

OzoNews

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

Volume XX | 15 August 2020

In this issue:

1. Kigali Amendment latest ratification
2. The unusual 2020 Arctic ozone hole as seen in the Copernicus Atmosphere Monitoring service reanalysis
3. New research underpins the huge climate win of moving to propane-based air-conditioning
4. Lower-GWP refrigeration & air conditioning innovation award
5. New call for project proposals: Sustainable refrigeration and air-conditioning
6. Volcanic emissions can cause changes in the atmosphere over a long time
7. How to qualify, certify and register the RAC workforce of the future - Video series
8. Importation of ozone depleting substances need a licence (Zimbabwe)
9. Scientists are looking to find new technology for air conditioners
10. Myanmar Focus: Import licence, ozone-depleting substances
11. Protection of Stratospheric Ozone: Extension of the Laboratory and Analytical Use Exemption for Essential Class I Ozone-Depleting Substances
12. Learning from Success: Lessons in Science and Diplomacy from the Montreal Protocol
13. 76 tonnes of illicit refrigerant gases detained in Romania thanks to OLAF intelligence
14. Monitoring and Managing HVACR Systems

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](#)

2. The unusual 2020 Arctic ozone hole as seen in the Copernicus Atmosphere Monitoring service reanalysis

Abstract

A reanalysis dataset produced by the Copernicus Atmosphere Monitoring service (CAMS reanalysis, 2003 - present day) augmented by ERA5 data for the years before 2003 is used to describe the evolution of the 2020 Arctic ozone season and to compare it with years back to 1979.

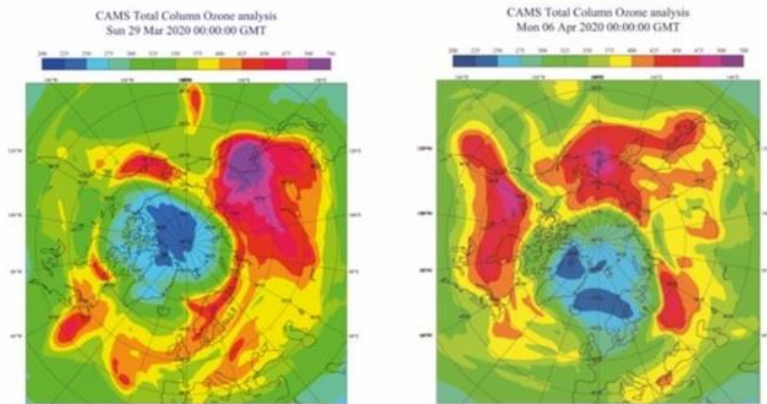
Ozone columns over large parts of the Arctic reached record low values in March and April 2020 because of an exceptionally cold and persistent Arctic polar vortex.

Minimum ozone columns were below 250 DU for most of March and the first half of April, with the lowest values of 211 DU in the CAMS reanalysis found on 18 March.

Such low values are extremely unusual for the Arctic. The previous years with similarly strong Arctic ozone depletion were 2011 and 1997 with minimum values of 232 DU and 217 DU, respectively. The performance of the CAMS ozone analysis is assessed by comparison with ozone sonde data.

We find a clear sign of chemical ozone destruction with ozone severely depleted in a layer between 80-50 hPa in late March and early April when partial pressure values below 2 mPa were observed.

Profiles from the limb sounders ACE-FTS and MLS show clear signs of chlorine activation and the presence of polar stratospheric clouds.



Total column ozone field (in Dobson Units) from CAMS in its largest extent on 29 March 2020 (left) and 06 April 2020 (right) showing values below 250 DU over large parts of the Arctic. Credit: Copernicus Atmosphere Monitoring Service/ECMWF.

Monthly mean ozone columns in March 2020 were up to 180 DU or 40% lower than the CAMS climatology (2003-2019) while values for 2011 and 1997 were lower by 31% and 35% respectively.

Authors: Antje Inness, Simon Chabrilat, Johannes Flemming, Vincent Huijnen, Bavo Langenrock, Julien Nicolas, Inna Polichtchouk, Miha Razinger, Antje Inness. Preprint submitted to and is under consideration at *Journal of Geophysical Research - Atmospheres*.

[The Earth and Space Science Open Archive \(ESSOAr\), 31 July 2020](#)

3. New research underpins the huge climate win of moving to propane-based air-conditioning

Switching domestic air-conditioners over from climate-harming refrigerant gases to propane could prevent harmful emissions equal to 1,400 coal-fired power stations running for a year.

The startling finding that making the change could avoid 5.6 gigatonnes of CO₂ equivalent (GtCO₂e) emissions by 2050 is contained in new research commissioned by EIA.

We asked German environmental research institution Öko Recherche to look into the climate benefits of switching split system air-con units from climate-damaging hydrofluorocarbons (HFCs) to instead use the natural refrigerant propane, a liquefied petroleum gas also used as fuel for heating and cooking.



Most HFCs have global warming potentials (GWP) in the thousands, while propane has a GWP of three, meaning it has a significantly smaller climate impact. 'Split' air-con systems comprise indoor units connected by pipes to an outdoor unit.

Sophie Geoghegan, EIA Climate Campaigner, said: "We have been long-standing advocates of getting rid of HFCs and other similar super polluting refrigerant gases – collectively known as fluorinated gases, or F-gases – and moving to natural refrigerants in the fight against climate change.

"We're pleased that this new research spells out the very real and vital savings that can be made from taking such an approach."

As global temperatures rise, the demand for cooling equipment is soaring. Alarmingly, the number of domestic air-con units is predicted to triple by 2050 – and unless measures are taken to halt the use of damaging HFCs, our collective demand for cooling will only make global warming worse.

The European Union's F-Gas Regulation is currently up for review and we are calling for a ban on HFCs in single split air-con units.

In support of this, we are also working to secure an amendment to the current rules to allow for a greater volume of propane (technically known as R-290) to be used in residential air-con. If we are successful, it will enable more climate-friendly and efficient cooling appliances to come to the marketplace and will build confidence in flammable refrigerants for installers and consumers.

This revised standard is currently at committee draft stage and is due to be finalised in late 2021.

Öko Recherche looked at the climate impact of the revised product standard hand-in-hand with an EU ban on HFCs in split air-con units from 2025 and also examined the climate impacts if a similar policy is rolled out globally. Its findings were calculated for three groups of countries – the EU, other developed countries and developing countries.

Within each group, four different scenarios were built according to different levels of ambition in introducing new propane equipment to the marketplace. All scenarios start with the expectation of a commercial launch of R-290 units beginning from 2021 onwards; the scenarios then diverge depending on different levels of acceptance of flammability of refrigerants and subsequent market penetration.

In Europe, moving away from HFCs in split air-con from 2025 could result in cumulative savings of 62 million tonnes CO₂e by 2050 – the same climate benefit as running up to 13,385 wind turbines for a year. For other developed countries, the switch could save up to 343 million tonnes CO₂e by 2050.

For most developing countries, the first HFC reduction step under the Kigali Amendment to phase down HFCs isn't until 2029, allowing considerable use of HFCs and resulting in large annual demand of 310 million tonnes CO₂e under a business-as-usual scenario.

Öko Recherche found a shift away from HFCs in domestic split system air-con from 2025 in developing countries, supported by updated product standards, could bring cumulative climate benefits of 5,228 million tonnes CO₂e for the period from 2021-50 – avoided emissions equal to more than a billion cars running for a full year.

Given the lifetimes of cooling equipment (15-30 years) and skyrocketing growth in demand for cooling, the world urgently needs to accelerate the move away from HFCs.

Geoghegan added: "This research spells out the clear climate benefits of a speedy transition and avoiding locking in climate-damaging, inefficient cooling equipment. It also makes a clear case for a positive revised standard for flammable refrigerants and for the EU to once again lead by example with a ban on HFC single split air-conditioning units as soon as possible." New [infographic](#) about the problems of HFCs and the benefits of the alternatives to them.

[Environmental investigation agency \(eia\), 10 August 2020](#)

4. 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.



FONDS FRANÇAIS POUR
L'ENVIRONNEMENT MONDIAL

5. New call for project proposals: Sustainable refrigeration and air-conditioning

Proposals should address the implementation, in developing countries, of the United Nations Framework Convention on Climate Change, including the Paris Agreement (2015).

This call is for proposals is aimed specifically at projects enabling sustainable refrigeration or air-conditioning, favouring integrated approaches, whether through furthering the use of refrigeration and air-conditioning equipment or facilities using so-called "natural" refrigerant fluids which offer greater energy efficiency; or through alternative solutions without the need for such fluids. Among other things, project proposals may include the transfer of skills and technologies to implement and support best available techniques and technologies within best environmental practices.

The call for project proposals is open.
Submission deadline: **16 October 2020**, 12.00pm, Paris time

Applications should be submitted via the [AFD](#) site.

[Fonds Français pour l'Environnement Mondial, June 2020](#)

6. Volcanic emissions can cause changes in the atmosphere over a long time

The super volcano Los Chocoyos in Guatemala, Central America, erupted about 84,000 years ago, and was one of the largest volcanic events of the last 100,000 years.

Recent petrological data show that the Los Chocoyos eruption released large amounts of sulfur and ozone-depleting chlorine and bromine gases.



The volcano was part of the well-known Ring of Fire, located like a horseshoe around and in the Pacific. This is an earthquake zone, and here are 75% of all known volcanoes (both active and dormant). The volcanoes Atitlán and Tolimán followed the Los Chocoyos eruption, and remain active today.

In an eruption, super volcanoes can cause enormous destruction locally, but they also have major impacts across the globe due to the huge gas and dust emissions to the atmosphere. And as one research group now shows, they can cause major changes in the atmosphere over several years.

Weakened ozone layer

Based on the Los Chocoyos eruption, scientists from the University of Oslo (UiO), GEOMAR and NCAR simulated emissions of gaseous sulfur and halogen to the atmosphere in pre-industrial times. They used the American earth system Community Earth System Model (CESM)/Whole Atmosphere Community Climate Model (WACCM) with interactive 'emissions' of volcanic aerosols and gases into the atmosphere.

The runs showed that elevated amounts of sulfate and aerosol optical depth (AOD) from the eruption would persist for five years in the atmosphere, and the amount of halogen would remain high for almost 15 years.

As a consequence of this change in atmospheric chemistry, the ozone layer would collapse. The researchers found an 80 % reduction in the ozone layer as a global average.

"Ozone weakening on this scale could cause a 550 % increase in UV radiation in the first five years after the eruption, which could have very serious potential impacts on humans and the biosphere," says Hans Brenna, first author of the study. He is a doctoral student at the Department of Geosciences at UiO and a researcher at the Norwegian Meteorological Institute.

The effect on the climate after such a huge volcanic eruption will last up to several decades.

"Recovery to pre-eruption ozone levels and climate takes 15 years and 30 years, respectively, according to results from the simulations. The long-lasting effect of cooling the Earth's surface is sustained by an immediate increase in sea ice area in the Arctic, followed by a decline in ocean heat transport at 60° N to the Arctic Ocean. This effect persists for up to 20 years," says Kirstin Krüger, a professor of meteorology at UiO. [...]

[PhysOrg, 8 August 2020, by Gunn Kristin Tjøflot, University of Oslo](#)

AFRICA

7. How to qualify, certify and register the RAC workforce of the future - Video series

Due to the requirements of the Kigali Amendment, more and more natural refrigerants will be used in the future. They cause zero ozone depletion and have very low to no global warming potential.

However, some of them require specific training due to their higher risks, e.g. flammability. To adapt the latest environmentally-friendly technology, it is essential for countries to have a skilled workforce that is able to work with these substances.

In this video series, representatives from the Kenyan cooling sector talk about the importance of a formal education system without pushing the informal sector aside.

Watch the video series [here](#)

Video series: Paving the way for a new generation of RAC technicians in Kenya

22.07.2020 | NEWS

Representatives from the Kenyan cooling sector talk in a series of video interviews about their experiences with R40 for Green Cooling, a scheme for the qualification, certification and registration of RAC technicians, developed by GIZ.



8. Importation of ozone depleting substances need a licence (Zimbabwe)

Any person who wishes to import or export ozone depleting substances (ODS) and greenhouse gases dependent equipment (GHG) is required to apply to Ozone Office for a licence. This is provided for in terms of statutory instrument 131 of 2016. [...]

All private and public industrial and commercial importers, exporters, producers and consumers of ozone depleting substances and greenhouse gases and ozone depleting substance and greenhouse gas dependent equipment.

The application is done prior to importation or exportation of the ODS and GHG.

The license shall be valid for period of one year and not to be transferable to another person.

An application for a license to import or export ODS and GHG is directed to the National Ozone Office established by the Ministry responsible for Environment, Water and Climate.



[The Herald, 13 August 2020](#)



9. Scientists are looking to find new technology for air conditioners

العلماء يبحثون إيجاد تكنولوجيا جديدة للمكيفات

رأى الدكتور عزت لويس، رئيس وحدة الأوزون بوزارة البيئة، ومنسق مشروعات مونتريال، أن السبب وراء كثرة استخدام المكيفات وأجهزة التبريد الفترة الأخيرة هو أن الإنسان أصبح لا يستطيع أن يستغنى عن التكنولوجيا الحديثة في الحصول على راحته وعلى المناخ المناسب له، مشيراً إلى ان انتشار المكيفات وأجهزة التبريد جاء نتيجة سعى الإنسان نحو الراحة وهي تعد نوعاً من أنواع الرفاهية التي لا يستطيع الإنسان الاستغناء عنها بعد تعوده عليها.

وأكد أن أجهزة التكييف تقوم بضبط درجة الحرارة وامتصاص الرطوبة حتى تعطي الجو المناسب للإنسان وتحقق راحته والغاية منها وهذا سبب نزول مياه من أجهزة التكييف.

وتابع: "الرفاهية السبب وراء انتشار أجهزة المبردات والتكييفات مؤخرًا"، لافتاً إلى أن دول العالم الحديث بخبراتها وعلمائها يجاهدون في اختراع تكنولوجيا جديدة لأجهزة التكييف تعمل على استخدام وسائط طبيعية لأجهزة التبريد داخل المكيفات مثل الأمونيا وثاني أكسيد الكربون الذي كان يستخدم بالثلاجات قديماً، والهيدروكربون المتواجد بالغاز الطبيعي، مؤكداً ان كل الوسائل الطبيعية متوافقة مع البيئة، ولكن الفريونات غير صديقة للبيئة وتضر طبقة الأوزون وتعمل على استنفادها.

وأكد أن جميع دول العالم لاحظت وجود إقبال كبير جداً على أجهزة التكييف والمبردات، وهذا أدى بالتالي إلى تعاظم الصناعة، والتوسع في الأعداد التي تستخدمها.

وأوضح أن هناك دولا كثيرة تشجع استخدام الطاقات النظيفة في إنتاج المبردات وأجهزة التبريد وتشجع على اختراع تكنولوجيا حديثة تناسب ذلك، وتعمل على تحقيق الكفاءة في استخدام الطاقة وترشيدها واستخدام وسائط تبريد صديقة للمناخ.

[Albawaba news, 11 August 2020](#)

ASIA PACIFIC

10. Myanmar Focus: Import licence, ozone-depleting substances

Import Licence

The document entitled Import Licence has been updated with regards to the applicable licencing fees in accordance with Notification No. 23/2020 of the Ministry of Commerce (MOC) which stipulates a limit of the fee at 30,000 MMK [US\$ 22] regardless of the customs value of the products. Said measure is to counteract issues concerning the Coronavirus Disease (COVID)-19 outbreak.



Ozone-Depleting Substances (ODS)

As party to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer, Myanmar has phased out the importation of methyl bromide and chlorofluorocarbons (CFCs) and products containing these substances. The phase-out plan for hydrochlorofluorocarbons (HCFCs) is being implemented since 1 January 2013; a complete ban of HCFCs is aimed at for 2040. The Environmental Conservation Department of the Ministry of Natural Resources and Environmental Conservation (MONREC) in Myanmar is responsible for the registration of ozone-depleting substances. Additionally, importers are required to be registered with the quoted authority and an endorsement is to be obtained from the same Ministry in order to be eligible for the importation of such goods into Myanmar.

[Chemycal, 30 July 2020](#)

NORTH AMERICA

11. Protection of Stratospheric Ozone: Extension of the Laboratory and Analytical Use Exemption for Essential Class I Ozone-Depleting Substances

Summary

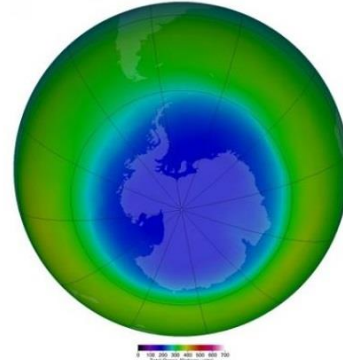
The Environmental Protection Agency (EPA) is proposing to revise regulations governing the production and import of class I ozone-depleting substances in the United States to extend indefinitely the global essential laboratory and analytical use exemption. This exemption currently expires on December 31, 2021. This change would allow for continued production and import of class I substances in the United States solely for laboratory and analytical uses that have not been identified by the EPA as nonessential. This action is proposed under the Clean Air Act and is consistent with a decision by the Parties to the *Montreal Protocol on Substances that Deplete the Ozone Layer* to extend the global laboratory and analytical use exemption indefinitely beyond 2021. [...]



[US Environmental Protection Agency \(USEPA\), 7 August 2020](#)

12. Learning from Success: Lessons in Science and Diplomacy from the Montreal Protocol

[...] The Montreal Protocol history remains relevant to contemporary environmental diplomacy. But it is easy to forget the nuances and lessons of the past. In 2012, for example, former Assistant Secretary of State [John] Negroponte credited the scientific community for the Protocol; a year later, former Secretary of State Shultz credited Du Pont. Neither explanation is wrong, but both are incomplete. As history shows, scientific evidence is often insufficient to sway public or political opinion, and research must be properly framed to have an impact; consider the politics of acid rain, ozone depletion, climate change, or COVID-19. When opponents questioned the evidence, supporters of the Montreal Protocol responded with additional research and education, helping connect the ozone hole to the science. At the same time, given the political discord, advocates allied with sympathetic officials within the U.S. government, while NGOs demanded administrative action through the courts. Finally, perhaps it is better to think of “scientific relations” than “science diplomacy,” as successful diplomatic initiatives create new relations and obligations, whether scientific networks or geopolitical responsibilities. Protection of the ozone layer, for example, remains ongoing. In 2018, scientists in Hawaii measured an increase in CFC-11, a banned chemical; later reporting suggested two provinces in Eastern China might be responsible, illustrating the need for vigilant monitoring and the difficulty of ensuring compliance.



False-color view of total ozone over the Antarctic pole when the Montreal Protocol was signed (September 1987). The purple and blue colors are where there is the least ozone. Credit: NASA Ozone Watch.

In addition to controlling ozone-depleting chemicals, the Montreal Protocol is increasingly entangled in the global policy discussion over climate change mitigation. The Protocol demonstrated how to establish an effective international environmental compliance regime and the later global warming process followed its blueprint, with a framework convention (the UNFCCC) followed by a protocol establishing reduction targets and limitations (the Kyoto Protocol). At the same time, the Protocol's impact went beyond merely providing a precedent; historian Joshua Howe has proposed that the Protocol "put powerful corporate and governmental bodies on notice," pitting environmental activists and the "forcing function" of science against the lobbying power of the oil and gas industry. Geographer Mike Hulme has also cautioned that the Montreal Protocol offered a false optimism because global warming arises from a broader set of economic activities, a point stressed by opponents of climate change action like the *Wall Street Journal*, which opined in 2015, "The Montreal Protocol is not a model for climate-change policy." Yet it is impossible to separate ozone protection from climate change, as many of the first-generation replacements for CFCs, especially hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs), are now recognized as contributing to global warming. This discovery led many nations to ratify the Kigali Amendment to the Montreal Protocol in 2016, though the Trump administration has hesitated to sign, ignoring bipartisan and industrial support.

The Montreal Protocol history reveals the complexity of science in U.S. foreign relations. The United States and international community managed to construct an "adaptive management" system for controlling ozone-depleting substances even though there were disagreements about the science and regulations required. And the impact of the Protocol continues to this day, in the need to continue monitoring for emissions of ozone-depleting substances and the ongoing policy discourse around CFC alternatives and their role in exacerbating climate change. Sadly, the politicization of environmental science also continues, demonstrating the importance of evidence-based leadership and diplomacy in the international environmental sphere.

[Science & Diplomacy. 10 August 2020](#)

EUROPE & CENTRAL ASIA

13. 76 tonnes of illicit refrigerant gases detained in Romania thanks to OLAF intelligence

Operations carried out by the Romanian authorities, based on intelligence supplied by the European Anti-Fraud Office (OLAF), have helped keep 76,045 kg of illicit refrigerant gases, with a potential global warming impact of 170,000 metric tonnes of carbon dioxide, off the EU market.

The gases, hydrofluorocarbons or HFCs, are authorised for use in refrigeration units. However, since they are known to have a significant carbon footprint – 2,200 times their own mass, according to estimates – their import into the EU is subject to strict quotas, and any importers of the gases need to be registered.

OLAF investigators had been monitoring a suspicious shipment from China that had been discharged in Turkey, removed from its container and re-routed by truck to the EU.

The customs documents accompanying several shipments revealed that they were destined for five different consignees in Romania. Four of the consignees were not registered to receive imports of these gases, while the fifth one would have significantly exceeded its quota for 2020 with its share of the shipment. In addition, in most of the cases, the refrigerant gases were packaged in non-refillable cylinders, which are banned in the EU.

OLAF alerted the Directorate General of Customs in Romania, which in turn liaised with the Ministry of Environment, Waters and Forests as well as with the National Environmental Guard, to prevent the shipment reaching the EU market.

OLAF Director-General, Ville Itälä, thanked the Romanian authorities for their continuous support: *“Good cooperation between OLAF and national authorities leads to successful operations and helps keep people safe. This is the second case this summer where OLAF intelligence has kept several tonnes of illicit refrigerant gases off the EU market. The fight against the illegal import of HFCs into the EU is one of OLAF’s operational priorities, in line with the European Commission’s ambition to make Europe the first climate neutral continent by 2050 with its European Green Deal. The environmental impact of these illicit imports can be devastating. Preventing them from entering the EU is OLAF’s contribution to protecting citizens, the environment and legitimate trade.”*

Earlier this summer, [Dutch authorities seized approximately 14 tonnes](#) of illicit refrigerant gases following an alert by OLAF.

[European Anti-Fraud Office \(OLAF\), 5 August 2020](#)



OLAF
EUROPEAN ANTI-FRAUD OFFICE

05 August 2020

76 tonnes of illicit refrigerant gases detained in Romania thanks to OLAF intelligence

Operations carried out by the Romanian authorities, based on intelligence supplied by the European Anti-Fraud Office (OLAF), have helped keep 76,045 kg of illicit refrigerant gases, with a potential global warming impact of 170,000 metric tonnes of carbon dioxide, off the EU market.

The gases, hydrofluorocarbons or HFCs, are authorised for use in refrigeration units. However, since they are known to have a significant carbon footprint – 2,200 times their own mass, according to estimates – their import into the EU is subject to strict quotas, and any importers of the gases need to be registered.

OLAF investigators had been monitoring a suspicious shipment from China that had been discharged in Turkey, removed from its container and re-routed by truck to the EU. The customs documents accompanying several shipments revealed that they were destined for five different consignees in Romania. Four of the consignees were not registered to receive imports of these gases, while the fifth one would have significantly exceeded its quota for 2020 with its share of the shipment. In addition, in most of the cases, the refrigerant gases were packaged in non-refillable cylinders, which are banned in the EU.

OLAF alerted the Directorate General of Customs in Romania, which in turn liaised with the Ministry of Environment, Waters and Forests as well as with the National Environmental Guard, to prevent the shipment reaching the EU market.

OLAF Director-General, Ville Itälä, thanked the Romanian authorities for their continuous support: *“Good cooperation between OLAF and national authorities leads to successful operations and helps keep people safe. This is the second case this summer where OLAF intelligence has kept several tonnes of illicit refrigerant gases off the EU market. The fight against the illegal import of HFCs into the EU is one of OLAF’s operational priorities, in line with the European Commission’s ambition to make Europe the first climate neutral continent by 2050 with its European Green Deal. The environmental impact of these illicit imports can be devastating. Preventing them from entering the EU is OLAF’s contribution to protecting citizens, the environment and legitimate trade.”*

Earlier this summer, [Dutch authorities seized approximately 14 tonnes](#) of illicit refrigerant gases following an alert by OLAF.

14. Monitoring and Managing HVACR Systems – Webinar

Centro Studi Galileo is offering a free webinar to international HVACR Technicians, design Engineers & RAC companies: “**Monitoring and Managing HVACR Systems**”.

This important topic will be presented by speakers from Bitzer - Germany's refrigeration and air-conditioning leader in compressor manufacturing, and Fieldpiece - America's reference producer of HVACR measurement tools.

Join the event online to get the latest insights into: "Handling A2L Refrigerants in Service, Repair and Retrofit" Heinz Jürgensen | BITZER Kühlmaschinenbau GmbH "The Importance of Vacuum - HVAC/R Training" Kyle Chester-Marsden | Fieldpiece Instruments UK Ltd.

[Register](#)



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 >>>](#)

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

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



OZONEACTION

Dear National Ozone Officers,

On behalf of the United Nations Environment Programme (UNEP) OzoneAction, 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 reassure you that during this very difficult period, OzoneAction's Compliance Assistance Programme (CAP) – like the rest of OzoneAction – 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 assistance support. Our information clearinghouse, capacity building services, and refrigeration and air conditioning tools and information are still developing and distributing tools and information to support your work.

The 19th and 20th sessions of the Global Ozone Monitoring and Reporting (GOMR) and the 19th and 20th sessions of the Montreal Protocol on Substances that Deplete the Ozone Layer (MPS) are working on contingency plans to continue this important and bi-annual cycle of reporting during the current period, in the meantime, our Regional OzoneAction teams are continuing to provide technical assistance to promote exchange of information and experiences between Ozone Officers.

Just like in professional sports, our CAP teams have had to adjust their schedules and work arrangements to meet these new conditions. All of our staff are now working remotely through a teleworking arrangement to ensure the continuous delivery of support to your countries. They are well-supported with each other in Paris, and in OzoneAction headquarters through videoconferencing, email and phone. They are all active and available for communication with all National Ozone Officers.

Since 1987, UNEP OzoneAction has been and shall continue to be the implementation of the Montreal Protocol and we work together with you in your country's compliance journey. We will continue to work with you during challenging times such as during this pandemic.

OzoneAction is here to support you. If you have any needs, challenges, or feedback with respect to our assistance services, feel free to contact the members of OzoneAction. We are here to support you.

We safely and responsibly promote your families and your colleagues' health.

Yours sincerely,
James S. Curlin
Acting Head, OzoneAction

[COVID-19 pandemic: Letter from James S. Curlin, Acting Head, OzoneAction, to the National Ozone Officers](#) -

On behalf of the United Nations Environment Programme (UNEP) OzoneAction, 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, OzoneAction'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 OzoneAction 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 OzoneAction 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 OzoneAction 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 CO₂-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, CO₂-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 CO₂-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 CO₂-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 CO₂-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, CO₂- 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 7044⁴). 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 Eitalouny](#), 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 hydrochlorofluorocarbons (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](#)

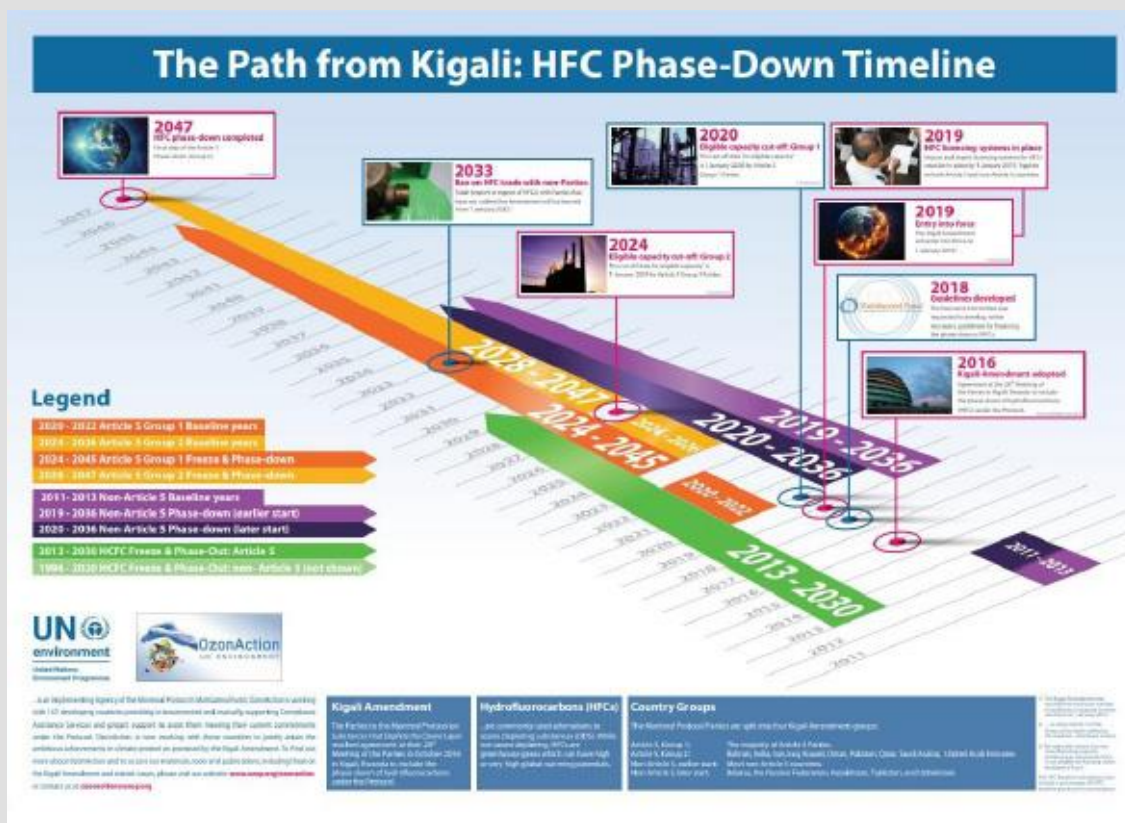
Contact: [Ezra Clark](#), UNEP, OzonAction



[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.

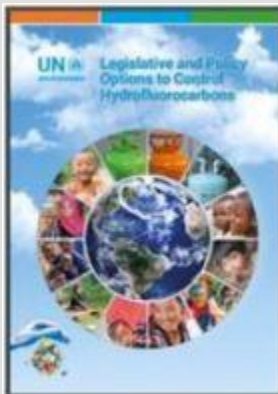
This application, consisting of short instructional videos on techniques, safety and best practice, serves as a complementary training tool for refrigeration and air-conditioning (RAC) sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training.

New videos on flammable refrigerants just added!

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

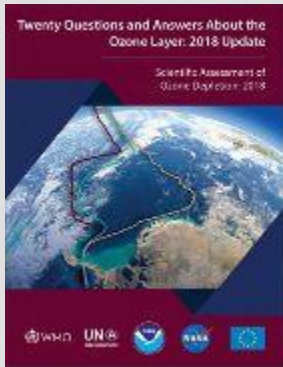
OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series [Available in the Android Play Store and Apple Store/iTunes](#). (Just search for “OzonAction”, or scan this QR code)

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 CO₂-eq by 2050, and avoid up to 0.5°C of warming by 2100.

Lead authors:
Durwood Zaelke, Nathan Borgford-Parnell, and Stephen O. Andersen.

Contributing authors:
Kristin Campbell, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng
Ling, Alex Milgroom, and Nancy J. Sherman.



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

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

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

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



[Impact of Standards on Hydrocarbon Refrigerants in Europe – Market research report.](#)

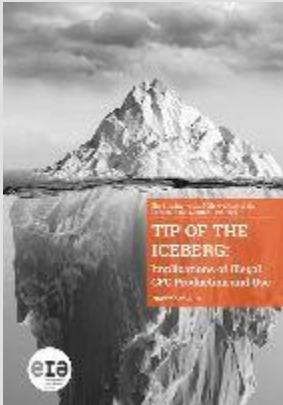
The market research report was realised for the EU-funded [LIFE FRONT](#) project. Amongst the main result of the market research:

- 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, 2006-2018/1994-2019](#)

- 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. 6 - 2020](#) (in Italian language).



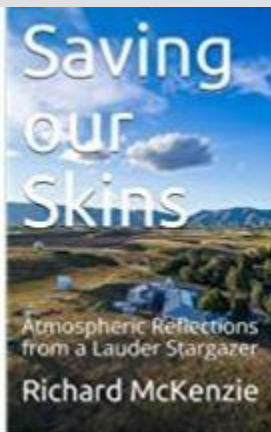
[Accelerate #110](#) features a cover story on Clean Cooling, a new approach to HVAC&R.



**WORLD
GUIDE TO
TRANSCRITICAL CO₂
REFRIGERATION**



“[World Guide to Transcritical CO₂ Refrigeration](#)”, a free three-part resource looking at the global market penetration and potential of this natural refrigerant technology. As the use of transcritical CO₂ 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 CO₂ market in the future. It includes survey information, partner case studies and interviews, and “thought leader interviews” with important individuals from the industry.



[Saving our Skins: Atmospheric Reflections from a Lauder Stargazer](#) An insider’s account of the most successful international environmental action ever undertaken: the Montreal Protocol on Protection of the Ozone Layer. Richard McKenzie’s career in ozone research began years before the discovery of the Antarctic ozone hole and continues to the present day. McKenzie brings a first-hand experience to the story through his research and involvement in scientific and environmental assessments of ozone depletion. Saving our Skins is the story of how McKenzie and his colleagues at New Zealand’s National Institute of Water & Atmospheric Research in Lauder – a research laboratory housed on a sheep and cattle station at the bottom of the country – helped ensure the success of the Montreal Protocol. McKenzie’s story plays out against a backdrop of an ever-increasing threat from climate change and its interactions with the ozone story. This book – authoritative on the science, but accessible to the layman – intertwines the scientific story behind the Protocol with the author’s personal experiences in a career that spans four decades, stretching from the hallowed corridors of Oxford University to an isolated rural community where the locals refer to the scientists as “stargazers”. The book’s title plays on the dual problem of ozone depletion - which leads to dramatic increases in ultra-violet radiation that causes skin cancer - and climate change, which poses an existential threat to humanity. Both serve to remind us of the fragility of our thin skin of atmosphere. Ultimately, McKenzie shows that with foresight and global cooperation, difficult problems in science can be solved. As world leaders grasp for solutions to the climate change threat, this book suggests they might find a model in the Montreal Protocol.

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



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

- 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.



Click [here](#) to access recent OzoNews Issues [Request a PDF](#) of the current issue

Disclaimer:

The United Nations Environment (UNEP), Economy Division, OzonAction provides OzoNews as a free service for internal, non-commercial use by members of the Montreal Protocol community. Since its inception in January 2000, the goal of OzoNews is to provide current news relating to ozone depletion and the implementation of the Montreal Protocol, to stimulate discussion and promote cooperation in support of compliance with the Montreal Protocol. With the exception of items written by UNEP and occasional contributions solicited from other organizations, the news is sourced from on-line newspapers, journals and websites.

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

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

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

If you wish to submit articles, invite new subscribers, please contact:
Samira Korban-de Gobert,
Tel. (+33) 1 44.37.14.52,
samira.degobert@un.org

