

OzoNews

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

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GLOBAL

1. Kigali Amendment latest ratification

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

China, 17 June 2021

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](#)

Image: UN Treaty Collection website

2. 2nd Part of the 43rd Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (OEWG 43) - 14–17 July 2021 | Online

Vienna Convention and Montreal Protocol on Substances that Deplete the Ozone Layer

With two urgent technical issues on its agenda, the Open-ended Working Group of the Parties to the Montreal Protocol will reconvene virtually for the second part of its 43rd meeting. Parties will consider updated technical reports on 1) unexpected emissions of trichlorofluoromethane (CFC-11), and 2) energy-efficient and low-global-warming-potential technologies.



On 14 and 15 July, parties will consider unexpected emissions of CFC-11, an ozone-depleting substance that was phased out of production and use in 2010, as mandated under the Montreal Protocol. While emissions and atmospheric abundances were expected to decrease as a result of this global action, scientific studies published in 2018 revealed that levels had increased between 2014 and 2016.

At this meeting, the Scientific Assessment Panel (SAP) and Technology and Economic Assessment Panel (TEAP) will present their respective reports on unexpected emissions of CFC-11. The SAP will provide additional information on atmospheric monitoring and modeling, as well as updated measurements and analysis. TEAP will present updates including: (a) an analysis of CFC-11 banks; (b) linkages between the level of production of anhydrous hydrogen fluoride and carbon tetrachloride and unexpected emissions of CFC-11; (c) the types of CFC-11 products, the disposition of any such products, and opportunities and methods for detecting such products and potentially recovering the associated CFC-11; and (d) identification of possible drivers of illegal production of and trade in CFC-11.

On 16 and 17 July, participants will address the technical aspects of the TEAP's updated energy efficiency report, focusing on new developments in best practices, availability, accessibility, and cost of energy-efficient technologies in the refrigeration, air conditioning, and heat pump sectors. This work supports implementation of the 2016 Kigali Amendment

to the Montreal Protocol, where parties committed to cut the production and consumption of hydrofluorocarbons (HFCs) by over 80% over the next 30 years.

Both technical meetings will offer substantially identical sessions on different days to accommodate participants in a range of time zones. The first session for each issue will be held from 9:00 am to 12:00 pm (UTC+3) on 14 and 16 July, respectively, and the second sessions will be held from 4:00 pm to 7:00 pm (UTC+3) on 15 and 17 July. The sessions will include time for questions and answers, as well as general statements. Associated policy issues will not be considered during these meetings.

>>> Click [here](#) for daily coverage by IISD

Earth Negotiations Bulletin, International Institute for Sustainable Development (IISD), 14 July 2021

Image: IISD website

3. New OzonAction Knowledge Maps tool

The UNEP OzonAction Knowledge Maps tool was developed to provide the National Ozone Units (NOUs) and different UNEP partners with a simple tool to help them access data and information about relevant stakeholders, who are mainly involved in the implementation of programmes and projects under the Montreal Protocol (MP) supported by Multilateral Fund (MLF).

Currently, the first two available knowledge maps are described below:

Refrigeration, Air-Conditioning, and Heat Pumps (RACHP) Associations & Organizations: This Knowledge Map provides a global directory of RACHP associations, societies, and organisations around the world. These are key stakeholders for ensuring safe and efficient refrigerant transitions, for the training of technicians and supporting the national policies related to the Montreal Protocol.

Local Technical & Vocational Education and Training (TVET): This Knowledge Map provides a global directory of TVET entities and centres around the world. These are the strategic partners for conducting and promoting training and certification programmes related to the refrigeration servicing sector.

To develop this tool, UNEP OzonAction collected and reviewed different datasets



from multiple sources, and then presented the collected datasets into a common platform and format (mainly in the form of a global map so that data can be geographically displayed). Kindly note that the data and information provided will be updated regularly through the feedback that will be received from NOUs and partners to update and/or add new records. Other maps are currently under development which will include access to other key data and information of importance to the implementation of Montreal Protocol programmes.

Click [HERE](#) to access the OzonAction Knowledge Maps tool

Click [HERE](#) to download the OzonAction Knowledge Maps tool flyer

OzonAction UN Environment Programme Law Division, 30 June 2021

Image: OzonAction

AFRICA

4. Nigeria Federal Government launches HCFCs phase out plan for ozone depleting substances

The Federal Government is working towards the implementation of the Montreal Protocol with the aim to achieve phase out of Ozone Depleting Substances (ODS) such as refrigerants in the foam and refrigeration sector of the economy.



Besides, the government has established a pilot hydrocarbon plant for the production of high-grade hydrocarbon refrigerants to be used as alternative non-Ozone substances in the refrigeration and air conditioning servicing sector.

He explained, "As part of the implementation of the Stage I project, we have successfully upgraded a system house at Vitapur Nigeria Limited for the formulation of methyl formate-based pre-blended polyols as an alternative to ODS in making rigid polyurethane foam."

Abubakar added, "The project under the Protocol on substances that deplete the ozone layer is designed to phase out the use of HCFCs in all the relevant industrial sectors, to prevent the depletion and save mankind from the deleterious effects of this global issue."

"We will strengthen the sector's training standards and capacity to improve service levels, reduce leakage rates and energy consumption. This will involve training and certification of about 10,000 technicians on the use of natural refrigerants," he remarked. [...]

She said, upon successful completion of Stage I implementation in 2018, the stage II project was approved by the Multilateral Fund the same year, in addition to the United Nations

Development Programme and United Nations Industrial Organisation as well as the Government of Italy will equally serve as bilateral agency for the project.

The minister commended the development partners for effective collaboration and support, saying, the project will build on the achievements of the previous one and will assist Nigeria to achieve the Montreal Protocol's target of 51.35 percent reduction of ODS by 2023. [...]

[The Guardian, Nigeria, June 2021, By Cornelius Essen](#)

Image: The Guardian website

ASIA AND THE PACIFIC

5. HCFC consumption reduced by 35 percent in 2020 - Fiji

Fiji managed to reduce its Hydrochlorofluorocarbons (HCFC) consumption by 35 percent last year.

The Permanent Secretary for Environment, Joshua Wycliffe revealed this, while officially opening the HCFC Phase-out Management Plan (HPMP) Stage II Virtual Stakeholder Consultation for the Refrigeration and Air-conditioning (RAC) sector this week.

Wycliffe stated that this has only been possible through the continuous support of the government stakeholders, enforcement agencies and the RAC sector.

"The overall strategy has been, to facilitate Fiji's compliance with the phase-out target through minimal impact on the RAC industry, economy and the environment. The government has taken steps to implement a combination of interventions such as policies and regulation, investment on technology transfer, training and capacity building, technical assistance, and awareness in view of integrated approach," Mr Wycliffe told participants.

"The aim is to implement an integrated plan for HCFC reductions to facilitate the market transition to HCFC alternatives while achieving climate benefits through the adoption of climate friendly RAC technologies. Stage II is aimed to strengthen national capacity to limit the supply of HCFCs, prevent new demand for HCFCs and promote the adoption of low-GWP and energy-efficient alternative technologies to sustain HCFC phase-out."

"As a Small Island State, Fiji is highly vulnerable to the impacts of climate change. The Department of Environment strongly supports and remains committed to any initiative that would help mitigate the negative impacts that contribute to climate change. We call for immediate action to reduce emissions."



Director Environment Sandeep K. Singh (closest to the camera) with PS Wycliffe during the virtual consultation. Picture: SUPPLIED

“It is vital that the Department of Environment as the regulator of the Ozone Depleting Substances Act 1998 and lead enforcing agency consults you, our stakeholders to achieve complete phase out of HCFC. Stakeholder consultations must take place so that you are aware on the changes that is recommended be made on policies and regulations, the investment on technology transfers and the need for training, technical assistance and awareness,” Mr Wycliffe said.

HPMP Stage II

HCFC Phase-out Management Plan (HPMP) is currently being drafted (to conclude in 2030) and once finalised and endorsed by cabinet, will be implemented by the Department of Environment. HPMP Stage I is coming to a conclusion and Fiji is in the process of planning the development of an overarching HPMP Stage II to address remaining consumption post 2020.

The HPMP Stage II will be built on the achievements of HPMP Stage I to assist Fiji to achieve complete phase-out of HCFCs under the Montreal Protocol.

[The Fiji Times, 10 July 2021](#)

Image: Fiji Times website

6. Maldives becomes first country to quit HCFC

The Maldives has become the first country to quit the use of Hydrochlorofluorocarbons (HCFC).

Maldives was the very first country to develop and start the implementation of a comprehensive HCFC Phase-out Management plan with commitments to phase out HCFCs by 2020. The project, which was launched in 2010, was conducted with grant assistance provided by multilateral funds.



The Environment Ministry said 67 metric tonnes of HCFC gases were imported to the Maldives in 2010. However, the use of HCFC has now been eliminated by following the phase-out management plan over the past ten years.

The project was officially concluded on June 18. Speaking at the ceremony held to mark the occasion, Environment Minister Aminath Shauna said if adequate support and financial assistance is received, the Maldives aims to become a carbon-neutral country by 2030.

Hydrochlorofluorocarbons (HCFCs) are gases that are categorized as both ozone-depleting substances (ODS) and powerful greenhouse gases with a high global warming potential (GWP).

[Avas Online, 29 June 2021](#)

Image: avas.mv

LATIN AMERICA AND CARIBBEAN

7.22 technicians awarded retrofitter licences - under Guyana HCFCs phase-out programme

Twenty-two young technicians were on Thursday [24 June] issued their retrofitter licences after completing a six-week training exercise at the Government Technical Institute (GTI).



According to the Ministry of Agriculture (MoA), the training was facilitated by the Hydrometeorological Department of the MoA and forms part of Guyana's efforts to eliminate the consumption of ozone-depleting substances through a phase-out schedule.

A release from the ministry stated that Agriculture Minister Zulfikar Mustapha, who offered remarks at the simple handing-over exercise, assured that the government was working to ensure additional environmentally- and climate-friendly technologies are utilised in the refrigeration and air conditioning industry.

"We have, so far, been successful in eliminating some of the gases that have been destroying the ozone layer. We've also been advocating for the use of more climate-friendly substances. Climate change is a critical subject that needs to be taken seriously. As a developing country, issues surrounding climate change are extremely important. Guyana is currently experiencing severe flooding as a result of climate change. Rivers have risen and we are experiencing prolonged and more intense rainy seasons. As a people, we should strive to secure our environment. I know that the training that you would've received has equipped you with the knowledge to carry out the services needed to add to what government is doing to eliminate the use of those chemicals that continue to pose a threat to our environment," Minister Mustapha was quoted as saying. [...]

[Stabroek News, 27 June 2021](#)

Image: Guyana.org

NORTH AMERICA

8. Refrigerant Management Canada increases fee on CFC-11 refrigerant disposal

The new fee is set to be \$20.00/kilogram for CFC-11 refrigerant entering the program for destruction.

Refrigerant Management Canada (RMC) has announced the fee for accepting CFC-11 refrigerant (Trichlorofluoromethane, also called freon-11 or R-11) into the program has changed.

As of July 1, 2021, the new fee is \$20/kg for CFC-11 refrigerant entering the program for destruction.

For years RMC was partially subsidizing the cost of collecting and destroying the CFC-11 refrigerant. The change comes after RMC Board of Directors decided that the cost of collecting and destroying CFC-11 refrigerant can no longer be subsidized by the program, as costs continue to increase.

RMC recommends that contractors discuss the disposal fee with their customers and remind them that as the equipment and refrigerant owner, they are obliged to comply with the provincial and federal regulations regarding the proper handling, storage and disposal of CFC-11 refrigerant.

Heating, Plumbing, Air Conditioning (HPAC), 6 July 2021, By: Logan Caswell

Image: HPAC website



Refrigerant Management Canada Increases Fee on CFC-11 Refrigerant Disposal

The new fee is set to be \$20.00/kilogram for CFC-11 refrigerant entering the program for destruction.

July 6, 2021 Logan Caswell

9. How Montreal made Ammonia safe for its rinks

The city has transitioned arenas away from R-22 using a design that ensures the safety of staff, patrons and surrounding neighbourhoods.

Montreal is the second-largest city in Canada, and when it comes to ice arenas, the city stands out, now counting over 50 refrigerated indoor and outdoor facilities. Montreal is also the birthplace of the Montreal Protocol on Substances that Deplete the Ozone Layer (1987), the international treaty to phase out man-made ozone depleting substances, an agreement that continues to make an impact on the refrigeration industry, including arenas.

For two decades before the Montreal Protocol was signed, the bulk of arenas were built with refrigeration plants employing R-22, a non-flammable and non-toxic refrigerant. Unfortunately, it was found to be an active contributor to the growing hole in the ozone layer.

Montreal committed to converting its ice arenas away from R-22 by 2020, and that task was charged to Claude Dumas, P.Eng., a mechanical engineer working for the city. "Approaching



Rendering of Esplanade Transpole in the heart of downtown Montreal, the City's latest outdoor ice rink project which is nearing completion. (DesignMontreal)

a project, I always wear two hats: the hat of an engineer and the hat of an owner," says Dumas.

He was a good choice for the job. After graduating in 1966 from the Polytechnique Montreal, Dumas spent 15 years working as a technical representative for two different manufacturers, Carrier then York, and then he spent eight years as a consulting engineer for the largest engineering firm in Quebec at the time, TECSULT, which later merged with AECOM, where he worked on energy efficiency projects for Montreal's arenas, among other projects. When the city advertised for a project lead, facilities, Dumas was quick to apply. He's been there ever since. [...]

Successful Solution

Montreal recently completed its final R-22 conversion and continues to use its 2010 design for new builds. In January, as is his custom, Dumas was on site for the pouring of the city's latest outdoor project, the Esplanade Tranquille in the heart of downtown.

Envisioned as an urban terrace in the summer, it will become a skating surface in the winter. The near Olympic-sized rink will be supported by a 9-in. slab, accounting for the heavy summer foot-traffic. Petropoulos, Bomis & Assoc. is the refrigeration engineer and LS Refrigeration is the sub-contractor.

For the Esplanade Tranquille, the refrigeration system is comprised of:

- Plate and frame heat exchanger (p/h/x) for the evaporator and the condenser.
- The heat exchanger pipes, buried in the refrigerated floor, are 1-in. ID steel pipe, schedule 40.
- The heat transfer fluid in the p/h/x evaporator and the rink heat exchanger is a brine composed of calcium chloride and water.
- The plant uses three 100-HP reciprocating compressors, belt driven, 1000 rpm, 59.1 Tr, $x 3 = 177.3$ Tr.
- The refrigeration capacity ratio is: $19619.4 \text{ ft}^2/177 \text{ Tr} = 110.6 \text{ ft}^2/\text{Tr}$
- A critical charge of R-717 (ammonia) refrigerant. The refrigerant charge is estimated to be less than 400 lbs; the real charge will be discovered upon system start-up.
- One U-turn separator instead of a surge drum.
- The heat rejection devices are air cooled dry coolers.
- Ethylene glycol (EG) is used as heat transfer fluid between p/h/x condenser and the dry coolers.

The mechanical room is built on two levels, where the main floor is 12 ft. lower than the rink, with a mezzanine, control room and access, located at ground elevation.

Encouraging Change

Montreal's ammonia refrigeration design has been proven for a decade. An estimated 400 arenas within the province of Quebec are still using R-22 and packaged systems. Montreal's low-charge design is now becoming available from specialist refrigeration companies making ammonia refrigeration safer than ever before.

Image: HPAC website

10. This new British Columbia (BC) program lets you return large appliances for free

There's something exciting about upgrading your old appliances for glossy, modern ones that get the job done. [...]

The [Return-It Large Appliance Program](#) operates on behalf of the [Major Appliance Recycling Roundtable](#) (MARR) to help fulfill the stewardship plan that has been approved by the British Columbia Ministry of Environment and Climate Change. The program currently has over 190 collection sites with free drop-off, which collect and recycle large appliances that are no longer in use.



Why is it important?

Since lots of big appliances, like freezers and fridges, are used for cooling and freezing, many of them have chemical properties that are considered ozone-depleting substances (ODS). Because these chemicals can be ultra-harmful to the environment and have the potential to contaminate our precious wilderness, they need to be handled and disposed of carefully by licensed professionals.

By recycling these appliances, we can ensure that they're managed with the utmost care and are disposed of properly without hazard to the environment. It also means that any recyclable materials can go back into the manufacturing cycle and usable parts can be given fresh meaning in the creation of newer appliances. [...]

[Daily Hive, 5 July 2021](#)

Image: Shutterstock

EUROPE & CENTRAL ASIA

11. Greek customs seize 17,200kg of illegal HFC refrigerant

Customs officers from the port of Elefsina in Greece have seized 17,200kg of smuggled illegal HFC refrigerant.

The haul of 1,352 cylinders was discovered on Friday in a refrigerated trailer in the Aspropyrgos suburb of Athens. There was no documentation with the shipment and all the refrigerant was in illegal disposable cylinders.

While refrigerant samples have been sent for official analysis, photos suggest the haul included a wide range of gas types including R134a, R410A, R407A, R407F, R507 and R1234yf.

The refrigerant and trailer have been confiscated pending further investigation.

[CoolingPost, 12 July 2021](#)

Image: CoolingPost website



12. Europe's ambitions to fight climate change are being torpedoed by a soaring trade in illegal hydrofluorocarbons (HFCs)

The potential climate impact of this illegal trade could amount to the greenhouse gas emissions of more than 6.5 million cars being driven for a year.

The most shocking revelation was the discovery that these hazardous gases were being smuggled around Europe below unwitting passengers and drivers in the luggage compartments of transcontinental coaches, among other methods.

[EIA's] new report [Europe's Most Chilling Crime – The illegal trade in HFC refrigerant gases](#) pinpoints Romania as a major illegal entry point for Chinese-made HFCs, smuggled via Turkey and Ukraine.

The EU revised its F-Gas Regulation in 2014 to phase down HFCs, a family of synthetic greenhouse gases hundreds to thousands of times more potent than CO₂ and commonly used in refrigeration, air-conditioning, fire protection, aerosols and foams.

But as supplies shrink and prices rise under the EU's HFC quotas, criminal trade has proliferated to meet demand.



Clare Perry, EIA's Climate Campaigns Leader, said: "It's no exaggeration to say the future stability of human society sits on a knife-edge and time is running out to meaningfully tackle climate change.

"We can't afford a single misstep in our efforts to keep the global temperature rise below 1.5°C and the sheer scale of illegal HFC trade into the EU should be ringing alarm bells throughout the bloc – this is the biggest eco-crime no-one's heard of and that needs to change, fast."

EIA investigations for *Europe's Most Chilling Crime* identified Romania as a key entry point for illegal HFCs into EU markets, highlighting a network of intermediaries involved in illegal trade and commonplace use of bribery to smuggle HFCs across the border.

Evidence from successful enforcement efforts in other illegal trade hotspots, such as Poland and Lithuania, suggest illegal traders are opportunistic and move to exploit markets with weak enforcement. EIA investigators went undercover in Romania to infiltrate the highly profitable trade and found no shortage of suppliers willing to break the law to supply them with smuggled HFCs, at times supplied in single-use cylinders which have been outlawed in the EU.

EIA identified a growing trend of illegal HFC-404A in circulation, a super-potent refrigerant that is banned from topping up large refrigeration systems. In 2020, this refrigerant accounted for more than one-third of all HFC seizures. Perry added: "The illegal trade flourishes because prosecutions and financial penalties are rare and are usually not commensurate with the profits to be made. In particular, corruption at Romanian border points needs to be addressed as a matter of urgency."

Although the size of the illegal HFC trade cannot be accurately estimated, EIA believes it is significant, likely between 20-30 per cent of the legal trade – and with an allowable annual EU quota of 100.3 million tonnes CO₂equivalent (CO₂e), this would indicate the volume of illegal HFCs entering the EU is potentially as much as 30 million tonnes of CO₂e.

One indication of the illegal trade is the significant discrepancy between reported exports into the EU and the EU's reported imports, which have been consistently lower; imports reported under the EU's HFC Registry since 2017 show a difference of an estimated 9.1 million tonnes CO₂e in 2019.

Turkey appears to have played a key role as a source country for illegal HFC imports in 2018 and 2019. Information from HFC seizures suggests that abuse of EU transit procedures is a key method for non-quota HFCs to enter and travel across Europe.

Further, European Environment Agency data shows the number of companies reporting bulk HFC imports almost doubled from 2018-19 (from 895 to 1,694), many of them with no apparent links to the F-gas business and strongly indicative of criminal opportunism.

Europe's Most Chilling Crime includes a series of recommendations by EIA to comprehensively address illegal HFC trade under the EU's F-Gas Regulation.

Environmental Investigation Agency (eia), July 2021

Image: eia website

13. 7th IIR International Sustainable Cold Chain Conference – Call for Abstracts Now Open

The call for abstracts is now open for the 7th IIR International Sustainable Cold Chain Conference, which is due to take place in Newcastle, UK from 11 to 13 April 2022.

The conference will be a platform to share expertise on the cold chain with developing countries to address key UN sustainable development goals related to hunger, health, energy, education, economic growth, infrastructure, sustainable cities, responsible production, climate action and partnerships.

The event will explore innovation in the cold chain including retail refrigeration, technology and design as well building a sustainable cold chain in developing nations. Abstracts are sought on topics including storage, transportation and logistics, modelling and predictive tools reducing food waste and pharmaceutical cold chain (a full list is available from <https://ior.org.uk/events/ICCC2022>)

The conference is expected to attract over 120 delegates and over 60 technical papers. Discounts for authors on the registration fee for the three-day event will be available.

“This is an excellent opportunity to put the UK more firmly on the international map and develop a better understanding of the work that is taking place in this very important sector. The UK has hosted the first event in this series in 2010 in Cambridge and once again in 2014 in London. Both were overwhelmingly successful with over 150 people taking part in each conference.” said Andy Pearson FlnstR, Chairman of the Conference Planning Group.

The deadline for submission is 1 October 2021 and further details on how to submit an abstract are available from <https://ior.org.uk/events/ICCC2022/iccc-abstracts>

For further information on 7th IIR International Sustainable Cold Chain Conference, contact Lisa Waters at lisa@ior.org.uk

FEATURED

Overview for the meetings of the ozone treaties in 2021

- **66th IMPCOM** - Online meeting | 12 - 13 Jul 2021
- **43rd OEWG** - Online meeting | 14 - 17 Jul 2021
- (CFC-11: 14 & 15 Jul, Energy Efficiency: 16 & 17 Jul, Replenishment: completed 24 May)
- **11th ORM (part II)** - Online meeting | 19 - 23 Jul 2021
- **67th IMPCOM** - Nairobi, Kenya (tentative) | 21 Oct 2021
- **12th COP (part I) – 32nd MOP Bureau** - Nairobi, Kenya (tentative) | 22 Oct 2021
- **12th COP (part II) – 33rd MOP** - Nairobi, Kenya (tentative) | 23 - 29 Oct 2021

Click [here](#) for past and upcoming Montreal Protocol Meetings Dates and Venue.

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. [Learn more >>>](#)

World Ozone Day 2021



*Montreal Protocol - Keeping us,
our food and vaccines cool*

World Ozone Day 2021

celebrating the Montreal Protocol that is:

Keeping us, our food and vaccines cool



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

- **Report of the Extended Intersessional Approval Process** established for the 86th meeting of the Executive Committee
- Click [here](#) for the Executive Committee upcoming and past Meetings and related documents..
- **Executive Committee Primer – 2020** - An introduction to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol.



OzonAction

OzonAction Compliance Assistance Programme produces and outreaches a wide variety of information and capacity building materials and tools that support the implementation of the Montreal Protocol programs and assist Article-5 countries in meeting the compliance targets. These include publications, technology briefs and factsheets, mobile applications, videos, e-Learning, modelling and database programs and special educational or certification programs.

The section below features several of our most recent products.
Visit [OzonAction website](#) for more information, discover the entire range of products.

Images in this section are by OzonAction



Climate Action with OzonAction - The Montreal Protocol on Substances that Deplete the Ozone Layer protects human health and the environment by phasing out nearly 100 industrial chemicals known as ozone depleting substances (ODS)- which include hydrochlorofluorocarbons (HCFCs) and chlorofluorocarbons (CFCs). The Montreal Protocol also works to phase down hydrofluorocarbons (HFCs), which are not ODS but are powerful greenhouse gases. UNEP's OzonAction supports 147 developing countries in making their Montreal Protocol targets. [...]

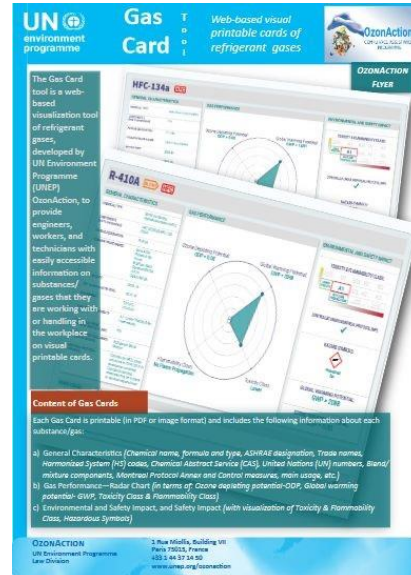
Excerpt from the "**Environmental Governance Update - April 2021** - Good governance for healthy planet and people", June 2021.

Read pages 6-9 to learn more about [Climate Action with OzonAction](#)

Gas Card Tool: Web-based Visual Printable Cards of Refrigerant Gases developed by the UN Environment Programme (UNEP) OzonAction, to provide engineers, workers, and technicians with easily accessible information on substances/ gases that they are working with or handling in the workplace on visual printable cards.

Content of Gas Cards - Each Gas Card is printable (in PDF or image format) and includes the following information about each substance/gas: a) General Characteristics (Chemical name, formula and type, ASHRAE designation, Trade names, Harmonized System (HS) codes, Chemical Abstract Service (CAS), United Nations (UN) numbers, Blend/ mixture components, Montreal Protocol Annex and Control measures, main usage, etc.) b) Gas Performance— Radar Chart (in terms of: Ozone depleting potential-ODP, Global warming potential- GWP, Toxicity Class & Flammability Class) c) Environmental and Safety Impact, and Safety Impact (with visualization of Toxicity & Flammability Class, Hazardous Symbols).

More Information - The Gas Card web-based tool is part of UNEP OzonAction's portfolio of activities and tools to assist various stakeholders in developing countries, including customs officers and technicians, to achieve and maintain compliance with the Montreal Protocol on Substances that Deplete the Ozone Layer. In the left navigation bar of the Gas Card tool web page, you will find a list of commonly used HFCs and HFC Blends in different sectors.*



Using the Gas Gard web-based tool

- The Gas Gard tool is available online on the [OzonAction website](#)
- Read the full [2021 annual iPIC report](#)
- See the [flyer](#) introducing the new iPIC platform

* Based on the Overall Analysis of the Results of the Survey of ODS Alternatives Report (conducted in 119 countries from 2012 to 2015)

Name	Quantity	Status
R-22	100.000	Import
R-134a	100.000	Import
R-410A	100.000	Import
R-404A	100.000	Import

HCFC Quota and Licence Tracker - UNEP OzonAction launches a new desktop application to assist with HCFC licences and quotas

National Ozone Officers have the great responsibility of managing the allocation and monitoring of quotas for substances controlled under the Montreal

Protocol. This process can be complex with many importers, especially if the country imports a range of different hydrochlorofluorocarbons (HCFCs) and mixtures containing HCFCs. To address this challenge, OzonAction developed a new desktop application that

helps Ozone Officers with the tasks of planning, calculating, monitoring and managing consumption quotas and licences. It can be used on a daily basis to track and manage the current year's quota allocations for different importers, or for future planning by trying different scenarios that adjust the type of substances imported, their quantity, or the number of importers. The HCFC Quota and Licence Tracker allows Ozone Officers to see the effect of such scenarios on the national HCFC consumption and helps ensure that the quotas stay within agreed HCFC Phase-out Management Plan (HPMP) targets. For countries that have ratified the Kigali Amendment, in the future OzonAction will extend the tracker to include hydrofluorocarbons (HFCs) once countries begin designing their quota systems for those controlled substances.

Access the:

- [HCFC Quota tracker app](#)
- [Flyer for more information on the tracker](#)
- [Short video tutorial on the OzonAction YouTube Channel](#)

GWP-ODP Calculator Application – Updated

“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. 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

OzonAction **WhatGas?** Updated

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!

RAC Technician Videos - Full length films!

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](#).

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.

An AHRI revised guideline, first published in 2015, now removes paint colour assignments for refrigerant containers and specifies that all refrigerant containers should have the same paint colour from 2020 onwards.

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.

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 (September 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

OzonAction's iPIC platform - Updated

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.

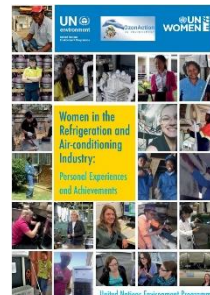


Women in the refrigeration and air-conditioning industry: Personal experiences and achievements

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 field and follow in their footsteps.

Read/download the [publication](#)



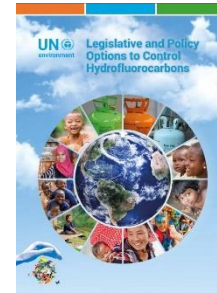
PUBLICATIONS

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.

[Read/download](#)



Latest issue of Centro Studi Galileo magazine, [Industria & Formazione, n. 449 - 2021](#) (in Italian).



[Sustainable Cooling in support of a Resilient and Climate Proof Recovery](#), Report by the Climate and Clean Air Coalition (CCAC), 2021



Solar Cooling (2020), 40th Informatory Note on Refrigeration Technologies. Summary

- Solar cooling is a promising and environmentally friendly technology that can help meet the growing global demand for space cooling. Solar cooling can be achieved by various technologies. The two main commercial options are photovoltaic (PV)-driven vapour compression chillers and heat-driven cooling machines powered by solar collectors. Thermal cooling equipment can be coupled with various types of solar collectors with different efficiencies and costs. Overall system efficiencies of PV-driven and solar thermal-driven plants may not have such different values. Economic analysis indicates that the investment cost for the PV solution is at least half that of other systems. Solar cooling may have a very positive environmental impact by reducing the use of fossil fuels, and the technology may be considered mature to compete with conventional cooling equipment.



** This Informatory Note is an update of a previous version published in April 2017. It was prepared by Renato Lazzarin (President of IIR Section E).*

A Summary for policy makers - Solar Cooling 2020 is available in English and French languages.

International Institute of Refrigeration, March 2021

Leaks, maintenance and emissions: Refrigeration and air conditioning equipment report details common faults identified in both residential and commercial refrigeration and air conditioning equipment. The report also lists the impacts of these faults and how routine maintenance of the equipment has the potential to significantly reduce electricity use, refrigerant leaks, and emissions.

The research was supported by an extensive survey of international and domestic literature included as Appendix B to the report.

Australian Government, Department of Agriculture, Water and the Environment, Expert Group, 2021



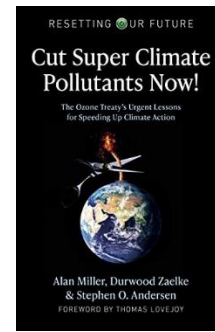
Green Cooling in public procurement How to advance the procurement of climate-friendly and energy-efficient cooling equipment in the public sector? Air conditioning in public buildings is often responsible for around 50% of total electricity consumption. Switching to climate-friendly cooling technologies ("Green Cooling") can reduce costs and energy consumption and improve the carbon footprint of public buildings. This study takes a closer look at the benefits of Green Cooling in the public sector and discusses current barriers and possible solutions. The information presented provides a solid basis to revise current procurement criteria for sustainable cooling systems in public buildings.

Read/Download the [study](#)



Cut Super Climate Pollutants Now!: The Ozone Treaty's Urgent Lessons for Speeding Up Climate Action (Resetting Our Future). We have a decade or less to radically slow global warming before we risk hitting irreversible tipping points that will lock in catastrophic climate change. The good news is that we know how to slow global warming enough to avert disaster. Cut Super Climate Pollutants Now! explains how a 10-year sprint to cut short-lived "super climate pollutants" – primarily HFC refrigerants, black carbon (soot), and methane – can cut the rate of global warming in half, so we can stay in the race to net zero climate emissions by 2050.

Authors: Alan Miller, Durwood Zaelke, Stephen O. Andersen.



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 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*

R744

CO₂ COOLING MARKETPLACE

R744.com

Originally established in 2006, the new and improved [R744.com](#) offers a trusted source for the latest CO₂ products, services and news from around the world with a key feature being the new marketplace. In addition to the latest CO₂ news and information about the site's partners, the revamped R744.com includes a store where users can browse all available products, and filter for a wide variety of criteria, including components and services. It is also possible to narrow your search to include only products available in your home region, making it easier to find the best local options. [Watch this space!](#)



Retradeables introducing a brand new reclaiming marketplace - F-gases are a family of man-made gases used in a range of industrial applications. As consumer demand for refrigeration and air-conditioning products increased, industry emissions have also dramatically increased. New EU regulations force us to prioritize environmental obligations, whilst continuing to serve

the increased consumer demand and operate with a decreased amount of F-gas ...



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

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