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Global



1. Women in the Refrigeration and Air-conditioning Sector - Call for stories - Deadline extension to 6 September 2018

Deadline extension to 6 September 2018

Please share **your** experiences of working in the RAC sector

From female service technicians to installers, from designers to trainers, from manufactures to RAC associations, UN Environment OzonAction are looking to highlight your experience.

OzonAction, in cooperation with UN Women, is seeking short 'stories' about women working in the refrigeration and air-conditioning (RAC) sector, explaining their motivations, training and education, the challenges they may have faced, their experience and day to day details of their working lives.

Being aware of the experiences of women working in the RAC sector and the opportunities available can encourage and inspire other women to consider careers in the sector and support girls to seek to follow a career path in this fast growing and important sector.

OzonAction, therefore is launching a global initiative to raise awareness of the opportunities available to women and to highlight the particular experiences and examples of women working in the sector and to recognise their successes.

All the accepted submissions will be compiled into an official publication and outreach to a broad range of stakeholders in the Montreal Protocol and RAC community.

The authors of the two most relevant and interesting submissions will be invited to attend an award ceremony and side event organised by UN Environment OzonAction at an international Montreal Protocol meeting.

**Completed entry forms with descriptions and photos
should be received by 6 September 2018**

How to apply

If you are a woman working in any part of the RAC sector, we encourage you to submit an entry. Please use the standard template provided. We very much welcome that you provide pictures showing you at work to accompany the submission.

Nominations will be reviewed, verified and edited, as required, by an expert panel established by UN Environment. All the accepted submissions will be compiled into an official UN Environment publication, which will be outreach to a broad range of stakeholders in the Montreal Protocol and RAC community.

The authors of the two most relevant and interesting submissions (as decided by the expert panel) will be invited to attend an award ceremony and side event organised by UN Environment OzonAction at an international Montreal Protocol meeting.

Completed submissions, sent by email, based on the standard template (with photos) should be received by the UN Environment regional focal points as soon as possible but **at the latest by 6 September 2018**.

- "Women in the RAC Sector" [flyer](#)

- [Submission Form](#)

For more information please see [OzonAction website](#)

2. PODCAST: The Inside Story of How the World Closed the Hole in the Ozone Layer

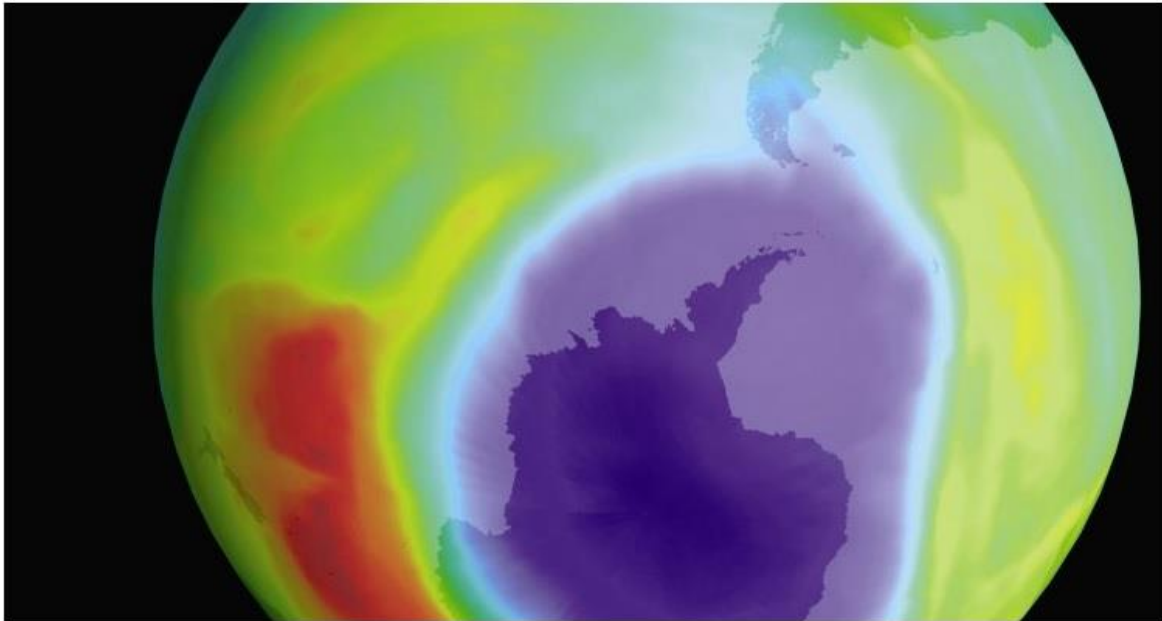
The year is 1985. Ronald Reagan is president. Margaret Thatcher is prime minister of the United Kingdom. Michael Jackson, White Snake and George Michael are dominating the billboard charts. Back to the Future is a smash hit at the box office.

And scientists have just discovered a giant hole in the ozone layer above Antarctica.

Scientists were warning that if left unchecked, this hole in the ozone would grow ever larger, letting through harmful ultraviolet radiation from the sun that would wreak havoc on human health. Skin cancer rates would skyrocket, as would cataracts. In cities like Los Angeles and Washington, D.C. going outside for just a short period of time in the summer would be dangerous. Meanwhile, the basic ecology of the world's oceans could change, as plankton which makes up the bottom of the food chain, would die off.

But in two years time, before even Universal Pictures released the sequel to Back to the Future the international community had come together to create a binding international treaty that would lead to the healing of the ozone layer.

That agreement is known as the Montreal Protocol. It is widely considered the world's most successful global environmental treaty.



GLOBAL DISPATCHES – CONVERSATIONS ON FOREIGN POLICY AND WORLD AFFAIRS
The Inside Story of How the World Closed the Hole in the Ozone Layer

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In this special episode of Global Dispatches podcast, produced in partnership with the United Nations Foundation, we bring you the inside story of how the world came together to create an internationally binding treaty to protect the ozone layer — and ultimately human health.

You will hear from scientists who discovered the link between Chlorofluorocarbons (CFCs) and ozone depletion; key diplomats and government leaders who pressed for the international regulation of CFCs in 1987; and academics and civil society leaders who explain why this 31-year-old agreement is as relevant today as it was the day it was signed.

The Montreal Protocol is a success of multilateral cooperation. This podcast episode tells its story.

UN Dispatch, 23 July 2018, By: Mark Leon Goldberg

3. How to prevent cooling from warming up the world



Air conditioners and other cooling devices are critical for millions of people worldwide, particularly with rising temperatures. But while these appliances can save lives, they're also big contributors to global warming.

On hot days, many of us automatically turn on the air conditioner or reach for a cold drink from the fridge without thinking twice about it. But access to these kinds of cooling devices — something millions of people around the world still lack — can actually be a matter of life and death.

Cooling is key to ending poverty and hunger. With refrigeration, for example, we can store medicines and reduce food waste. Cooling is also vital to improving health and wellbeing. In short, to achieving sustainable

development. Yet it entails great risk: as the use of cooling products increases, so too do global emissions, which contribute to global warming. The result is a vicious circle.

The number of cooling devices is expected to quadruple to 14 billion worldwide by 2050, researchers show. Without greening the sector, emissions would skyrocket and take us far from reaching the 2-degree target set in Paris.

"If climate change were not an issue, it's safe to say that access to cooling would be like access to clean water or sanitation," Mark Radka, head of the Energy and Climate Branch of UN Environment's economy division, told DW.

But since unfortunately climate change is an issue, granting access to cooling without further damaging the planet and its population remains a huge challenge.

Cooling is a must

More than a billion people, mainly in Asia and Africa, are at risk from lack of access to cooling, according to a new report from the Sustainable Energy for All (SE4ALL) initiative. The 30 hottest cities in the world are in developing countries, which are already suffering the most from climate change.

"As populations grow and temperatures reach new records, the health and economic risks associated with lack of access to sustainable cooling are growing exponentially," Rachel Kyte, director and Special Representative to the United Nations Secretary-General for SE4ALL, told DW.

In India, for instance, almost 20 percent of health care products that depend on cold supply chains, such as vaccines, arrive in an unsatisfactory state. Nearly half a million people worldwide die every year from foodborne illness, or diseases caused by contaminated food. Insufficient cooling is a main reason for that, the World Health Organization says.

A lack of cooling also deepens poverty in developing countries, where farmers regularly lose about 40 percent of their harvest due to inadequate storage, according to the World Food Programme. The same happens with fish, which only lasts a couple of hours without refrigeration. This impedes small retailers from reaching more lucrative markets and growing.

"The more you can establish a cold chain and maintain food cold, the farther you can go and the greater economic value you can get," Radka said.

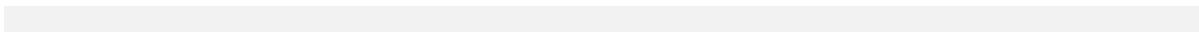
Access gaps to cooling also affect productivity at work and study places.

Warming up the planet

Air conditioners and refrigerators typically use hydrofluorocarbon gases (HFCs), refrigerants that do not damage the ozone layer but cause a global warming effect up to 23,000 times greater than carbon dioxide (CO₂).

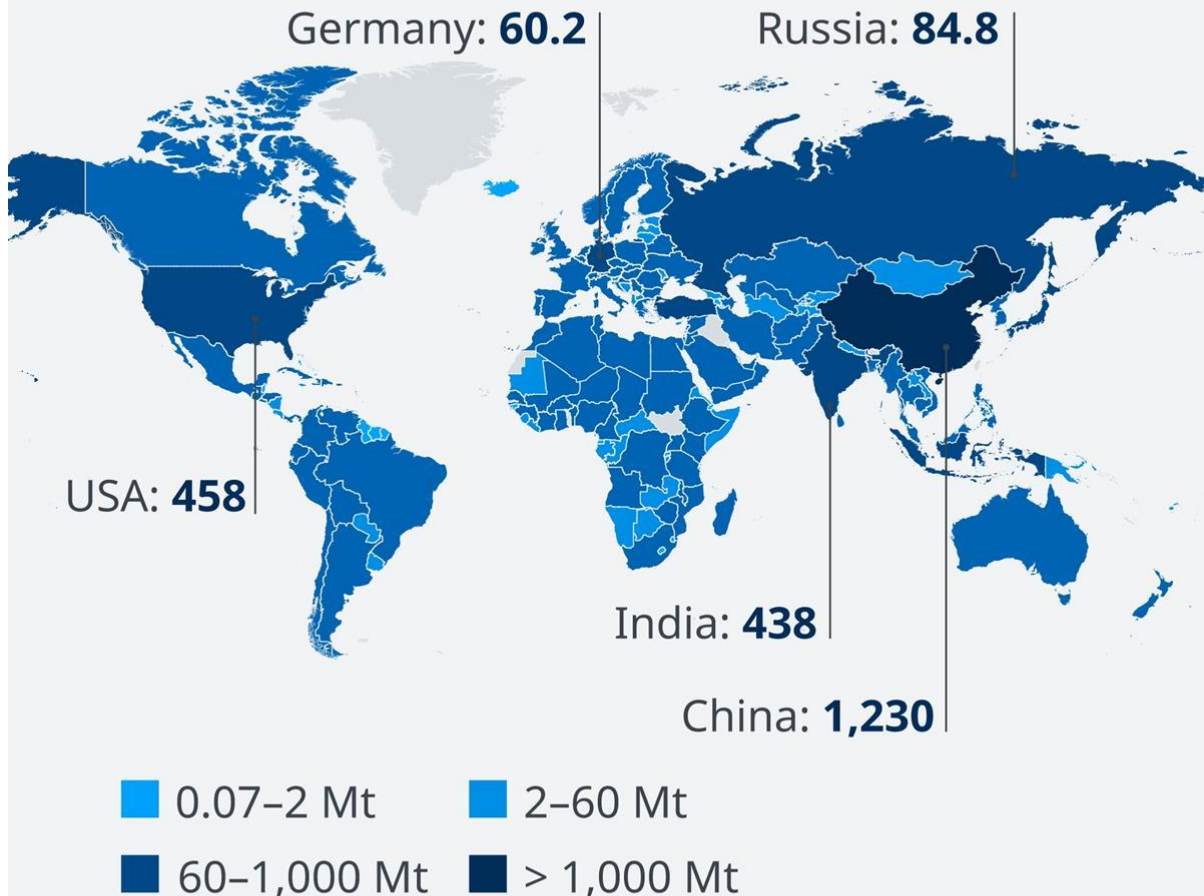
By 2050, HFCs are expected to be responsible for around 12 percent of all global warming. The binding international agreement Kigali Amendment, which enters into force in January 2019, aims to reduce HFCs by more than 80 percent over the next 30 years.

However, cooling technologies also use a significant amount of energy — mainly from fossil fuels — which contributes even more to air pollution. In 20 years, air conditioning systems could account for 40 percent of electricity consumption in Southeast Asia.



Climate impact of cooling sector

Megatons (Mt) in CO2 equivalent



Source: Green Cooling Initiative

©DW

Air pollution is expected to cause about 13,000 additional deaths per year by mid-century, about a thousand of them due to air conditioning, a new study of current air conditioner use in the United States estimates.

"When we turn the air conditioners on inside to adapt to the heat outside, we're creating pollution at the power plants that are burning coal and gas," David Abel, lead author of the study, told DW. As long as we rely on fossil fuels, we'll address the heat problem while at the same time contributing to another problem, air pollution, he added.

A sustainably cooled world

Breaking the vicious circle would likely have to involve the rapid reduction of HFCs and of fossil fuels. Producing more efficient cooling devices wouldn't hurt either.

More efficient products can massively reduce emissions regardless of the energy source, Brian Holuj, program officer at UN Environment's United for Efficiency initiative, told DW.

"It's one of the fastest, cheapest and cleanest ways to reduce emissions around the world and reach the Paris targets," he added.

But such a transition requires policy-makers to incentivize manufacturers and buyers. Most countries could increase efficiency by at least 30 percent for air conditioners and 60 percent for household refrigerators. Therefore, "the key challenge is not a lack of technology, it's a lack of good policy and awareness" Holuj said.

Yet small moves help too. Keeping cooling devices clean, painting roofs white to reflect sunlight or creating wind corridors to allow heat to escape are little tricks to keep our planet from getting hotter. And, of course, reducing our consumption.

"Just becoming aware of this issue is important," Radka pointed out. "We all tend to think as individuals and not about what happens if our behavior is multiplied by a billion people."

As a final remark, Kyte concludes that for a sustainable world to become reality, we must bear in mind that "access to cooling is not a luxury, it's a human right."

Deutsche Welle, July 2018

See also >>> [SEforALL Report Sounds Alarm on Risks Related to Lack of Access to Cooling](#), IISD, SDG Knowledge Hub, 16 July 2018

4. The 2018 Davy Medal is awarded to Professor John Pyle FRS

The 2018 Davy Medal is awarded to Professor John Pyle FRS for pioneering leadership in understanding the depletion of the global ozone layer by halocarbons, particularly coupling between chemistry, radiation, and dynamics, and the special vulnerability of Arctic ozone.

Professor Pyle will receive a medal of bronze, and a gift of £2,000 at the Society's Anniversary Day Meeting on 30 November 2018.

The Davy Medal is awarded annually to an outstanding researcher in the field of chemistry.

The medal is named after Humphry Davy FRS, the chemist and inventor of the Davy Lamp, and was first awarded in 1877.

The Royal Society, Davy Medal 2018



See also >>> [Scientific Assessment Panel Co-Chair John Pyle awarded for scientific leadership](#). UN Environment, Ozone Secretariat, 19 July 2018

Africa

5. Rwanda's new cool endeavour



As the world braces for more extreme weather and overall higher temperatures, the Rwandan Government is once again determined to set the trend, preparing to be among the first to help fulfill the pledge made two years ago in Kigali, where 197 countries adopted the Kigali Amendment to the Montreal Protocol – a legally binding deal to phase-down the production and use of highly potent greenhouse gases used, among others, in cooling systems. Rwanda was the third of 39 countries to ratify the Kigali Amendment

In a warming climate, demand for cooling and refrigeration is expected to increase worldwide. Both are essential to human health and well-being, particularly in densely populated urban areas where the heat island effect pushes the temperature up by several degrees compared to neighbouring rural areas. However, current cooling systems carry hidden costs: not only are they often inefficient – wasting up to 80 per cent of their energy – they also use human-made fluorinate gases (F-gases) such as hydrofluorocarbons (HFCs) as cooling agents. F-gases are almost 10,000 times more powerful at trapping heat than carbon dioxide and are projected to represent nearly 20 percent of climate pollution by 2050, if left unchecked.

With the Kigali Amendment set to enter force on 1 January 2019, this balance between energy efficiency and the urgent need to phase down HFC's has been an item of intense scientific research and political debate.

Most recently, parties to the Montreal Protocol gathered in Vienna, where delegates reviewed the latest findings from the body's Technology and Economic Assessment Panel, which had been tasked with delivering an exhaustive review of all opportunities for energy efficiency with phasing out HFC's.

In Rwanda, UN Environment's United for Efficiency initiative is partnering with the Ministry of the Environment, the Rwanda Environment Management Authority (REMA), and the Ministry of Infrastructure to help transition the local refrigeration and air conditioning market toward more efficient and climate-friendly products. The Rwanda Cooling Initiative (R-COOL) is funded by the Kigali Cooling Efficiency Program (K-CEP), a philanthropic programme whose mission is to increase the energy efficiency of cooling and phase down F-gases. K-CEP supports six global projects, two regional ones, and 31 national programmes. For UN Environment's United for Efficiency Programme (U4E), the R-COOL is one of 20 market transformation projects implemented in emerging economies worldwide.

Demand for cooling and refrigeration in Rwanda is projected to soar as the population and economy continue to grow amidst a warming climate: the number of household refrigerators and A/C units is expected to increase substantially in the next 15 years.

"The scope of R-COOL is to develop and help implement a National Cooling Strategy for Rwanda," says Morris Kayitare, Project Lead for the Rwanda Cooling Initiative. "The strategy will include mandatory minimum energy performance standard (MEPS) for air conditioning and refrigeration products sold in the country, product labels to help consumers understand the energy use of the products that they are considering, and a financial mechanism to encourage the purchase of the highest performing products – which may be more expensive at the store but cost far less over their lifetime through savings on utility bills. There are several options on the table, such as loans, pay-per-usage schemes, or fiscal incentives. Based on the results of the market assessment study that we expect to complete in the next few weeks, recommendations will be provided to the Government of Rwanda for consideration and inclusion in the strategy."

Once in effect, the National Cooling Strategy will help save consumers and businesses money on their electricity bills, reduce peak electricity demand, and expand the capacity of the grid for new consumers. In a warming climate, these are quite important results: studies have shown that a 1.2°C increase in temperature results in a three-fold increase in energy consumption of buildings, most of which is used for cooling.

Better refrigeration and a more effective cold chain would also help prevent food spoilage. The agriculture sector accounts for 31 per cent of Rwanda's GDP, yet 50 per cent of its production goes to waste, causing smallholder farmers to lose up to 15 per cent of their income.

As the country adds ever more households to the electricity grid – now at approximately 40 per cent of the population today with aims to grow three-fold over the next decade – the project will also help ensure that

existing electrical generating capacity is able to reach more people, since less of it will be wasted by outdated cooling products.

“With the policy framework in place, we will move on to raising awareness on the new standards and on how to comply with them. The change will concern all Rwandans, from large businesses such as restaurants and hotels to individuals.” The project will run for two years and will also include a national product registration system that will enable country officials to monitor the market and update policies as necessary.

Rwanda is known internationally for its unwavering commitment to environmental protection. The country was the first to successfully ban plastic bags in 2008 and it is now considering banning plastic entirely, starting with plastic bottles. The R-COOL project once again goes to show that leadership, commitment, and political will are key ingredients to successful societal transformation.

United Nations Environment, 20 July 2018

Asia Pacific

6. First round of FY2018 natural refrigerant subsidy recipients announced in Japan



The Japan Ministry of Environment (MOE) announced today the first round of companies to be awarded subsidies for natural refrigerant system installations for FY2018 in the cold storage, food processing, and retail sectors.

A total of 98 companies with plans to install natural refrigerants in a combined total of 139 locations around Japan have been awarded subsidies in the following sectors:

Cold storage: 55 companies at 60 locations;

Food processing: 19 companies at 19 locations, and;

Food retail: 24 companies at 60 locations

Notable recipients in the commercial sector include some of Japan's largest convenience store retailers such as retail and logistics giants Aeon, COOP, Family Mart, Lawson and Yamato Transport.

COOP, Lawson, and Aeon, among other end users shared the success stories they achieved as a result of previous subsidies granted at this year's ATMOSphere Japan conference last February.

In the cold storage and food processing sectors, notable recipients include some of Japan's largest consumer food and drink brands such as Asahi Breweries, Kewpie, Meiji, Morinaga Milk, and Maruha Nichiro as well as large cold storage service providers Yokohama Reito and Nichirei Logistics, among others.

Yokohama Reito has been a very active leader in installing natural refrigerant systems in their facilities, installing CO₂ condensing units and NH₃/CO₂ cascade systems at its newest facility, the Tokyo Haneda Distribution Center, in February of this year.

In addition, the Japanese Ministry of Environment has announced that applications are now being accepted for the second round of subsidies to be granted this fiscal year.

The second round will only be available for new convenience store installations.

Kigali driving Japanese government to expand subsidy market reach

The renewal of the Japan MOE subsidy scheme, officially titled 'subsidies to accelerate the introduction of energy-efficient natural refrigerant equipment for the realisation of a non-freon, low carbon emission society', was confirmed earlier this year to the amount of ¥6.4 billion (€47 million).

In the previous fiscal year, natural refrigerant subsidies were only available for cold storage businesses. However, on 1 April, subsidies for the food retail and food manufacturing sectors were reinstated for FY 2018.

“Because of Kigali, we decided to expand the sectors and budgeted amount for the market to accelerate the uptake of natural refrigerant technology,” said Yasuhiro Baba, director of the office of fluorocarbons control policy in the Japanese Ministry of the Environment.

“I hope that the market will use this opportunity to proceed with natural refrigerants.”

r744, 13 July 2018, By: Devin Yoshimoto

Europe & Central Asia

7. Portugal signs Kigali Amendment

The number of countries to have ratified the Kigali Amendment to phase down HFC refrigerants has risen to 40 with the agreement of Portugal.

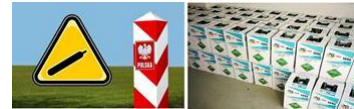
Following the signature of Uganda in June, Portugal becomes the 40th country to sign and the 12th amongst EU member states.

The global agreement to phase down HFCs will enter into force on January 1, 2019.

CoolingPost, 19 July 2018



8. Poland swamped by illegal refrigerant



A leading refrigerants organisation has reported a “massive inflow” of illegal HFCs into Poland.

PROZON, an NGO supported by leading Polish refrigerant distributors, has informed the Cooling Post of its concerns regarding what it describes as “a massive and growing smuggling of HFCs” since the beginning of the year.

The illegal activity mostly involves R404A and R134a, much of it originating from China and entering through the border with Ukraine. Turkey is flagged as another source of illegal refrigerant, from where gas is transported through Romania, Bulgaria, Hungary and Slovakia to Poland.

Despite previous assurances by European authorities that refrigerant smuggling is not a major threat to the European F-gas phase down, more and more countries are reporting evidence of smuggling issues. Just this week, the Cooling Post reported that the Greek air conditioning and refrigeration industry had written to its government and customs authorities imploring them to stem the flow of illegal refrigerants across its borders.

And there is increasing evidence of refrigerant being sold illegally on internet sites across Europe, and no, or little, apparent political will to stop it. As the legal sources of higher GWP refrigerants diminish and the prices of those gases rise there are fears that the situation will worsen.

Now Poland has spoken out.

Based in Warsaw, PROZON is focused on helping the Polish HVACR industry to reduce emission of refrigerants. It also operates a training centre and is a member of REAL Alternatives consortium. It is backed by Poland’s three leading refrigerant distributors Schiessl, Air Products and Linde Gaz Polska.

According to PROZON, the situation in Poland is so bad that it estimates at least 30% of R134a currently used in car air conditioning by repair workshops is from questionable or simply illegal sources.

It reports that for the last six months Poland has faced an influx of illegal refrigerants smuggled in both large and small cylinders, by trucks, vans and passenger cars, and even in LPG tanks installed in private cars. The smuggled goods include refrigerant in both refillable and illegal disposable cylinders. According to PROZON, the cylinders often do not have the appropriate markings and certificates allowing them to be legally used in EU countries.

As has been reported elsewhere, most of the traffickers in Poland operate through internet auction sites or direct by phone and email with air conditioning and refrigeration installers and car repair workshops.

“Needless to say that they offer prices much lower than the market ones,” the PROZON spokesman told the Cooling Post. “The consequences of this situation are felt not only by companies distributing legal refrigerants but also by automotive wholesalers and all the serious, law-abiding R&AC service companies.”

Thankfully, in Poland at least, cooperation between the Polish government and NGOs like PROZON is bringing tangible results in the fight against the problem. Information about illegal practices are still reaching the Polish

authorities. The country's National Revenue Administration, which is responsible for tax administration, fiscal control and customs service has recently initiated a series of training programmes for the Customs Department of the Ministry of Finance. This included the use of refrigerant analyzers to quickly identify imported declared substances for customs clearance. The analyzers are also used by customs officers in the main Polish port in Gdynia, where a lot of refrigerant arrive from China.

The knowledge and skills acquired by customs officers during the training sessions are said to have already stopped several illegal refrigerant transfers.

Over two days in March, officers from the Customs Department in Dolhobyczow, on the border with Ukraine, thwarted three separate attempts to import R134a to Poland. In all cases, the refrigerant was hidden in the LPG tank of dual-fuel vehicles.

In the first incident a 34-year-old Ukrainian driving an Audi had filled the car's LPG tank with 90 litres of R134a. The value of the R134a was estimated at over PLN6,500 (€1,510) with the suspect being fined PLN1000 (€230).

The next day, two smuggling attempts were detected involving SAAB cars. In the first, a 42-year-old Polish citizen was found to be carrying 64 litres of refrigerant in the LPG gas tank. A few minutes later, another Polish citizen, also driving a SAAB, was found to be concealing a similar amount of R134a in the LPG tank. In both cases, the market value of the refrigerant was around PLN4,600 (€1,060) and both of the smugglers were fined PLN1000 (€230).

CoolingPost, 25 July 2018

9. Greece seeks urgent action over growth in F-Gas refrigerant smuggling

Cooling industry seeks government intervention to stop illegal trade that makes nonsense of F-Gas quotas and could cost it 20 million Euros in lost taxes - as well as potential EU penalties

The Greek cooling industry has appealed to its government to act to stop the huge trade in illegal refrigerants, which they say poses a triple threat; to the environment; to the Greek economy and to public safety.

Greece's association of cooling wholesalers and importers also fears that if the illegal trade continues to go unchecked, it will see Greece punished in the European courts for breaking F-Gas rules. [...]

The refrigerant, which is either imported with counterfeit documentation or is carried in illegal disposable cylinders, is costing Greece at least €20 million in lost taxes, as well as making a mockery of the system of bans and reducing quotas which the rest of Europe is adhering to. [...]

They say that the refrigerant is being imported in a variety of ways including on commercial trucks amongst other freight; on refrigerated trucks with hidden containers; on buses with refrigerant hidden in the luggage area; on boats and even in passenger cars. The manufacturers say that the ever-widening number of methods depends only on the imagination and means of the smugglers.

The signatories urgently call for the government to intervene, with a crackdown on the illegal activity, together with a concerted programme of education for customers - and the customs authorities - to spot the signs of counterfeits.

RAC, 24 July 2018, By: Andrew Gaved



10. The Spanish refrigeration association welcomes cut in HFC tax

The Spanish refrigeration association AEFYT has welcomed news of the Spanish government's decision to cut the tax on HFC refrigerants.



The country's latest budget has cut the tax, known as IGFEI, by around 25%. This means, for example, that a gas such as R134a would go from costing €26/kg to €21.45/kg.

The tax burden on recycled refrigerants has also been reduced. The previous 15% tax reduction compared to virgin product will now be 50%.

Despite this reduction in the tax rate, AEFYT continues to demand the total annulment of a tax that it considers unfair on the Spanish air conditioning and refrigeration industry. The association argues that it reduces competitiveness and, contrary to its supposed environmental benefits, has increased black market trading and uncontrolled emissions.

"We are glad of this slight respite for the cold industry, which began the year under the threat of high prices caused by the shortage of gases and by the application of IGFEI, in addition to serious problems of competition for the black market," said Roberto Solsona, president of AEFYT.

"However, we continue to demand the total repeal of an unjust tax for the cold industry and without positive effects from the environmental point of view," he added.

CoolingPost, 18 July 2018

11. FETA welcomes government response to EAC report but believes more support is still required to reduce F-gas emissions



The Federation of Environmental Trade Associations (FETA) has welcomed the government's response to the Environmental Audit Committee (EAC) report on the UK's progress on reducing F-gas emissions, but has highlighted areas where it believes greater effort can be made in tackling non-compliance. FETA was supportive of the EAC's inquiry, which took a close look at how the challenge of F-gas emission reduction in the post-BREXIT context should best be dealt with. FETA provided both written and oral evidence and noted the outcome with great interest. In its report, the EAC asked the government how it would ensure with HMRC that there are no weaknesses in the F-gas regime now and after the UK leaves the EU.

Russell Beattie, Chief Executive of FETA, said: "FETA supports the government line that broad adherence with the EU-derived F-gas Regulation is the most sensible way forward in the context of BREXIT. The application of the F-gas quota, applying as it does to companies and not nations, is already a challenging enough prospect and adding extra complexity by the UK embarking on a different set of rules would be unwise."

'Lacking conviction'

However, while the government's response showed willingness to work with industry on training, FETA believes it lacks conviction, and that only mandatory qualifications offer any real prospect of immediate impact and enduring success.

The EAC was keen for the government to encourage the use of low-GWP refrigerants in heat pumps by reforming the renewable heat incentive schemes. The government accepted that heat pumps play an increasingly important environmental role but argued that the F-gas quota cuts were already driving industry to look for low-GWP alternatives for heat pumps. It felt that any additional measures to reduce the use of high-GWP refrigerants must not hinder heat pump uptake as that would be counter-productive for the environment.

In response, Russell Beattie commented: "We were encouraged to note the support being offered in terms of working with industry to reduce the barriers to the use of low GWP refrigerants in heat pumps but would make the additional observation that this also needs to apply to other sectors, such as air-conditioning and refrigeration."

UK industry has been proactive in dealing with the issues stemming from the changes brought about by the F-gas Regulation and has worked closely with DEFRA and the EA and stands ready to offer further support. FETA would like to see both departments given greater prioritisation for resources by Central Government. In the interim, FETA will continue to highlight blatant infringements of regulations, particularly by online retailers.

Building Services & Environmental Engineer (BSEE), 25 July 2018, By: Debbie Eales

12. Refrigerant Gas Recycling and the F-Gas Phase Down – AREA

AREA launched a new technical bulletin on the importance of effective recycling of as much recovered gas as possible in order to alleviate the pressures being experienced in the field with shortages of virgin and reclaimed gas causing gas prices at the wholesalers to rise to extremely high levels and causing contractors to have to leave wholesalers without the gas supplies required to carry out their tasks due to the lack of availability.

The need for this guidance has come from widespread concerns within the RACHP industry sector of a lack of available gas supplies and a number of our members asking for guidance on the subject.

Discussions with industry stakeholders, contractors, F-Gas audit inspectors, industrial gas manufacturers and suppliers, and wholesaler representatives has highlighted concerning trends and bad habits that are exacerbating the issue and putting increased and unnecessary pressure on the HFC phase down imposed by the F-Gas Regulation.

Air conditioning and Refrigeration European Association - AREA, July 2018

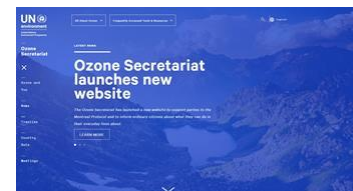


Featured



OZONE SECRETARIAT

Visit the **NEW** Ozone Secretariat [website](#)



"Keep Cool and Carry On", Theme for World Ozone Day 2018

The theme is accompanied by the tagline: The Montreal Protocol

The theme for this year's World Ozone Day is a motivational rallying call urging all of us to carry on with the exemplary work of protecting the ozone layer and the climate under the Montreal Protocol.

The theme has two connotations – that our work of protecting the ozone layer also protects climate and that the Montreal Protocol is a “cool” treaty, as exemplified by its outstanding success.

Ozone Secretariat is inviting people to join in keeping our planet cool and celebrating the Montreal Protocol's success in protecting the ozone layer and its contribution to combating climate warming by phasing out nearly 100% of controlled ozone-depleting substances that are also potent global-warming gases.

The Montreal Protocol is poised to contribute even more to the fight against global warming through the Kigali Amendment, which will enter into force on 1 January 2019.

The theme and tagline of this year's World Ozone Day in all the six official UN languages are posted on our [website](#) for wider dissemination.

To support your World Ozone Day communication activities, the Secretariat has developed two posters in all the six official UN languages. Please download them from our [website](#) for dissemination in your commemorative activities.

As in previous years, the United Nations Secretary-General's message for World Ozone Day and other materials will be shared prior to the day for further dissemination.

UN Environment, [Ozone Secretariat](#), May 2018



- [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 MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL
PROTOCOL**

- [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](#)
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[Learn more](#)



OZONACTION



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.



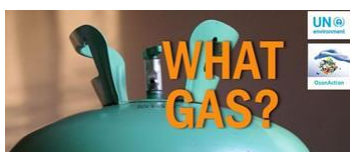
The application allow you to easily convert ODP, CO₂-eq and metric quantities of refrigerants and other chemicals



- 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

Update on New Refrigerants Designations and Safety Classifications

June 2018

The purpose of this fact sheet is to provide an update on ASHRAE standards for refrigerants and to introduce the new refrigerants that have been assigned an A1 or A2L number over the last few years and introduced into the international market.

Standard 34
ASHRAE Standard 34, Designation and Safety Classification of Refrigerants, establishes a simple means of relating to common refrigerants rather than by their chemical name, formula, or trade name. ASHRAE design numbers and safety classifications for the refrigerants based on toxicity and flammability data submitted by the refrigerant's producer.

ASHRAE's Numbering System
Refrigerants are numbered with an R-, followed by the ASHRAE assigned number.

Isomers (molecules with the same chemical formula as another molecule but with a different chemical structure) are identified with a lower case letter after the number. For example, R-134a (Designation stands for the same pure compound but with different isomers) are identified with an 'a' after the number (for example, R-134a and R-134i).

Refrigerants having the same R- class are color-coded. (Mixtures of two or more refrigerants whose liquid phase and vapor phase always have different compositions while those with the same R- class are non-color-coded.) (Mixtures of refrigerants whose liquid phase and vapor phase have the same composition at a specific pressure).

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

OzonAction Series of Fact Sheets relevant to the Kigali Amendment

In October 2016 the Parties to the Montreal Protocol adopted the Kigali Amendment. This limits the production and consumption of hydrofluorocarbons (HFC) under the control of the Protocol and offers to significantly contribute to the fight against climate change.

UN Environment OzoneAction has prepared a series of fact sheets to provide information to National Ozone Officers, relevant stakeholders, and end users on what changes and challenges the new amendment brings as well as how to address these in order to meet and comply with the new phase-out target.

Below is the list of the fourteen (14) Kigali Fact Sheets. Click on the titles to read or download the document.

- OzonAction Kigali Fact Sheet No. 1 Introduction to the Kigali Amendment
- OzonAction Kigali Fact Sheet No. 2 Control Use of ODS and ODSa
- OzonAction Kigali Fact Sheet No. 3 GHG, Climate and the Benefit of ODS
- OzonAction Kigali Fact Sheet No. 4 Low GWP Fluids and Technologies
- OzonAction Kigali Fact Sheet No. 5 HFC Production and Phase-out Timeline
- OzonAction Kigali Fact Sheet No. 6 Heat Exchangers, ODS Phase-out, Ozone
- OzonAction Kigali Fact Sheet No. 7 Heat Exchangers, ODS Phase-out and Alternatives
- OzonAction Kigali Fact Sheet No. 8 Heat Exchangers, Ozone Depletion
- OzonAction Kigali Fact Sheet No. 9 Technical Details, Heat Exchanger, Compressors
- OzonAction Kigali Fact Sheet No. 10 Industrial Ozone, Ozone Depletion
- OzonAction Kigali Fact Sheet No. 11 Basics to Ozone-Depletion
- OzonAction Kigali Fact Sheet No. 12 Alternatives to ODS, Ozone Depletion
- OzonAction Kigali Fact Sheet No. 13 Basics of Heat Exchangers
- OzonAction Kigali Fact Sheet No. 14 Ozone and Ozone Depletion

Click [here](#) to access OzonAction Series of Fact Sheets relevant to the Kigali Amendment.

HS Nomenclature (HS Codes) for HCFCs and Certain Other Ozone Depleting Substances (post-Kigali Update)

INTRODUCTION

In recent years, trade patterns in ozone depleting substances (ODS) have changed with the complete phase-out of chlorofluorocarbons (CFC) as of 1st January 2010 except for a few exempt uses, the hydrochlorofluorocarbons (HCFC) phase-out in 2015, and the increased trade in hydrofluorocarbons (HFC) and other alternatives as replacement chemicals.

To better facilitate monitoring of trade in ODS, the Parties to the Montreal Protocol requested the World Customs Organization (WCO) to revise the nomenclature, description, and coding system for HCFCs. This resulted in amending heading 28.39 of Chapter 28 with the addition of assigning specific eight HS codes to the five most commonly used HCFCs, and at the same time deleting residual

HS codes previously assigned to CFCs. This amendment entered into force on 1 January 2012.

With the 2016 Kigali Amendment to the Montreal Protocol to phase down HFCs, it is expected that a progress and the increased trade in hydrofluorocarbons (HFC) will be the most commonly traded HFCs and mixtures containing HFCs.

HS Classification for ODS (2017)

Under the HS 2012 HCFCs and certain other ODS are to be classified in the HS as follows:

Chapter 28. Organic chemicals

28.33 Halogenated derivatives of hydrocarbons.

28.33.71 - Chlorofluoromethane (CFC-22)

28.33.72 - Dichlorodifluoromethane (CFC-12) (other than isomers)

28.33.73 - Dichlorotrifluoroethane (CFC-11) (other than isomers)

28.33.74 - Chlorofluoroethanes (HCFC-142, covers 3 isomers, including the most popular HCFC-142b)

28.33.75 - Dichlorodifluoroethanes (HCFC-125, covers 9 isomers, including the most popular HCFC-125a and HCFC-125b)

28.33.76 - Chlorofluoroethanes (HCFC-142, covers 3 isomers, including the most popular HCFC-142b)

28.33.77 - Other in all remaining HCFCs and a number of other halogenated derivatives of acyclic hydrocarbons containing two or more different halogens, including other than the following ozone depleting substances controlled by the Montreal Protocol: hydrochlorofluorocarbons (HCFC) and bromochlorofluoromethane (BCFM)

Chapter 28 is presented a correlation table showing the previous HS classification of ODS until 31 December 2010 (HS 2007) and the revised classification which will apply from 1 January 2012 (HS 2012). Information is also provided on the current HS codes for ODS-containing mixtures (heat pump).

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

ODM/FACT SHEET

The Kigali Amendment to the Montreal Protocol: HFC Phase-down

INTRODUCTION

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).

HFCs are commonly used alternatives to some depleting substances (CFCs) while not some depleting substances themselves. HFCs are greenhouse gases which can have high or very high global warming potentials (GWPs), ranging from about 12 to 14,800.

OVERVIEW OF AMENDMENT

The Kigali Amendment will enter into force on 1 January 2019, provided that it is ratified by at least 20 Parties to the Montreal Protocol (or 90 per cent of the Parties).

The main features of the amendment are the following:

- The Kigali Amendment will enter into force on 1 January 2019, provided that it is ratified by at least 20 Parties to the Montreal Protocol (or 90 per cent of the Parties).
- There are two groups of Article 5 Parties with different phase-down schedules (see chart and graph on page 2).
- Some Article 5 Parties have already submitted baseline calculations and different initial phase-down rates from the start phase-down rates of 5 Parties (see chart and graph on page 2).
- A new Annex F has been added to the Protocol. This lists the HFCs separated into two groups:
 - Annex F, Group 1: all HFCs (except HFC-125 and HFC-134a)
 - Annex F, Group 2: HFC-125
- Global warming potential values have been added to the Protocol text for HFCs and selected HCFCs and CFCs (see page 6).
- Production, consumption, imports, exports and emissions as well as destruction capabilities of HFCs and HCFCs will be reported in carbon dioxide (CO₂) equivalents.
- Baselines are to be calculated from both HFC and HCFC production/consumption.
- There is an exemption for high ambient temperature and export learning systems for HFCs (see page 2).
- Imports and export learning systems for HFCs must be in place by 1 January 2019.
- Trade with Parties that have not ratified the Amendment ('non-Party') will be banned from 1 January 2023.
- Decarbonisation measures to be implemented within two years, guidelines for reporting will be developed.
- A timeline of the HFC phase-down is provided on page 4.

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 (Decision XXXI/1) and accompanying Decision XXXI/2) 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).

ODM/FACT SHEET

Refrigerant Blends: Calculating Global Warming Potentials

Post-Kigali Update

INTRODUCTION

The number of single component refrigerants with different thermodynamic properties suitable for different types of equipment is limited. Growing demand for refrigerants and air conditioning with diversified applications has led to continued search for suitable refrigerant blends. A number of such blends have been developed by mixing two or more single component refrigerants in different proportions. The resulting blend has entirely different properties from that of its components.

While it is common to use the term 'blend' in the context of the Montreal Protocol, it is important to note that the term 'mixture' is also used to describe refrigerants which are composed of more than one component. The thermodynamic mixture is specifically defined in the Working Group on Refrigeration and Cooling Systems, also known as the Harmonized System of Units (HSU).

TYPES OF REFRIGERANT BLEND

A refrigerant blend or mixture of refrigerants is made up of two or more single component refrigerants. These blends can be of two types: Azeotropic and Zeotropic.

Azeotropic blends

Azeotropic blends behave like a single component refrigerant, in that they have one boiling point and constant temperature as a given pressure. In the context of refrigerant blends, these blends are assigned numbers for ASHRAE codes in the 500 series, e.g. R502A, R503A.

Zeotropic blends

These blends boil and condense through a range of temperatures at a given pressure. The range of temperatures is called the 'temperature glide'. Zeotropic blends are assigned ASHRAE codes in the 400 series, e.g. R404A, R405A, etc.

GWPs values for some common refrigerants

Substance	GWPs value
CFC-12	10 900
HCFC-22	1 810
HCFC-124	810
HFC-134a	2 010
HFC-152a	1470
HFC-125a	124
HFC-23	14 800
HFC-32	675
HFC-365	3000
HFC-32a	1400
HFC-124a	<1
HFC-124a	<1
HFC-124a	<1
R-290 (Propane)	3

Refrigerant Blends: Calculating Global Warming Potentials (post-Kigali update)

ODM/FACT SHEET

Global Warming Potential (GWP) of Refrigerants: Why are Particular Values Used?

Post-Kigali Update

INTRODUCTION

Even since the Montreal Protocol agreed to phase-out hydrofluorocarbons (HFCs), there has been an increasing interest within the Protocol on ozone issues. Decision XXXI/1, taken in 2016, to amend the Protocol to accelerate the phase-out of HFCs, invites language in monitoring the environmental results. In particular, it calls on Parties to use the best available scientific information to assess the environmental impacts of substances used in connection with the protocol, including on the climate, taking into account global-warming potential (GWP).

In 2016, the Montreal Protocol was amended to include the production and consumption of hydrofluorocarbons (HFCs) which are commonly used alternatives to ozone-depleting substances.

WHAT IS GWP?

Global warming potential (GWP) is a measure of the relative global warming effect of different gases. It assigns a value to the amount of heat trapped by a certain mass of a gas relative to the amount of heat trapped by a similar mass of carbon dioxide over a specific period of time. Carbon dioxide was chosen by the Intergovernmental Panel on Climate Change (IPCC) as the reference gas and its GWP is taken as 1.

WHY ARE THERE DIFFERENT SETS OF GWP VALUES?

Calculations of global warming potential (GWP) values of refrigerants is a complex issue. For the great majority of cases there are a number of different values of GWP for each specific refrigerant. This is due to a number of reasons, including the following:

- There is a variety of sources from which the GWP values can be obtained.
- GWP values are periodically updated, based on the most recent research and on scientific understanding improvements.
- GWP values are calculated over different time horizons. Typically, GWP values are calculated over a 100 year time horizon, although 20 year and 50 year horizons are also used. Reported values are also commonly provided.

While not ozone depleting, HFCs are greenhouse gases which can have high or very high global warming potentials.

The amendment requires a study of consumption and production of HFCs and HCFCs to be reported in CO₂ equivalents (CO₂e) units. Therefore, GWP values have now been assigned to each HFC and selected HCFCs and CFCs in the amended Montreal Protocol.

In past work, one may come across various GWP figures from technical experts, industry and other stakeholders, which may not appear to be consistent with the Montreal Protocol reporting values. This factsheet aims to provide a brief description and some context for the different sources or different sets of GWP values.

The higher the GWP value, the more that particular gas warms the Earth compared to carbon dioxide.

GWPs values for ozone depleting substances can range, for example, from about 0.1 to 14,800. The GWPs of commonly used HFCs can range from 12 to 14,800.

It is also important to note that a GWP value can include a range to reflect the uncertainty of the value. For example, the GWP value for HFC-125, according to the 2013 IPCC Scientific Assessment of Climate Change (AR5), is 2980 ± 100, i.e. between 1100 and 2420.

Table 1 (overleaf) provides some sample GWP values. Examples of HFCs, HCFCs and CFCs have been selected to illustrate the procedure of calculation and the basis for the GWP values. The values may include some of the different sources of values.

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 - 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)



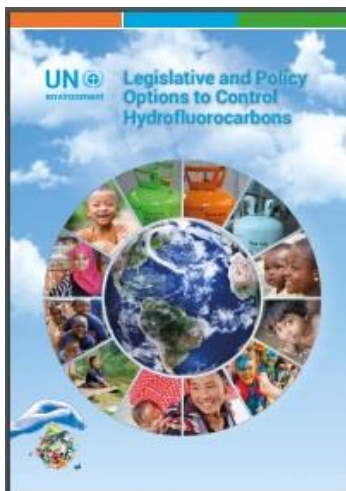
OzonApp eDocs+ launched in Android Play Store and Apple Store.

This new application launched by OzonAction on February 12, includes publications, videos, fact sheets and other awareness materials to help National Ozone Units (NOUs) and other stakeholders to build their capacity to implement the Montreal Protocol in a sustainable manner and at the same time to derive climate benefits.

OzonApp eDocs+ available in the [Android Play Store](#) and [Apple Store/iTunes](#).
(Just search for “OzonAction”, or scan this QR code)



Publications



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

2018

- [Solar Heating and Cooling Forum](#), 9 August 2018, Brisbane, Qld, Australia
- [1st IIR International Conference on the Application of HFO Refrigerants](#). 2-5 September 2018, Austin Court Conference Centre, Birmingham, United Kingdom.
- [The Future of HVAC Conference 2018](#), 12–13 September, Melbourne, Australia.
- [3rd IIR Conference on Cold Application in Life Sciences 2018](#), 12-14 September 2018, St. Petersburg, Russia
- [3rd IIR Conference on Cold Application in Life Sciences 2018](#), 12-14 September 2018, St. Petersburg, Russia

- [8th International Conference on Magnetic Refrigeration at Room Temperature \(Thermag VIII\)](#), 16-20 September 2018, Darmstadt, Germany
- [Healthcare ColDays](#), 15 November 2018, Lyon, France,

See other [IIR upcoming events](#)

2019

25th IIR International Congress of Refrigeration - From August 24-30, 2019, Montreal (Canada), birthplace of the 1987 Montreal Protocol, will host the 25th IIR International Congress of Refrigeration – ICR 2019.

The international meeting will provide, among others, the ideal platform to take stock of the historic Kigali Amendment to the Montreal Protocol, which will enter into force in January 2019, bringing about a global phase-down of hydrofluorocarbons (HFCs).

Covering all fields of refrigeration, ICR 2019 is expected to surpass the success of previous congresses, and will be a unique opportunity for researchers and engineers from all over the world to meet, exchange and publish the results of their research. With nearly 1,000 abstracts received, the 25th event in the series is set to welcome its largest audience to date.

The congress will be organised under the theme “Refrigeration for Human Health and Future Prosperity” and will focus on the current global issues at the centre of international concern, including food security, health, energy saving and energy efficiency, the reduction of global warming and the protection of the ozone layer.

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.

The dictionary in numbers:

- more than 4,300 terms in English and French, including 800 synonyms,
- around 3,500 definitions in English and French,
- approximately 7,800 terms, synonyms and definitions
- content in 11 languages.

This international tool is the result of the work of nearly 200 experts, members of the IIR network, from around 30 countries throughout the world.

The dictionary's content covers all areas of refrigeration such as:

- basic principles (thermodynamics, transfer of heat and mass ...)
- production of refrigeration (refrigerated systems, refrigerants...)
- refrigerated installations
- methods of chilling, refrigeration and freezing
- storage, transport and distribution
- refrigeration applications for perishable products and the agro-food industry
- air conditioning
- heat pumps
- cryogenics
- environment

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

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" as part of the 30th Anniversary of the Montreal Protocol celebration.

The new website was launched during the 29th Meeting of the Parties to the Montreal Protocol, Montreal, Canada, 20-24 November 2017.

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 men and women 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*

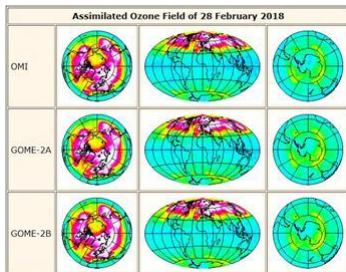


New *International Journal of Refrigeration* service for IIR members - As of January 2017, not only will IIR members continue to receive the hard copy of the journal but IIR membership will now also give members access to the complete archives of the *International Journal of Refrigeration* (IJR) online. Designed with IIR members in mind, this new and practical electronic subscription gives members substantial advantages:

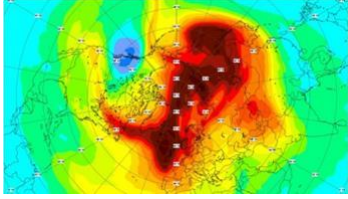
- Immediate and permanent access to the latest research and to IJR archive
 - Access the latest articles as soon as they become available online.
 - Browse, search and read each one of the nearly 4,500 papers since Volume 1, Issue 1.
 - Unlimited access to seminal contributions to the field of refrigeration dating back to 1978.
 - Keep up-to-date with subscriptions to customized e-alerts on New Volumes, Topics and saved Searches.
- Enhanced content and functions
- Easily export references, citations and abstracts.
 - 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



TEMIS -- Near-real time global ozone field. The in near-real time delivered total ozone columns, derived from satellite observations, are input to a data assimilation program which provides global ozone fields for today and a forecast for the coming days.



[Copernicus Atmosphere Monitoring Service](#). Since 7 February, CAMS has predicted the appearance of an ozone mini-hole over western Canada around 12-13 February. The 5-day forecast from the ECMWF Copernicus Atmosphere Monitoring Service (CAMS) showed the location of this ozone mini-hole and predicted its shape and size. This prediction was broadly consistent with other leading global atmospheric composition forecasting centres. Satellite observations acquired on 12 and 13 February data assimilation actually confirmed these predictions. "It is a nice way for us to show that our models really work and can accurately predict these kinds of events," says Mark Parrington, senior scientist for CAMS...



[The World Meteorological Organization \(WMO\) 2019 Calendar Competition](#)
WMO is holding a photo competition for its 2019 calendar. The theme is **"The Sun, the Earth and the Weather"** – which is also the theme of World Meteorological Day on 23 March 2019. [Learn more](#)

Current and previous OzoNews Issues, are available from [OzonAction website](#)
[Download a PDF](#)

OzoNews is Tearing 151!

This 151st issue of OzoNews is packed with news and information to provide a useful and concise read. We hope you enjoy it and we look forward to receiving your feedback on the new design and content.

Thank you for your continued interest!

In This Issue:

1. Executive Regional Thematic Technical Workshops and Regional Network Meetings for National Ozone Offices
2. Update of the Global Mercury Protocol due to the Update of the International Mercury Convention
3. UNEP Regional Office, Regional Representative, Andrea Basso, Comprehensive Approach to O3A
4. Lausanne and the role of scientific advice
5. New Video about the Environmentally Friendly Maintenance of Waterpumps and Air Conditioning (AC) Systems
6. UNEP and the Green Deal for Europe
7. UNEP and the Green Deal for Europe
8. UNEP and the Green Deal for Europe
9. UNEP and the Green Deal for Europe
10. UNEP and the Green Deal for Europe

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

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

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