

KNOWLEDGE SESSION

Natural Refrigerants For Low Temperature Applications

INDEE3 Workshop At Refcold
19th September 2025 – 10:00 – 13:15

Knowledge Session Partner



Welcome Note

Introduction Of Indee Projects, Including Message From International Institute Of Refrigeration



Dr. Kristina N. Widell
Senior Research Scientist
SINTEF Ocean, Norway

Dr. Kristina N. Widell, Senior Research Scientist at SINTEF Ocean, specializes in food industry refrigeration technologies. With a PhD from NTNU, she pioneers sustainable cold chain solutions focused on energy efficiency, natural refrigerants, and food waste reduction while bridging research-industry knowledge gaps internationally.

Collaboration Across Long Distances, What Can Norway Contribute With



Prof. Armin Hafner
Professor, NTNU
Norway

Professor Armin Hafner leads refrigeration technology at NTNU Trondheim while presiding over both the Norwegian Society of Refrigeration and IIR Commission D1. With 20+ years at SINTEF, he champions natural working fluids for sustainable cooling solutions, advocating that green refrigeration technologies can drive profitable growth without environmental compromise.

Global Perspectives And Sectoral Shifts In Natural Refrigeration

Why And How The Indian HVAC Sector Should Transition To Natural Refrigerants



Prof. R Saravanan
Head, DME, Anna University
Chennai

R Saravanan is currently Professor & Head in Department of Mechanical Engineering, Anna University, Chennai and President Elect of Indian Society of Heating, Refrigerating and Air Conditioning Engineers, New Delhi India. He has more than 25 years of Research Experience in the area of Solar Cooling, Energy Conservation in Buildings and Polygeneration Technologies.

The Impact Of Cooling And Freezing On Quality Aspects Of Perishable Products



Dr. Sophie Kendler
Researcher, SINTEF Ocean
Norway

Dr. Sophie Kendler researches at SINTEF Ocean's Fisheries Department in Trondheim. With a PhD in Biotechnology/Food Science from NTNU, she focuses on raw material optimization and food waste up-cycling. Her expertise spans food technology, nutrition, and sustainable management, contributing to resource efficiency and nutritious product development.

Performance Analysis Of Isothermal Compression R744 Refrigeration Cycles For Air-Conditioning And Refrigeration Applications



Prof. Alberto Coronas
CREVER, URV
Spain

Prof. Alberto Coronas, Emeritus Professor at Rovira i Virgili University, leads the CREVER research group. His expertise spans absorption technology for refrigeration and heat pumps, thermophysical properties of working mixtures, and polygeneration. He served as IIR Commission E2 President (2015-2023) and represents Spain in the IEA-Heat Pumping Technology program.

Demonstrations Case Studies - Indian Sites

Investigation Of Refrigeration Systems With Natural Refrigerants For Small Fishing Vessels



Mr. Alex Reimer
Karlsruhe University of Applied
Sciences
Germany / SINTEF, Norway

Alex Reimer, a Mechanical Engineering master's student at Karlsruhe University of Applied Science, researches CO₂ refrigerated seawater systems for small fishing vessels in warm climates. His NTNU thesis, in partnership with SINTEF Ocean, combines experimental testing and Dymola simulations to develop sustainable cooling technologies for regions like India.

From Pilot To Scale Through Field Lessons In Sustainable Cold Rooms Deployments



Dr. Santosh Kumar Saini
Principal Research Associate
AEEE
New Delhi

Dr. Santosh Kumar Saini, Principal Research Associate at AEEE New Delhi, specializes in sustainable cooling and cold chains. With a PhD in Mechanical Engineering from BITS Pilani, he develops energy-efficient refrigeration technologies for India's seafood industry. He serves on BIS working groups while advancing climate-friendly cooling solutions for agri-food value chains.

Successful Implementation Of CO₂ Heat Pump For Dairy Application In India



Mr. Kumodak Sharma
Product Development Technical
Head
Medors Renewable Energy

Mr Kumodak Sharma Mathematics and Actuarial Science graduate with Master's degree and 10+ years in refrigeration and heat pumps, including 4 years in CO₂ systems. Led Innovate UK projects (2016-2022) with University of Nottingham developing high-temperature heat pumps, focusing on system optimization and sustainable thermal technologies.

Design Options For Natural Refrigerant Based Systems For Deep Freezing Applications



Prof Pramod Kumar
Interdisciplinary Centre for
Energy Research, Indian Institute
of Science, Bangalore

Dr. Pramod Kumar chairs IISc Bangalore's Interdisciplinary Centre for Energy Research. With PhD from IISc (2008) and experience at Georgia Tech researching data center cooling, he leads thermal and energy systems research, focusing on supercritical CO₂ cooling and power generation through industry-research collaborations.

Performance Evaluation Of An R744-Based Integrated Heat Pump And Chiller System Implemented In An Indian Hotel



Dr. Sarun Kumar Kochunni
Post-Doctoral Fellow
NTNU, Norway

Dr. Sarun Kumar Kochunni, NTNU Post-Doctoral Fellow, specializes in energy conversion systems with expertise in refrigeration and cryogenics. PhD from IIT Kharagpur, his research combines process simulation and thermodynamic analysis for cleaner energy technologies. Active reviewer for Elsevier and MDPI journals.

Information On Upcoming Training Workshop - Natural Refrigeration

IIT Madras/IIT Kharagpur/IISC Bangalore/BITS Pilani

Q & A / Closing Remarks

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