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OzoNews

A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol brought to you by OzonAction

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Global

1. ASHRAE & UNEP-OzonAction launch new joint workplan promoting management of refrigerants in developing economies

In margins of ASHRAE Winter Conference and in the presence of members of the ASHRAE Associate Societies Alliance (AASA) representing 60+ international refrigeration and air-conditioning engineering associations from all continents, ASHRAE and UNEP-OzonAction launched their sixth biennial joint workplan which covers 2019-2020 under the theme of “Refrigerant Management for Developing Economies”.

ASHRAE and UNEP-OzonAction have been engaged, since 2007, through a cooperation agreement aiming at promoting state-of-art technologies and practices that can support developing countries to move towards non-ODS and lower-GWP technologies as well as promote best practices and techniques that support eliminating emissions of refrigerants during servicing of refrigeration and air-conditioning applications.

ASHRAE is the largest society in the world with focus and mandate on refrigeration and air-conditioning engineering sectors with 55,000+ members and 211 chapters worldwide. UNEP-OzonAction Programme is the custodian of the clearinghouse mandate for the Montreal Protocol with 9 active networks of ODS Officers in all developing countries.

The new joint workplan, for 2019-2020, is designed to ensure best outreach and use of products and materials jointly developed over the last few years. The ASHRAE-UNEP E-Learning courses on refrigerants knowledge and practices were jointly developed and made available to National Ozone Units (NOUs) in developing countries, now the phase of translating them into other UN languages started with launching the Spanish version of the Refrigerant Literacy Course. French will follow during first quarter of 2019 while the E-Learning program will be also converted in different formats like face-to-face workshops, webinars, briefing notes, etc. This should allow wider and better access to the knowledge by different groups and at their preferred interface.

Another initiative just jointly launched is the Lower-GWP Innovative Award which promotes innovative design, research and practice, recognizing individuals and teams who have developed or implemented innovative technological or concepts that applies for developing countries aiming at advancing lower global warming potential (GWP) refrigerants.

Several other products and services are included in the 2019-2020 joint workplan that are offered and accessible to NOUs and clients at developing countries.

Contact:

[Ayman Eltalouny](#), International Partnerships Coordinator OzonAction-UNEP

[W. Stephen Comstock](#), Manager of Business Development EMEA, ASHRAE



2. Dumping of obsolete air conditioners undermines development and climate goals



Dumping of Obsolete Air Conditioners Undermines Development and Climate Goals

Inefficient air conditioners (ACs) dumped into developing and developed countries overload energy resources, undermining national and local efforts to manage energy, environment, health, and climate goals, according to a new analysis published in the Duke Environmental Law & Policy Forum this week.

Environmental dumping is “the practice of exporting products to another country or territory that: 1) Contain hazardous substances; 2) Have environmental performance lower than is in the interest of consumers or that is contrary to the interests of the local and global commons, or; 3) Can undermine the ability of the importing country to fulfill international environmental treaty commitments”.

The analysis elaborates on powerful policy tools to halt the needless dumping of ACs, wasting energy and leaking obsolete high global warming potential refrigerants scheduled for phaseout or phasedown under the Montreal Protocol on Substances that Deplete the Ozone Layer. The authors include a toolkit of antidumping measures that can be implemented consistent with international trade agreements, and consistent with the principles of non-discrimination, transparency, and notice.

“Inefficient ACs that are dumped into developing countries are energy vampires that steal the energy developing countries need for development,” said Durwood Zaelke, President of the Institute for Governance & Sustainable Development (IGSD), and co-author of the report. “Stopping environmental dumping is critical to achieving the Montreal Protocol’s stretch goal of avoiding up to 1°C of warming by the end of the century, half of the 1°C of avoided warming will come from the fast phasedown of HFCs, and half from the improvement of energy efficiency of cooling equipment, which will also provide \$2.9 trillion in investment, fuel, and operating costs by 2050.”

Authored by six experts at Institute for Governance & Sustainable Development the article draws on decades of experience in Montreal Protocol negotiations, international and foreign economics, and law and policy.

“Countries can choose the combination of anti-dumping tools that is in their best national interest of access to superior technology, affordable AC ownership costs with money saved on electricity spent locally, and climate protection that maintains sustainable prosperity,” said Dr. Stephen O. Andersen, IGSD Director of Research, and co-author of the report.

In its Special Report on Global Warming of 1.5°C, the IPCC has noted antidumping measures are available tools for countries to enhance energy efficiency, which is critical in the broader fight to avoid the worst effects of global climate change.

“Where product phaseouts result in the dumping of obsolete products in countries that can least afford it, there is clearly opportunity for government and corporate leadership in China, Africa, and elsewhere, toward a different, more sustainable path,” said Richard Ferris, IGSD Senior Counsel, and co-author of the report.

IGSD is offering assistance to the Montreal Protocol Parties on the effective use of these powerful new tools.

“Defining the Legal and Policy Framework to Stop the Dumping of Environmentally Harmful Products” is available for download [here](#)

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The Institute for Governance & Sustainable Development (IGSD), January 2019

3. Uncovering the Ozone Hole - Podcast

In the latest episode of its special series, AGU's [American Geophysical Union]Third Pod from the Sun features scientists whose work found the source of a hole in the sky.

In the second episode of Third Pod from the Sun's Centennial series, two researchers from NASA Goddard Space Flight Center in Greenbelt, Md., tell the story of how scientists discovered the hole in the ozone layer and figured out what created it.

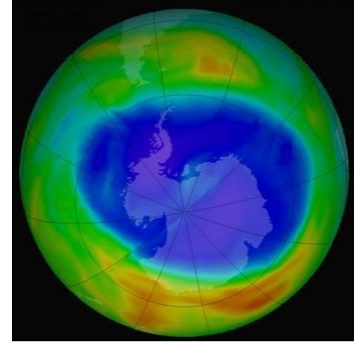
Climate scientists Susan Strahan and Anne Douglass began their careers right when the hole was discovered. In the podcast, they reminisce about working on the problem and their ongoing efforts to monitor its recovery. Ozone-depleting substances have been declining in the atmosphere following the signing of the 1987 Montreal Protocol and its amendments, which banned chlorofluorocarbons (CFCs) and other ozone-depleting chemicals. [...]

The Montreal Protocol is now tackling global warming. This month, the Kigali Amendment to the Montreal Protocol went into effect, phasing out hydrofluorocarbons, or HFCs, which replaced CFCs but are themselves potent greenhouse gases.

The Montreal Protocol's ongoing success is just one example of science's enduring impact on our planet that we'll explore in future Third Pod Centennial episodes.

[Access Podcast](#)

[Eos \(Earth & Space Science News\), 22 January 2019, By: Nanci Bompey](#)



A map showing ozone concentrations in September 2008, when the hole in the ozone measured about 24.1 million square kilometers (9.3 million square miles), or about the size of North America. Credit: NASA.

Asia Pacific

4. Gov't to get tough on HFC refrigerant violations (Japan)

The government is set to tighten legal punishments against businesses that fail to take hydrofluorocarbons (HFCs) in used business equipment to collectors, in a bid to curb greenhouse gas emissions, according to people familiar with the move.

HFCs, used as refrigerants in air conditioners and refrigerators, are notorious for causing atmospheric warming. Japanese law already sets penalties for violations by business users, but HFC recovery rates remain lower than the goal set by the government.

Under the plan, the government will revise relevant legislation to make it easier to punish offenders by simplifying requirements for prefectural regulators to fine them. The government plans to submit a bill on the revisions to the forthcoming regular session of the Diet.

HFCs have been in wider use since the 1990s when predecessor refrigerants -- chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) - became regulated due to their ozone-depleting nature. Although HFCs do not pose a threat to the ozone layer, their greenhouse effect is up to 10,000 times that of carbon dioxide.

While the government aims to raise the HFC collection rate in Japan to 50 percent by fiscal 2020 based on a global warming countermeasures plan approved by the Cabinet in 2016, the actual rate hovered around 38 percent in fiscal 2017.

The Mainichi

Gov't to get tough on HFC refrigerant violations

January 17, 2019 (The Mainichi)

TOKYO — The government is set to tighten legal punishments against businesses that fail to take hydrofluorocarbons (HFCs) in used business equipment to collectors, in a bid to curb greenhouse gas emissions, according to people familiar with the move. HFCs, used as refrigerants in air conditioners and refrigerators, are notorious for causing atmospheric warming. Japanese law already sets penalties for violations by business users, but HFC recovery rates remain lower than the goal set by the government.

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While the government aims to raise the HFC collection rate in Japan to 50 percent by fiscal 2020 based on a global warming countermeasures plan approved by the Cabinet in 2016, the actual rate hovered around 38 percent in fiscal 2017.

Under the Act on Rational Use and Proper Management of Fluorocarbons, users of business-purpose equipment containing HFCs are required to hand over the gas to registered collectors when disposing of the equipment. Offenders face a fine of up to 500,000 yen.

However, this obligation is not well known, and steps to punish violators are complicated. Under the new scheme, the national government will make the process simple and enable prefectural authorities to apply penalties to offenders as soon as the offenses have been confirmed.

As there are many cases where HFCs are not recovered at building demolition sites, the new measure will also empower prefectural governments to conduct on-site inspections to check if such coolants are properly collected based on information provided by contractors.

(Japanese original by Kazuhiko Igasaki, Science & Environment News Department)

Go to the Mainichi Home Page

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[Japanese version](#)

The Mainichi, 17 January 2019

5. Flammable Refrigerants Safety Guide - AIRAH

AIRAH strongly recommends that all refrigeration technicians be trained in the handling of flammable refrigerants.

Overview

The online Flammable Refrigerants Safety Guide (FRSG) has been produced by the Australian Institute of Refrigeration, Air Conditioning and Heating (AIRAH).

The free guide is designed to improve awareness of how to best manage the health and safety risks associated with the use and management of flammable refrigerants in stationary refrigeration and air conditioning equipment.

AIRAH would like to acknowledge support received from the Department of the Environment and Energy in developing this online training.

What it covers

Refrigeration technicians must have access to refrigeration classification standard AS/NZS ISO 817 and design standards AS/NZS 5149 (parts 1 to 4).

This online resource will help refrigeration technicians, apprentices and other stakeholders understand the range of skills and knowledge required to work safely with flammable refrigerants.

Designers, installers and service providers should access the AS/NZS 5149 Refrigerating systems and heat pumps – Safety and environmental requirements series in order to understand the precise requirements for an individual installation.

Please note: this does not substitute for the detailed, nationally-endorsed technical training which provides guidance on how to safely and productively work with flammable refrigerants. It is a guide meant to complement your training and improve awareness of best practices.

Accessing the resource

The online Flammable Refrigerants Safety Guide is free to access.

- Register online to gain access to the resource – available for desktop, mobile and tablet devices
- Watch the eight module videos at your own pace and to your own schedule
- Use the assessment feature to test your understanding.

[Download all of the Flammable Refrigerant Safety Guide resources](#)

AIRAH, 23 January 2019



6. The Supreme Council for the Environment signs the institutional support agreement with the United Nations Environment Program (Bahrain)

المجلس الأعلى للبيئة يوقع اتفاقية الدعم المؤسسي مع الأمم المتحدة للبيئة



المنامة في 26 يناير / بنا / وقع سعادة الدكتور محمد مبارك بن دينه الرئيس التنفيذي للمجلس الأعلى للبيئة اتفاقية الدعم المؤسسي مع سعادة السيد سامي ديماسي المدير الممثل الإقليمي لبرنامج الأمم المتحدة وغرب آسيا، والتي تهدف الى مساعدة الدول غير الصناعية على الامتثال لمتطلبات بروتوكول مونتريال بشأن المواد المستنفدة لطبقة الأوزون.

وأشاد الرئيس التنفيذي للمجلس الأعلى للبيئة بالجهود الحثيثة التي تبذلها الأمم المتحدة للبيئة من تنسيق وتوحيد للجهود الدولية في سبيل الحفاظ على البيئة العالمية من خلال اتفاقية الدعم المؤسسي التي انطلقت في عام 1996، مؤكدا حرص مملكة البحرين ممثلة بالمجلس الأعلى للبيئة على تعزيز التعاون مع الأمم المتحدة طوال الثلاثة عقود الماضية في مختلف المجالات البيئية بما في ذلك ملف حماية طبقة الأوزون والحد من المواد المستنفدة.

وأوضح أن هذه الاتفاقية جاءت ضمن برنامج الأمم المتحدة لدعم الدول غير الصناعية ومساعدتها على تحقيق أهداف بروتوكول مونتريال، من خلال تمكين الدول الأطراف في بروتوكول مونتريال من تقديم إعلانات سنوية عن الكميات المستوردة والمستخدمة من وسائط التبريد والمواد الكيميائية المستنفدة لطبقة الأوزون، وتنفيذ نظام تراخيص متطور يهدف لإحكام الرقابة على استيراد المواد المستنفدة لطبقة الأوزون كما تدعم الاتفاقية تنفيذ أنشطة توعوية تستهدف المستويين الصناعي والاجتماعي للتعريف بقضية استنفاد طبقة الأوزون، ونشر الوعي المجتمعي تجاه استيراد وتداول وشراء أجهزة التبريد والتكييف الصديقة للبيئة، وكذلك المساهمة في تحسين كفاءة الفنيين العاملين في قطاع صيانة التبريد والتكييف لمنع إطلاق الغازات المستنفدة في الهواء.

وأشار الدكتور محمد بن دينه الرئيس التنفيذي للمجلس الأعلى للبيئة إلى قرب صدور قرارات وزارية جديدة وفريدة من نوعها تصب في إطار التفاهم الاممي بشأن حماية طبقة الأوزون، ومن المؤمل أن يكون لهذه القرارات أبعاد اجتماعية مباشرة على المستهلكين وأن تحذوا دول المنطقة حذو مملكة البحرين في هذا الشأن، مبيّناً أن هذه النقلة النوعية ستعمل على توفير بيئة حاضنة للقطاع الخدمي، بما يتوافق مع أفضل الممارسات العلمية والعملية في العالم، وذلك من خلال تحسين أعمال الصيانة لأجهزة التبريد والتكييف، وتطوير المهارات الفنية على أيدي خبراء دوليين، مما سبترتب على ذلك إصدار تراخيص فنية للعاملين في قطاع أجهزة صيانة التبريد والتكييف.

7. Clean cooling technology in Jordan is a first for the Middle East

The new refrigeration system shows that there are energy efficient and climate friendly refrigeration alternatives to HFCs in hot countries like Jordan.

A Climate and Clean Air Coalition (CCAC) funded demonstration project has introduced a cool new shopping experience to a supermarket in Jordan, pioneering a type of refrigerant new to the Middle Eastern food retail sector. The system uses carbon dioxide (CO₂) rather than hydrochlorofluorocarbons (HCFCs) or hydrofluorocarbons (HFCs) –chemicals thousands of times more powerful than CO₂ at warming our atmosphere. Installed in a supermarket in Amman, the country's capital, the new cooling system could become commonplace among supermarkets in the region thanks to its high energy efficiency and economic advantages.

The new system uses a form of cooling known as transcritical CO₂ refrigeration. CO₂ is a 'natural refrigerant' because it is a naturally occurring compound rather than a manufactured chemical. Ammonia and propane are two other commonly used natural refrigerants. Local business owners and inhabitants benefit because the super-efficient refrigeration system cuts down on energy consumption, saving hundreds of dollars per unit per year.

Climate benefits

Energy savings and pollution reduction are among its numerous advantages. "We managed to prove that in Jordan, this CO₂ system is more energy efficient than other conventional systems and more environmentally friendly", says Nasser Abdin, Director of Abdin Industrial, a display cabinet manufacturing and installation company and a key player in the pilot. The company was responsible for replacing the old hydrochlorofluorocarbon (HCFC – R22) refrigeration system at the Al Salam military supermarket in Amman with the CO₂ system.



Al Salam military supermarket in Amman, Jordan, is the region's first to trial an advanced refrigeration system that uses carbon dioxide (CO₂) as a refrigerant.

That substitution makes complete sense in a country that experiences some of the most extreme summer temperatures on the planet. CO₂ refrigeration has a broad role to play particularly in countries, like Jordan, that are currently phasing out HCFCs and wish to avoid unnecessarily transitioning to HFCs. Replacing existing HFC systems or avoiding them entirely by leapfrogging from HCFCs directly to efficient and more climate friendly alternatives such as CO₂ systems can significantly change the trajectory of global warming, which itself could raise the country's temperatures even further.

Studies comparing CO₂ refrigeration with conventional HFC refrigeration show a major difference in global warming potential. For example, the global warming potential of HFC134a is 1,300 times higher than that of CO₂. Switching to CO₂ refrigeration thus makes a major positive impact on the climate.

The higher efficiency of CO₂ systems can also reduce power plant emissions by lowering energy demand, which also protects grid stability. Meanwhile, reduced energy demand also decreases local air pollution from energy generation. The CO₂ systems avoid super greenhouse gas emissions, leading to a knock-on reduction in future warming and hence the requirement for future cooling.

Financial benefits

Future environmental or health gains are significant considerations that help to encourage change. However, financial rewards are usually more effective at incentivising any procurement switch in the competitive retail sector. The CCAC and its partners, the United Nations Industrial Development Organization (UNIDO) and the Jordan Ministry of Environment, thus emphasised the economic returns to businesses in order to encourage the adoption of CO₂ refrigeration.

Being more energy efficient, CO₂ refrigeration systems have the potential to save money by reducing electricity consumption for businesses in a region that relies heavily on cooling technologies. To evaluate the economic advantages, the installer Abdin International compared the system's energy consumption to that of a similar local supermarket using an HFC refrigerant but that was also considered energy efficient.

They found that, over a period between February and September 2017, the new CO₂ system at the Al Salam supermarket saved 20%-30% more energy than the system in the shop nearby. That was good news to the supermarket owner, of course, and can translate into a financial gain that may well encourage other local companies to transition to similar refrigeration systems.

That said, the windfall to bank accounts is only part of the story and more needs to be done to drive technology uptake. Initiatives run by the CCAC and its partners on HFCs need to be complemented by efforts to build consumer confidence and familiarity, and improve market access to new technology. At the same time, they need to broaden knowledge of the array of additional advantages associated with its adoption.

Regional rollout

The Jordan experience is only a starting point for the promotion and rollout of climate-friendly refrigeration in the Middle East. Local businesses have already shown an interest, since installers gain from the rollout as well as supermarket owners.

"After installing the first CO₂ project in Jordan, we at Abdin feel that we now have the responsibility and duty to inform other projects about the benefits of CO₂ systems," says Nasser Abdin.

Organisations involved in the pilot are already investigating ways to work with government to expand adoption of the technology across the country, where HFC and HCFC refrigeration is widespread.

"I think our government can do something to help in this regard, maybe for example by rewarding projects that manage to reduce their energy bills," says Nasser Abdin.

Chilly adoption

Jordan is not the only place where the CCAC has launched CO₂ refrigeration. In South America, a parallel project also showcased a CO₂ system for the first time, and this has successfully been replicated across other supermarkets. It similarly emphasises the energy efficiency and financial advantages of the technology. The



The transcritical CO₂ refrigeration system being installed at the Al Salam military supermarket in Amman, Jordan



Media at the launch of the new refrigeration system



Staff at the Jumbo supermarket in Valdivia, Chile. The new supermarket is using transcritical CO₂ for its refrigeration

demonstration project in the city of Valdivia in Chile was funded by the CCAC and overseen by the Ozone Unit of Chile's Ministry of Environment supported by the United Nations Development Programme.

As in the case of the Amman project, the Valdivia supermarket involved several different types of businesses in the supply chain.

The new supermarket is using transcritical CO₂ for its refrigeration "This project connects the different actors in the cold chain supermarket sector and promotes the adoption of this technology. It helps minimize the introduction of HFC based systems in Chile," says Claudia Paratori, Coordinator of the Ozone Unit at the Ministry of Environment.

The Chilean pilot project worked with Hipermercados Jumbo, a South American supermarket chain with 40 stores in Chile. The company has now introduced CO₂ refrigeration into more of its supermarkets.

CO₂ trade-offs

Businesses adopting the technology do face some constraints. For instance, CO₂ in a refrigerant system operates under conditions of high pressure, and this adds sensitivity to the installation. But CO₂ refrigerants are cheaper than HFCs. This is because HFCs are manufactured by companies with strong patents charging costly licence fees for a super greenhouse gas pollutant.

Both the Jordan and Chile projects are part of the CCAC HFC Initiative, which aims to significantly reduce the projected growth of high global warming HFCs in the coming decade. It mobilises efforts of the private sector, civil society, international organizations and governments to be able to effectively meet their international obligations under the Kigali Amendment to the Montreal Protocol by promoting energy efficient HFC alternative technologies and improving the market conditions for such products. The CCAC's projects, case studies, conferences and interactive partner tools help increase knowledge of more sustainable technologies available as substitutes.

Climate and Clean Air Coalition (CCAC), 17 January 2019, By: Elisabeth Jeffries

Europe & Central Asia

8. European Commission issued standardization request for a new European standardization deliverable in refrigeration, air conditioning and heat pump equipment



To support and provide the reduction of the use of hydrofluorocarbons (HFCs) in refrigeration, air conditioning and heat pump equipment, the European Commission had issued the standardization request to have a European standardization deliverable on the use of flammable refrigerants. These new standardization deliverables specifically classified as A3 in refrigeration, air conditioning and heat pump equipment are planned to be issued by November 2020 or February 2021.

The main aim is to have a new European standardization deliverable with technical specifications that enable guidance on how to allow a wider use of flammable refrigerants without influencing health and safety of consumers, workers and property and could also serve as a basis for the development of national codes, standards or legislation in the Member States.

Read more on the specific technical requirements in the annexes here.

It is expected that [CEN and CENELEC](#) provide this final report to the European Commission by 15 February 2021. For additional information read [more](#) on the CEN-CENELEC working plan 2019.

REHVA Federation of European Heating, Ventilation and Air Conditioning Associations, 26 January 2019

0. Revised reporting obligations on hydrofluorocarbons following the Kigali Amendment to the Montreal Protocol (EC)



Montreal Protocol decision XXX/10 revises the reporting forms to be prepared by its Parties (including EU and its Member States), in particular for hydrofluorocarbons.

The revised forms require, inter alia, detailed data on HFC-23 production/by-production and emissions as well as on imports and exports of polyols containing hydrofluorocarbons.

In order to ensure compliance with that Montreal Protocol decision it is necessary to revise the Implementing Regulation and add the new elements.

Draft act - FEEDBACK: OPEN

Type: Draft implementing regulation - [More about draft acts](#)

Feedback period: 25 January 2019 - 22 February 2019

The Commission would like to hear your views. Draft acts are open for feedback for 4 weeks and published on this site. Feedback will be taken into account for finalising this initiative. Feedback received will be published on this [site](#) and therefore must adhere to the [feedback rules](#).

The European Commission, 25 January 2019

9. New Refcom guidance sets out post-Brexit implications for F-Gas



Updated guidance has noted that many existing commitments of EU regulation are intended to apply to UK businesses certified to handle F-Gas products

Refcom has published new Brexit guidance for the UK cooling industry outlining how F-Gas regulations are expected to apply to their operations upon the country's scheduled exit from the EU in late March.

The industry body's latest guidance has noted that from March 30, many of the existing requirements are intended to be transferred directly into UK law.

This will ensure that the country will continue to restrict ozone depleting substances and curb F-Gas use in line with existing EU-wide commitments.

Requirements intended to be carried over into UK law, even with the uncertain progress of Brexit negotiations, include preventing the intentional and unintentional release of F-gases during production and use, according to Refcom.

Other requirements include ensuring leak checks are carried out and records of work are kept up to date, as well as committing to recover any gas for recycling, reclamation or destruction when equipment is repaired or decommissioned.

The guidance said that UK industry will also have to ensure products and equipment are correctly labelled, while certain equipment and gas are restricted from the market.

Refcom added that existing qualifications would remain valid and necessary for engineers and technicians in order to undertake work in line with the F-Gas regulations, with certification issued to contractors from other member states also remaining valid after Brexit.

The guidance stated, "For companies the existing registration arrangements with Refcom remain valid. Refcom has confirmed our intention to continue to operate the UK's largest F-Gas Register for both Great Britain and Northern Ireland after March 30, 2019."

The organisation added that it would be continuing to update its guidance over the coming months depending on changes both in parliament and the European Commission that it described as "fluid and constantly shifting".

Defra position

The Department for Environment, Food and Rural Affairs (Defra) announced in a policy update last month that quotas introduced as part of the EU's F-Gas regulations will remain in place regardless of the final direction of Brexit.

Existing targets that the UK subscribes to will remain in place to limit availability of HFCs and other substances targeted under the regulation, however there will be some changes in registering for quota in either the UK or EU. Defra said that the availability of higher GWP refrigerant will remain at 63 per cent of the initial baseline for 2019 and 2020, with the quota cut to 45 per cent in 2021.

Defra accepted that a failure to reach an exit agreement with the EU, would mean that F-Gas and ODS regulations would not formally apply from March 30. However, government has claimed that new UK regulations would be introduced to transfer requirements into national legislation.

This in turn would require companies producing, importing or selling HFCs or ozone depleting products to either apply for separate quota to sell either in the UK or EU market

The quota would apply for businesses putting HFC products equivalent to 100 tonnes or more of CO₂ a year from March 2019.

The Refcom guidance document can be found [here](#)

RAC, 23 January 2019, By Neil Merrett

10. How to avoid counterfeit, illegal refrigerants

[...] Counterfeit refrigerants, defined as an imitation of refrigerants intended to deceive for financial gain, have existed for years since the 1987 Montreal Protocol-led phase-out of ozone-depleting substances like CFC and HCFC refrigerants.

Additional regulations have since been implemented:

- The EU has implemented an HFC quota and a service ban on HFCs with a GWP index of over 2500 after 1st January 2020, under the F-gas regulation
- Almost 200 countries have signed an agreement to phase down HFCs under the Kigali Amendment to the Montreal Protocol

This has resulted in dwindling HFC supply [in Europe] while prices for those that remain are skyrocketing – creating opportunities for the sale of contaminated and counterfeit refrigerants at lower prices to unsuspecting businesses, typically in the form of disposable cylinders.

Used/contaminated refrigerants that can no longer be recycled or re-used must be destroyed via high temperature incineration. However, some of these used refrigerants are put back onto the market without going through proper recycling processes, putting you and your crew at risk.

Using disposable cylinders increases the risk of obtaining counterfeit refrigerants

Disposable cylinders can be obtained at a relatively low price and are untraceable – becoming the container of choice for counterfeiters to store fake/counterfeit refrigerants.

The risk of acquiring counterfeits is therefore higher when choosing disposables over returnable cylinders.

What are the risks of using counterfeit refrigerants?

• Freeze up

Low quality refrigerants with excessive moisture can freeze into ice crystals, blocking refrigerant flow in expansion valves and evaporator tubes, possibly causing internal damage to the system.

• Corrosion and acid formation

Excessive moisture reacts with refrigerants and lubricant oil to form highly corrosive acids that will harm the insulation of the motor winding while causing serious damage to the compressor.

• Sludge formation

High acid content inside a system can cause the formation of solids in the form of fine powders or sludge. Sludge can create blockages in fine strainers, expansion valves and capillary tubes. The build-up of sludge in heat-exchangers will impede heat transfer and affect system performance.

• System breakdown

Counterfeit refrigerants may consist of chemicals not belonging in refrigerants or banned substances which are not compatible with the refrigeration system. It can cause serious damage to components and cause system failures as well as damage to recovery and recycling equipment.

• Insufficient cooling affecting goods and food quality

The quality of goods and freshness of food that have to be kept in specified temperatures will be affected – compromising your safety standards.

• Health, safety and environmental damage

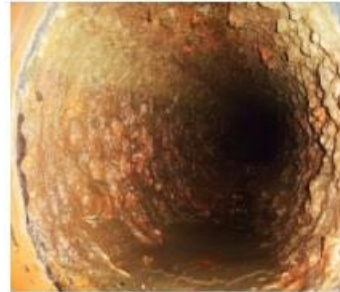
Counterfeit refrigerants can contain banned substances which are toxic and flammable – putting end users and refrigeration plants at risk, while banned substances with high ozone depleting potential will cause environmental harm by compromising the ozone layer.

• Face hefty fine and jail sentence

With counterfeit and illegal refrigerants being smuggled into the EU without HFC import quota, companies and individuals found to have purchased, sold, or used any of them will be at risk of incarceration.

What are the risks of using disposable cylinders?

- Pollution and global warming



Improper disposal or dumping of disposable cylinders after usage is a form of pollution and most of the time, these disposed cylinders are not completely empty – residual/leftover refrigerants will leak into the atmosphere over time.

- **Non-Compliance**

As disposable cylinders may contain counterfeit refrigerants, you are at risk of non-compliance. Counterfeit refrigerants may be obtained from various sources with low quality and low purity – they could even contain used / contaminated refrigerants recovered from old systems. Furthermore, it is illegal to own or use disposable refrigerant cylinders in countries like India, Canada, Australia, and within EU.

- **Safety hazard**

Disposable cylinders are designed with thin metal walls as casing – specifically meant for one-time usage only. Refilling disposable cylinders is dangerous and illegal as it can lead to the thin metal wall wearing out from fatigue – possibly resulting in explosions. Refillable cylinders are designed and engineered to be rated to a specific pressure and have wall thicknesses to serve in that capacity – so you and your crew can be safe and compliant. [...]

Corporate Fair Trade Community, 17 January 2019

Featured



OZONE SECRETARIAT

- 61st Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol, Quito (Centro de Convenciones QUORUM, Cumbaya), Ecuador | 3rd Nov 2018
- Bureau Meeting of the Twenty-Ninth Meeting of the Parties to the Montreal Protocol, Quito (Centro de Convenciones QUORUM, Cumbaya), Ecuador | 4th Nov 2018
- 30th Meeting of the Parties to the Montreal Protocol, Quito (Centro de Convenciones QUORUM, Cumbaya), Ecuador | 5 - 9 Nov 2018

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification
15 October 2016 to [date](#)

- [40th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol](#), 11-14 July 2018, Vienna, Austria

The documents for the forthcoming 40th meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (11 to 14 July 2018, Vienna), and the associated workshop on energy efficiency opportunities while phasing-down hydrofluorocarbons (9 and 10 July 2018) are available on the meeting portal and mobile app.

Read/download OEWG40 [Summary](#)
[OEWG-40 Daily coverage by IISD](#)

- Click [here](#) for Montreal Protocol upcoming Meetings Dates and Venues

The UN Environment Assessment Panels

The Assessment Panels have been vital components of ozone protection since the Montreal Protocol was first established. They support parties with scientific, technological and financial information in order to reach decisions about ozone layer protection and they play a critical role in ensuring the Protocol achieves its mandate.

The Assessment Panels were first agreed in 1988 to assess various direct and indirect impacts on the ozone layer. The original three panels are:

[The Technology and Economic Assessment Panel](#)

[The Scientific Assessment Panel](#)

[The Environmental Effects Assessment Panel](#)

In the past there were 4 main panels. The Panels for Technology and Economic Assessments were merged in 1990 into one Panel, now called the Technology and Economic Assessment Panel.

Why are the three current panels important to ozone layer protection? Each carries out assessment in its respective field. Every four years, the key findings of all panels are consolidated in a synthesis report.



THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

- [82nd meeting of the Executive Committee](#), 3-7 December 2018, Montreal, Canada
- [Adjusted Prorated 2018-2020 business plan of the Multilateral Fund \(16 August 2018\)](#)
- [81st meeting of the Executive Committee](#), Montreal, Canada, 18 to 22 June 2018
- [Reports of projects demonstrating alternatives to HCFC technologies \(updated 81st meeting\)](#)
- [2018 Executive Committee Primer](#)

[Learn more](#)



OZONACTION



NEW OzonAction smartphone application: **Good Servicing: Flammable Refrigerants Quick Guide**

An interactive Quick Guide on Good Practices for Flammable Refrigerants.

This is the electronic and interactive version of the UN Environment OzonAction Quick Guide on Good Servicing Practices for Flammable Refrigerants.

It offers easy reference to the key safety classification and technical properties of flammable refrigerants that are available in the market. It also provides important safety guidance for the installation and servicing of room air-conditioners designed to use flammable refrigerants.

This interactive guide allows you to scroll and browse the text, jump to specific chapters or use the comprehensive dynamic index to locate specific keywords, figures and tables. The application also includes a refrigerant charge size

calculator and a room size calculator for flammable refrigerants.

Available for free on the Google play store (Apple version coming soon) - Search for "UNEP Quick guide" or use the QR code.



NEW OzonAction smartphone application: **Refrigerant Identifier Video Series**

Guidance on how to identify refrigerants using a refrigerant identifier.

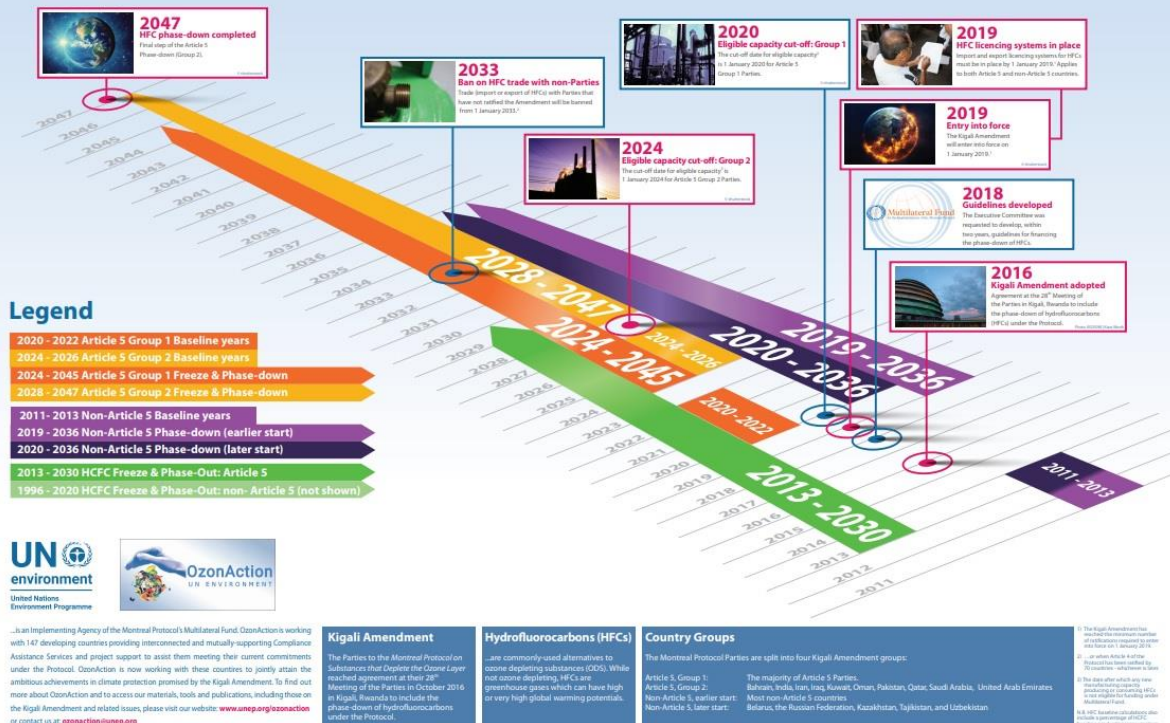
This new OzonAction video series consists of short instructional videos showing how to use and maintain a refrigerant identifier.

The videos provide useful guidance on safety and best practice, understanding the difference between different identifier units, testing procedures and identification of results.

It is intended for use by Montreal Protocol National Ozone Officers, Customs and Enforcement Officers as well as technicians involved in the servicing and maintenance of refrigeration and air-conditioning systems.

Available for free on the Google play store (Apple version coming soon) Search for "UNEP Refrigerant ID" or use the QR code.

The Path from Kigali: HFC Phase-Down Timeline



The Path from Kigali: HFC Phase-Down Timeline

This timeline, produced by OzonAction, highlights key hydrofluorocarbons (HFCs) phase-down dates.

Click [here](#) to download the timeline

RAC Videos

Download on the **App Store** | GET IT ON **Google Play**

New videos available on the OzonAction RAC video application

A series of new videos has just been released on the Refrigeration and Air-conditioning Technician Video Series application, with a focus on working with flammable refrigerants ...

50,000 downloads and counting!

To install, search for "RAC Video" in the Google Playstore or Apple IOS store, or scan the QR code.



GWP-ODP Calculator Smartphone Application

The application allow you to easily convert ODP, CO₂-eq and metric quantities of refrigerants and other chemicals.

- Helps in understanding and reporting under the Montreal Protocol (and future commitments under the Kigali Amendment)
- The calculator will automatically perform the conversion between metric

tonnes, ODP tonnes and/or CO₂-equivalent tonnes (or kg) and display the corresponding converted values

- The app includes both single component substances and refrigerant blends
- The components of a mixture and their relative proportions (metric, ODP, CO₂-eq) are also displayed.

Available for free from the Apple IOS store and Google PlayStore. Search for "GWP ODP CALC" in the Playstore to install!

Download it Now!



OzonAction Smartphone Application WhatGas? Quickly search for the information you need

- Chemical name
- Chemical formula
- Chemical type
- ASHRAE designation
- Trade names
- HS code
- CAS number
- UN number
- Montreal Protocol Annex and Control measures
- Ozone depleting potential (ODP)
- Global warming potential (GWP)
- Blend components
- Toxicity and flammability class
- Main uses



OzonAction Smartphone Application WhatGas?

Available for free in the Google Play and Apple IOS Store

Scan the QR code or search for "UNEP", "OzonAction" or "WhatGas?"



The Kigali Amendment to the Montreal Protocol - Opportunities and Next Steps - OzonAction Video

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase down hydrofluorocarbons (HFCs). The UN Environment, OzonAction developed a video to find out from renowned international scientific, health, technical, financial and national experts about background and significance of this Kigali amendment.

The amendment presents many opportunities: improving the environment, refrigeration and air-conditioning systems and especially energy efficiency. It also presents new challenges. It is absolutely critical now for industry, governmental bodies and civil society to work together to adopt greener technologies in each country of the world and fight global warming.

[OzonAction YouTube](#) | See also: [United Nations Treaty Collection](#)

OzonAction Factsheets



NEW >>> UN Environment-ASHRAE Factsheet Update on New Refrigerants Designations and Safety Classifications

OzonAction Series of [19 Fact Sheets](#) related to the Kigali Amendment.

[HS codes for HCFCs and certain other Ozone Depleting Substances ODS](#) (post Kigali update).

[The Kigali Amendment to the Montreal Protocol: HFC Phase-down](#) - The phase-down of HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment at the 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluoro-carbons (HFCs) continues the historic legacy of the Montreal Protocol. This factsheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

[Refrigerant Blends: Calculating Global Warming Potentials](#) (post-Kigali update).

[Global Warming Potential \(GWP\) of Refrigerants: Why are Particular Values Used?](#) (post-Kigali update).

[Tools Commonly used by Refrigeration and Air-Conditioning Technicians.](#)



OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - Over 50,000 download to date - OzonAction has launched an exciting new application which hosts series of short instructional videos on techniques, safety and best practice for refrigeration and air-conditioning technicians.

This application, consisting of short instructional videos on techniques, safety and best practice, serves as a complementary training tool for refrigeration and air-conditioning (RAC) sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training.

New videos on flammable refrigerants just added!

Please share with your RAC associations, technicians and other interested stakeholders...

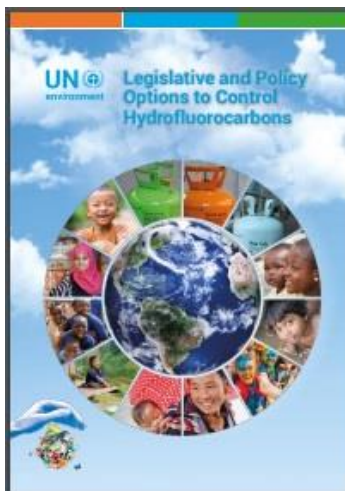
[OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series](#)

Available in the [Android Play Store](#) and [Apple Store/iTunes](#).
(Just search for "OzonAction", or scan this QR code)

Publications



Latest issue of the Centro Studi Galileo - **Industria & Formazione**. La rivista per il tecnico della refrigerazione e della climatizzazione, N. 424, 2019



Legislative and Policy Options to Control Hydrofluorocarbons

In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures.

This booklet contains a recommended set of legislative and policy options which the developing (Article 5) countries may wish to consider for implementation. It is intended to be a guide/tool for countries.

Events

2019

- **Call for abstracts - 15th Cryogenics 2019 Conference**, 7-11 April 2019, Prague, Czech Republic
- **China Refrigeration 2019**, 9-11 April 2019, Shanghai New International Expo Center, China

- [8th Conference on Ammonia and CO₂ Refrigeration Technologies](#), 11-13 April 2019, Ohrid, Macedonia (FYROM)
 - [25th IIR International Congress of Refrigeration](#) - 24-30 August 2019, Montreal, Canada
- Click [here](#) for more information / [International Institute of Refrigeration](#)

Reading



[Twenty Questions and Answers About the Ozone Layer](#), presents complex science in a straightforward manner. It complements the [2014 Scientific Assessment Report of Ozone Depletion](#) by WMO and the U.N. Environment Programme.

Lead Author:
Michaela I. Hegglin
Coauthors:
David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash



[Primer on Hydrofluorocarbons \(HFCs\)](#) - IGSD -11 January 2018

Summary:
Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO₂-eq by 2050, and avoid up to 0.5°C of warming by 2100.

Lead authors:
Durwood Zaelke, Nathan Borgford-Parnell, and Stephen O. Andersen.
Contributing authors:
Kristin Campbell, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng Ling, Alex Milgroom, and Nancy J. Sherman.



The [IIR International Dictionary of Refrigeration](#) Available in 11 languages, the complete version of the International Institute of Refrigeration (IIR) International Dictionary of Refrigeration is now freely accessible online. The IIR International Dictionary of Refrigeration offers researchers, industrialist or administrations the practical resources required to produce content related to

refrigeration technologies in multiple languages.

This online tool allows you to find definitions, in English and French, of scientific and technical terms, as well as identify terms in the language of your choice and find corresponding translations in the 10 other languages.

The dictionary provides term searches in Arabic, Chinese, Dutch, English, French, German, Italian, Japanese, Norwegian, Russian and Spanish.

Access the International Dictionary of Refrigeration on the IIR [website](#)



Letter to the Editor

Refrigerants: There is still no vision for sustainable solutions

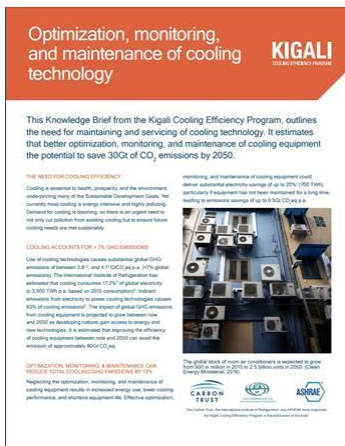
Risto Ciconkov

Refrigerants: There is still no vision for sustainable solutions

by Risto Ciconkov

Letter to the Editor, International Journal of Refrigeration

Abstract and highlights



“[Optimization, monitoring, and maintenance of cooling technology](#)” outlines the need for maintaining and servicing of cooling technology. It estimates that better optimization, monitoring, and maintenance of cooling equipment the potential to save 30Gt of CO₂ emissions by 2050.

Cooling as a Service (CaaS) **KIGALI**

This brief presents a new approach to cooling – Cooling as a Service. This approach can benefit companies, governments and society at large and is based on the servitization concept which is rapidly penetrating other marketplaces.

WHAT IS CaaS?
The standard business model of delivering cooling typically involves the manufacturer selling, use and disposal of equipment. Higher production volumes generally support more sales and greater profit. As a result, manufacturers can lack a strong incentive to ultimately focus on maximizing the energy efficiency and performance of cooling products. Alternative business models are possible – and can promote much more energy and resource efficient technologies.

CaaS is a pay-per-service model and customer paying for the cooling they receive rather than the physical product or infrastructure that delivers the cooling. Examples of the CaaS model include direct cooling where customers do not own the cooling infrastructure, and pay per service (PPS) models, where technology providers install and maintain the cooling equipment, and receive costs through periodic payments made by the customer. These payments are fixed and payable for the cooling service delivered (for example, dollars per tonne of refrigeration or cubic metres of cooled air), and are based on actual usage. The payment is not dependent on the savings achieved with CaaS model but agreed in advance as a function of actual usage. This makes it easier and more transparent for the client. In broader terms, customers may also receive some CaaS models as a form of CaaS as they also can receive a series of ongoing service agreements and avoid the upfront capital costs of cooling equipment.

WHY IS CaaS IMPORTANT?
At the global scale, the anticipated explosion of demand for cooling in developing countries (due to more population, and as urbanization and planetary warming increases, will lead to rapid escalation of energy and resource use for cooling). The ICA projects that global annual energy use from space conditioning will triple in some areas by 2050. This is a major concern under a business as usual (BAU) scenario (IEA, 2018). There is an urgent need to reduce the energy intensity and total pollution from cooling, and to ensure efficient cooling systems are affordable to all those who need them.

CaaS models benefit customers through lower energy and maintenance costs, the absence of upfront capital investments, reduced working equipment, and a transparent and predictable pricing structure. The model effectively turns capital expenditure into operational expense for clients, freeing up capital for other investment priorities. The model also reduces the pressure on technology providers for the clients, as they are not required to invest in the technologies directly, and are not exposed to equipment failure.

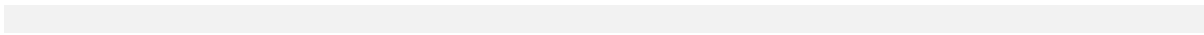
CaaS gives technology providers a stronger incentive to increase their competitiveness by reducing their products' operating costs through innovation, helping companies split investment between manufacturing and clients. Some cooling technology providers are already offering CaaS, to differentiate themselves in the marketplace and compete against low quality, inefficient and low cost cooling solutions.

CaaS can also increase the likelihood that cooling equipment is effectively repaired and maintained, lowering the risk of unplanned breakdowns and ensuring efficiency. Proper maintenance can deliver electricity savings up to 20% (IEA, 2018).



BASE **COOLING**

“Cooling as a Service (CaaS)” presents a new service approach to cooling, which can benefit companies, governments and society at large and is based on the servitization concept which is rapidly penetrating other marketplaces.



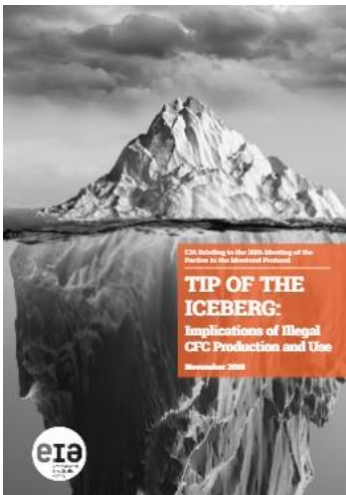
IMPACT OF STANDARDS ON HYDROCARBON REFRIGERANTS IN EUROPE

Market research report



Impact of Standards on Hydrocarbon Refrigerants in Europe – Market research report. The market research report was realised for the EU-funded **LIFE FRONT** project. Amongst the main result of the market research:

- Current charge limits set in standards both restrict and obstruct the development of hydrocarbon technology
- Over 50% survey respondents already work with hydrocarbons to some extent
- Most of those planning to start working with hydrocarbons in the future will do that in 2019-2020 timeframe - revision of standards could have a major impact on the scale of this shift
- Large proportion of respondents indicated they manufacture equipment using multiple refrigeration circuits - allowing higher hydrocarbon charge limits per single refrigeration circuit would have a profound impact on cost and availability of larger units.





TIP OF THE ICEBERG: Implications of Illegal CFC Production and Use

20th Meeting to the 20th Meeting of the Parties to the Montreal Protocol

Tip of the ICEBERG: Implications of Illegal CFC Production and Use

November 2008



Tip of the Iceberg: Implications of Illegal CFC Production and Use. The Environmental Investigation Agency (EIA) recently released report urges Parties to the Montreal Protocol to address a number of remaining unanswered questions, in particular the absence of comprehensive data regarding the size of current banks of CFC-11 in PU foam and other products or equipment.



Cold Hard Facts 3 - Review of the Refrigeration and Air Conditioning Industry in Australia - The refrigeration and air conditioning industry is the largest user of synthetic greenhouse gases and ozone depleting substances in Australia. Cold Hard Facts 3 provides an economic and technological assessment of the refrigeration and air conditioning industry in Australia in 2016. The report includes an analysis of the size and economic value of the industry, the equipment and refrigerant gas bank, trends in gas imports and equipment, and direct and indirect emissions in this sector. [...] This study provides a broad view of the composition, size and value of the industry, and projections for its future. This will assist industry and policy makers with management of ozone depleting substances as they are phased out, and synthetic greenhouse gases, including

hydrofluorocarbons (HFCs) which are being phased down from January 2018.

Miscellaneous



I am in the Montreal Protocol Who's Who... Why Aren't You?

The United Nations Environment, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the "Montreal Protocol Who's Who".

We are pleased to invite you to submit your nomination*, and/or nominate Ozone Layer Champion(s). **The short profile should reflect the nominee's valuable work related to the Montreal Protocol and ozone layer protection.**

Please notify and nominate worthy candidates through the **on-line form**

We look forward to receiving your nomination(s), and please feel free to contact our team for any further assistance concerning your nomination.

Take this opportunity to raise the profile of women and men who made an important contribution to the Montreal Protocol success and ozone layer protection.

- View the «Montreal Protocol Who's Who» **introductory video**
- Contact : [Samira Korban-de Gobert](#), UN Environment, OzonAction

** If you are already nominated, no need to resubmit your profile*



New International Journal of Refrigeration service for IIR members -

Access the complete archives of the International Journal of Refrigeration (IJR) online. Designed with IIR members in mind, this new and practical electronic subscription gives members substantial advantages:

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- Print, download or share articles with colleagues or peers.
- See which papers, published in Elsevier or elsewhere, have cited any selected article.
- Consult the research highlights overview of articles in volumes from 2012 onwards.

To access this new service, click "[activate my e-IJR subscription now](#)" and follow the instructions.



International Observers - New AREA membership category - Due to the significant worldwide interest in European legislative developments and the increase in competence of personnel who handle new refrigerants, AREA is pleased to introduce its brand new "International Observer" membership category. This provides a fantastic opportunity for non-European RACHP installer bodies the world, to benefit from the expertise and discussions within Europe through access to AREA. Contact: info@area-eur.be



The International Institute of Refrigeration supports World Refrigeration Day - As the only independent intergovernmental organisation in the field of refrigeration, the International Institute of Refrigeration (IIR) joins associations and companies worldwide to support the initiative of an official World

Refrigeration Day on 26 June every year. The annual World Refrigeration Day, to be launched on 26 June 2019, aims to raise awareness among the wider public about the importance of refrigeration technologies in everyday life.

Refrigeration is essentially a question of temperature and, as such, it only seems natural to celebrate the field on the birthday of the pioneer at the origin of the international unit of temperature, Lord Kelvin (Sir William Thomson) – born 26 June 1824.

With increasing global stakes at hand, over the past years refrigeration has come to take a leading role at the heart of international affairs.

The inauguration of a World Refrigeration Day would not only be an ideal way to recognise the many historical achievements of the industry, but also a means to anticipate and overcome together the challenges we face. ... Click [here](#) for more information.



Global Cooling Prize - Cooling for all, without warming the planet.

An innovation competition to develop a climate-friendly residential cooling solution that can provide access to cooling to people around the world without warming the planet

Click [here](#) to access current and previous OzoNews Issues



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The views expressed in articles written by external authors are solely the viewpoints of those authors and do not represent the policy or viewpoint of UNEP. While UNEP strives to avoid inclusion of misleading or inaccurate information, it is ultimately the responsibility of the reader to evaluate the accuracy of any news article in OzoNews. The citing of commercial technologies, products or services does not constitute endorsement of those items by UNEP.

If you have questions or comments regarding any news item, please contact directly the source indicated at the bottom of each article.

Prepared by: Samira Korban-de Gobert, OzonAction

Reviewed by: Shamila Nair-Bedouelle, Head OzonAction Branch, and Ezra Clark, OzonAction

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