

**JRAIA Symposium 2021**  
**International Symposium New Refrigerants and Environmental Technology 2021**  
**Date:14(Thu) - 15(Fri), October, 2021**

**Program**

14(Thu), October, 2021	
9:00 ~ 9:10	Opening Address Futoshi Nishizaki (Chairman of the board, JRAIA)
9:10 ~ 9:40	Keynote Address 1 The European Green Deal What it means for EU's F-gas policy  ○ Bente TRANHOLM-SCHWARZ (Directorate-General for Climate Action, European Commission)
9:40 ~ 10:40	Environment 1 Moderator: Takashi Goto, Mitsubishi Heavy Industries Thermal Systems, Ltd./ Takeshi Sakai, The Japan Refrigeration and Air Conditioning Industry Association  Japan's Policy Measures for Phasing-down HFCs  ○ Takuyuki KAWAUCHI (Ministry of Economy, Trade and Industry)  Updates For A2Ls In Commercial Refrigeration Standards Regulatory driver to adopt A2L for HFC phase-down  ○ Stephen Spletzer (Chemours LLC)  Atmospheric Chemistry & Environmental Impact of HFOs and CF3I  ○ Dimitrios Papanastasiou, Rajiv Singh, Ankit Sethi (Honeywell)
10:50 ~ 11:50	Compressor/Lubricant 1 Moderator: Akira Hiwata, Panasonic Corporation/ Takeshi Okido, ENEOS Corporation  A Distributed Scroll Booster Architecture for Supermarket Refrigeration using Low GWP Refrigerants  ○ Andre Patenaude, Rajan Rajendran, Jason Born, Mike Saunders (Emerson)  Challenges Associated with Next Generation Lower GWP Refrigerants Selecting the Right Lubricant  ○ Joe Karnaz (Shrieve Chemical Products, LLC)  A study of Oval Scroll Compressors for Capacity Increase  ○ Wataru IWATAKE, Raito KAWAMURA, Keisuke NARUMI, Daisuke KUDO (Mitsubishi Electric Corporation)
11:50 ~ 12:10	Special Session 1 Risk Assessment of AC using A2L refrigerants and the situation after that  ○ Satoru Fujimoto, Kenji Takaichi, Ryuuzaburo Yajima, Kenji Ueda, Takeshi Watanabe, Shigeharu Taira (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))
13:10 ~ 14:55	Safety of Refrigerants/ Risk Assessment 1 Moderator: Hiroichi Yamaguchi, Toshiba Carrier Corporation/ Motoshi Matsushita, Sharp Corporation  Risk Assessment of Highly Flammable Refrigerants  ○ Eiji Hihara (National Institution for Academic Degrees and Quality Enhancement of Higher Education)  Simulation of Strongly Flammable Refrigerant Leaks from Commercial Display Cases  ○ Makoto Ito (University of Tokyo), Eiji Hihara (National Institution for Academic Degrees and Quality Enhancement of Higher Education), Chaobin DANG (University of Fukui), Yu Chen (University of Tokyo)  Experimental Evaluation on Ignition Sources of Hydrocarbon Refrigerant  ○ Tomohiko IMAMURA (Suwa University of Science)  Full-scale physical hazard evaluation of the combustion of refrigeration and air conditioning equipment using natural refrigerant considering actual use conditions  ○ Hiroumi Shiina, Shirou Kubota, Tei Saburi, Akira Matsugi, Yoshiaki Takahashi (National Institute of Advanced Industrial Science and Technology)  Flammability Evaluation of Lower Flammability Refrigerants  ○ Kenji Takizawa (National Institute of Advanced Industrial Science and Technology (AIST))  Suppression of disproportionation reaction of HFO-1123  ○ Zhihua Zhang, Makoto Ito (University of Tokyo), Chaobin DANG (University of Fukui), Yu Chen (University of Tokyo), Eiji Hihara (National Institution for Academic Degrees and Quality Enhancement of Higher Education)
15:05 ~ 16:25	Safety of Refrigerants/ Risk Assessment 2 Moderator: Hiroichi Yamaguchi, Toshiba Carrier Corporation/ Motoshi Matsushita, Sharp Corporation  Refrigerant leak analysis for risk assessment of built-in refrigerated display cabinet using A3 refrigerants  ○ Koji Yamashita, Toshimasa Kato, Shinji Ikeda, Satoru Sakae, Shigeki Ishihara, Akira Kobayashi, Hidekazu Kainuma, Takaharu Hasegawa, Hiroshi Deno, Hiroshi Nagai, Keiko Hosaka (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))

Risk assessment and safety standards of built-in refrigerated display cabinet using A3 refrigerants

- Koji Yamashita, Toshimasa Kato, Shinji Ikeda, Satoru Sakae, Shigeki Ishihara, Akira Kobayashi, Hidekazu Kainuma, Takaharu Hasegawa, Hiroshi Deno, Hiroshi Nagai, Keiko Hosaka (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))

International safety standards about heat pumps and air conditioners

- Hitoshi Hashimoto, Osami Kataoka, Hiroichi Yamaguchi, Kenji Takaichi, Shunji Sasaki, Shunji Itakura, Hiroyuki Yamada, Koji Yamashita (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))

Risk assessment results for mini-split air-conditioners using A3 refrigerant and future measures

- Kenji Takaichi, Shigeharu Taira, Tomoatsu Minamida, Atsushi Baba, Kazumi Tamura, Shunji Itakura, Keisuke Mitoma, Kazuhide Yamamoto, Koji Yamashita, Madoka Ueno (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))

---

16:35 ~ 17:20

Environment 2

Moderator: Takashi Goto, Mitsubishi Heavy Industries Thermal Systems, Ltd./ Takeshi Sakai, The Japan Refrigeration and Air Conditioning Industry Association

Introduction on development of room air conditioner using R290 in China

- Yanwei Dou (China Household Electrical Appliances Association (CHEAA))

EU Fgas regulation developments and EPEE's activities

- Mihai SCUMPIERU (European Partnership for Energy and the Environment (EPEE))

---

15(Fri), October, 2021

9:15 ~ 10:15

New Refrigerants (Refrigerant Manufacture) 1

Moderator: Masami Taniguchi, Denso Corporation/ Makoto Hayano, Fujitsu General Laboratories Limited.

Total Equivalent Carbon Emission Study in Commercial Refrigeration

How efficiency is important for reducing total CO2 eq thru lifetime

- Andrew Pansulla (Chemours LLC)

Very Low GWP Refrigerant R-516A for R-134a replacement in Refrigeration and Air Conditioning

- Sarah Kim, Damien Rodowski, Kris Crosby (Arkema Inc)

Low Environmental Impact Refrigerants for AC and Refrigeration Applications

- Ankit Sethi, Samuel F Yana Motta, ○ Kaimi Gao, Michael Petersen (Honeywell)

---

10:25 ~ 12:10

Energy Saving Technology 1

Moderator: Masayuki Nonaka, Hitachi-Johnson Controls Air Conditioning, Inc./ Shuji Fukano, Mayekawa Mfg Co., Ltd.

Hybrid Dynamic test method of air-conditioning systems with next-generation low GWP refrigerants

- Kiyoshi SAITO (Waseda University)

Development of Energy Saving Control by Expanding Continuous Operation Range on small load operation

- Satoru Nakayasu, Kazumoto Urata, Taiki Iizuka (Hitachi-Johnson Controls Air Conditioning, Inc.)

Study of air conditioning considering thermal comfort of the feet

- Satoko Sugisaki (TOSHIBA CARRIER CORPORATION)

Development of room air conditioners for cold regions with a continuous heating technology

- Shohei Ishimura, Naofumi Takenaka (Mitsubishi Electric Corporation, Advanced Technology R&D Center), Masakazu Sato, Kazuya Watanabe (Mitsubishi Electric Corporation, Shizuoka Works), Shinichi Wakamoto (Mitsubishi Electric Corporation, Air-Conditioning & Refrigeration System Works)

Development of high temperature air to water heat pump "Daikin Altherma 3 H HT" using Low GWP refrigerant HFC-32

- Kazushi HISAYAMA, Yasuhiro KOUNO, Tetsuya OKAMOTO, Tomomi YOKOYAMA (DAIKIN INDUSTRIES, LTD.), Hideo CHIKAMI (DAIKIN INDUSTRIES CZECH REPUBLIC, LTD.)

Development of a high temperature heat pump using reusable heat as the heat source

Development of a prototype heat pump using low GWP refrigerant

- Takeru Kimura, Hideki Fuchikami, Naoya Yoshihiro, Mizuo Kudo, Akito Machida (Research and Development Center, MAYEKAWA MFG. CO., LTD.)

---

13:10 ~ 14:25

Compressor/Lubricant 2

Moderator: Akira Hiwata, Panasonic Corporation/ Takeshi Okido, ENEOS Corporation

DEVELOPMENT OF HERMETIC LARGE-CAPACITY SWING COMPRESSOR USING CO2

- Yousuke OHNISHI, Hiroyuki TANIWA, Mikio KAJIWARA, Youhei NISHIDE, Naoto TOMIOKA, Masaaki ADACHI, Daisuke OKAMOTO, Hitoshi UEDA (DAIKIN INDUSTRIES, LTD.)

Continuous Cooling Turbo Compressor with Condensing Ejector for Water Refrigerant Chiller

- Tadayoshi Shoyama, Iori Maruhashi, Bunki Kawano, Hongzhi Sun, Michiyoshi Kusaka, Junki Yoshimoto, Masaru Matsui (Panasonic Corporation, Appliances Company)

Properties of Polyol Esters for Low GWP Refrigerants

- Masaki Kawaguchi, Yuya Mizutani, Yasushi Onumata (ENEOS Corporation)

Introduction of PVE Refrigeration Lubricants for Refrigeration Systems with Low GWP Refrigerants

- Naoya Takagishi (Idemitsu Kosan Co., Ltd, Lubricants Department 2, Technical & Marketing Section 2), Tomoya Matsumoto,

14:35 ~ 15:50	<p><b>New Refrigerants (Appliance Manufacture) 1</b>  Moderator: Shigeharu Taira, Daikin Industries,Ltd./ Koji Yamashita, Mitsubishi Electric Corporation  Performance analysis simulator of air-conditioning systems with next generation low GWP refrigerants  ○ Jongsoo JEONG, Kiyoshi SAITO (Waseda University)</p> <p>Development of CO2 Conveni-Pack  ○ Naoto Kimura, Shinichi Oka, Akitoshi Ueno, Msaaki Takegami (DAIKIN INDUSTRIES, LTD.)</p> <p>Development of Commercial Condensing Unit Employing CO2 as Natural Refrigerant  ○ Kosei Nishimura, Kenichi Murakami, Hisao Mizuno (Mitsubishi Heavy Industries Thermal Systems, Ltd.)</p> <p>Study on Splash Function for Window Type Residential Air Conditioner by Refrigeration Cycle Simulator  ○ Ryoichi Takafuji, Takashi Inoue (The Japan Refrigeration and Air Conditioning Industry Association (JRAIA))</p>
16:00 ~ 17:15	<p><b>New Refrigerants (Refrigerant Manufacture) 2</b>  Moderator: Masami Taniguchi, Denso Corporation/ Makoto Hayano, Fujitsu General Laboratories Limited.  Build Databases for Evaluating Thermophysical Properties and Heat Transfer Performance of New Low GWP Refrigerants</p> <p>○ Akio MIYARA (Saga University), Yukihiro HIGASHI (Kyushu University), Ryo AKASAKA (Kyushu Sangyo University), Takahiko MIYAZAKI (Kyushu University)</p> <p>Development of a new refrigerant named "CREARD" that achieves both performance and low GWP  ○ Kenji GOBO, Tsubasa NAKAUE, Tatsumi TSUCHIYA, Yasufu YAMADA, Daisuke KARUBE, Yuzo KOMATSU, Satoshi TOKUNO (DAIKIN INDUSTRIES, LTD.), Ivan Rydkin (Daikin America, Inc.)</p> <p>Development of Very Low Temperature Refrigerants  ○ Robert Low (Koura)</p> <p>New Low-GWP refrigerants for Air-Conditioning Applications  ○ Robert Low (Koura)</p>
17:15 ~ 17:25	Closing Speech
Poster Sessions	
<p>copper pipe brazing technology workshop  ○ masatomo M sakaguchi (Japan Association of Refrigeration and Air-Conditioning Contractors)</p> <p>Refrigerant recovery &amp; reclaim machine Eco Cycle Aurora II  High-purity regeneration of used refrigerant using charge separation technology (99.9%)  ○ Ogawa Shintarou (ASADA CORPORATION)</p> <p>Development of gas sensor series for A2L refrigerant leak detection(MOS/NDIR)  ○ Toyota Masafumi, Kawaguchi Tomohiro, Oka Hiroyuki, Imai Tsukasa (Figaro Engineering Inc.)</p> <p>Development Project of technology and assessment techniques for next-generation refrigerants with a low GWP value  ○ Toru SANO, Makoto GOCHO, Tatsuhiko TAKAHASHI, Kosuke TAMURA, Satoshi FUJIGAKI (New Energy and Industrial Technology Development Organization (NEDO))</p> <p>Refrigeration cycle cleaning and regeneration device for low boiling point fluorine solvent HFO1224yd  ○ takashi kitsuwa (proststep co.,Ltd.)</p> <p>Measurement on Condensation Heat Transfer Coefficient of Ternary Mixture HFO1123/HFO1234yf/HFC32 inside a Multiport Tube  ○ Maika NOBUNAGA, Naoki MIKAJIRI (Graduate School of Marine Science and Technology, Tokyo University of Marine Science and Technology), Daisuke JIGE, Norihiro INOUE (Tokyo University of Marine Science and Technology)</p> <p>Refrigerant Recovery Machine for Effective Recovery of Residual Fluorocarbons (Sleeping Refrigerant)  ○ Hideki Takeyama (ICHINEN TASCOCO.,LTD.)</p>	