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Volume XX | 30 July 2020

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GLOBAL

1. Kigali Amendment latest ratification

Congratulations to the latest country which has ratified the Kigali Amendment:

Liberia, 12 July 2020

At the Twenty-Eighth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, held in Kigali from 10 to 15 October 2016, the Parties adopted, in accordance with the procedure laid down in paragraph 4 of article 9 of the 1985 Vienna Convention for the Protection of the Ozone Layer, a further amendment to the Montreal Protocol as set out in Annex I to the report of the Twenty-Eighth Meeting of the Parties (Decision XXVIII/1).

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to **date**.

United Nations Treaty Collection

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2. Summary of the 42nd Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (OEWG 42), 14-16 July 2020 | Online

Summary of the Forty-second Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer: 14-16 July 2020

Tina Birmpili, Executive Secretary, Ozone Secretariat, welcomed delegates to the online 42nd meeting of the Open-ended Working Group (OEWG 42) during this “strange and difficult time” as the COVID-19 pandemic continues to take its toll on countries across the globe. Reminding delegates that this online technical session addresses the Technology and Economic Assessment Panel (TEAP) Replenishment Task Force’s (RTF) report on the replenishment of the Multilateral Fund (MLF) for 2021-2023, she asked delegates to bear in mind the need to “build back better.” Due to the pandemic, OEWG 42 was unable to meet in Montreal, Canada, as originally planned.

The RTF Co-Chairs, Bella Maranion, Suely Carvalho and Shiqui Zhang, presented an overview of the report, stating that the MLF Replenishment needs to take into account not only the hydrochlorofluorocarbon (HCFC) phase-out but also the hydrofluorocarbon (HFC) phase-down. Estimated funding requirements put forward by the RTF ranged from USD 376,697,000 to USD 808,706,000.

Parties were able to pose questions to the RTF during the sessions and, prior to the technical sessions, to submit comments and questions online. Issues raised included:

• creating centers of excellence for those countries whose consumption of ozone-depleting substances classifies them as low-volume-consuming countries to aid in capacity building;

• considering the potential impact of COVID-19 on preserving the ozone infrastructure and implementation of future activities; and

• insufficient funding for institutional strengthening.

The online forum will reopen from 17-31 July 2020 to give parties another opportunity to submit comments and questions on the report that have not yet been addressed. The OEWG 42 Co-Chairs will then compile and share these submissions with all parties.

The TEAP RTF will not prepare its customary supplementary report in September as that report responds to a negotiated list of additional issues and requests from parties; instead, the RTF will respond to parties’ queries in the form of a note. The Co-Chairs’ compilation of comments and questions will serve as the basis for any negotiations that may take place.

The technical sessions were co-chaired by Alain Wilmart (Belgium) and Obed Baloyi (South Africa), and took place online over three days—14, 15 and 16 July 2020—with each identical three-hour session addressing the sole issue of the TEAP RTF’s report on the 2021-2023 MLF replenishment. Over 200 participants took part in the OEWG 42 technical sessions, resulting in robust engagement despite some technical difficulties and internet connectivity issues. [...]

Read/download full
OEWG-42 Summary

OEWG 42 Resources

- **OEWG 42 Website and Documents**
- **Overview for the Meetings of the Ozone Treaties in 2020-2021**

- **Ozone Secretariat Website**

IISD/ENB, 14-16 July 2020

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3. Kigali Amendment hits milestone 100th ratification, boosting climate action

The Kigali Amendment to the Montreal Protocol, an international agreement to cut the use of climate-warming hydrofluorocarbons (HFCs), has reached a major milestone, with Liberia becoming the 100th nation to ratify the Amendment, providing a welcome boost to global climate action. The Amendment targets a massive reduction in the use of HFCs, which became widely used refrigerant substitutes for ozone-depleting substances that have been phased out under the Montreal Protocol. HFCs are climate-warming gases with significant global warming potential.

Liberia became the latest country to ratify the amendment, part of an accelerating trend of nations approving the treaty and beginning work on phasing down the gases; Mali was the first to ratify the Amendment in 2017, followed by Federated States of Micronesia, Marshall Islands and Rwanda. The European Union – along with most of its member states – was a single block of parties to the Montreal Protocol; along with others, this made it possible for the Amendment to enter into force on 1 January 2019. Other recent parties to ratify the Amendment include Bangladesh, Sierra Leone, the Holy See and Romania.

“As we deal with the impacts of the global pandemic, it is crucial not to forget climate action,” said Inger Andersen, Executive Director of the United Nations Environment Programme. “Climate change could cause even more misery and disruption than COVID-19; we must be resolute in our efforts to limit it.

“The Kigali Amendment reaching 100 ratifications is therefore great news. The Amendment is a powerful tool for keeping our planet cool. I thank those states which have ratified it and encourage the 98 others to follow suit and help to ensure a safer future for all of humanity.”

The 2016 Kigali Amendment requires a phasedown of high global warming potential HFCs by more than 80 per cent (in CO_2-equivalent) over the next 30 years. Estimates suggest that emissions avoided by 2100 could reach 5.6 to 8.7 gigatonnes of CO_2-equivalent per year. In total, it would be over ten years’ worth of current annual emissions of CO_2 due to human activities. This will avoid up to 0.4°C of global warming by the end of the century.

Replacing HFCs also creates an opportunity to increase the energy efficiency of cooling equipment by 10–50 per cent, significantly reducing energy costs to consumers and businesses.

The Amendment builds on the success of the Montreal Protocol, which was set up in 1987 to protect human health and the environment caused by the depletion of the ozone layer. With the universal support of 198 parties, the Montreal Protocol has led to the phase-out of almost 99 per cent of ozone-depleting substances.

The ozone layer is now well on the way to recovery. The Protocol's benefits include up to two million cases of skin cancer prevented each year by 2030, an estimated US$ 1.8 trillion in global health benefits and almost US$ 460 billion in avoided damages to agriculture and fisheries up to 2060. Ozone protection efforts also avoided an estimated 135 billion tonnes of CO_2-equivalent emissions from 1990 to 2010. In the absence of the Montreal Protocol, global mean temperatures could have risen over 2°C by 2070, due to warming from ozone-depleting substances alone.

"Each ratification of the Kigali Amendment brings us closer to replicating the success of the Montreal Protocol in dealing with ozone-depleting substances," said Tina Birmpili, Executive Secretary of the Ozone Secretariat. "This success is built on nations working together. I am delighted to see 100 ratification and look forward to many more in the coming months and years."

UNEP, Ozone Secretariat, 14 July 2020

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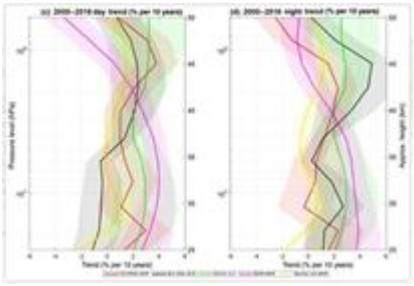
4. Study of the dependence of long-term stratospheric ozone trends on local solar time



Abstract

Reliable ozone trends after 2000 are essential to detect early ozone recovery. However, the long-term groundbased and satellite ozone profile trends reported in the literature show a high variability. There are multiple reasons for variability in the reported long-term trends such as the measurement timing and the dataset quality.

The Payerne Switzerland microwave radiometer (MWR) ozone trends are significantly positive at 2 % to 3 % per decade in the upper stratosphere (5–1 hPa, 35–48 km), with a high variation with altitude. This is in accordance with the Northern Hemisphere (NH) trends reported by other groundbased instruments in the SPARC LOTUS project. In order to determine what part of the variability between different datasets comes from measurement timing, Payerne MWR and SOCOL v3.0 chemistry–climate model (CCM) trends were estimated for each hour of the day with a multiple linear regression model. Trends were quantified as a function of local solar time (LST). In the middle and upper stratosphere, differences as a function of LST are reported for both the MWR and simulated trends for the post-2000 period. However, these differences are not significant at the 95 % confidence level. In the lower mesosphere (1–0.1 hPa, 48–65 km), the 2010–2018 day- and nighttime trends have been considered. Here again, the variation in the trend with LST is not significant at the 95 % confidence level.
Based on these results we conclude that significant trend differences between instruments cannot be attributed to a systematic temporal sampling effect.

The dataset quality is of primary importance in a reliable trend derivation, and multi-instrument comparison analyses can be used to assess the long-term stability of data records by estimating the drift and bias of instruments. The Payerne MWR dataset has been homogenized to ensure a stable measurement contribution to the ozone profiles and

to take into account the effects of three major instrument upgrades. At each instrument upgrade, a correction offset has been calculated using parallel measurements or simultaneous measurements by an independent instrument. At pressure levels smaller than 0.59 hPa (above ~ 50 km), the homogenization corrections to be applied to the Payerne MWR ozone profiles are dependent on LST. Due to the lack of reference measurements with a comparable measurement contribution at a high time resolution, a comprehensive homogenization of the sub-daily ozone profiles was possible only for pressure levels larger than 0.59 hPa.

The ozone profile dataset from the Payerne MWR, Switzerland, was compared with profiles from the GROMOS MWR in Bern, Switzerland, satellite instruments (MLS, MIPAS, HALOE, SCHIAMACHY, GOMOS), and profiles simulated by the SOCOL v3.0 CCM. The long-term stability and mean biases of the time series were estimated as a function of the measurement time (day- and nighttime). The homogenized Payerne MWR ozone dataset agrees within ±5 % with the MLS dataset over the 30 to 65 km altitude range and within ±10 % of the HARMonized dataset of OZone profiles (HARMOZ, limb and occultation measurements from ENVISAT) over the 30 to 65 km altitude range. In the upper stratosphere, there is a large nighttime difference between Payerne MWR and other datasets, which is likely a result of the mesospheric signal aliasing with lower levels in the stratosphere due to a lower vertical resolution at that altitude. Hence, the induced bias at 55 km is considered an instrumental artifact and is not further analyzed.

Authors: Eliane Maillard Barras, Alexander Haefele, Liliane Nguyen, Fiona Tummon, William T. Ball, Eugene V. Rozanov, Rolf Rüfenacht, Klemens Hocke, Leonie Bernet, Niklaus Kämpfer, Gerald Nedoluha, and Ian Boyd

Atmospheric Chemistry and Physics, 20 July 2020

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5. Lower-GWP refrigeration & air conditioning innovation award

What is lower GWP refrigeration and air-conditioning innovation award?
The award promotes innovative design, research, and practice, recognizing individuals and teams who have developed or implemented innovative technologies or concepts. Projects must be implemented or conceived specifically for use in developing countries and be aimed at advancing lower global warming potential (GWP) refrigerants.

Who are the awarding organizations?
Award recipients will be recognized by ASHRAE and UN Environment Programme.

How often is the award issued/awarded?
Annually.

What are the award categories?
Projects can be entered into one of two categories:

• Residential Applications
• Commercial/Industrial Facilities

What is the entry criteria?
The award is open to individuals and to teams of individuals. If submission is by an individual, individuals must confirm the work was not a team effort. If a team of individuals is selected, the team itself shall determine which team members shall be entitled to be certificated (maximum 5 per team). All awards will be made in the name of individuals, not in the name of their affiliations.

ASHRAE membership is not a requirement for submission.

How do I enter for the award?
To enter, please go to the link below and fill out the online form.
www.ashrae.org/lowerGWP

The submission form requires descriptive responses to each of the following:

- Description of innovation in the field of lower-GWP refrigerants
- Project details (description must include confirmation project has been implemented
  and date of implementation)
- Extent of need
- Description and goal of the research, design, practice or project
- Environmental impact achieved including specific reference to the GWP chemicals' contribution
- Further application(s) of project in developing countries from both the technical and economic perspectives, including how the innovation can be replicated
- Photographs illustrating the project, as well as statistical data demonstrating the project's successful performance or experimental findings (tables, figures, charts, etc.) are encouraged to be provided with the application.

How are the projects selected?
Projects in each category will be selected based on innovative solutions for designs, practice, or research using lower-GWP technologies. The selection will take into account the following criteria:
• Innovative aspects in transforming conventional practices (40%);
• Extent of need (25%);
• Technical replicability in developing countries (25%); and
• Economy feasibility for developing countries (10%).

What happens to the selected projects?
Selected entries in each category will be publicized by both ASHRAE and the UN Environment Programme.

When does the entry period opens and closes?
Entries are now being accepted. **Entry period closes 1 September 2020**. Click **here** to learn more and to complete an online entry form. To receive updates about the awards, please send an **email** to request to be added to our mailing list.

ASIA PACIFIC

6. Pacific Countries Determined to Advance Climate and Ozone Action Despite Pandemic

22 July 2020, Bangkok - For Pacific Island nations, the COVID-19 pandemic has been an unwanted distraction from a more existential crisis: climate change. With rising sea levels threatening to erase some countries from the map, perhaps it is no surprise that these same countries have been some of the most proactive during the pandemic in driving forward efforts to tackle the climate crisis. One tool in their arsenal comes in the form of ongoing work under the Montreal Protocol, the global treaty that is protecting human life and the environment by the phase-out of ozone-depleting substances (ODS).

Despite border closures and the inability to hold face-to-face meetings due to the pandemic, National Ozone Officers across the Pacific have been gathering online over the last few months to map out strategic plans to finalize the phaseout of hydrochlorofluorocarbons (HCFCs) in their countries.

After chlorofluorocarbons (CFCs) were largely phased out as refrigerants due to their detrimental effect on the Earth's protective ozone layer, HCFCs were introduced as replacements. Although HCFCs have a smaller impact on the ozone layer, they are also potent greenhouse gases, some of which have thousands of times the global warming potential of carbon dioxide. By phasing out HCFCs, the Pacific Island countries are also helping to mitigate climate change.

“We’re not taking any time off on this issue, pandemic or not,” said Roselyn Bue, National Ozone Officer for Vanuatu. “We in the Pacific are doing everything we can to mitigate the impacts of climate change and phasing out HCFCs is a big part of that.”

In the Pacific, HCFCs are used mostly in refrigeration and air-conditioning servicing and are the major ODS used in the region. The UN Environment Programme, through its OzonAction Compliance Assistance Programme, has been supporting efforts to eliminate and reduce ODS use in the Pacific and other countries with support provided by the Montreal Protocol's Multilateral Fund.

Uniquely, Pacific Island countries have adopted a regional approach for tackling ODS, working together to phase out HCFCs. Given their common circumstances, the countries are able to share successes and lessons with others in the region and foster collaboration between their National Ozone Units, which are responsible for their national strategies to implement the Montreal Protocol.

More than five virtual sessions between May and July were organized with representatives from 12 Pacific countries under the regional approach comprising the Cook Islands, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu came together to discuss the next steps of their regional HCFC Phaseout Management Plan (HPMP).

The total annual use of HCFCs by 12 countries has been decreased from 60.62 MT to 5.75 MT over the last decade. Between 2016 and 2019, a total of 4,908 HCFC-based air-conditioners were imported to these 12 Pacific countries, which only accounted for 4% of the total market share. When including Fiji and Papua New Guinea (which implement their own national plans), the total annual use of HCFCs in the Pacific region has decreased from 224.80 MT to 115.05 MT, which is well ahead of Montreal Protocol obligations.

“This may represent a small proportion of global totals compared to other countries that consume much larger quantities of these refrigerants, but the countries' drive to do everything in their power to tackle the issue sets an example for the rest of the world,” said James Curlin, Acting Head of OzonAction. “We’ve seen fantastic cooperation and determination to phase out ODS in the Pacific.”

The first stage of the plan, finishing this year, has seen the 12 countries phase out more than 90% of HCFCs from the agreed baseline consumption during 2009-2010. Four countries – the Cook Islands, Marshall Islands, Nauru and Niue – reported zero imports for the past 4 years, which means they have already achieved 100% phaseout.

Already, the phaseout of HCFCs under Stage I has also generated significant benefits for the countries' refrigeration and air-conditioning sectors and consumers. Consumers, through education and awareness programmes, have been introduced to a variety of environmentally-friendly technologies that also help them reduce their electricity bills. The servicing sector has been provided with training to maintain the different technologies and provided with basic servicing tools. Through these training workshops, technicians have developed better servicing practices that improve customer satisfaction and has reduced the need for subsequent repairs.

The next stage of the HPMP will see all countries phase out the remaining consumption of HCFCs by 2030 with a transition to non-ozone depletion technology. Countries are now in the process of identifying additional legislation, effective monitoring and reporting tools, and how to sustain the capacity of enforcement officers and the servicing sector in supporting the complete phaseout. The virtual meetings enabled countries to have a common understanding of planned activities and expected outcomes, and to share their feedback to fine-tune Stage II.

UNEP will continue to be the lead implementing agency for the project, while the Government of Australia will support by sharing its successes and practical experience in HCFC phaseout.

“We are getting closer and closer to a full phaseout in the region” said Mr. Curlin, “Even during the pandemic, we can’t let up.”

Contact: Hu Shaofeng, Senior Montreal Protocol Regional Coordinator Asia-Pacific, UNEP OzonAction

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7. Government takes action on potent greenhouse gases (New Zealand)

New Zealand has taken action on tackling one of the leading causes of climate change with Government today (29 July) declaring synthetic refrigerant gases a priority product under the Waste Minimisation Act 2008.

Once released into the atmosphere these can be thousands of times more potent than carbon dioxide as a greenhouse gas.

The announcement, made by Associate Minister for the Environment Eugenie Sage, means a co-designed and regulated product stewardship scheme, along with specific product controls, will have to be established for the gases at their end-of-life. All wholesalers and retailers will be required by law to only sell the priority product in accordance with an accredited scheme.

Managing synthetic refrigerant gases is rated as one of the best ways, worldwide, of tackling climate change, says Darren Patterson, project manager of the group set up to design a regulated product stewardship scheme in anticipation of this announcement.

The move by Government has been anticipated by the industry, and design of a regulated product stewardship scheme began with the establishment of the Synthetic Refrigerant Stewardship Project early in 2019. Darren says the project, managed by product stewardship experts 3R Group, was initiated by the existing government-accredited voluntary scheme, RECOVERY.

The significance of the Minister's announcement cannot be overstated, he says. "Co-designed, regulated product stewardship ensures the whole of industry - from those which sell refrigerants or equipment, through to installers and those involved in managing the gases at end of life - participate, which will ensure sufficient funds are available to properly manage these gases.

"A scheme, including recommendations around product controls that ensure mandatory participation, must be developed and accredited by Government as soon as practical."

RECOVERY Chairperson and Programme Manager John Bowen John Bowen says the existing voluntary scheme had to date destroyed over 476 tonnes of synthetic refrigerants, thereby reducing the build-up of greenhouse gases by the equivalent of over 1.1 million tonnes of carbon dioxide.

"Declaring synthetic refrigerant gases as a priority product will result in significant additional benefits in reducing their environmental impact," he says.

The project's work is being steered by a working group of the key industries affected by the priority product declaration, including refrigeration and air conditioning, motor vehicle industry (automotive air conditioning), refrigerant wholesalers, manufacturers and distributors and other significant industry stakeholders, Darren says.

The voluntary stewardship scheme for refrigerants, RECOVERY, has been operating in New Zealand since 1993. However, not all refrigerant importers are included, such as those which import pre-charged refrigerant units like fridges, heat pumps and air conditioning units for vehicles.

As a result, there was insufficient funding to deal with the mounting end of life refrigerant bank, Darren says. "Those companies which contribute voluntarily to the scheme end up subsidising those that don't, as it's not possible to identify a participating company's refrigerant when it comes to disposal. That's simply not sustainable."

To date, New Zealand has not had any priority products declared, but the announcement today (29 July) includes plastic packaging, tyres, e-waste, refrigerants, agrichemicals and their containers, and farm plastics as priority products under the Act.

Voxy, 29 July 2020

NORTH AMERICA

8. The implications of residential air conditioning refrigerant choice on future hydrofluorocarbon consumption in the United States

Abstract

As the primary alternative to ozone-depleting refrigerants, hydrofluorocarbons (HFCs) have increased in use and emissions in the United States. This increase, and a large portion of total U.S. HFC consumption, is expected due to the use of HFCs in residential air conditioning (RAC). The RAC market primarily relied upon chlorodifluoromethane, a hydrochlorofluorocarbon (HCFC) known as HCFC-22, whose consumption is being phased out globally under the Montreal Protocol on Substances that Deplete the Ozone Layer and under national regulations such as the Clean Air Act in the United States.

The RAC market today relies on HFCs, most often R-410A (a blend of difluoromethane or HFC-32, and pentafluoroethane or HFC-125) for new equipment, but older units using HCFC-22 remain. The RAC industry is investigating multiple alternatives with global warming potentials (GWPs) significantly below that of R-410A.

Research has been conducted by chemical producers, air conditioner and component manufacturers, national government laboratories, academia, and consortium efforts.

Various low-GWP alternatives have been suggested with GWPs of approximately 750 and below.

This paper investigates industry-wide HFC reduction measures in the United States across sectors that have transitioned from ozone-depleting substances to HFCs.

Under various scenarios with RAC refrigerants with GWPs in the 150-750 range, this paper shows that future RAC refrigerants will strongly influence industry efforts to reduce U.S. HFC consumption. These reductions are not just reliant on manufacturers introducing new equipment with lowGWP alternatives.

The service industries, responsible for repairing leaks and recovering refrigerant, play a vital role in reducing HFC consumption.

Authors: David S. Godwin & Rebecca Ferenchiak (2020): The implications of residential air conditioning refrigerant choice on future hydrofluorocarbon consumption in the United States,

Journal of Integrative Environmental Sciences, June 2020

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9. Free Natural Refrigerant Library available online for limited time

NASRC offers on-demand presentations that highlight new technologies for supermarkets

For a limited time, the North American Sustainable Refrigeration Council (NASRC) is offering free access to its on-demand presentations highlighting the latest natural refrigerant technologies for supermarket and food retail applications. This first-of-its-kind library of on-demand presentations showcases natural refrigerant technology solutions for both new and existing supermarket facilities.

Due to the high GWP of traditional HFC refrigerants, supermarkets are facing growing regulatory pressures to transition to low-GWP refrigerant technologies. According to NASRC, natural refrigerants, including ammonia, hydrocarbons, and carbon dioxide, are the most climate-friendly solution, as well as the most effective way for supermarkets to achieve regulatory compliance. But high upfront costs and other market barriers have prevented their widespread adoption, contributing to uncertainty around the low-GWP technologies that will best meet the needs of each supermarket.

“We heard from our retailer members that there was a lack of information on viable natural refrigerant technology options,” said Danielle Wright, executive director of NASRC. “Retailers need to fully understand the benefits and trade-offs of each technology option in order to make sound decisions and effectively navigate increasing refrigerant regulations.”

To address this challenge, NASRC hosted a webinar series in which NASRC members presented the latest natural refrigerant technology offerings. Presentations focused on options for existing stores, which are especially challenging, as they require a costly full or partial system replacement to allow for the use of natural refrigerants. For a limited time, NASRC has made all webinar recordings available on-demand for free in a new **Natural Refrigerant Technology Library**.

“Our goal with this series was to help supermarkets and their partners learn about natural refrigerant technologies that meet their needs in both new and existing stores,” said Wright. “This information is also critical for policymakers and utilities to make informed decisions that will shape energy and refrigerant regulations.”

The News, 30 July 2020

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10. The global plan: fixing air conditioners

[...] While immediate energy demands in the U.S. require immediate action, the cooling conundrum is a global challenge. A report from the United Nations, out last week, forecasts that the combination of the warming earth will make demand for cooling appliances (air conditioners, refrigerators and freezers) quadruple by 2050. Right now, we’re adding 10 cooling devices a second.

Air conditioners are a one-two punch to the climate. First, they’re energy-intensive — especially the cheap units proliferating in developing countries, which tend to run off of dirty energy grids. Second, many still use hydrofluorocarbons, a potent and short-lived greenhouse gas that experts say banishing is essential to curb global warming.

We can’t do away with AC; it is essential to public health, productivity and quality of life. Instead, the U.N. recommends increasing the efficiency of air conditioners (which has the added benefit of decreasing energy bills and relieving the grid), moving to sustainable chemical refrigerants (which most of the world committed to last year with the Kigali Amendment to the Montreal Protocol) and increasing the energy efficiency of buildings.

Both utilities and companies have a role to play here. The U.N. encourages the private and public sector to aggregate demand for efficient cooling equipment and utilities to incentivize climate-friendly air conditioners.

If adopted, the U.N. says the world could avoid the equivalent of up to 460 gigatons of carbon dioxide emissions. And that’s pretty cool.

GreenBiz, 31 July 2020, By Sarah Golden

EUROPE & CENTRAL ASIA

11. Review of EU rules on fluorinated greenhouse gases: give your feedback!

Fluorinated greenhouse gases are being used in particular in refrigeration and air-conditioning. Emissions from such gases are resulting in climate change.

In 2014 the EU made new strict rules that will reduce EU emissions significantly. However, in the light of the European Green Deal and Climate Law, recent international obligations under the Montreal Protocol, technical progress and lessons learned during the implementation, it is time to update the rules.

The Commission would like to hear your views.

Roadmaps are open for feedback for 10 weeks, until 07 September 2020. Feedback will be taken into account for further development and fine tuning of the initiative. The Commission will summarise the input received in a synopsis report explaining how the input will be taken on board and, if applicable, why certain suggestions can't be taken up. Feedback received will be published on **this site**
>>> Give your feed back **HERE**

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12. Illegal HFC: phase down

After the coming into force of the F-Gas Regulation, the trend of refrigerants' prices has been **characterized by fluctuations**, naturally caused by **the gradual reduction** and by the availability decrease.

According to what reported by Öko-Recherche consultant, entrusted by the Commission with the monitoring of the F-Gas Regulation impact on the market of fluorinated gases, in the first two years of implementation of the regulation on fluorinated gases (2015 and 2016) there was no perceivable impact on the prices of HFC refrigerants with high GWP commonly used. However, since half of 2017 onwards the prices for R404A, R410A, R134a and R407C have significantly risen, up to reaching a peak at the beginning of 2018, 6-to-13 time higher than the original price. Such increases were forecast and expected by the Commission, and they were aimed at boosting the use of more eco-friendly alternatives. Still Öko-Recherche states also the observed price rises approximately mirror the GWP of the different refrigerants, with higher prices for gases with bigger greenhouse effect.

In the monitoring by Öko-Recherche published in June and referred to the prices of the first 2020-quarter, it is stated that:

- The prices of the refrigerants with higher GWP have remained similar to those of the last 2019-quarter;
- Covid does not seem to have influenced the provisioning in terms of availability. Just delays caused by the slowed down logistics occurred;
- The prices of alternative refrigerants have remained stable, too, and HFO registered a slight cost decrease for the first time;
- For the first time also the prices of regenerated R404 have been reported and they are equal to the virgin one's, i.e. about 35€/Kg

According to the opinions collected by Öko-Recherche, prices are likely to remain stable still for a while but, at the end of the year, we might witness a new upswing. In fact, in 2021, according to the roadmap of the F-Gas Regulation, we will see a new decrease of the available shares, down to 45% of what was available in the 2009-2012 reference period.

About the gradual reduction trend (phase down) and the relative problem of HFC traffic, **we have asked some questions to the European Commission, which has answered in writing**.

Could you express some statements about the effective progress of the gradual reduction of HFC and about the actions to prevent illegal imports?
There are clear signs that the gradual reduction of HFC is exerting a significant impact. The most evident proof is that a fast shift of technologies has occurred in all sectors using HFC in the EU. For the new air conditioning appliances of small split sizes, the new normality consists in using a refrigerant that has a three-time lower climatic impact than the refrigerant used in the past. Besides, HFC are no longer the first choice for many new refrigeration appliances. This modification is taking place because the prices of HFC are much higher than before the gradual reduction beginning. This price rise has occurred because the phase down is limiting the availability of HFC in the EU. The higher prices are making eco-friendly alternatives more interesting. Moreover, the higher prices of HFC are also encouraging the users of existing appliances to minimize losses and to recover gases from appliances. Therefore, the phase down works also for the existing appliances that contain HFC with high GWP. Unfortunately, illegal imports persist. Facing this problem is a high political priority. The Commission is doing its best (see hereunder) to contrast the illegal trade in cooperation with member States and industry, in particular developing and exchanging the best practices targeted to intensify the action. Moreover, the Commission stresses with member States the need of a good implementation, also with dissuasive sanctions for illegal activities.

EFCTC has recently published some results by Kroll investigation company about the illegal trade of refrigerants. According to EFCTC, 20-30% of refrigerants on the market are illegal. What do you think of this percentage? Might it be realistic?
The investigations carried out by Kroll have identified some illegal shipments. They have not identified the sizes of the illegal trade because the quantities of refrigerant involved in these specific cases cannot be used to provide a more global picture. The numbers used by industry to claim 20-30% are based on a comparison between the Chinese exports reported by Chinese sources and EUROSTAT data for imports in the EU. However, a

similar comparison of commercial figures by commercial partners often shows discrepancies for various reasons and it cannot be used, in itself, to carry out a reliable quantification of the entity of illegal imports. Therefore, we have executed our analysis by using effective data communicated by each importer as per regulation on fluorinated gases, comparing them with the amounts declared by importers at the customs. This comparison shows that, in general, the quantity of HFC declared at the customs perfectly corresponds to the one indicated by the regulation on fluorinated gases. This suggests that illegal trade or fraud can occur under the form of smuggling, false declarations and so on, by entities not provided with a registration or a HFC licence share in the F-gas portal and in HFC licence system. It is very hard to evaluate the real entity of such activities because there are not coherent data about smuggling. Therefore, we cannot assert specific claims on the illegal trade percentage according to the available data in this phase.

Irrespective of sizes, any ton of HFC illegally imported is an undesired ton, because it damages our climatic targets and the competitiveness of the companies complying with the fluorinated gas regulation. Therefore, we assign a high priority to the fight to illegal trade and our numerous actions are self-explanatory. Besides, the press release by EFCTC recognizes “the new discoveries demonstrate the efforts to stop illegal imports start having an impact “.

How are you working with the other EU authorities to fight this problem and what measures are you implementing to keep it under control? In the fluorinated gas regulation, is there an instrument that specifically concerns the illegal trade and how to fight it?

Smuggling and false declarations are a wider application problem and take place also with other goods, like illegal drugs, cigarettes and counterfeited products. Considering the big quantity of exchanges that daily cross EU’s external frontiers, an efficacious and efficient risk management is extremely important to face this type of fraud. The application is also a responsibility of member States and it is necessary that customs authorities, market surveillance authorities and national authorities on fluorinated gases strictly cooperate for fluorinated gases. The Commission is adopting a set of measures to facilitate the application of the regulation on fluorinated gases. In particular, a work team with experts in customs and fluorinated gases of 13 member States has processed control lists of the best customs practices, so that now customs can control imports more easily and stop suspicious shipments, if necessary. Besides, customs authorities can identify the batches relating to fluorinated gas through the integration of the measures of the fluorinated gas regulation in customs processes and instruments. In the future, there will be a so-called “single window” for customs, which is an electronic system that will make the control even stronger, permitting automatic cross checks of all declarations of fluorinated gas shipments at the customs with the F-Gas Portal and the HFC licence system at the European Commission (DG CLIMA – Directorate for climate Changes, Energy and Environment). Such automated process will be fundamental to identify unauthorized importers and to strengthen the management of HFC shares on EU scale. The system launch in member States will start gradually in 2021.

Different branches of the Commission, such as DG CLIMA, DG TAXUD (Customs Directorate) and OLAF (European Anti-fraud Office), work in strict contact at such issues; a recent example of this cooperation is a conference jointly organized by OLAF, DG TAXUD and DG CLIMA in January 2020. The conference was attended by representatives

of EU's industry, experts from national customs administrations and political managers of fluorinated gases in member States. The conference has allowed political authorities:

– to listen to and to collect information from industry and other concerned parties that might help their control activity;

– to share experiences and to strengthen the exchange of information among customs authorities, market surveillance and competent environmental authorities.

Is there something you think it is worth underlining?

We would like to highlight that the strict collaboration with industry about this issue has been very useful and, although industry is very worried for the illegal trade, it also acknowledges that, despite the illegal trade, the phase down of the market of HFC with high GWP of EU is working.

Refrigeration World News, 23 July 2020, By: Massimo Moscati

5th Edition of Europe and Central Asia (ECA) Montreal Protocol Award for Customs and Enforcement Officers for 2019-2020

The United Nations Environment Programme, OzonAction, in cooperation with the World Customs Organization and the Ozone Secretariat, has launched the fifth edition of the ECA Montreal Protocol Award for Customs and Enforcement Officers for the period 2019-2020. Nominations forms are available in English and Russian and the award ceremony is scheduled for 2021. The award is part of the work programme of OzonAction's Regional Montreal Protocol Network for Europe and Central Asia (ECA network).

The award recognizes the crucial role of customs & enforcement officers in implementing trade restrictions and bans for hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs). Both groups of chemicals, which are controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer, are widely used as refrigerants and foam blowing agents in the refrigeration, air conditioning and foam blowing sectors.

The informal Prior Informed Consent (iPIC) system allows trade partners to confirm the legitimacy of an intended trade in controlled substances prior to issuing import / export licenses. More information on iPIC is available **here**

The award aims to recognize and offer encouragement to customs and enforcement officers and their respective organizations for successful prevention of illegal or unwanted trade in HCFCs / HFCs. This also includes equipment or products containing or relying on the use of HCFCs / HFCs.

Eligible nominees include customs and enforcement officers and / or their respective organizations who have been directly involved or instrumental in preventing illegal or unwanted trade in HCFCs / HFCs as well as equipment or products containing or relying

on the use of HCFCs / HFCs.

Eligible enforcement actions include the detection of an illegal shipment and the subsequent seizure, detention or sending back of the disallowed goods, as well as successful iPIC consultation preventing the issuance of export / import licenses for illegal or unwanted shipments.
Enforcement actions are eligible if they have not been submitted to any other award schemes.

Geographical scope and time period

Eligible countries include those in the Europe and Central Asia (ECA) region including countries with economies in transition (CEIT countries) and Western European countries as well as their trading partners.

Eligible enforcement actions must have taken place during the period: 1 January 2019 – 31 December 2020.

Completed nomination forms with detailed and comprehensive case descriptions and supporting photos and documents should be received by the United Nations Environment Programme as soon as possible but **at the latest by 31 January 2021**.

Learn more >>>

WEST ASIA

13. Online training for custom officers in the United Arab Emirates

Programs are Operational Despite COVID19 and Lockdown. July 23, 2020 marked another milestone for the West Asia OzonAction Compliance Assistance Programme (CAP) team, when they just concluded an online training for custom officers in the United Arab Emirates.

The training was conducted in cooperation with the Ministry of Climate Change and Environment of United Arab Emirates, and the Federal Customs Authority.

For 20 custom officers, the CAP team provided capacity building related to ODS regulations, best practices under Montreal Protocol that aim at enhancing monitoring and control of controlled substances and best ways to combat illegal trade.

Colleagues from the National Ozone Unit (NOU) described the operational legal framework at the country level along with the penalties associated with illegal trade. Several topics were covered by UNEP trainers presenting the challenges and opportunities in complying with the Montreal Protocol, risk profiling, the Kigali amendment, and iPIC system, where UNEP confirmed the responsiveness of the NOU regarding the iPIC system and the NOU complementing the effectiveness of using the system to prevent illegal trade.

The training was concluded with a practical demonstration of types of gases, their specifications and how to handle them safely.

Contact: Khaled Klaly, Montreal Protocol Regional Coordinator West Asia, OzonAction Compliance Assistance Programme (CAP), UNEP, Manama- Bahrain

FEATURED

OZONE SECRETARIAT

Ozone for life: 35 years of ozone layer protection

World Ozone Day, held on September 16, the world celebrates 35 years of the Vienna Convention and 35 years of global ozone layer protection.
Learn more

Overview for the meetings of the ozone treaties in 2020-2021

Click here for upcoming Montreal Protocol Meetings Dates and Venue.

Recent Meetings:

- 42nd Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer (OEWG 42), 14-16 July 2020 | Online

- **31st Meeting of the Parties to the Montreal Protocol,**
  4 - 8 November 2019, Rome, Italy
- **Bureau Meeting of the 30th Meeting of the Parties to the Montreal Protocol,**
  3 November 2019, Rome, Italy
- **63rd Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol,**, 2 November 2019, Rome, Italy

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to **date**

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

Provisional agenda of the 85th meeting of the Executive Committee


UNITED NATIONS

EP

United Nations Environment Programme

The Eighty-fifth Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, has been postponed due to the coronavirus disease (COVID-19).

The 85th meeting has been postponed until immediately after the 42nd meeting of the Open-ended Working Group (OEWG), and will be held in Montreal for a duration of four days, from 19 to 22 July 2020, on the understanding that the meeting might be further postponed or cancelled in light of the evolution of the COVID-19 pandemic.

Provisional Agenda

The Multilateral Fund for the Implementation of the Montreal Protocol, April 2020

Click **here** for the Executive Committee upcoming and past Meetings.

Recent meetings:

- **84th meeting of the Executive Committee**
- **83rd meeting of the Executive Committee**
- **82nd meeting of the Executive Committee**
- **Executive Committee Primer – 2019** - An introduction to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol

OZONACTION

COVID-19 pandemic: Letter from James S. Curlin, Acting Head, OzonAction, to the National Ozone Officers -

On behalf of the United Nations Environment Programme (UNEP) OzonAction, I would like to express our deep appreciation to your country for its continued high-level commitment to implement the Montreal Protocol on Substances that Deplete the Ozone Layer, including during very challenging times such as what the world is now facing with the COVID-19 pandemic. I would like to re-assure you that during this very difficult period, OzonAction's Compliance Assistance Programme (CAP) – like the rest of UNEP – remains open for business. Our CAP teams in Bangkok, Manama, Nairobi, Panama City, and Paris continue to work with great dedication and diligence to support Article 5 countries with meeting their compliance, reporting and project-related needs. Our internal processes are all functioning well, including those related to finance and administration. Our CAP teams continue to provide technical and policy support. Our information clearinghouse, capacity building services, and refrigeration and air conditioning partnerships are still developing and distributing tools and information to support your work. [...] **Read/download**

IIR and UNEP OzonAction release the French and Spanish versions of the 'Cold Chain Technology Briefs' -

As part of their cooperation to support the needs of different stakeholders in developing countries to fulfil their commitments under the Montreal Protocol, the International Institute of Refrigeration (IIR) and UNEP OzonAction today released the French and Spanish versions of their popular Technology Briefs on the Cold Chain. The original English versions are also available for download from the OzonAction website.

Download:

- **Cold Storage and Refrigerated Warehouse**
- **Commercial, Professional and Domestic**
- **Fishing Vessel Application**

- [Refrigeration in Food Production and Processing]
- [Transport Refrigeration]

The new updated OzonAction GWP-ODP Calculator Application

“Quickly, efficiently and accurately convert between values in metric tonnes, ODP tonnes and CO_2-equivalent tonnes”

Data are extremely important for the Montreal Protocol community, and the data reporting formats for both A7 and CP have changed recently, to a large degree triggered by the Kigali Amendment. HFCs, blends, CO_2-equivalent values, etc, now have to be addressed much more frequently by Ozone Officers during their daily work. Sometimes the terminology and values are complex and can be confusing, and it helps to have it all the official facts and figures in one place. Conversion formulas need to be applied to calculate CO_2-eq values from both GWP and metric tonne values. This free app from OzonAction is a practical tool for Ozone Officers to help demystify some of this process and put frequently-needed information at their fingertips.

What’s new in the app:

- An updated more user-friendly interface
- Multilingual interface: English, French and Spanish
- A new **Kigali Amendment mode** - in this mode the GWP values used to calculate the refrigerant blends/mixtures only include GWP contributions from components that are controlled HFCs
- Latest updated ODP and GWP values from the recent reports from the Montreal Protocol technology and scientific expert panels as well as the Intergovernmental Panel on Climate Change (IPCC) reports
- References added for sources of all values
- New refrigerant mixtures (with ASHRAE -approved refrigerant designations)

The new and updated UNEP OzonAction ***GWP-ODP Calculator*** application will help you to convert between values in metric tonnes, ozone depleting potential (ODP) tonnes and CO_2-equivalent tonnes of substances controlled by the Montreal Protocol and their alternatives.
This application, available at no cost, is particularly useful for National Ozone Officers to assist with understanding and calculating quantities of controlled substances, both pure substances and mixtures, for quota assignment, reporting requirements, etc. Other stakeholders interested in ODP and global warming potential (GWP) values of controlled substances and their alternatives will also find this tool useful.

Operation of the application is very simple — just select a substance from the dropdown list and enter the known value in the appropriate field; the calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO_2-equivalent tonnes and display the corresponding converted values. The ODP, GWP and information about

the substance is provided. For mixtures, the components of the mixture and their relative proportions (metric, ODP, CO_2- equivalent tonnes) are also calculated.

The updated ***GWP-ODP Calculator*** application now includes a new Kigali Amendment mode. The app can now be used in two different modes: the regular "Actual Values" mode and the "Kigali Amendment" mode. In the Kigali Amendment mode, the GWP values provided are those specified in the Kigali Amendment to the Montreal Protocol, i.e. GWP values are only assigned to controlled HFCs. In this mode the GWP values used to calculate the refrigerant blends/mixtures only include GWP contributions from components that are controlled HFCs. The user can effortlessly switch between modes.

The OzonAction GWP-ODP Calculator uses standard ODP values and GWP values as specified in the text of the Montreal Protocol to make the conversions. Other ODP and GWP values from the recent reports of the Montreal Protocol Technology and Economic Assessment Panel and Scientific Assessment Panel as well as the Intergovernmental Panel on Climate Change (IPCC) are used when appropriate, with references to sources of all values used. The app includes new refrigerant mixtures (with ASHRAE- approved refrigerant designations).

This application is designed primarily for use by Montreal Protocol National Ozone Units and other related stakeholders. The application was produced by UN Environment Programme (UNEP) OzonAction as a tool principally for developing countries to assist them in meeting their reporting and other commitments under the Protocol and is part of the OzonAction work programme under the Multilateral Fund for the Implementation of the Montreal Protocol.

If you already have the application installed on your device, be sure to update to benefit from the new features. The app can be viewed in English, French or Spanish.

Using the application:

Smartphone Application: Just search for "*GWP-ODP Calculator*" or UNEP in the Google Play store or use the QR code – free to download!
If you already have the application installed on your device, be sure to update to benefit from the new features.

Desktop Application: *GWP-ODP Calculator* is also available online on the OzonAction **website**

Watch the new short introductory tutorial **video** on the *GWP-ODP Calculator* - available now on **YouTube**

Read/download the **flyer** for more information

RAC Technician Videos - Full length films!

OzonAction is very pleased to release two ‘full length’ videos for refrigeration and air-conditioning (RAC) sector servicing technicians: on 1) Techniques, Safety and Best Practice and 2) Flammable Refrigerant Safety.

The OzonAction Refrigeration and Air-Conditioning Technician Video Series consists of instructional videos on techniques, security and best practice and flammable refrigerant safety. They are intended to serve as a complementary training tool RAC sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training. The videos are not intended to replace structured formal technician training, but to supplement and provide some revision of tips and skills and to build on training already undertaken.

These videos are based on the successful UNEP OzonAction smartphone application, the RAC Technician Video Series app. This application has been downloaded on more than **86,000** devices since its launch.

Following many requests to make the videos more versatile and better suited to classroom and training settings, OzonAction has responded to this demand and produced two ‘full-length’ instructional videos.

You may wish to share this message and the flyer with:

- Your national/regional RAC associations
- Training or vocational institutes
- Master RAC trainers in your country
- Any other interested national stakeholders

You can watch these videos on the OzonAction YouTube Channel:

- **Techniques, Safety and Best Practice**
- **Flammable Refrigerant Safety**

The videos are also available for download by request from UNEP OzonAction: **unep-ozonaction@un.org**

If you prefer to access the video clips via the OzonAction smartphone application, just search for “RAC Technician Video Series” or UNEP in the Google Play Store and iTunes/App Store or scan the QR code – **free to download!**

The flyer is available from the **OzonAction website**.

The UNEP OzonAction WhatGas? application has been updated and improved

New features:
- An updated more user-friendly interface
- Multilingual interface: English, French and Spanish
- HFCs and HFC containing mixtures
- Latest updated ozone depleting potential and global warming potential values from the recent reports from the Montreal Protocol technology and scientific expert panels as well as the Intergovernmental Panel on Climate Change; as well as the standard ODP and GWP values as specified in the text of the Montreal Protocol
- References to sources of all values used
- New refrigerant mixtures (with ASHRAE approved refrigerant designations)
- Values for 'actual GWP' and 'Kigali Amendment context' GWP for pure substances and mixtures (i.e. only including GWP values/components assigned to controlled hydrofluorocarbons - HFCs).

The WhatGas? application is an information and identification tool for refrigerant gases: ozone depleting substances (ODS), HFCs and other alternatives. It is intended to provide a number of stakeholders, including Montreal Protocol National Ozone Officers, customs officers, and refrigeration and air-conditioning technicians with a modern, easy-to-use tool that can be accessed via mobile devices or the OzonAction website to facilitate work in the field, when dealing with or inspecting ODS and alternatives, and as a useful reference tool. If the user requires additional information or assistance in identifying a refrigerant gas they are inspecting or that is described in the relevant paperwork, this can be easily obtained by consulting the application.

Using the application:

If you already have the application installed on your device, be sure to update to benefit from the new features.

Smartphone Application: Just search for "WhatGas?" or UNEP in the Google Play store or use the QR code – free to download!

Desktop Application: WhatGas? is also available online on the OzonAction **website**

For more information: Watch the new short introductory tutorial **video** on WhatGas? available on **YouTube**

See/download the **WhatGas? flyer**

Over 10,000 installations on Android and iOS devices to date!

Refrigerant Cylinder Colours: What has Changed

A new UNEP OzonAction factsheet on the new AHRI revised guideline on a major change to refrigerant cylinder colours

One of the ways in which refrigeration cylinders are quickly identified is by cylinder colour. Although there was never a truly globally-adopted international standard, the guideline from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) although not required by law was used by the vast majority of industry and chemical producers around the world. This guideline was intended to support manufacturers, engineers, installers, contractors and users, and was also widely used by customs and enforcement officers and National Ozone Officers (NOOs) to help identify the contents of cylinders.

In recent years, the number of refrigerants has dramatically increased, particularly as chemical producers continue to develop numerous new refrigerant mixtures for various applications. This fast-rising number of refrigerants created some concern since as more and more colours were used, the potential for misidentification of cylinders of similar colours increased. It was therefore decided by AHRI that for the benefit of the industry the guideline should be updated. This was to ensure continuation of correct identification and safe use of refrigerants based on clear and distinct product markings and labels. The revised guideline, first published in 2015, removes paint colour assignments for refrigerant containers and specifies that all refrigerant containers should have the same paint colour from 2020 onwards. This colour is a light green/grey, called “silk grey” (RAL 7044[4]). This guideline also provides a means by which colours can be assigned to printed materials, such as printed labels on refrigerant containers; these colours generally follow the familiar AHRI colours previously used for refrigerants.

It is very important that the range of stakeholders in the refrigeration and air-conditioning industry as well as NOOs and customs and enforcement personnel are aware of this change. **Cylinder colours can no longer be relied on as a means to identify the type of refrigerant in a container**. The principal method of cylinder identification now needs to be the container labels and markings. It is important to note that **flammable refrigerants** should include a red band on the top of the cylinder.

NOOs and technicians should be aware of this change and inform national stakeholders, as well as familiarising themselves with relevant container labels and markings for refrigerants. It will be important to inform and train customs officers of this change as colour codes have always been a helpful way to identify refrigerants. Given the possibility of mis-labelled or counterfeit refrigerants in cases of doubt/suspicion, it is recommended to verify the type of refrigerant using a refrigerant identifier

For more information read/download the factsheet

Update on new refrigerants designations and safety classifications

The latest version of the factsheet providing up to date information on refrigerant designations and safety classifications is now available (April 2020 update).

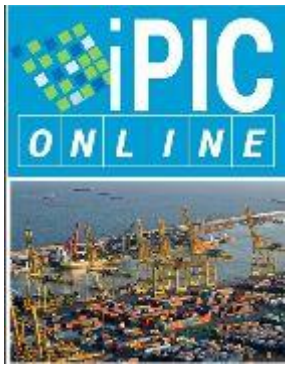
The factsheet, produced by **ASHRAE** in cooperation with **UN Environment Programme OzonAction** is updated every 6 months.

The purpose is to provide an update on ASHRAE standards for refrigerants and to introduce the new refrigerants that have been awarded an “R” number (or ASHRAE designation) over the last few years and which have been introduced into the international market.

Read/download the **factsheet**

The factsheet, as well as more information on ASHRAE-UNEP joint activities and tools, is also available on the **ASHRAE UNEP Portal**.

Contact:
- **Ayman Eltalouny**, OzonAction, UN Environment Programme
- **W. Stephen Comstock**, Manager of Business Development EMEA, ASHRAE



OzonAction’s iPIC system helps prevent an illegal shipment of 72 tonnes of HCFC-22
Collaboration between China and Thailand using OzonAction’s informal Prior Informed Consent (iPIC) system has resulted in the prevention of a huge consignment of ozone-depleting and climate damaging hydrochlorofluoro-carbons (HCFCs). Those chemicals, which are primarily used as refrigerants for air conditioners and fridges, are controlled under the Montreal Protocol on Substances that Deplete the Ozone Layer and are being phased out by all countries according to a specific timeline.

The OzonAction new iPIC platform - The Informal Prior informed consent system (iPIC) has been completely overhauled and updated - *OzonAction latest updated and streamlined version of the online Informal Prior-Informed Consent (iPIC) platform. Responding to comments and feedback we have changed how the system looks and operates.* **See the iPIC flyer for more details - Visit iPIC website to familiarise yourselves with the new features and functionalities.** *Automatically re-set your password if required.*

Contact: iPIC Online Administrators for any further questions.

Servicing tail for HCFCs: What is it & why does it matter?

This concept of a servicing tail, while allowed under the Montreal Protocol might not always be consistent with the phase-out targets specified under the HCFC Phase out Management Plan (HPMP) funding agreements agreed by Article 5 countries with the Executive Committee when receiving funds for HCFC phase out, where countries are obliged to meet these targets as specified in the agreement.

Details and explanations are provided in this **Policy Brief**.

Contact: Ezra Clark, UNEP, OzonAction

OzonAction Factsheet: Proposed additional HS code sub-headings for HFCs in advance of the 2022 HS code update - 'Cheat Sheet'

This document is intended to accompany the OzonAction policy brief: "***HS CODES FOR HFCs - Advice for countries in advance of the 2022 HS code update***", available **here**.

Download the Factsheet

Contact: Ezra Clark, UNEP, OzonAction

OzonAction Factsheet: Dealing with seized ODS - Options for Article 5 countries

This concise factsheet summarises the five main options available to countries when dealing with seized ODS or HFCs as well as outlining the various considerations and the pros and cons of these options.

Download the Factsheet

Contact: Ezra Clark, UNEP, OzonAction

UNEP OzonAction Training Programme for National Ozone Officer

A key factor contributing to the significant success of the Montreal Protocol on Substances that Deplete the Ozone Layer is the 'country-driven approach'. This approach places National Ozone Units at the centre of the action to protect the ozone layer.

The National Ozone Unit led by the National Ozone Officer (NOO), is the single most important element in national strategies to comply with the Montreal Protocol.

The knowledge and capacity of the NOO in effectively developing projects, managing strategies, reporting data, and working with national and international institutions -directly or indirectly affects each developing (Article 5) country's ability to meet its obligations under the Montreal Protocol treaty.

For this reason OzonAction has completely transformed and updated its NOO training programme to assist NOUs in successfully understanding all the roles and requirements and in carrying out their daily tasks in Montreal Protocol implementation.

The main objective of this training programme is to provide new National Ozone Unit (NOU) staff with essential information about the Montreal Protocol, a country's obligations under the Montreal Protocol, and the main activities carried out by NOUs. It aims to provide new NOU staff with fundamental knowledge and information tools that will enable them to support their national government in meeting the commitments agreed by all countries under the Montreal Protocol.

Download the flyer >>>

Contact: Mikheil Tushishvili, Montreal Protocol Programme Officer, UNEP-OzonAction.

OzonAction Factsheet: Article 7 Data Reporting on HFCs - When Countries Need to Start Reporting

One of the important commitments of the Protocol is that of reporting the consumption and production of substances controlled under the Montreal Protocol.

Following ratification of the Kigali Amendment, this commitment is now extended to HFCs.

This short factsheet provides some useful information on relevant Article 7 reporting dates and deadlines for HFCs.

Download the Factsheet

Contact: Ezra Clark, UNEP, OzonAction

HS Codes for HFCs - Advice for countries in advance of the 2022 HS code update

The Kigali Amendment requires Parties to put into place an import and export licensing system for hydrofluorocarbons (HFCs) by 1st January 2019 (or two years later if required).

To enable a licensing system to function effectively, it is important that the government is able to monitor and record imports and exports of each specific HFC individually.

Import and export statistics are normally collected by customs officers using the international product nomenclature system – the Harmonized Commodity Description and Coding System, or Harmonized System (HS).

However, until the HS is revised in 2022, all HFCs are contained in a single HS code which does not allow differentiation of the individual chemicals or of mixtures.

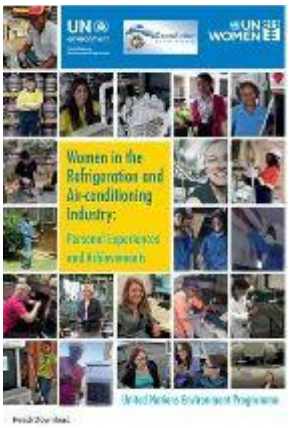
This document outlines a proactive interim approach, recommended by the World Customs Organization (WCO), to establish additional digits in the existing national HS codes to identify specific HFCs.

This practical document is suitable for outreach to the customs agencies, customs officers in the field, and others involved in controlling trade in HFCs.

Document prepared by the UN Environment Programme in cooperation with the World Customs Organization (WCO).

Download the publication

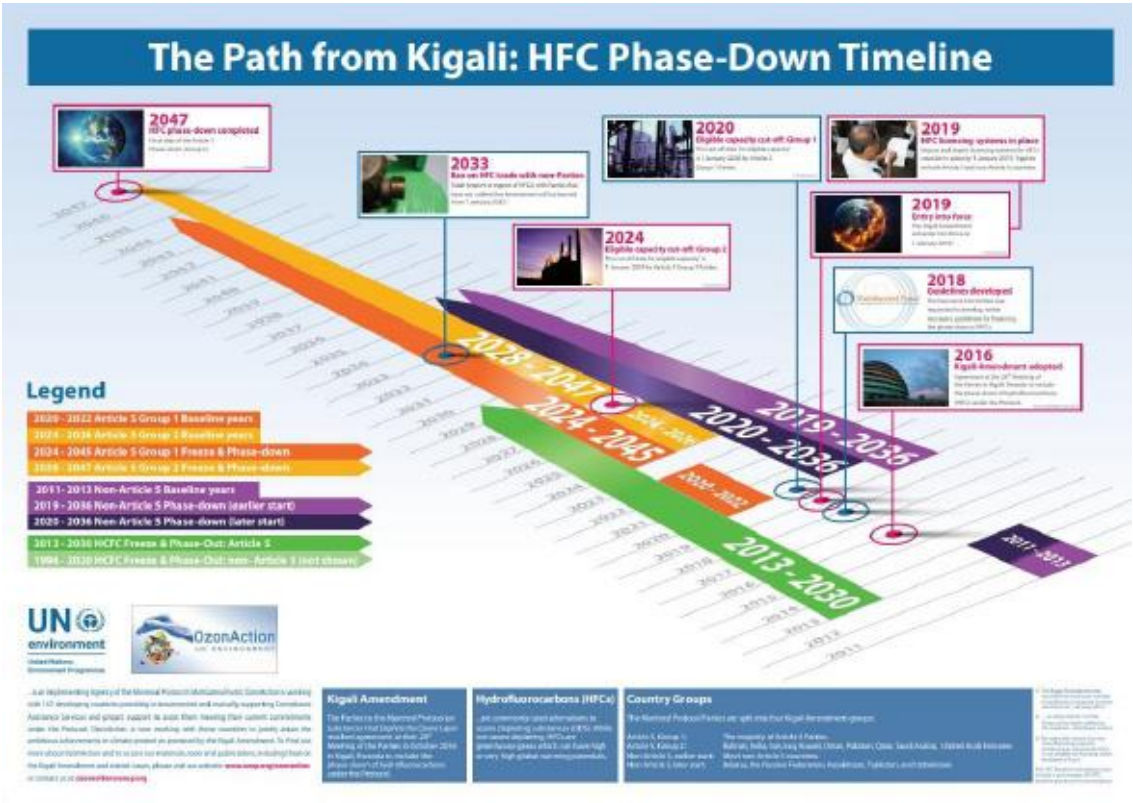
Contact: Ezra Clark, UNEP, OzonAction



Women in the refrigeration and air-conditioning industry: Personal experiences and achievements

The United Nations Environment Programme's (UNEP), OzonAction, in cooperation with UN Women, has compiled this booklet 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 of the professionals presented in the booklet are pioneers. They are role models whose stories should inspire a new generation of young women to enter the weld and follow in their footsteps.

Download the publication



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

Good Servicing: Flammable Refrigerants Quick Guide

This is the electronic and interactive version of the UN Environment Programme 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

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.
The application features 10 short instructional videos on the following topics:

- Refrigerant cylinder types
- Types of identifiers
- Getting to know your identifier
- Safety and precautions
- Testing a sample – vapour (gas)
- Testing a sample – liquid
- Results
- Faults & error messages
- Maintaining the unit
- Software updates

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

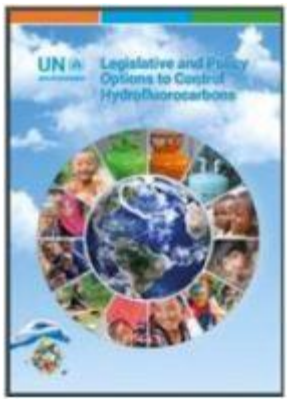
OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - Over 50,000 downloads to date -

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…

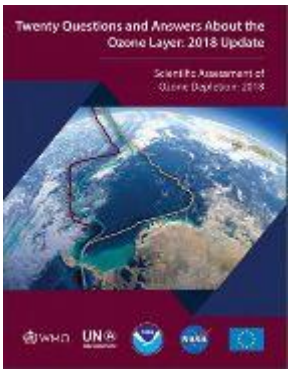
OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series Available in the **Android Play Store** and **Apple Store/iTunes**. (Just search for "OzonAction", or scan this QR code)

PUBLICATIONS



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.



Twenty questions and answers about the ozone layer: 2018 update, is a component of the Scientific Assessment of Ozone Depletion: 2018 report. The report is prepared quadrennially by the Scientific Assessment Panel (SAP) of the Montreal Protocol on Substances that Deplete the Ozone Layer.

Lead Author: Ross J. Salawitch
Coauthors: David W. Fahey, Michaela I. Hegglin, Laura A. McBride, Walter R. Tribett, Sarah J. Doherty

Read / Download:

20 Questions and Answers about the ozone layer-2018 | **Figures**

Primer on Hydrofluorocarbons (HFCs) - IGSD -11 January 2018
Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO_2-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**

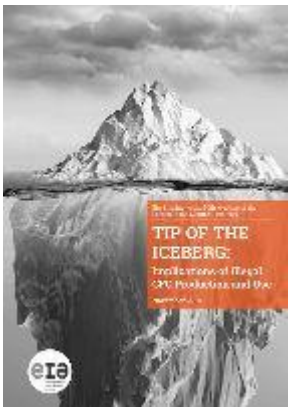
Impact of Standards on Hydrocarbon Refrigerants in Europe – Market research report.

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.

A new approach to define safe charge limits for flammable refrigerants - The LIFE FRONT project has just released its latest report entitled "**Recommendations for the revision of safety standards for RACHP equipment**".

LIFE FRONT is an EU-funded project that aims to remove barriers posed by standards for flammable refrigerants in refrigeration, air conditioning, and heat pump (RACHP) applications. With this new report, it provides project results from the laboratory testing as well as recommendations on measures to minimize concentrations of flammable refrigerants in the case of a leak; implementation of mitigation measures performance testing; and increasing charge size flammability risk focusing on smaller devices as described in the access categories 'a' and 'b' in the EN 378-1 (2016) Standard. [...]



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

[...] 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.

Ozone-depleting substances 2019 Aggregated data reported by companies on the import, export, production, destruction, feedstock and process agent use of ozone-depleting substances in the European Union, 2006-20181994-2019 - The 2019 edition of the European Environment Agency (EEA) report on ODS confirms that the EU has already achieved its goals on the phase-out of such substances under the Montreal Protocol. [...]

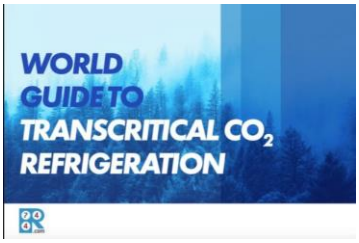
Benefits of Energy Efficient and Low-Global Warming Potential Refrigerant Cooling Equipment
Authors: Nihar Shah, Max Wei, Virginie Letschert, Amol Phadke.
Energy Analysis and Environmental Impacts Division
Lawrence Berkeley National Laboratory
August/2019

Lower-GWP Alternatives in Stationary Air Conditioning: A Compilation of Case Studies -The case studies in this booklet discuss several applications in the stationary air conditioning sector. The applications include chillers of natural refrigerants and hydrofluoroolefins (HFOs) as well as split-units which use hydrocarbons (HCs) as the refrigerant. The technologies presented in these case studies are only some examples of the many available options for zero and lower GWP substances. The examples take into account design criteria such as system performance, environmental impact and cost. All these refrigerants still have many challenges that should be considered in the design, for example their flammability, toxicity, lower efficiency in some cases, and cost. Balancing these challenges using a consistent and comprehensive methodology across all refrigerants and system types is essential in assessing alternatives...

Climate and Clean Air Coalition (CCAC), 2019

Latest issue of Centro Studi Galileo magazine,
Industria & Formazione, n. 5 - 2020
(in Italian language).

Accelerate #110 features a cover story on Clean Cooling, a new approach to HVAC&R.



"World Guide to Transcritical CO_2 Refrigeration", a free three-part resource looking at the global market penetration and potential of this natural refrigerant technology. As the use of transcritical CO_2 refrigeration systems increase at an exponential rate around the world, it has become apparent that there is a great need for reliable information from a neutral source. The newly included Part 3 focusses on specific trends relating to industrial applications and on the global transcritical CO_2 market in the future. It includes survey information, partner case studies and interviews, and "thought leader interviews" with important individuals from the industry.

MISCELLANEOUS

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

The United Nations Environment Programme, 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 Programme, OzonAction

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

New International Journal of Refrigeration service for IIR members

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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.

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Prepared by: Samira Korban-de Gobert, OzonAction
Reviewed by: Ezra Clark, OzonAction

If you wish to submit articles, invite new subscribers, please contact:
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Multilateral Fund for the Implementation of the Montreal Protocol

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