

## eurammon – Taking the Initiative for Natural Refrigerants

### International Network Promotes Sustainable Refrigeration Technology

*The refrigeration industry is called on to take action: In October 2004, the European Environment Council adopted the first F-Gas Directive, and the Kyoto Protocol went into effect in February 2005. Since 01.01.2015, the revised EU F-Gas Regulation 517/2014 has been enforced (see eurammon publication “Fit for the Phase-Down”). These agreements aim to reduce the emission of greenhouse gases, which include the FCs and HFCs used in refrigeration and air conditioning. The industry will have to continue developing alternative technologies and products to market readiness.*

Against this background, eurammon, a joint initiative between international companies, institutions and individuals, is committed to increase the use of natural refrigerants such as ammonia, carbon dioxide and hydrocarbons. The industry initiative sees itself as a competence center for using natural refrigerants in refrigeration technology. Its mission is to provide a platform for information and knowledge transfer. The goal is to boost the awareness and acceptance of natural refrigerants, to promote their use in the interests of a healthy environment and thus to continue advancing the sustainability of refrigeration technology. eurammon’s information efforts are geared towards professionals such as plant users and planners, as well as politicians, political activists and the public at large. eurammon serves as a contact for anyone interested in the subject. After all: sustainable business is everyone’s business.

### Shaping the Future

eurammon shoulders social responsibility: as a partner to business, politics and NGOs, the initiative seeks to help ensure that future-proof solutions in refrigeration technology are jointly put into practice. Refrigeration technology must do its part for sustainability – this applies especially for climate-related aspects of the technology, as well as for all its other environmental repercussions. The initiative brings together practitioners from the refrigeration/air-conditioning sector with scientists, thereby helping to advance innovative approaches and practicable technologies. Operators and planners of refrigeration projects can turn to eurammon for comprehensive information and competent contact persons. eurammon provides consulting on all matters relating to the planning, permit procurement eurammon-Information No. 1 / Updated version, April 2016 – page 2 and operation of refrigeration and air-conditioning systems, and has concrete project experience as well as information material at hand. In particular, the latter includes laws governing the various countries and technical regulations for operating refrigeration plants.

### Refrigerants with Tradition and Future

Natural refrigerants have a longstanding tradition – they have been used with great success for over 100 years, especially in food production and storage. More recently, new fields of application have been added, including in the sports and recreation sector. Technological advances and innovations have served to establish natural refrigerants as an economical, safe solution for a wide range of uses in numerous industries. Due to their ecological sustainability, these systems are a

future-proof refrigeration technology. The most economically significant natural refrigerants, used to great success for a long time now, are ammonia and carbon dioxide, along with hydrocarbons such as propane, propene, ethane or isobutane.

All natural refrigerants are the result of nature's bio-chemical processes even without human interference – hence “natural.” They have no global effect on the environment – as opposed to refrigerants that are synthetically produced, or manmade. The latter include CFCs, HCFCs, FCs, HFCs, and HFOs. As a result of the worldwide efforts underway to protect our climate, interest in natural refrigerants is on the rise. Since they do not deplete the ozone layer and either have no impact – like ammonia – or a much lower direct impact on global warming than synthetic refrigerants, their properties are unmatched when it comes to climate compatibility. Thanks to their high efficiency, natural refrigerants make a minimal indirect contribution to global warming either – as borne out, for instance, by comparative TEWI (Total Equivalent Warming Impact) calculations.

The use of natural refrigerants makes sense from an economic standpoint as well. The refrigerants themselves are available everywhere and inexpensive, which becomes a factor in the initial charging of a plant and also has a positive effect on running costs when leakage losses are taken into account. Natural refrigerants are also highly efficient – in fact ammonia is acknowledged to be the most efficient refrigerant of them all – which keeps the plant's energy consumption accordingly low. Add to that the fact that natural refrigerants are inexpensive to dispose of. The assumption that plants using natural refrigerants always involve investments 10 to 20 percent higher than plants that use synthetic refrigerants is simply incorrect, and should be put into perspective. There may indeed be some added expense depending on the type and size of the plant – but by the same token there are cost reductions to be factored in. The operating costs represent the crucial factor, and here plants eurammon-Information No. 1 / Updated version, April 2016 – page 3 using natural refrigerants have an excellent track record. When the profitability is monitored over several years, natural refrigerants often come out one or more steps ahead. Beyond the lower cost from leakages, reasons include lower maintenance expenses and – especially for industrial plants – a reduced energy consumption.

## An International Approach

Technologies that affect our climate don't stop at national borders. This is why eurammon champions sustainable solutions in refrigeration at national and international levels. The initiative unites leading global companies in refrigeration and in the field of natural refrigerants and practices international collaboration with associations, scientific institutes and organizations.

Because eurammon was originally dedicated mainly to the natural refrigerant ammonia, it has partnerships in this field with the Association Française du Froid's (AFF) in France, the Association of Ammonia Refrigeration (AAR) in India, the International Academy of Refrigeration with its agency in Kazakhstan, and the International Institute of Ammonia Refrigeration (iiar) in the US. eurammon also cultivates close, hands-on cooperation with the Spanish association FRIO CALOR AIRE ACONDICIONADO,S.L., the Australian Green Cooling Association, the Dutch Nederlandse

Vereniging van Ondernemingen op het gebied van de Koudetechniek en Luchtbehandeling (NVKL), the Odessa State Academy of Refrigeration (OSAR) in the Ukraine, the Slovenian Association for Cooling and Air Conditioning (SDHK), the Southern African Refrigerated Distribution Association (SARDA), the Swiss Association for Refrigeration Technology (SVK), the Australian Refrigeration Association (ARA), the Romanian General Association of Refrigeration (AGFR), and with EUROVENT, the European Committee of Air Handling & Refrigeration Equipment Manufacturers. The industry initiatives' activities complement each other to achieve their shared goal – an increased use of natural refrigerants across a broad range of applications in refrigeration and air-conditioning technology. Examples of this cooperation include joint booths at trade fairs like the German Chillventa and professional knowledge transfer in the field of natural refrigeration.

eurammon is open to companies and institutions interested in natural refrigeration, but also to individuals, e.g. from science and research.

In case of doubt, the German-language original should be consulted as the authoritative text.

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