

## Keynote Lecture 3

### **HFO alternatives for different refrigeration applications today**

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Gérald Cavalier graduated from Ecole Polytechnique and ENGREF-AgroParistech. He began his career at the Ministry of Agriculture as deputy director and then as director of international relations at Cemagref, a research organization.

After leading the development of the Ruas group, an SME specializing in water and sanitation, he took over the management of Cemafruid in 2005. Since 2010, Gérald Cavalier has chaired the Tecnea-Cemafruid group which provides professionals with a guarantee of compliance and performance.

Gérald Cavalier is also president of the Association Française du Froid since 2013 and president of the Science and Technology Council of the International Institute of Refrigeration since 2019. Recognized expert, Gérald works with CEN, AFNOR, WHO, UNECE and numerous technical and professional associations. He is the author of numerous scientific and technical articles.

## **HFO alternatives for different refrigeration applications today**

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### **ABSTRACT**

The uses of refrigeration are getting broader. For 150 years, the refrigeration industry has been searching for the best fluid for different applications. Many solutions have been analyzed, compared and tested. Along the 1.5 century of refrigeration history, goals and regulations have guided changes in industry choices. After natural fluids, CFCs, HCFCs and HFCs, HFOs now appear as the fifth family of refrigeration fluids. With lower ODP and GWP they offer good environmental performance. Their energetical performance may be better or lower depending on the application. But they also present some disadvantages with low flammability. The various members of HFO family offer different properties suitable for different applications. This keynote presents the challenge of alternatives, introduces the performance of HFOs and analyzes how HFOs can meet refrigeration challenges.