

Double interview

Planning for the future:

long-term investment security as a driver for natural refrigerant

Frankfurt (Main), 13 March 2018. eurammon is an industry initiative and centre of excellence which has dedicated itself to the use of natural refrigerants in Europe for more than 20 years. The International Institute of Ammonia Refrigeration (IIAR), eurammon's long-standing partner in the US, celebrated its 45th anniversary in 2016, representing decades full of changes and political developments in Europe and the US. Bernd Kaltenbrunner, Chairman of the eurammon Executive Board, and Dave Rule, President of IIAR, take a look back, analyse the current situation and reveal new trends and developments that will help make refrigeration technology more sustainable.

1. Over 20 years of eurammon and more than 45 years of IIAR – what have the greatest achievements and challenges been during this time?

Bernd Kaltenbrunner: eurammon was established in 1996 with the aim of informing industry, the general public and authorities of ammonia as a safe solution in the refrigeration and air conditioning industry. This is achieved through production of informational material and lectures at conferences, symposiums and workshops. Back then, legislators were in the process of discussing restrictions for ammonia-based refrigeration systems, which were ultimately averted thanks in part to our extensive information sharing efforts. More than ten years ago, in 2006, we made the decision to expand our focus to include all natural refrigerants, as there was also a high demand for information particularly for CO₂ and hydrocarbon systems. We cover these with events such as our symposium in Schaffhausen and lecture series at Chillventa, among other things. Having joined forces to create a joint initiative, we can bring together our expertise on a central platform and generate synergies, for example in our efforts to inform. We make our knowledge available through publications in international papers and launched an extensive online product database on our website. Using an intelligent search facility, anyone who's interested can find specific components and services for systems with natural refrigerants – and obtain a clear list of suppliers, including practical details such as contact information and links to company websites.

Dave Rule: Just like eurammon, IIAR was originally founded with a focus on ammonia as a natural refrigerant. In response to new technologies, growing environmental awareness and

new legal requirements, we've expanded our work to include all natural refrigerants. We're currently focusing on ammonia and CO₂, but now also see that hydrocarbons will become more and more important in the future due to their environmental benefits. IAR has also developed into an institution for establishing new standards in the US. For instance, standards in the petrochemical industry have been applied to the refrigerant industry in the past, which has resulted in much too restrictive regulatory hurdles for operators. To improve this situation, we've introduced eight standards so far, ranging from the development of safety features for refrigeration systems to system installation, operation and shut-down. Intensive interaction with government authorities has allowed us to incorporate institutions into the development of standards – so that they recognise these standards throughout the country. This consistency is extremely important particularly for end consumers and has significantly improved the position of the refrigerant industry.

2. How is the market for natural refrigerants developing in Europe and the US? What are the similarities and differences?

Bernd Kaltenbrunner: In Europe, requirements and restrictions set out by the government and authorities are the most important drivers for the industry. State funding for systems with natural refrigerants also helps promote and incentivise their use. We're seeing a positive effect from growing environmental awareness in the general public, which is increasingly taken into account when making purchasing decisions. As a consequence, sustainable supply chains are becoming more and more important to companies, which proactively communicate their use of eco-friendly technologies externally – particularly when they manufacture eco-friendly or organic products. For companies which offer organic meat and cheese, for example, refrigeration with natural refrigerants is a part of their corporate identity.

Dave Rule: While environmental factors such as global warming and depletion of the ozone layer do play a role in the current discussion, in the US the transition to natural refrigerants is primarily driven by regulatory authorities. It was ratification of the Montreal Protocol and the associated phase-out of the widespread R22 refrigerant that first motivated industry to search for alternatives which don't have any impact on the ozone layer. However, the conditions for climate-friendly solutions have recently got worse again due to the United States' withdrawal from the Paris Agreement. Financial cuts in environmental protection can also be expected. But it's still unclear to what degree further regulations and their implementation will be affected in the future.

3. Which other influential factors will promote the success of natural refrigerants?

Bernd Kaltenbrunner: One of the key difficulties for companies is the highly variable life cycle costs of a system. Component manufacturers, refrigeration specialists and operators have different views and concepts, so there's no objectively comparable data available to the market. Just like in the US, we in Europe also view investment security as an important success factor for natural refrigerants. Companies realise that policymakers are serious about the phase-out, which is why the market is searching for refrigerants that will offer security for the next 10 to 15 years and beyond. Systems with natural refrigerants such as ammonia, hydrocarbons and CO₂ are ideal candidates. No new regulatory requirements are currently in the pipeline for them and lots of practical experience has already been gained with the corresponding systems.

Dave Rule: In addition to government regulations, energy costs have also proven to be a strong driver. People and companies are increasingly thinking about the type and amount of energy used. Following the R22 ban, many companies switched to HFCs, which are currently being discussed at great length in the context of global warming. The US Environmental Protection Agency (EPA) is now advising against the use of certain HFCs, which may eventually be affected by a phase-out. As a result, companies are once again wondering which refrigerant to invest in. Natural refrigerants offer greater security.

4. What experience have you had with the phase-out? To what degree is the industry thinking about new solutions?

Bernd Kaltenbrunner: To put it simply, there are two groups of companies in Europe. One continues to use very cheap, but not very eco-friendly, systems – even though they're fully aware that these systems will have to be updated in the foreseeable future. They predict delays or an easing of the phase-out. But that's unrealistic, as policymakers have always responded with shortened deadlines and more stringent threshold values. For the second group, planning and investment security takes priority. It's owner-managed companies and companies with a strong focus on the environment in particular that place a higher value on long-term, sustainable operations when it comes to system planning and pay closer attention to the period of use.

Dave Rule: In the US, stringent regulatory requirements for ammonia systems with high charges restricted the switch to natural refrigerants at the beginning. That benefited the development of small package systems with low charges – the new systems and

technologies require a mere fraction of the ammonia and therefore face much fewer restrictions. A typical cold store can operate with a small package system with around 500 kg of ammonia, rather than the 2,000 to 3,000 kg required by conventional systems in the past.

5. What are some of the unique characteristics of the European and US markets that we should be looking out for?

Bernd Kaltenbrunner: There's currently a large market for natural refrigerants in the US and most of the key players are pulling together. For instance, IIR can establish new standards with relative ease, so the industry can move very quickly. In Europe we have the same technical expertise and know in great detail how the systems work but decisions are often very carefully weighed and discussed at great length, which means it can take a long time for new EU standards and regulations to be adopted, some of which then need to be transposed into national law.

But the Montreal Protocol, for example, had immediate impacts on the EU and Germany, and has since been joined by the Kigali Agreement. The result is a commitment to actively and financially support the agreed multiphase reduction of HFCs particularly in emerging countries. The EU and Germany have plenty of experience and a long tradition of using natural refrigerants such as ammonia, carbon dioxide and hydrocarbons. Systems with natural refrigerants are already in operation around the world, built with European expertise and components. Europe can assume a key role in this international market.

Dave Rule: At the beginning, the environmental aspects of refrigeration and air conditioning technology played a much smaller role in the US than in Europe. But that has changed over the last several years. Even if it's still unclear what effects the US government's decision will have in the future, we're already taking on a leading role in many areas, including the reduction of HFCs. In addition, sharing expertise and information is very important in the US market, which is why we've established the Academy of Natural Refrigerants. The institution offers engineers and industry access to extensive specialist knowledge about natural refrigerants, ranging from standards and risk management to special technical know-how for system planning. Anyone who's interested can also take part in online training courses and gain qualifications in the form of certificates and final exams. The format and content that we share through the Academy of Natural Refrigerants are sure to be relevant for users in other countries too.

Caption



Bernd Kaltenbrunner, Chairman of the eurammon Executive Board, and Dave Rule, President of IAR (from left to right)

About eurammon

eurammon is a joint initiative of companies, institutions and individuals dedicated to increasing the use of natural refrigerants. As a centre of excellence in the use of natural refrigerants in refrigeration technology, the initiative is committed to providing a platform for sharing information and promoting public awareness and acceptance of natural refrigerants. The objective is to advocate use of natural refrigerants in the interest of a healthy environment and thereby encourage a sustainable approach in refrigeration technology. eurammon provides experts, politicians and the public at large with comprehensive information about all aspects of natural refrigerants, and serves as a qualified contact for anyone interested in the subject. Users and designers of refrigeration projects can turn to eurammon for specific project experience and extensive information, as well as for advice on all matters of planning, licensing and operating refrigeration systems. Established in 1996, the initiative is open to companies and institutions with a vested interest in natural refrigerants, as well as to individuals from a variety of fields such as science and research.

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