# WORKSHOP APPLICATION FORM

1) Workshop title*: Risk Assessment of Mildly Flammable Refrigerants
2) Contact information*:
1. Name: Masamichi Abe
2. Affiliation/Organization name: New Energy and Industrial Technology Development Organization
(NEDO)
3. Address: 19F Muza Kawasaki Building, 1310, Omiya-cho, Saiwai-ku, Kawasaki City, Kanagawa
212-8554, Japan

### 4) Abstract\*:

4. E-mail address: abemsm01@nedo.go.jp

Please describe the theme and purpose of this session and why it is important to have this workshop take place at ICR2015.

#### Objective

The purpose of the session is to share new information on risk assessment of mildly flammable refrigerants being carried out through industry, academia, and government cooperation in Japan.

#### Background

The use of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) has been widely restricted, and to protect the ozone layer they have been replaced with hydrofluorocarbons (HFCs). However, HFCs used in air conditioners have a high global warming potential (GWP), and increasing use of HFCs has become a serious issue with regard to the prevention of global warming. Therefore, it has been widely recognized that replacing HFCs with low-GWP refrigerants would be an important step in solving this problem.

On the other hand, low-GWP refrigerants may have mild flammability and it is thus essential to collect basic data on their flammability and also conduct research on their safety for practical use. The integration of basic information about refrigerant physical properties, flammability, and risk assessment will simplify their selection for practical use.

Since 2011, the New Energy and Industrial Technology Development Organization (NEDO) has been carrying out the Technology Development of High-Efficiency Non-Fluorinated Air-Conditioning Systems project. The goal of this project is to develop practical application technology for low-GWP

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refrigerants used in the air-conditioning field.

With the objective of gathering essential data for assessing the risk of mildly flammable refrigerants, safety studies are being conducted in NEDO's project by teams from the Tokyo University of Science at Suwa, Kyushu University, The University of Tokyo, and the National Institute of Advanced Industrial Science and Technology (AIST). Results of the studies conducted to date have been used in industry (Japan Refrigeration and Air Conditioning Industry Association (JRAIA)) for risk assessment of mildly flammable refrigerants. In addition, a research committee has been organized by the Japan Society of Refrigerating and Air Conditioning Engineers (JSRAE) to assess risks associated with mildly flammable refrigerants.

As described above, risk assessment of mildly flammable refrigerants is being carried out through cooperation among industry, academia and government in Japan.

#### Presentations

#### Session 1

- Opening Remarks (NEDO)
- Introduction

Eiji Hihara (Chair, The University of Tokyo, Project Leader of NEDO)

- Presentations: Research Project on Risk Assessment of Mildly Flammable Refrigerants
- Fundamental and Practical Flammability Properties of 2L Refrigerants Kenji Takizawa (AIST)
- Hazard assessment of the combustion of mildly flammable refrigerants
   Tei Saburi (AIST)
- Experimental evaluation of physical hazard of A2L refrigerant assuming actual handling situation
   Tomohiko Imamura (Tokyo University of Science, Suwa)
- Research project on risk assessment of mildly flammable refrigerants in Japan
   Eiji Hihara (The University of Tokyo)
- Discussion

#### Session 2

Introduction

Satoru Fujimoto (Co-Chair, JRAIA, Sub Project Leader of NEDO)

- Presentations: Risk Assessment of Refrigeration System Using Mildly Flammable Refrigerants
- Overview of the Risk Assessment for Residential Air-Conditioners Kenji Takaichi (JRAIA)
- Overview of the Risk Assessment for VRF System Ryuzaburo Yajima (JRAIA)
- Overview of the Risk Assessment for Chiller

Kenji Ueda (JRAIA)

Presentations: HVAC&R technologies in USA and China
 Xudong Wang (Air-Conditioning, Heating, and Refrigeration Institute (AHRI))
 Zhao Yang (Tianjin University)

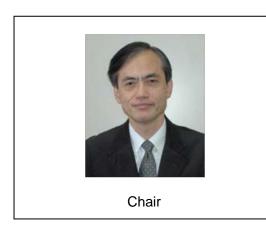
- Discussion
- Conclusion

Eiji Hihara (Chair, The University of Tokyo, Project Leader of NEDO)

## 6) Participants\*:

	Name	Chair/Speaker	Affiliation
Person 1	Eiji Hihara	Chair	The University of Tokyo
Person 2	Satoru Fujimoto	Co-Chair	The Japan Refrigeration and Air
			Conditioning Industry Association (JRAIA)
			(Daikin Industries, Ltd.)
Person 3	Tomohiko Imamura	Speaker	Tokyo University of Science, Suwa
Person 4	Tei Saburi	Speaker	National Institute of Advanced
			Industrial Science and Technology
			(AIST)
Person 5	Kenji Takizawa	Speaker	National Institute of Advanced
			Industrial Science and Technology
			(AIST)
Person 6	Kenji Takaichi	Speaker	The Japan Refrigeration and Air
			Conditioning Industry Association
			(JRAIA)
			(Panasonic Corporation.)
Person 7	Ryuzaburo Yajima	Speaker	The Japan Refrigeration and Air
			Conditioning Industry Association
			(JRAIA)
			(Daikin Industries, Ltd.)
Person 8	Kenji Ueda	Speaker	The Japan Refrigeration and Air

Person 9	Xudong Wang	Speaker	Conditioning Industry Association (JRAIA) (Mitsubishi Heavy Industries, Ltd.) Air-Conditioning, Heating, and
			Refrigeration Institute (AHRI)
Person 10	Zhao Yang	Speaker	Tianjin University



7)
Photo(s)
of
chair(s)\*



# 8) Special request and comment:

\*The information will be presented on the ICR2015 Web site and in the Program.

Please send the completed application by e-mail to:

<u>Secretariat of the 24th IIR International Congress of Refrigeration (ICR2015)</u> <u>Email: icr2015@ics-inc.co.jp</u>