

Keynote Lecture 5

Application of new HFO and Low GWP-Blends in Europe



Dr.-Ing. Rainer M. Jakobs

German Society of Refrigeration and Air Conditioning, DKV e.V.



Key qualifications:

More than 40 years' experience in research, development, marketing and management in the field of refrigeration, heat pumps and air-conditioning

Since more than 30 years leading positions in international companies (domestic appliance, heat pumps, refrigeration and air conditioning industry)

Technologies, development of products and application, rational use of energy in heat pumps and refrigeration systems

Marketing of products and sales strategies in companies, associations and societies

Education:

Diploma (Dipl.-Ing.) Mechanical Engineering TU Hanover; Dr. Thesis (Dr.-Ing.) TU Hanover

Tasks assigned:

Consultant for R & AC & HP; Consultant on Energy and the Environment for the Information Centre on Heat Pumps and Refrigeration IZW e.V.; Lecturer at the ESaK (European Academy of Refrigeration and Air Conditioning -University of cooperative education-); Alternate Delegate for Germany in the Executive Committee of the Technology Collaboration Programme on Heat Pumping Technologies (HPT TCP) by the International Energy Agency IEA

He is a board member of the German Society of Refrigeration and Air Conditioning, member of ASHRAE, BWP (German association of heat pumps), HKK (Historical refrigeration and air Conditioning) and member of the exhibition committee of Chillventa.

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Rainer M. Jakobs^(a)

^(a) German Society of Refrigeration and Air Conditioning e.V.
DKV.Jakobs@dkv.org; Dr.Rainer.Jakobs@t-online.de

ABSTRACT

The EU adopted a new EU F-gas regulation in 2014, which replaces the 2006 framework. With the introduction of a cap- and phasedown of 79% by 2030 the legislation fundamentally changed the way industry and end users can use HFCs. More than 6 years passed since the introduction. In 2021 the step of 55 % reduction started. The industry, the installers and the end users gathered experiences.

In the last months Europe and their member states and several major economies around the world have committed to carbon neutrality by the middle of the century or earlier. To achieve this goal, major activities will be crucial: significantly reducing energy demand, improving energy efficiency and moving towards renewable energies.

Refrigeration, air conditioning and the use of heat pumps to replace fossil energies will be important elements for the decarbonisation in all applications of industry and residential areas. The most important part is the energy efficiency.

The global industry is transitioning to low global warming potential (GWP) refrigerants to follow the rules e.g. the F-gas regulation in Europe and at the same time to improve energy efficiency.

The content of the presentation will cover the current status of the application of HFO and low GWP-Blends in the different segments and temperature levels:

Residential-, commercial-, transport-, industrial refrigeration

Air conditioning stationary – mobile

Residential-, commercial-, industrial heat pumps

Low and medium temperature, high temperature heat pump application

The presentation will show the different demands for low GWP refrigerants in connection to the safety groups, the extended temperature range and special demands in various industrial segments, (e.g. household tumble driers, laboratory technology, industrial drying, and high temperature heat pumps for steam generation...) and general trends in refrigerant issues.