, vacuum insulated panels in insulated packaging, solar refrigeration in the agri-food sector, refrigerant recovery during recycling of refrigerators.

Main topics: Solar cooling - Absorption and adsorption cooling - Energy savings - Comparison of refrigerants - Refrigerant recovery - Buildings

Location: Amman, Jordan - 26 papers (24 in English, 2 in French)

Ed. IIF-IIR, 2012



25 € English. ISBN: 978-2-913149-92-2. Code: 2012-3



**3 - Refrigeration Technologies**  
*Technologies frigorifiques*

*3.b - Comptes rendus | Proceedings*

**6<sup>th</sup> International Conference on Magnetic Refrigeration at Room Temperature (Thermag VI)**

Thermag VI is the 6<sup>th</sup> International Conference on Magnetic Refrigeration held in Victoria, Canada, on September 7-10, 2014. The proceedings of this IIR event dealing with magnetic refrigeration comprise 49 papers. This event focused on material and system development for magnetothermic systems based on the Magnetocaloric effect. Thermag has traditionally been the venue for near room temperature applications such as refrigeration, heat pumps and chillers.

Main topics: Magnetocaloric materials - Magnetic heat pumps - Magnetic cooling systems - Active magnetic regenerators - Room temperature magnetic refrigerators - Simulation and modelling

Location: Victoria, Canada - 49 papers (in English)

Ed. IIF-IIR, 2014



25 € English. ISBN: 978-2-362150-07-4. Code: 2014-4



**5<sup>th</sup> International Conference on Magnetic Refrigeration at Room Temperature (Thermag V)**

The proceedings of this fifth IIR event, held in Grenoble, France, on September 17-20, 2012, dealing with cutting-edge magnetic refrigeration comprise 63 papers along with 11 plenary lectures. The latter provide a historical viewpoint, a physical insight, trends in the magnetic refrigeration field, progress in several sectors. The papers covering magnetocaloric materials include presentations fabrication, the influence of various cooling processes on properties, modelling and characterization of the magnetocaloric effects, the magnetocaloric properties of several alloys and systems. The papers dealing with magnetic cooling systems deal with the following themes among others: design aspects, cost optimization, the impact of thermal conductivity, magnetic heat pumps, new thermodynamic cycles, classification of room temperature magnetic refrigerators, simulation, efficiency evaluation and design of a magnetocaloric vehicle air-conditioning system.

Main topics: Magnetocaloric materials - Magnetic heat pumps - Magnetic cooling systems - Active magnetic regenerators - Room temperature magnetic refrigerators - Simulation and modelling

Location: Grenoble, France - 63 papers + 11 plenary lectures (in English)

Ed. IIF-IIR, 2012



40 € English. ISBN: 978-2-913149-94-6. Code: 2012-5



**11<sup>th</sup> International Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning**

These proceedings contain 32 papers presented at the 11<sup>th</sup> IIR Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning, held in Karlsruhe, Germany, on May 18-20, 2016.

Main topics: Supercooling effect - Rheological parameters of PCM slurries - Heat capacity and conductivity, DSC measurements - Building applications - PCM applications in heat exchangers and enhancing heat conductivity of PCM - Particle size and properties of (ice) slurries - Salt and CO<sub>2</sub> hydrate slurries - Encapsulated PCM and hot PCM - Ice slurry, novel techniques - Energy - Environment

Location: Karlsruhe, Germany - 32 papers (in English)

Ed. IIF-IIR, 2016



30 € English. ISBN: 978-2-36215-015-9. Code: 2016-2



**3 - Refrigeration Technologies**  
*Technologies frigorifiques*

**3.b – Comptes rendus | Proceedings**

**10<sup>th</sup> International Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning**

These proceedings of the 10<sup>th</sup> IIR International Conference on Phase-Change Materials and Slurries for Refrigeration and Air Conditioning held in Kobe, Japan, on July 29-August 1, 2012, contain 41 papers (including 5 keynote presentations). They also contain 8 poster and 6 industry presentations. The topics dealt with include basic properties, thermal and rheological properties, crystallization processes, heat transfer, PCM applications, system evaluation, flow behaviour, recent advances, production technology.

Main topics: Encapsulation and composite PCMs - Thermal and rheological properties of PCMs and slurries - Ice and PCMs: crystallization processes - Fluid flow and heat transfer of ice and PCM slurries - PCM applications in Asian countries - Evaluation of ice and PCM slurry systems - CO<sub>2</sub> slurries for refrigeration systems - Production processes - Various applications

Location: Kobe, Japan - 41 papers (in English)

**Ed. IIF-IIR, 2012**



**35 €** English. ISBN: 978-2-913149-91-5. Code: 2012-2



**8<sup>th</sup> International Conference on Compressors and Coolants**

The proceedings of the eighth International IIR Conference on Compressors and Coolants, held in Casta Papiernicka, Slovak Republic, on September 2-4, 2013, comprise 66 papers on a broad range of themes related to compressors; compressors and refrigeration technologies; inspection, diagnosis and refrigerants inventory; compressors, coolants and oils.

Main topics: Compressors and trends - Design, modelling and simulation - Regulations governing refrigerants - New refrigerants - Replacement of R22 - Absorption technology - Ammonia in small heat pumps - Hermetic and scroll systems - CO<sub>2</sub> systems - Heat pumps, energy and the environment - Propane and centrifugal compressors - Diagnosis and inspection

Location: Casta Papiernicka, Slovak Republic - 66 papers (in English)

**Ed. IIF-IIR, 2013**



**40 €** English. ISBN: 978-2-36215-000-5. Code: 2013-4



**7<sup>th</sup> International Conference on Compressors and Coolants**

The proceedings of the seventh International IIR Conference on Compressors and Coolants, held in Casta Papiernicka, Slovak Republic, on September 30-October 2, 2009, comprise 61 papers on a broad range of themes related to compressors, refrigeration technologies, inspection, diagnosis, coolants and oils.

Main topics: Compressors and trends - Design, modelling and simulation - Regulations governing refrigerants - New refrigerants - Replacement of R22 - Absorption technology - Ammonia in small heat pumps - Hermetic and scroll systems - CO<sub>2</sub> systems - Heat pumps, energy and the environment - Propane and centrifugal compressors - Diagnosis and inspection

Location: Casta Papiernicka, Slovak Republic - 61 papers (in English)

**Ed. IIF-IIR, 2009**



**40 €** English. ISBN: 2-913149-73-1. Code: 2009-6



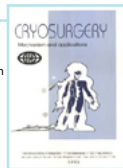
**4 - Cryobiology**  
*Cryobiologie*

4.a – Ouvrages | Publications

**Cryosurgery: Mechanism and Applications**

This manual was prepared by a group of specialists headed by Dr Homasson on the occasion of the 9<sup>th</sup> World Congress of Cryosurgery, which was held in Paris in Spring 1995 as a Commission C1 event.

Ed. IIF-IIR, 1995



35 € English. ISBN: 2-93633-75-4. Code: CRYOSU. black & white. 140 p.

4.b – Comptes rendus | Proceedings

**New Ventures in Freeze-Drying**

The proceedings of this leading-edge IIR event held in Strasbourg, France, on November 7-9, 2007, comprise 16 papers. This event brought together experts from many parts of the world and the proceedings provide a rare update on technology in this field.

Main topics: Saga of freeze-drying encompassing history - Control of freeze-dried biologicals - Heat-pumps in freeze-drying - Pharmaceutical packaging for freeze-dried drugs - Scanning electron microscopy used to characterize freeze-dried materials - PAT approaches - Freeze-drying cycles - Freeze-drying and irradiation - Basic issues and new trends - Quality by design - Impedance analysis for the study of critical events

Location: Strasbourg, France - 16 papers (in English)

Ed. IIF-IIR, 2007



25 € English. ISBN: 978-2-913149-60-1. Code: 2007-3

**5 - Food Technology, Refrigerated Storage and Transport**  
*Froid alimentaire, entreposage et transport frigorifiques*

5.a – Ouvrages | Publications

**Control of the Cold Chain for Quick-Frozen Foods Handbook**

This is a highly useful practical guide to recommended conditions for quick-frozen foods. It completes information contained in IIR guides to cold stores and refrigerated transport. Regulatory texts are provided.

Main topics: Links in the cold chain - Measurement of air and product temperatures - Non-compliance - Advice for practitioners

Ed. IIF-IIR, 1999



40 € English. ISBN: 2-913149-01-4. Code: COLCHA. black & white. 94 p.

**5 - Food Technology, Refrigerated Storage and Transport**  
**Froid alimentaire, entreposage et transport frigorifiques**

5.a – Ouvrages | Publications

**Recommandations pour la  
préparation et la distribution  
des denrées congelées**

Le livre rouge est une publication de base de l'IIF et l'un de ses best sellers. La 4e édition, préparée par Leif Bøgh-Sørensen et plusieurs experts internationaux, donne une vue d'ensemble des connaissances actuelles en matière de produits alimentaires congelés.

Cet ouvrage met à jour les principes de la congélation, de la surgélation, l'entreposage et la décongélation des produits alimentaires, avec l'accent mis sur les aspects physiques, physico-chimiques, nutritionnels et biochimiques, sans oublier les questions microbiologiques, l'hygiène, l'emballage, le transport, la présentation et la vente au détail.

Thèmes principaux : Définitions et explications - Aspects scientifiques et techniques de la congélation des produits alimentaires - Congélation et décongélation - Entreposage et transport - Meubles frigorifiques de vente et applications domestiques - Durée de conservation des surgelés - Fruits et légumes - Viande, volailles, poissons, œufs et produits laitiers - Énergie

**Recommendations for the Processing  
and Handling of Frozen Foods**

The Red Book is one of the IIR's reference publications and one of its best sellers. The 4<sup>th</sup> edition, prepared by Leif Bøgh-Sørensen and several international experts, presents an overview of know-how on frozen foods. It gives an update on the principles of freezing, quick-freezing, storage and thawing of food, with due attention paid to physical, physicochemical, nutritional and biochemical aspects, as well as to microbiology, hygiene, packaging, transport, presentation and retail sale.

Main topics: Definitions and explanations - Scientific and technical aspects of the freezing of foodstuffs - Freezing and thawing - Storage and transport - Retail cabinets and consumer applications - Storage life of frozen foods - Fruits and vegetables - Meat, poultry, fish, eggs and dairy products - Other frozen foodstuffs - Energy.

**Ed. IIF-IIR, 2006 (in English), 2008 (en français)**



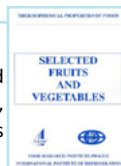
60 € English. ISBN: 978-2-913149-52-6. Code: REDBApap. colour. 176 p.

60 € Français. ISBN: 978-2-913149-64-9. Code: REDBFpap. couleur. 199 p.

**Selected Fruits and Vegetables. Thermophysical Properties of Foods**

This book presents a critical literature review on data on the freezing point, density, specific heat and enthalpy, conductivity and thermal diffusivity of 13 types of fruits (apples, pears, strawberries, bilberries, raspberries, blackberries, peaches, plums, cherries, sour cherries, apricots, grapes, oranges) and 5 types of vegetables (potatoes, carrots, tomatoes, onions, cucumbers).

**Ed. Food Research institute (VUPP), 2004**



60 € English. ISBN: 80-902671-7-3. Code: HOUSFRUIT. black & white. 92 p.



## **5 - Food Technology, Refrigerated Storage and Transport** **Froid alimentaire, entreposage et transport frigorifiques**

5.a – Ouvrages | Publications

### **Conditions recommandées pour la conservation des produits périssables à l'état réfrigéré**

Cette 4e édition a été très largement enrichie grâce aux contributions de nombreux spécialistes appartenant aux cinq continents. Cet ouvrage comprend 12 chapitres.

Les cinq premiers traitent des notions de base à prendre en compte lors de la conservation des produits réfrigérés : définitions, durée de conservation, méthode de refroidissement, emballages.

Les chapitres suivants traitent des caractéristiques spécifiques de conservation des différents produits : fruits et légumes, viande, produits de la pêche, produits laitiers, fleurs coupées et semences.

Enfin, étant donné l'importance des plats préparés, un chapitre particulier est consacré à ces produits.

### **Recommendations for Chilled Storage of Perishable Produce**

This 4<sup>th</sup> edition has been considerably enriched thanks to contributions from many specialists worldwide. This guide comprises 12 chapters.

The first five chapters cover basic concepts to be taken into account in the preservation of chilled products: definitions, shelf life, chilling methods and packaging.

The following chapters cover products specific preservation characteristics: fruits and vegetables, meat, fish and seafood, dairy products, cut flowers and seeds.

Given the important impact of prepared foods on the chilled-food market, an entire chapter is devoted to these products.

**Ed. IIF-IIR, 2000**



40 €

English & French. Anglais & Français

ISBN: 2-913149-09-X. Code: CROP20. Black & white. 220 p.

### **Le froid et la conservation des fruits et légumes - Cours de formation**

Ce cours présente les connaissances nécessaires à l'utilisation optimale des techniques du froid pour la conservation des fruits et légumes aux différentes étapes de la chaîne du froid. Chaque thème est illustré de nombreux schémas, photos et diagrammes accompagnés de textes synthétiques.

Thèmes principaux : Production du froid - Données biologiques sur les fruits et légumes - Réfrigération, congélation, entreposage des fruits et légumes - Techniques de conservation - Circuits de commercialisation

**Ed. IIF-IIR, 2004**



100 €

Français. ISBN: 2-913149-38-3. Code: CFLEG. noir & blanc. 265 p.

120 €

Français. ISBN: 2-913149-36-7. Code: CFLEG-CDF.



**5 - Food Technology, Refrigerated Storage and Transport**  
**Froid alimentaire, entreposage et transport frigorifiques**

**5.a – Ouvrages | Publications**

**Isolation et étanchéité  
des chambres froides**

Ce livre a pour but d'apporter une réponse permettant de faire face aux exigences croissantes en matière d'économie d'énergie et de qualité des produits dans les domaines de l'isolation et de l'étanchéité des chambres froides ; il présente également les éléments à considérer lors de la construction et de l'utilisation d'une enceinte pour lui assurer la meilleure longévité.

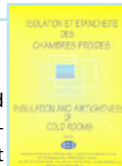
Thèmes principaux : Caractéristiques constructives et classification des chambres froides - Matériaux isolants et pare-vapeur - Causes de dégradation des parois isolantes (vieillessement, présence d'eau, etc.) - Causes d'établissement de surpressions ou de dépressions à l'intérieur d'une chambre froide - Essai d'isolation et d'étanchéité d'une chambre froide ouverte ou fermée

**Insulation and Airtightness  
of Cold Rooms**

This book focuses on cold room insulation and airtightness, with a particular emphasis on solutions designed to address increasingly stringent requirements in terms of energy savings and product quality. Key features include design and operating considerations and durability.

Main topics: Construction features and classification of cold rooms - Insulating and vapour barrier materials - Factors leading to deterioration of insulated walls (ageing, presence of water, etc.) - Factors leading to excess pressure or depression inside cold rooms - Testing of insulation and tightness in an open or closed cold room

**Ed. IIF-IIR, 2002**



55 €

English & French. Anglais & Français. ISBN: 2-913149-24-3.  
Code: DUMI. black & white/noir & blanc. 400 p.

**Manuel de l'entreposage  
frigorifique dans les pays chauds  
en développement**

Ce manuel fait le point sur les informations nécessaires pour construire un entrepôt de petites dimensions dans les régions chaudes. Destiné aux ingénieurs et consultants chargés de développer les productions de denrées alimentaires de pays en développement pour l'alimentation locale ou pour l'exportation, il définit également les principales performances de l'équipement de production de froid et les conditions à observer pour assurer une gestion correcte. Parmi les publications traitant de l'entreposage dans les pays chauds, ce livre peut être considéré comme un ouvrage de base.

Thèmes principaux : Notions de base - Conception - Calcul des caractéristiques techniques - Optimisation économique - Construction et isolation - Équipement frigorifique - Réglages et sécurité - Production de glace hydrique - Exploitation et entretien

**Manual of Refrigerated Storage in the  
Warmer Developing Countries**

This manual provides a synthesis of the knowledge necessary for building a small cold store in warm weather regions. It is intended for engineers and consultants in charge of developing food production capacities in developing countries for both local consumption and exports. It explains what performances can be expected from refrigerating equipment and lists good management practices. The manual can be considered as a basic text among books dealing with cold storage in warm countries.

Main topics: Fundamentals - Design - Calculating specifications - Economic optimization - Construction and Insulation - Refrigerating equipment - Regulating devices and safety - Water-ice production - Operation and maintenance

**Ed. IIF-IIR, 1990**



30 €

English & French. Anglais & Français. ISBN: 2-903633-47-9.  
Code: MANU. black & white/noir & blanc. 328 p.

**5 - Food Technology, Refrigerated Storage and Transport**  
**Froid alimentaire, entreposage et transport frigorifiques**

5.a – Ouvrages | Publications

**Guide to Refrigerated Transport**

This second edition is a greatly extended and fully updated version of the first edition published in 1995 and enables readers to come to grips with the latest technology and trends. This book provides all necessary basic information on the transport of perishable foodstuffs, regardless of the mode of transport: land (road and rail), sea or air. It deals in particular with containers and multimodal transport. Packed with figures, tables and illustrations, it completes the IIR's already well-known series of publications on topics such as frozen food, energy, ammonia, ice slurries and cold storage.

Main topics: Road and rail transport - Product quality during transport - Logistics and the cold chain - Marine transport - Air transport - Containers and multimodal transport - Land transport - Global performance standards

**Ed. IIF-IIR, 2010 (in English), 1995 (en français)**



50 € English. ISBN: 978-2-913149-78-6. Code: TFA2. colour. 182 p.

35 € Français. ISBN: 2-903633-71-1. Code: TFF. noir & blanc. 156 p.

**FRISBEE: Needs and Expectations of European Consumers and Industry regarding Refrigeration**

This E-Book summarizes the outcomes of the Frisbee project addressed to the general public “consumers and industrials”.

The Frisbee project is a European Union funded 4-year Project to provide new tools, concepts and solutions for improving refrigeration technologies along the European food cold chain.

**Ed. European Union and produced by IIR, 2014**



**FREE** English, 19 p. Downloadable from IIR website: News & Files → Thematic files

**Cool-Save Best Practice Guide**

This Guide was prepared within the framework of the Cool-Save project on the “Development and dissemination of cost-effective strategies to improve energy efficiency in cooling systems in the food and drink sector”. The guide includes a map of grants, at the national level, with information on co-financing the implementation cost of the strategies listed in the guide. The ambition of the project team is to have finalised a concise and concrete document, comprehensible to all the decision-makers.

**Ed. European Union and produced by IIR, 2015**



**FREE** English. 162 p. Downloadable from IIR website: News & Files → Thematic files

**FREE** English. colour. 162 p.

## **5 - Food Technology, Refrigerated Storage and Transport** **Froid alimentaire, entreposage et transport frigorifiques**

5.b – Comptes rendus | Proceedings

### **4<sup>th</sup> IIR International Conference on Sustainability and the Cold Chain**

The ICC2016 provided an opportunity to showcase leading-edge developments in sustainability, retail refrigeration and the cold chain with 66 scientific papers and 15 themed sessions.

Main topics: Cold chain refrigeration equipment - Monitoring, evaluating and responding to conditions - Developments in sustainability

Location: Auckland, New Zealand - 66 papers + 15 themed sessions (in English)

Ed. IIF-IIR, 2016



40 € English. ISBN: 978-2-362150-14-2. Code: 2016-1



### **3<sup>rd</sup> IIR International Conference on Sustainability and the Cold Chain**

The proceedings of the third IIR Conference on Sustainability and the Cold Chain held on June 23-25, 2014 in London, UK, comprise 88 papers. The ICC 2014 provided an opportunity for more than 165 delegates across the globe to share the latest progress in research and development in the cold chain and sustainability in refrigeration, air conditioning and heat pumps.

Main topics: Modelling and predictive tools - Pharmaceutical cold chain - Refrigerants and refrigeration in the Future - Food quality and safety - Commercial refrigeration - Energy efficiency in the cold chain - Storage, transportation and logistics - Carbon footprinting

Location: London, UK - 86 papers + 3 keynotes (in English)

Ed. IIF-IIR, 2014



45 € English. ISBN: 978-2-362150-03-6. Code: 2014-2



## **6 - Air Conditioning, Heat Pumps and Energy** **Conditionnement d'air, pompes à chaleur et énergie**

6.a – Ouvrages | Publications

### **Poutres froides**

Ce guide est l'édition française du guide n°5 publié par la REHVA (Federation of European Heating and Air-conditioning Associations) et préparé par l'AICVF (Association des Ingénieurs en Climatique, Ventilation et Froid). Il présente la théorie, les facteurs gouvernant le choix d'un système, la création d'un bon climat intérieur, la conception, l'installation et la mise en œuvre, l'exploitation et l'entretien, ainsi que plusieurs études de cas.

Ed. AICVF, 2009



60 € Français. ISBN: 978-2-9522535-5-0. Code: POUFRO. couleur. 55 p.



**6 - Air Conditioning, Heat Pumps and Energy**  
**Conditionnement d'air, pompes à chaleur et énergie**

6.a – Ouvrages | Publications

**Guide des réfrigérateurs solaires pour pays chauds et régions isolées**

Choisir le solaire pour un réfrigérateur en zone chaude isolée ? Si oui, comment ?

Thèmes principaux :

- Revue des options possibles : collecteurs ou cellules, cycles frigorifiques et performance
- Pour systèmes photovoltaïques et thermiques : description, expérience accumulée, avantages et inconvénients
- Guide pratique, conditions d'emploi, choix technique, dimensionnement, coûts

**Guide to Solar Refrigerators for Remote Areas and Warm Countries**

Choosing solar power for refrigerators in remote warm areas. How to go about it?

Main topics:

- Reviewing possible options: collectors and cells, refrigeration cycles and performance
- For photovoltaic and thermal systems: description, acquired experience, advantages and drawbacks
- Practical guide, operating conditions, technology, sizing, cost

Ed. IIF-IIR, 1999



30 €

English & French. Anglais & Français. ISBN: 2-903633-98-3.  
Code: SOLAR. black & white/noir & blanc. 120 p.

6.b – Comptes rendus | Proceedings

**Sources/Sinks Alternative to Outside Air for Heat Pump and Air-Conditioning Techniques + International Sorption Heat Pump Conference (ISHPC11)**

The proceedings of these two conferences held in Padua (April 5-8, 2011) deal with a broad range of cutting-edge fields. Given that sources and heat sinks of heat pumps and refrigeration systems have an immense impact on performance, the first conference focused on sources other than outside air, which is the most common heat pump source/sink but has a number of drawbacks. The 22 papers presented were devoted to the ground as heat source/sink, to simultaneous heating and cooling and to heat recovery or solar as heat source.

The second conference was devoted to sorption and dealt with absorption and adsorption technology. These phenomena make it possible to realise various types of systems and machinery from traditional ad/absorption machines to open cycle systems operating with liquid or solid desiccants. Solar and heat recovery cooling systems are highly relevant applications of the principles and technologies this conference dealt with. The 101 papers focused on absorption, adsorption, co/trigeneration, desiccant, heat pump and solar technology along with thermodynamic cycles.

Main topics: Alternative sources and sinks - Solar sources - Ground sources - Heat recovery - Simultaneous heating and cooling - Absorption - Adsorption - Co/trigeneration - Desiccant technology - Heat pumps - Solar technology - Thermodynamic cycles.

Location: Padua, Italy - 22 papers (Sources) + 101 (ISHPC) = 123 papers (in English)

Ed. IIF-IIR, 2011



60 €

English. ISBN: 978-2-913149-84-7. Code: 2011-1



**6 - Air Conditioning, Heat Pumps and Energy**  
**Conditionnement d'air, pompes à chaleur et énergie**

6.b – Comptes rendus | Proceedings

**HVAC Energy Efficiency Best Practice Conference**

The proceedings of this leading-edge event comprise 17 papers dealing with a broad range of fields related to best practice: Solar technology (air heaters and applications); Performance and simulation of solar cooling systems; Performance analysis of district cooling systems; Desiccant technology: performance evaluation of systems with low-grade heat source, enhancement of a compression-type system; Supermarket HVAC and refrigeration energy evaluation; Ventilation technology: analysis of energy use and energy savings; Cooling and heating: heat pump systems; Cost & CO<sub>2</sub> emissions; Intelligent control; CFD simulation.

Main topics: Solar technology - Performance analysis - Desiccant technology - Ventilation technology - Heat pumps - Energy savings - Cost - CO<sub>2</sub> emissions - Best practice examples

Location: Melbourne, Australia - 17 papers (in English)

Ed. IIF-IIR, 2008



25 €

English. ISBN: 978-2-913149-65-6. Code: 2008-3





## 1 - Fridoc Database

### Base de données Fridoc

#### 100.000 documents 36 langues

Fridoc est la base de données la plus complète au monde spécialisée dans le domaine du froid. Elle couvre l'ensemble de la littérature scientifique et technique au niveau international.

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- l'actualité du froid
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- Refrigeration news
- Technology
- Economic data (markets and figures)
- Information on regulations and standardization
- IIR news: events, publications, commission activities...

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## **4 - International Journal of Refrigeration (IJR)** **Revue Internationale du Froid (RIF)**

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## **5 - International Dictionary of Refrigeration** *Dictionnaire International du Froid*

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