

Research Center for Next Generation Refrigerant Properties I²CNER, Kyushu University

NEXT-RP

NEXT-RP Mission

1. To measure and evaluate thermodynamic and transport properties of next generation refrigerants
2. To formulate accurate equations of state and correlations
3. To establish an international collaboration network to obtain reliable thermodynamic information

Background of Next Generation Refrigerants

Appearance of novel refrigerants during the early 1930s

▶ CFC (ChloroFluoroCarbon) and HCFC (HydroChloroFluoroCarbon)

Problem: Ozone layer depletion (1980s)

Solution:
Appearance of non-chlorine fluorocarbons

▶ HFC (HydroFluoroCarbon) refrigerants and their mixtures

Problem: Global warming (2000s)

Solution:
Appearance of low GWP refrigerants

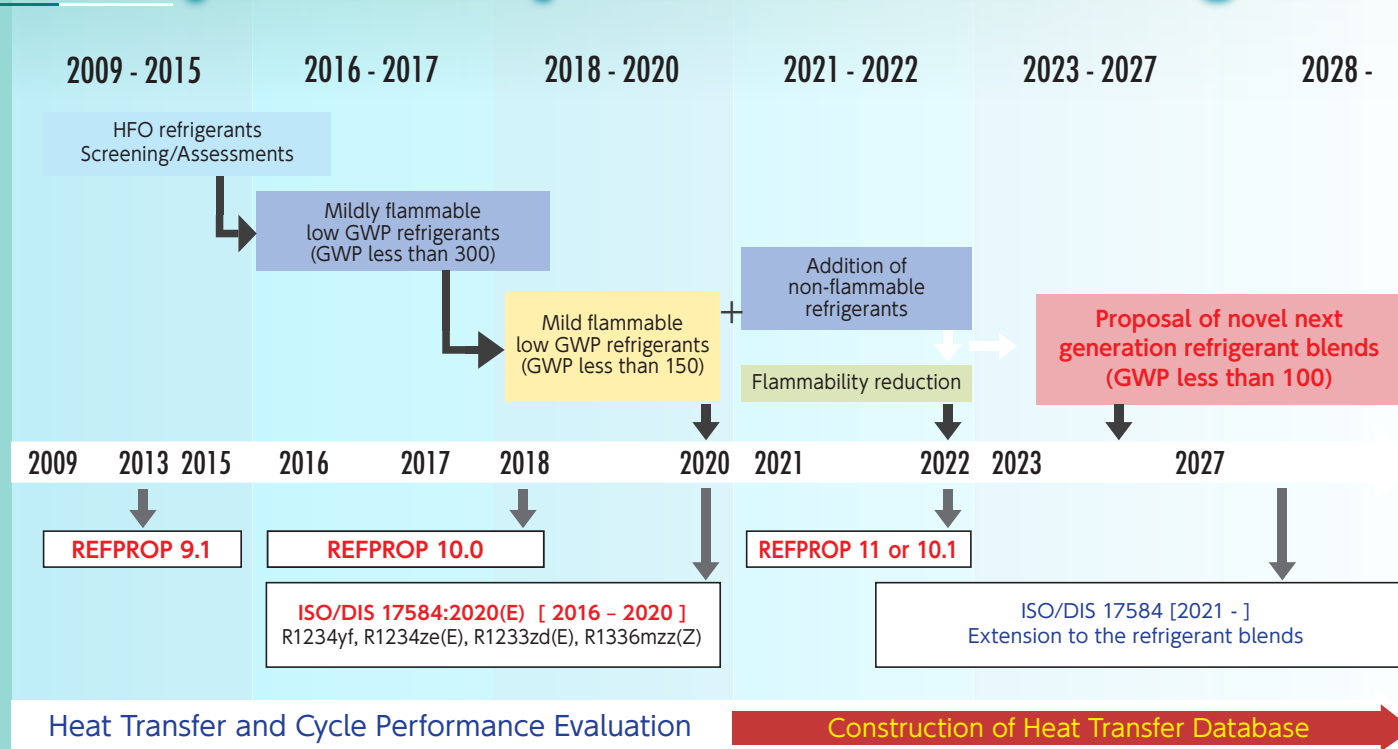
▶ HFO (HydroFluoroOlefin) refrigerants and their mixtures

Problem: Flammability and Safety

At the present, our task is to find the following next generation refrigerants:

- (1) Lower ODP (Ozone Depletion Potential) (2) Lower GWP (Global Warming Potential)
(3) Non-flammable or Mildly flammable (4) Lower toxicity

Roadmap for the Development of Next Generation Refrigerants



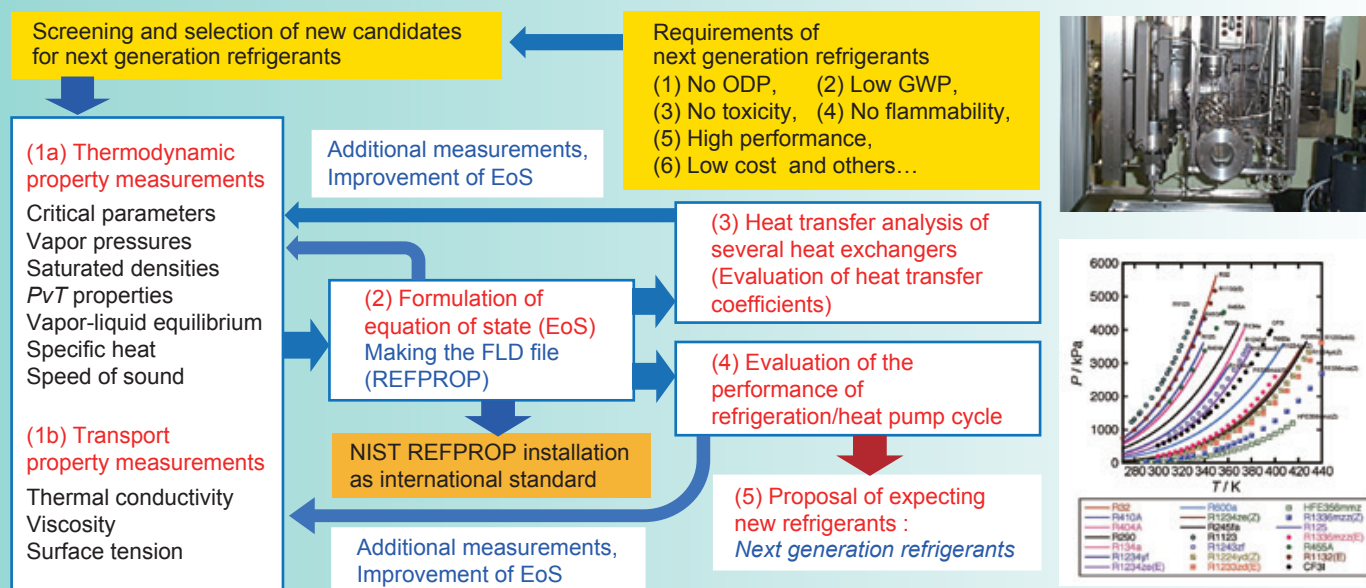
*These researches are supported by NEDO projects "Development on High Efficient and Non-Freon Air Conditioning System (2016-2017)" and "Development Techniques for Next-Generation Refrigerant with Low GWP Values (2018-2022)"

Research Center for Next Generation Refrigerant Properties (NEXT-RP)
International Institute for Carbon-Neutral Energy Research (I²CNER),
Kyushu University

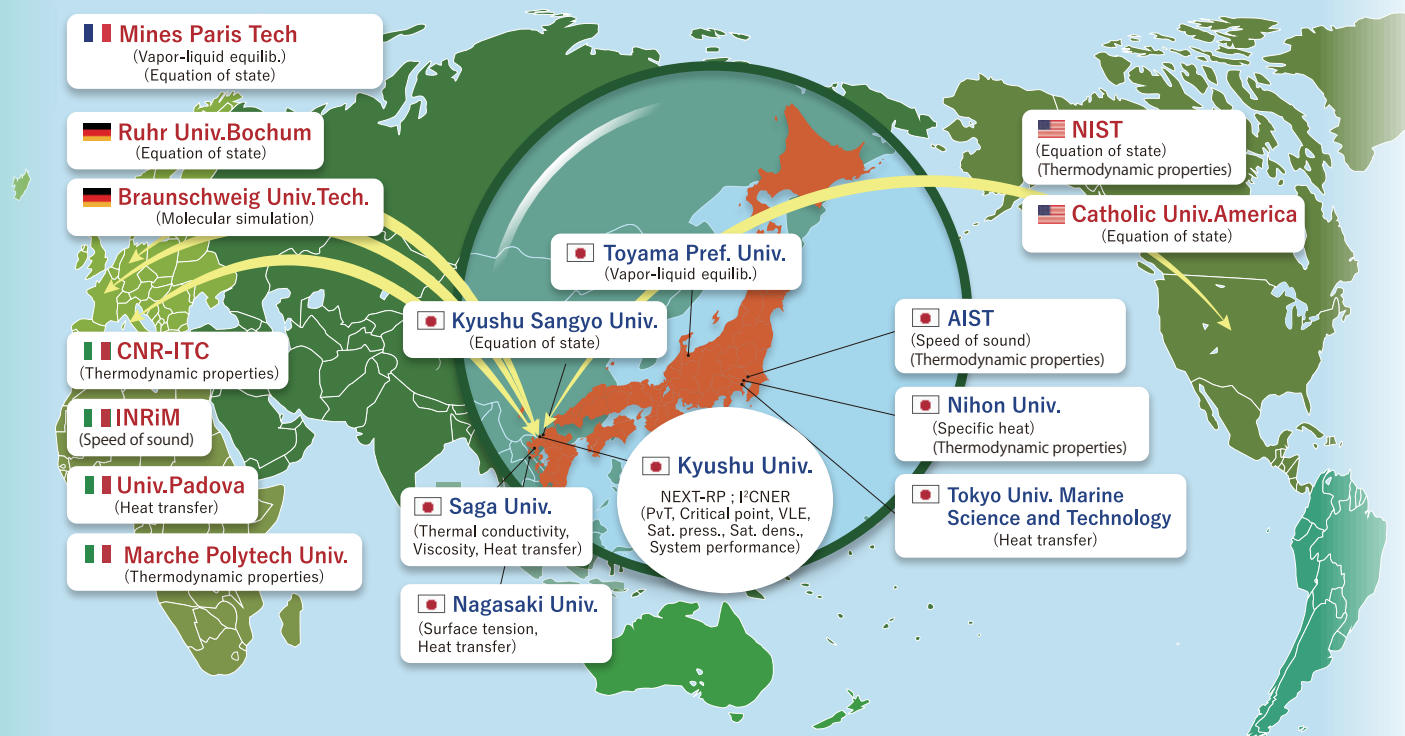
744 Motoooka, Nishi-ku, Fukuoka 819-0395 JAPAN
TEL & FAX : 092-802-6704
MAIL : next-rp@i2cner.kyushu-u.ac.jp
WEBSITE : <https://i2cner.kyushu-u.ac.jp/~next-rp>



Procedure for Identifying Next Generation Refrigerants at NEXT-RP



NEXT-RP Research Collaboration Map



NEXT-RP Members



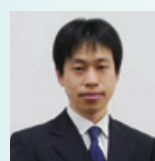
**NEXT-RP Director
Yasuyuki Takata**
Professor
I²CNER Principal Investigator
Kyushu University



Yukihiro Higashi
Professor
Kyushu University



Takahiko Miyazaki
Professor
Kyushu University



Naoya Sakoda
Associate Professor
Kyushu University



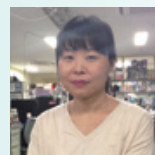
Kyaw Thu
Associate Professor
Kyushu University



Akio Miyara
Professor, Saga University
I²CNER Visiting Professor



Ryo Akasaka
Professor, Kyushu Sangyo University
I²CNER Visiting Professor



Chieko Kondou
Professor, Nagasaki University
I²CNER Visiting Professor