UN environment programme

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

Patrick McInerney 1963 – 2024

For decades Patrick McInerney was a constant at the meetings of the Montreal Protocol.

A calm, reliable and solid figure, leading the Australian delegation, his contributions during negotiations were always thoughtful and measured.

In 2011 he served as Chair of the Executive Committee to the Multilateral Fund, from 2013-2014 as Co-Chair of the Open-ended Working Group of the Parties to the Montreal Protocol, and in 2019 as the President of the Implementation Committee.

During his time as OEWG Co-Chair, he was instrumental in shaping the Montreal Protocol into the treaty it is today. His skilful leadership during the HFC negotiations was instrumental in securing the adoption of the Kigali Amendment in 2016 – an important climate mitigation cornerstone of the Protocol contributing to its continued success as an environmental treaty. That same year, he received a Federal Public Service Medal for outstanding public service in the protection of the ozone layer and the climate system.

As Director at the Department of Climate Change, Energy, the Environment and Water, Australia, he most recently participated at the Thirty-Fifth Meeting of the Parties in October 2023 in Nairobi, Kenya, where he helped steer long and often protracted negotiations towards a record level of replenishment for the Multilateral Fund for 2024-2026.

His warmth, good humour and kindness will be sorely missed by the ozone family and all that had the pleasure of knowing him.

Ozone Secretariat, February 2024

1. Kigali Amendment latest ratifications

Congratulations to the latest countries which have ratified the Kigali Amendment:

Guatemala, 11 January 2024
Belize, 3 October 2023

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. A world united in environmental action
Speech delivered by Inger Andersen, UNEP Executive Director, opening press statement, UNEA-6, 26 February-1 March 2024, Nairobi, Kenya.

My thanks to the members of the media for covering the **sixth UN Environment Assembly**, known as UNEA-6.

The world has gathered here in Nairobi, the environmental capital of the world, to slow the triple planetary crisis: the crisis of **climate change**, the crisis of **nature and biodiversity loss**, and the crisis of **pollution and waste**. We've all felt and seen the impacts – baking heat, intense storms, vanishing nature, and species, failing soils, deadly dirty air, oceans stuffed with plastic waste and much more. These impacts fall hardest upon the poor and vulnerable, who are least responsible for them, but nobody is immune.

The whole world needs to get behind action on the environment if we are to have any chance of meeting the **Sustainable Development Goals**. So, it is encouraging that this UNEA boasts an unprecedented global presence, unity and inclusivity. We have over 7,300 registered delegates, 190 countries represented, over 150 ministers and vice ministers – all record highs for a UN Environment Assembly.

UNEP and this assembly are committed to listening to every voice so that the outcomes work for everyone, everywhere. At the Youth Environment Assembly, over 450 delegates agreed the Global Youth Declaration on Environment asking for greater, more meaningful engagement within environmental multilateralism. The voices of civil society, Indigenous Peoples, women, businesses and more have been fed in through the **Major Groups and Stakeholders Forum**. We have listened.

After intense negotiations during last week's Open-Ended Committee of Permanent Representatives, we have 19 resolutions and two decisions on the table. There are resolutions that can speed the transition to net-zero, improve the quality of air and water, and equip ocean and sea governance to tackle threats. There are resolutions that build the resilience of people to drought and support efforts to restore degraded land – such as the new World Restoration Flagships we will acknowledge at tomorrow's Gala of Hope.

There is a resolution that seeks to spark a global conversation on emerging technologies that will equip nations with the science and wisdom to make the right choices for people and planet. There is a resolution aimed at ushering out the culture of take, make and waste at the heart of the triple planetary crisis – as highlighted by the 2024 Global Resources Outlook from the International Resource Panel, which is being launched this week. We'll also launch UNEP's Global Waste Management Outlook, which will look at how the world must move beyond our current waste era and turn rubbish into a resource.

Most importantly, this assembly is placing a central focus on Multilateral Environmental Agreements, such as those covering climate, desertification, biodiversity, the ozone layer, chemicals and more. We have a day dedicated to reimagining how these agreements can better work together for accelerated action. In the MEA tent, this conversation will continue for most of the week.

Fundamentally, what we want to see here is unity and ambition, in line with the Nairobi spirit that two years ago saw this Assembly gavel a historic decision to launch negotiations towards a global instrument on plastic pollution. So, I am calling on everyone to join forces

for strong resolutions, stronger implementation and follow-up action and real inclusive multilateralism that delivers a brighter outlook for people and planet.

The sixth session of the United Nations Environment Assembly (UNEA-6)

IISD Daily coverage | **Summary of the Sixth Session of the Open-ended Committee of Permanent Representatives and the United Nations Environment Assembly: 19 February – 1 March 2024**

The United Nations Environment Programme (UNEP), 26 February 2024

Image: UNEP

See also >>>

- "**Montreal Protocol Advancing Climate Action: Challenges Ahead**", side event at UNEA6, 28 February 2024, Nairobi, Kenya.

- "**Enhancing Cooperation between Montreal Protocol (OzonAction), the Basel, Rotterdam and Stockholm Conventions, and Minamata Convention at the Country Level on Areas of Common Interest**", side event at UNEA6, 1 March 2024, Nairobi, Kenya.

- **A family united in action under Multilateral Environmental Agreements**, Speech delivered by Inger Andersen, UNEP Executive Director, for UNEA-6 Multilateral Environmental Agreements Day, 28 February 2024, Nairobi, Kenya.

- **Draft proceedings of the United Nations Environment Assembly at its sixth session - excerpt:**

74. In her statement, **Ms. Andersen** said that, in the current fragmented and divided world, the Environment Assembly sought to create unity and deliver inclusive multilateral solutions to address the triple planetary crisis. The resolutions and decisions of the Assembly would give impetus to the work of every multilateral environmental agreement. Together, the Assembly and UNEP could serve as a platform to achieve coherence in the implementation of the environmental dimension of sustainable development and the multilateral environmental agreements.

75. The environmental multilateralism family continued to grow, with new instruments, frameworks and initiatives being added to existing agreements. Successes had been achieved, including protecting the ozone layer and slowing climate change. Nevertheless, the triple planetary crisis was accelerating and more must be done, but that could only be achieved by acting as one.

…

Cheikh Ndiaye Sylla, President of the twelfth meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer:

78. In his remarks, Mr. Sylla said that the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer were a point of reference and had long been regarded as among the most successful multilateral environmental agreements. The direct climate benefits of implementing the two ozone treaties could be doubled through a transition to low-global-warming-potential refrigerants. Climate issues were interconnected.

3. International Network of Women in Cooling Survey Seeks Input from Women Working in Natural Refrigeration

The International Network of Women in Cooling (INWIC), a coalition of organizations promoting gender diversity in the HVAC&R sector, has issued a survey for women in the natural refrigeration industry in North America with the goal of "advancing diversity and understanding the experiences of women in the industry."

The survey, which is open to all women working in the natural refrigerants industry in the U.S. and Canada, is supported by the International Institute of All-Natural Refrigeration (IIAR), formerly known as the International Institute of Ammonia Refrigeration, the International Institute of Refrigeration (IIR) and the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

"By sharing experiences and perspectives, [survey participants] will contribute valuable data that will help improve career opportunities and foster greater diversity within our industry," said the IIAR in an email. "Participation in this survey is crucial in ensuring that the voices and experiences of women in natural refrigeration are heard and taken into account."

The INWIC said it hopes to gain a better understanding of the motivations, challenges and opportunities faced by women working in the sector. The survey results will be used to develop initiatives and programs aimed at supporting women in their careers and promoting inclusivity in the industry. Survey responses will remain anonymous and be used for research purposes only, it added.

"Engagement of women in this sector is either under-represented or unrecognized around the globe despite the high potential that can be unleashed by encouraging women to pursue education and job opportunities in HVACR," said INWIC.

A massive gender gap

According to the "Women in Cooling" report published by the IIR in 2022, only 6% of the members of national refrigeration associations are women. The report was based on survey data, and, of the survey respondents, just 11% worked in North America. The INWIC was launched that same year in an effort to accelerate diversification in the sector.

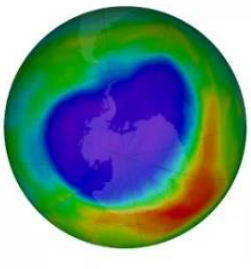
The IIAR will also host a workshop on diversity and inclusion in the natural refrigeration industry at the IIAR Natural Refrigeration Conference in Orlando, Florida, from March 24–27. The workshop will take place from 1:30–3:30 pm EDT on Monday, March 25.

"Together, we can work towards creating a more inclusive and supportive environment for all professionals in our field," it said.

R744, 19 February 2024, By Christina Hayes

Image: R744 | Female technician servicing an air conditioning unit. (Source: DC Studio on Freepik)

4. Unlocking the Secrets of the Stratosphere with the JPSS Ozone Mapping and Profiler Suite (OMPS)



Unlocking the Secrets of the Stratosphere With the JPSS Ozone Mapping and Profiler Suite (OMPS)

Stratospheric ozone is vital for protecting life on Earth, as it absorbs most of the sun's harmful ultraviolet (UV) radiation. Located approximately 15 to 30 kilometers above the Earth, the ozone layer acts as a shield, preventing damaging UV light from reaching the surface. Depletion of this layer leads to increased UV radiation exposure, which poses significant health risks to humans and can disrupt ecosystems and food chains.

Human activities have contributed to the thinning of the ozone layer, mostly through the emission of ozone-depleting substances like chlorofluorocarbons (CFCs). These substances, once widely used in refrigerants and propellants, rise into the stratosphere where they release chlorine and bromine molecules that cause ozone molecules to break down. The discovery of the Antarctic ozone hole in the mid-1980s led to the global action of the 1987 Montreal Protocol, effectively phasing out ozone-depleting substances and paving the way for the ozone layer's expected recovery by the mid-21st century. Still, the annual reappearance of the Antarctic ozone hole highlights the importance of continuous monitoring to ensure progress towards recovery and to inform global mitigation strategies.

Monitoring and understanding ozone layer recovery and its implications for global climate are enabled by advanced satellite instruments like the Joint Polar Satellite System (JPSS) Ozone Mapping and Profiler Suite (OMPS). OMPS is equipped with nadir-viewing spectrometers, which measure total atmospheric ozone, and a limb-viewing spectrometer that provides a unique perspective for capturing vertical profiles of ozone and aerosols. These capabilities are essential for studying polar ozone depletion, understanding the impact of stratospheric ozone on global circulation, and exploring other atmospheric phenomena.

Dr. Natalya Kramarova and her colleagues at NASA Goddard Space Flight Center's Atmospheric Chemistry and Dynamics Lab are enhancing the algorithms used to extract crucial data from the OMPS Limb Profiler. Their latest research is featured in the 2023 JPSS Science Digest (Feature 6), offering insights into how the JPSS Ozone Mapping and Profiler Suite is advancing stratospheric ozone monitoring.

The National Oceanic and Atmospheric Administration (NOAA), 26 February 2024

Image: NOAA

5. Call for proposals for innovation projects in the Cooling sector

The Climate and Clean Air Coalition (CCAC) has launched a call for proposals seeking solutions to pressing challenges for short-lived climate pollutant mitigation in the cooling sector. This call aims to bridge critical information,

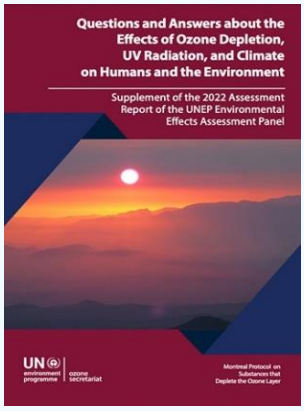
implementation, and finance gaps in the sector to create enabling environments for SLCP mitigation. Solutions supported by this call are expected to help sector stakeholders and governments implement and scale up mitigation action in line with the CCAC's **2030 objectives**.

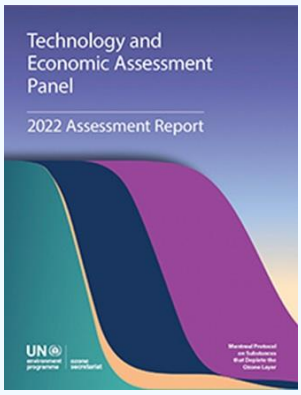
The call is open for 8 weeks, closing on 30, April 2024

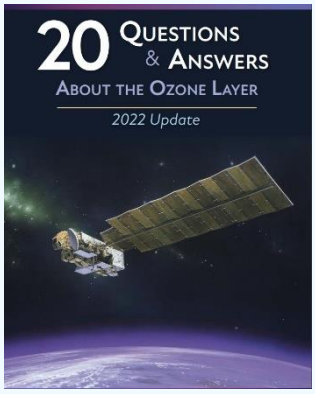
- Focus areas in the HFCs/Cooling and more information can be found in the announcement **here**
- Focus areas of other SLCP-emitting sectors can be found **here**

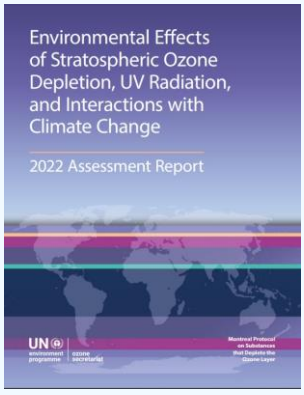
The Climate and Clean Air Coalition (CCAC), 4 March 2024

Image: CCAC









[Watch out for Illegal Trade of HCFCs and HFCs]: Lessons learnt from the Global Montreal Protocol Award for Customs and Enforcement Officers. This publication provides an analysis of the cases submitted in the context of the [Global Montreal Protocol Award for Customs and Enforcement Officers]. The Global Award was launched in 2018 by UNEP OzonAction. This Global Award is intended to raise awareness about the Montreal Protocol and to recognise customs and enforcement officials for their efforts in preventing and combating illicit traffic in Montreal Protocol and Kigali Amendment regulated substances. Ozone-depleting substances (ODS) include hydrochlorofluorocarbons (HCFCs) and other compounds with a high Global Warming Potential (GWP), particularly hydrofluorocarbons (HFCs).

UNEP OzonAction, ASHRAE, April 2023 Fact sheet: [Update on New Refrigerants Designations and Safety Classifications]. The purpose of this fact sheet is to provide an update on ASHRAE standards for refrigerants and to introduce the new refrigerants that have been awarded an «R» number over the last few years and introduced into the international market.

[Sustainable cold chains: Virtual Exhibition] **- The virtual exhibition for sustainable cold chains aims to highlight the critical role of cold chains in ensuring food safety and security, access to vaccines, reducing global warming and preventing ozone layer depletion.**

The exhibition showcases commercially available cold chain technologies for food and vaccines, mainly targeting applications and equipment with refrigeration and cooling cycles that use ozone and climate-friendly refrigerants and have enhanced energy efficiency characteristics. It also aims to promote game-changing and systemic approaches, relevant initiatives, and not-in-kind solutions to cold chains

These technologies and approaches directly contribute to meeting national obligations under the Montreal Protocol on Substances that Deplete the Ozone Layer including its Kigali Amendment and the Paris Agreement on Climate Change. Sustainable cold chain contributes to the achievement of many [Sustainable Development Goals].

The exhibition is ongoing and continuously updated with submissions accepted on a rolling basis. The partners of the exhibition will continue promoting the exhibition at all relevant events throughout 2022 and beyond.

Click [here] for more information / submit a nomination >>>
Image: Sustainable cold chains website

Vanuatu's Case Study on Integrating ODS/HFC Module into the National Single Window System - The National Single Window is a centralized system that links all relevant government approving authorities and acts as a 'one-stop-shop' where importers and exporters may submit applications electronically including information and all required paperwork to support the application and approval process. **Read/Download the** [Factsheet](#) **>>>** [UN Environment Programme, OzonAction](#)

Recognition of Prior Learning Scheme for Refrigeration and Air-Conditioning Servicing Technicians in Mongolia - The Recognition of Prior Learning (RPL) process can help those in the industry acquire a formal qualification that matches their knowledge and skills and thereby contributes to improving their employability, mobility, and lifelong learning. RPL can make a significant contribution to providing the relevant learning framework necessary for the present and ongoing maintenance of a quality workforce, especially in the RAC servicing sector. In Mongolia, the RPL process has been rolled out in over 30 TVET trades in the construction, mining, and other sectors, including apparel and culinary etc. Mongolia initiated the RPL scheme for RAC servicing technicians as part of their implementation of the HPMP in cooperation with various national stakeholders. **Read/ Download the** Factsheet >>> UN Environment Programme, OzonAction

ASIA AND THE PACIFIC

6. Ozone-depleting substances targeted

The amendment to national regulation includes stiffer penalties for violations and extends coverage to hydrofluorocarbons. Hou Liqiang reports.

China has enhanced the management of ozone-depleting substances by amending a national regulation that allows the authorities to oversee their production and consumption.

The amendment has addressed some loopholes in ODS management, experts said, and will also help authorities enforce laws in a more targeted way.

With the amendment, China is expected to make even greater contributions to protecting the ozone layer and also reduce emissions of ODS substitutes that exacerbate global warming, they said.

Premier Li Qiang signed the amendment to the regulation earlier this year as part of China's efforts to implement the Montreal Protocol on Substances that Deplete the Ozone Layer, which China joined in 1991.

Enacted in 2010, the regulation was revised for the first time in 2018. The latest amendment included stiffer penalties for violations.

Previously, for instance, those who produced ODS without a production quota permit were subject to a penalty of 1 million yuan ($139,000). They also faced confiscation of the raw materials used in production, the finished products and the illegal gains, and the dismantling and destruction of facilities used to produce and consume ODS.

The amendment raised the fine to 5 million yuan, with the other punishments unchanged.

It also raised the maximum fine for those consuming ODS without the necessary quota permit from 500,000 yuan to 1 million yuan.

The amendment said companies that receive penalties for violating the regulation will have their misconduct included in their credit records, and the violations will be made public.

The revised regulation also added some clauses concerning incidental ODS generation, which was not covered previously.

Enterprises that generate ODS incidentally in their production process should not discharge the substances directly, the amendment said, and should instead dispose of them in an environmentally friendly manner. If they do not, they will be subject to a penalty of 100,000 yuan to 500,000 yuan, and their operations will be suspended if they fail to rectify the problem.

China Daily, 22 February 2024

Image: A vehicle equipped with water cannon is seen in Jiaozuo, Henan province, on April 11. The water cannon can disperse water into the air to control dust and reduce air pollution. CHENG QUAN/For China daily

NORTH AMERICA

7. Over 150 Scientists Urge Adoption of PFAS Definition that Includes F-Gases and TFA

More than 150 scientists from around the world with expertise in per- and polyfluoroalkyl substances (PFAS) have co-signed a new statement urging governmental bodies to adopt a science-based "at least one fully fluorinated carbon atom" definition of PFAS that includes fluorinated (f)-gases and trifluoroacetic acid (TFA), an atmospheric byproduct of certain f-gases.

The statement, which is still open to additional signatures from PFAS scientists, underscores "the necessity for government agencies and legislatures to adopt complete PFAS definitions grounded in science without political interference." It is targeting agencies such as the U.S. Environmental Protection Agency (EPA) and states such as Delaware and West Virginia, which use a narrower definition of PFAS not aligned with the scientists' recommendation; this definition requires at least two fully fluorinated carbon atoms and excludes f-gases.

The statement reportedly added weight to testimony by scientists who opposed the adoption of a bill by the Indiana State Senate that sought to adopt the narrower definition, which would have reversed current state regulations. The bill, recently passed by the Indiana House of Representatives, was rejected on February 26 by the Indiana Environmental Affairs Committee. "The consequences of weak PFAS policies can reverberate for generations," said Lydia Jahl, a senior scientist at the Green Science Policy Institute who helped organize the statement. "It is great news for people and the planet that at least one such policy was blocked this week."

PFAS, dubbed “forever chemicals” for their durability in nature, encompass thousands of substances and are known for enabling oil and water repellency, temperature resistance and friction reduction; the better-studied long-chain PFAS like PFOA and PFOS have been linked to cancer and other adverse health effects.

Many f-gases “persist in the environment” or decay into TFA, the scientists’ statement reads. (Notably, HFO-1234yf decomposes completely into TFA in the atmosphere within weeks.) “We are concerned that TFA has been increasingly detected in people and drinking water worldwide.” Last year, a study of households in the U.S. state of Indiana found ultrashort-chain TFA in samples of dust, drinking water, human blood serum, and recommended further research on potential adverse health effects of these exposures.

PFAS definitions that exclude gases and polymers “are overlooking the most widely used PFAS,” the statement says, adding that claims that these PFAS are needed to fulfill climate and infrastructure goals are “irrelevant” to the definition of PFAS and are “continuing to be refuted through the development of safer alternatives.”

The low global warming potential of some fluorinated gases “does not justify their exclusion from the definition of PFAS,” say the scientists.

F-gas manufacturers Chemours and Honeywell did not immediately respond to a request for comment on the scientists’ statement. The American Chemistry Council declined to comment.

At least one fluorinated carbon vs. two

The definition supported by the scientists’ states that PFAS contain “at least one fully fluorinated carbon atom.” This definition has been used by at least 23 U.S. states (notably Maine and Minnesota), the U.S. Department of Defense and the U.S. Congress. If any exemptions are needed to this definition “then those can be given without changing the definition of PFAS,” said the scientists.

“Having this single widely adopted definition creates important consistency for manufacturers, retailers and regulators; this definition has been used in state and federal legislation since 2018,” said Safer States, an alliance of U.S. state-based environmental health organizations.

The “at least one fully fluorinated carbon atom” definition, noted the scientists, is nearly identical to one developed for the OECD (Organisation for Economic Co-operation and Development) in 2021 by a panel of international PFAS experts, including those representing the chemical industry and U.S. Environmental Protection Agency (EPA); the OECD definition is also close to the one being employed by the EU as it considers comprehensive new PFAS regulations.

However, the broader definition is not being used by the U.S. EPA’s Office of Pollution Prevention and Toxics (OPPT), which has taken a number of approaches in recent years. In 2021 it announced a **“working definition of PFAS”** as chemicals with at least two adjacent carbon atoms, where one carbon is fully fluorinated and the other is at least partially fluorinated; this definition specifically excludes TFA. Last year the EPA said it would take **a “case-by-case” approach** to what the agency considers a PFAS. Then, last October, **the EPA announced** a new rule requiring reporting by manufacturers of more than 1,400 PFAS; the definition of PFAS that applies to this rule includes one of the following structures:

- R-(CF2)-CF(R’)R”, where both the CF2 and CF moieties are saturated carbons;
- R-CF2OCF2-R’, where R and R’ can either be F, O or saturated carbons; and

- CF3C(CF3)R'R", where R' and R" can either be F or saturated carbons.

The EPA acknowledged that its latest definition "does not include substances that only have a single fluorinated carbon, or unsaturated fluorinated moieties (e.g., fluorinated aromatic rings and olefins)." As such it excludes f-gases and TFA. The EPA did not immediately respond to a request for comment on the scientists' statement.

Public Employees for Environmental Responsibility (PEER) has sued the EPA to gain better clarity on how it developed its PFAS definition. To date, the suit has revealed that the EPA "didn't really have a well-developed scientific justification for choosing any of the definitions it has thrown out there," said Tim Whitehouse, Executive Director for PEER.

"Having a non-comprehensive and inaccurate definition for PFAS can result in regrettable substitutions by encouraging a shift to PFAS not covered by the definition," said Safer States. "This also shields some of the most widely used 'forever' chemicals from restrictions and clean-up."

Some U.S. states have also adopted the narrower PFAS definition, requiring at least two fully fluorinated carbon atoms and excluding gases, including Delaware and West Virginia.

In defending the broader definition of PFAS, the scientists' statement pointed out that the carbon-fluorine bond is "the strongest single bond in organic chemistry, giving all PFAS the shared trait of persistence, leading to their accumulation in our bodies and ecosystems." As a result, they added, PFAS "requires a class-based approach and a definition that reflects that."

The notion that PFAS should be regulated as a class and not as individual chemicals was defended last year by Robert Sussman, a Deputy Administrator at the EPA during the Clinton administration, at the ATMOsphere America conference in Washington, D.C.; the conference was organized by ATMOsphere, publisher of R744.com. Taking a contrary view, the Sustainable PFAS Action Network (SPAN), an industry group representing AHRI, Arkema, Honeywell, Daikin and others, **states on its website**, "Creating regulations that treat all PFAS compounds the same, or impose blanket restrictions on uses, would have devastating economic and safety consequences for the U.S. refrigeration and air conditioning industry."

Even if policy makers choose to take action on certain PFAS chemicals, "the definition of PFAS should be science-based and not based on the preferences of PFAS manufacturers and users," says Katie Pelch, Scientist, Environmental Health, for the Natural Resources Defense Council (NRDC), **in a recent blog post**. She is one of the scientists who signed the new statement.

Essential use approach

Pelch notes in her blog post that there is no scientific reason that f-gases should not be considered PFAS. "We can still be exposed to these PFAS and they can still cause harm," she says, referring to the Indiana study on TFA.

Another blog post co-authored by Pelch states that, while phasing down HFCs is necessary for climate protection, "this does not justify blanket exemptions from PFAS regulations for the next generation of alternatives," such as HFOs. Other authors of this post include Pelch's NRDC colleagues Anna Reade, Director, PFAS Advocacy, Environmental Health (and another signatory of the new scientists' statement); Alex Hillbrand, Technical Director, Industry & Emerging Technologies, Climate & Energy and Richie Kaur, Non-CO_2 Climate Pollution Reduction Advocate, Climate & Energy.

The NRDC post advocates for the use of "the essential use approach," adopted in the Maine and Minnesota PFAS regulations. This holds that chemicals of concern should not be used in products or processes unless they are critical for health, safety or the functioning of society; time-limited exceptions would be made for essential chemicals for which there are no safer alternatives. But there are safer non-PFAS alternatives in f-gas-using sectors such as natural refrigerants CO_2 and hydrocarbons, points out the NRDC blog. Meanwhile, it adds, "PFAS pollution is incredibly difficult to contain and clean up; therefore, continued use of PFAS-based refrigerants will further exacerbate the already high levels of PFAS being detected in homes and people."

This is not the first-time scientists and others have challenged the EPA's definition of PFAS. In 2021, 15 scientists – most of whom, including Pelch and Reade, are listed in the current statement – **co-signed a letter** to EPA Administrator Michael Regan urging the agency to use the OECD's definition of PFAS. In 2023, three scientists along with three attorneys and a legislative associate **co-signed a similar letter** to Regan.

R744,26 February 2024, By Michael Garry

Image: R744

8. NASRC to host free natural refrigerants training summit in Pittsburgh

The North American Sustainable Refrigeration Council (NASRC) has announced that it is co-hosting a free event in Pittsburgh, Pennsylvania, where refrigeration technicians will be provided with hands-on training in CO_2 (R744) and propane (R290) systems.

The Natural Refrigerant Training Summit is scheduled to take place 19–21 March 2024.

According to a statement from the NASRC, a California-based nonprofit, the summit is open to union and non-union refrigeration technicians and will offer comprehensive training on the latest natural refrigerant technologies. Food retailers and HVAC&R students and instructors can also attend.

Learn more >>> The North American Sustainable Refrigeration Council (NASRC), 23 January 2024

r744, 30 January 2024, By Christina Hayes

Image: r744 - Copeland's Andre Patenaude (right) showing technicians the manufacturer's mobile CO_2 training unit at last year's Natural Refrigerant Training Summit in St. Louis. (Source NASRC)

EUROPE & CENTRAL ASIA

9. EU F-gas regulation published in Official Journal

The new F-gas regulation has now been published in the EU's Official Journal, making it legally binding and entering into force in 20 days.

The new regulation, 2024/573, amends Directive 2019/1937 and repeals Regulation 517/2014.

The full document is available here

CoolingPost, 20 February 2024

Image: CoolingPost

10. AREA: Women in cooling video competition- 2nd edition!

AREA and World Refrigeration Day (WRD) have launched the second edition of the video competition on best practices for EU women in cooling.

The challenge is to provide a video showing best practices in the design and application of RACHP systems and/or handling of refrigeration, air conditioning or heat pumps.

The video must be posted privately on **AREA's Facebook page: "AREA"**

or sent to **info@area-eur.be**

by **Sunday 7th of April 2024 at midnight**.

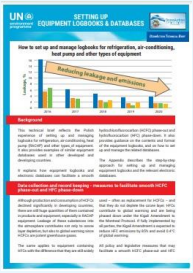
All European languages are welcome. Good luck to our EU women in cooling!

Learn more / Apply >>>

Air conditioning and Refrigeration European Association (AREA), October 2023

Image: AREA

How to set up and manage logbooks for refrigeration, air-conditioning, heat pump and other types of equipment - Background: This technical brief reflects the Polish experience of setting up and managing logbooks for refrigeration, air-conditioning, heat pump (RACHP) and other types of equipment. It also provides examples of similar equipment databases used in other developed and developing countries. It explains how equipment logbooks and electronic databases can facilitate a smooth hydrochlorofluorocarbon (HCFC) phase-out and hydrofluorocarbon (HFC) phase-down. It also provides guidance on the contents and format of the equipment logbooks, and on how to set up and manage the related databases. The Appendix describes the step-by-step

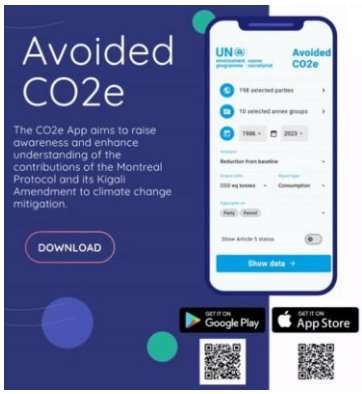


approach for setting up and managing equipment logbooks and the relevant electronic databases. **This factsheet is available in English and Russian**
UN Environment, OzonAction, August 2023

FEATURED

Overview for the meetings of the ozone treaties - Click **here** for upcoming and past Montreal Protocol Meetings dates and venues.

Avoided CO_2e - The CO_2e App available from the Ozone Secretariat aims to raise awareness and enhance understanding of the contributions of the Montreal Protocol and its Kigali Amendment to climate change mitigation.



World Ozone Day 2023 theme: Montreal Protocol: fixing the ozone layer and reducing climate change - On World Ozone Day, we celebrate the achievements of the Montreal Protocol on Substances that Deplete the Ozone Layer in fixing the ozone layer and reducing climate change. The theme for the 2023 International Day for the Preservation of the Ozone Layer, to be marked on 16 September, is **Montreal Protocol: fixing the ozone layer and reducing climate change**. This reiterates the recent finding by the Scientific Assessment Panel of the positive impact the Montreal Protocol has on climate change, that ozone recovery is on track and how climate challenges can be supported through the Kigali Amendment.

The theme and other related materials available here in the six UN official languages.

New gaming technology to create environment simulation game for teenagers-The UN Environment Programme's (UNEP) Ozone Secretariat today launched a simulator game and avatar using the latest software technology. Apollo's Edition is the latest addition to the Reset Earth education platform. Targeting 13-18-year-olds, the free online education material developed provides educators with resources to teach students the importance of environmental protection.

Online introductory course 'International legal framework on ozone layer protection' - Designed for government representatives and national stakeholders new to the Vienna Convention and Montreal Protocol, students of environmental law, and anyone interested in learning about the ozone treaties, the online course launched by the Ozone Secretariat aims to provide an introduction to the international legal framework on ozone layer protection.
United Nations Environment Programme (UNEP), Ozone Secretariat

Free teaching kits on ozone layer and environmental protection

- New free online teacher toolkits and lesson plans based on the success of UNEP's Ozone Secretariat's ***Reset Earth*** animation and video game
- Targeting Tweens by adopting animation and gamification to create innovative online lessons to raise awareness on ozone layer and environmental protection
- Available online in digital and print format for universal access

Read/download >>> Ozone Secretariat's education platform

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:

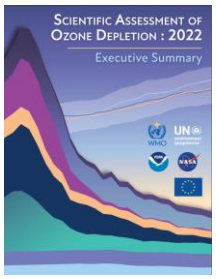
- The Technology and Economic Assessment Panel
- The Scientific Assessment Panel
- The Environmental Effects Assessment Panel

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 >>>

Scientific Assessment of Ozone Depletion: 2022 - Executive Summary

United Nations Environment Programme (UNEP), Ozone Secretariat



Multilateral Fund for the Implementation of the Montreal Protocol

The Multilateral Fund for the Implementation of the Montreal Protocol

The Fund is dedicated to reversing the deterioration of the Earth's ozone layer. It was established by a decision of the Second Meeting of the Parties to the Montreal Protocol (London, June 1990) and began its operation in 1991. The main objective of the Fund is to assist developing country parties to the Montreal Protocol whose annual level of consumption of the ozone depleting substances (ODS) chlorofluorocarbons (CFCs) and halons is less than 0.3 kilograms per capita to comply with the control measures of the Protocol. Currently, 147 of the 197 Parties to the Montreal Protocol meet these criteria. They are referred to as Article 5 countries.

The Multilateral Fund is managed by an Executive Committee with equal membership from developed and developing countries. Since the inception of the Fund, the Executive Committee has held 93 meetings. The Fund Secretariat, located in Montreal, assists the

Executive Committee in its tasks. Projects and activities supported by the Fund are implemented by four international implementing agencies and a few bilateral agencies.

On 27 October 2023, the Thirty-Fifth Meeting of the Parties to the Montreal Protocol (35thMOP) decided on the replenishment of the Multilateral Fund for the triennium 2024-2026. The Parties agreed on a budget of US $965 million for the triennium, a record amount.

As at 8 November 2023, the contributions received by the Multilateral Fund from developed countries, or non-Article 5 countries, totalled over US$ 4.7 billion. The Fund has also received additional voluntary contributions amounting to US $25.5 million from a group of donor countries to finance fast-start activities for the implementation of the HFC phase-down.

To facilitate phase-out by Article 5 countries, the Executive Committee has approved 144 country programmes, 144 HCFC phase-out management plans (HPMPs), 24 Kigali HFC implementation plans (KIPs), pilot projects to maintain and/or enhance energy efficiency in the context of HFC phase-down, and has funded the establishment and the operating costs of ozone offices in 145 Article 5 countries.

New and updated guides and submission forms for the preparation of project proposals:

- Guide for funding requests for preparation of national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances **>>>**
- Updated interim guide for the presentation of stage I of Kigali HFC implementation plans (July 2023) **>>>**
- Updated guide for the presentation of new stages of HCFC phase-out management plans (July 2023) **>>>**

All guides and submission forms are available here

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

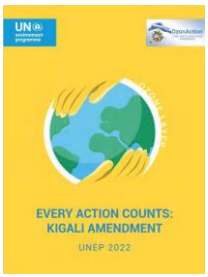
OzonAction Compliance Assistance Programme produces and outreaches a wide variety of information and capacity building materials and tools that support the implementation of the Montreal Protocol programs and assist Article-5 countries in meeting the compliance targets. These include publications, technology 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.

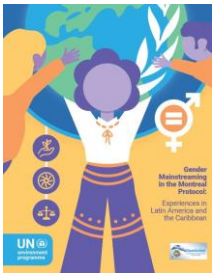
Images in this section are by OzonAction

Considerations for establishing national HFC Quota System - As HFC consumption in most countries is determined by their import, this document aims to highlight guiding principles and key aspects that countries need to consider when developing their import quota system. The underlying principles and approaches are equally applicable for production and export quota allocation. **Read/download the full document**

Every Action Counts: Kigali Amendment - UNEP 2022 - This brochure targets the general public and explains in a simplified manner what the Montreal Protocol and its Kigali Amendment signify. It includes some actions that everybody can do to support the Kigali Amendment. It also covers the relationship between the Kigali Amendment and Sustainable Development Goals. It introduces some examples of successful communication campaigns on the Kigali Amendment. English / Spanish



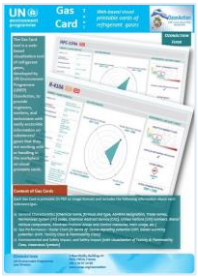
Gender Mainstreaming in the Montreal Protocol: Experiences in Latin America and the Caribbean -Taking into account that women and girls constitute half of the world's population and, therefore, represent half of the potential and innovation necessary to face the "triple planetary crisis" — climate change, nature and biodiversity loss, pollution and waste —, positioning people and the planet as central pillars of the transformation necessary to overcome it, and considering the guiding principles and the scopes of action of the Operational Policy on Gender Mainstreaming of the Multilateral Fund, the United Nations Environment Programme (Latin America and the Caribbean Office). English / Spanish



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.

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.

Click **HERE** to access the OzonAction Knowledge Maps tool
Click **HERE** to download the OzonAction Knowledge Maps tool flyer

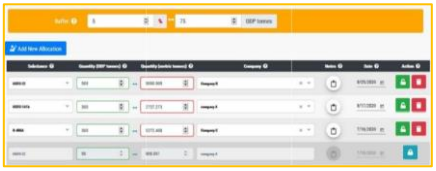


Gas Card Tool: Web-based Visual Printable Cards of Refrigerant Gases
Content of Gas Cards - Each Gas Card is printable (in PDF or image format) and includes the following information about each substance/gas: a) General Characteristics (Chemical name, formula and type, ASHRAE designation, Trade names, 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 the 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)*



HCFC Quota and Licence Tracker - 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 CO_2-equivalent tonnes"**
Data are extremely important for the Montreal Protocol community, and the data reporting formats for both A7 and CP have changed recently, to a large degree triggered by the Kigali Amendment. HFCs, blends, CO_2-equivalent values, etc, now must 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 all the official facts and figures in one place. Conversion formulas need to be applied to calculate CO_2-eq values from both GWP and metric tonne values. This free app from OzonAction is a practical tool for Ozone Officers to help demystify some of this process and put frequently needed information at their fingertips.
What's new in the app:

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

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

Updated OzonAction "WhatGas?" Mobile App

The OzonAction 'WhatGas?' application is an information and identification tool for refrigerants gases: ozone depleting substances (ODS), HFCs and other alternatives. It is intended to provide some 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.
This latest release includes the 2022 Harmonized System (HS) Codes for HFCs and blends, which facilitates the process of inspection and identification of controlled and alternative substances.
Scan the QR code to download the app (*currently available for Android devices only*). If you've already downloaded the app, to update visit the **Google Play Store**

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

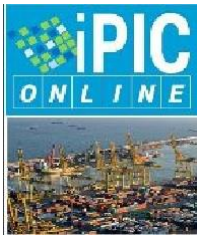
You can watch these videos on the OzonAction YouTube Channel:

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

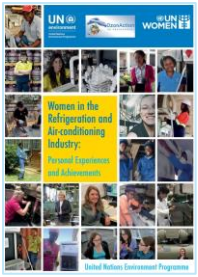
The videos are also available for download by request from UNEP OzonAction:
unep-ozonaction@un.org

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**.

[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 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.



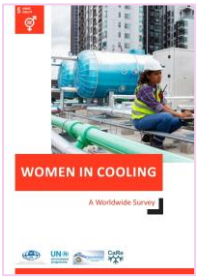
[Women in the refrigeration and air-conditioning industry: Personal experiences and achievements] The United Nations Environment Programme's (UNEP), OzonAction, in cooperation with UN Women, has compiled this booklet to raise awareness of the opportunities available to women and to highlight the experiences and examples of women working in the sector and to recognise their successes. All 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. **Read/download the** [publication]



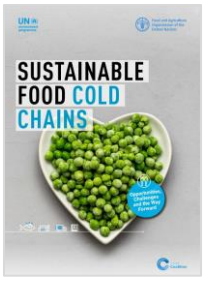
As part of IIR and UNEP OzonAction's partnership, a set of Cold Chain Technology Briefs was released over the past few years, which includes in-depth summaries about the cold chain in different key sectors. They include descriptions of technology, refrigerant options and trends and conclude with prospects and challenges. They cover the main cold chain sub-sectors, i.e., [Production & Processing], [Cold Storage], [Transport Refrigeration], [Commercial & Domestic], and [Fishing Vessels]. **Download the Cold Chain Technology brief in** [English] | [French] | [Russian] | [Spanish]

PUBLICATIONS

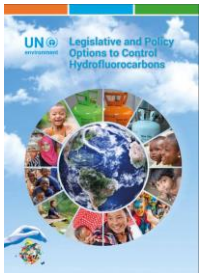
[Results of a Worldwide Survey about Women in Cooling Released by IIR and UNEP OzonAction] **-** Refrigeration, Air-Conditioning, and Heat-pumps (RACHP) are crucial for our health, nutrition, comfort, and well-being. It is one of the sectors that crosscuts many of the UN sustainable development goals and can contribute significantly to safeguard the environment, advance welfare of humanity and support the growth of employment and economics worldwide. Women are highly under-represented in this sector as indicated by the fact that only 6% of the members of national refrigeration associations/organisations/institutions are women. To better understand the background, motivation, challenges, and opportunities faced by women working in RACHP a worldwide survey was undertaken by the International Institute of Refrigeration (IIR) and OzonAction of UN Environment Programme (UNEP) in cooperation with several partners. **Read/Download the Full** [Report]



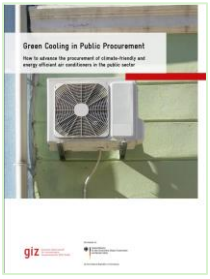
Sustainable Food Cold Chains: Opportunities, Challenges and the Way Forward-This [UNEP-FAO] report explores how food cold chain development can become more sustainable and makes a series of important recommendations. These include governments and other cold chain stakeholders collaborating to adopt a systems approach and develop National Cooling Action Plans, backing plans with financing and targets, implementing, and enforcing ambitious minimum efficiency standards. At a time when the international community must act to meet the Sustainable Development Goals, sustainable food cold chains can make an important difference.



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**



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**

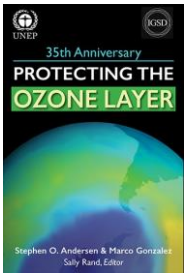


E-Book on Process Safety Management (PSM) Training for Ammonia Refrigeration - a new e-book about the critical elements of a process safety management (PSM) training program for facilities operating an ammonia refrigeration system.

The e-book, titled "**7 Keys to a Compliant PSM Training Program for Ammonia Refrigeration**," outlines important questions a facility's program should address and questions that trained plant personnel should be able to answer. Topics covered include:

- Safety hazards and health considerations
- Emergency shutdown procedures
- Addressing deviations from system operating limits
- Risks and costs of non-compliance with regulatory standards

Request free Download here



Protecting the Ozone Layer - 35th Anniversary Edition - a new book celebrating the 35th Anniversary of the Montreal Protocol. The electronic version (Kindle Edition) of the book has become **available for purchase $3.03 on Amazon**. The book highlights successes and documents innovation during the first 35 years and inspires new ambition to strengthen protection of stratospheric ozone and climate before Earth passes tipping points. The book tells the story of the Montreal Protocol, revealing a model of cooperation, collaboration, universal ratification, record of compliance with over 99 per cent of controlled ozone-depleting substances (ODSs) phased out, the ozone layer on the path to recovery, the 2007 Montreal Adjustment, and the 2016 Kigali Amendment moving the Montreal Protocol further into environmental protection. Unfinished business includes: HCFC phase out, ODS bank management, HFC phase down, uncontrolled ozone-depleting greenhouse gas nitrous oxide (N_2O), feedstock exemptions for plastics production, and dumping of obsolete cooling appliances.
The book was released at 34th Meeting of the Parties to the Montreal Protocol on 31 October 2022.

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Prepared by: Samira Korban-de Gobert
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