

# OzoNews

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

**Volume XX | 30 August 2020**

**In this issue:**

- 1. Obituary of Mr. Vunga Uikelotu, Principle Ozone Officer and the Head of Ozone Layer Protection Division, Tonga**
- 2. OzonAction Rolls Out Enhanced Informal Prior Informed Consent (iPIC) Platform**
- 3. Address major holes in ozone hole treaty to avert stronger climate change and serious health risks, experts warn**
- 4. Inconsistencies between chemistry–climate models and observed lower stratospheric ozone trends since 1998**
- 5. Lower-GWP refrigeration & air conditioning innovation award**
- 6. Asia-Pacific countries address HFC data challenges together**
- 7. Chinese police raid counterfeit compressor operation**
- 8. Samoa moves to fulfill Montreal Protocol obligation**
- 9. The race is on to build an AC unit that doesn't cook the planet**
- 10. Brazil introduces revised labeling scale for air conditioners**
- 11. Unlocking Kigali Amendment climate benefits: EIA calls for support of updated refrigerants safety**
- 12. Monitoring and Managing HVACR Systems - Webinar**

**GLOBAL**



### **1. Obituary of Mr. Vunga Uikelotu, Principle Ozone Officer and the Head of Ozone Layer Protection Division, Tonga**

Mr. Vunga Uikelotu passed away peacefully on 5 August 2020. Mr. Vunga was the Principle Ozone Officer and the Head of Ozone Layer Protection Division under the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change & Communication (MEIDECC) in the Kingdom of Tonga.

Mr. Vunga served as the Ozone Officer for more than ten years. He was always highly dedicated and committed to the Montreal Protocol work. He led the development and enactment of The Ozone Layer Protection Act, managed and maintained the operation of the National Ozone Unit (NOU) and coordinated the development of the HCFC Phase-out Management Plan (HPMP) Stage I and Stage II in Tonga. With the leadership of Mr. Vunga, the Multilateral Funds Projects in Tonga have been implemented in a very timely and effective manner.

Mr. Vunga also built strong partnerships with various national stakeholders: In close collaboration with Tonga Customs Department the effective monitoring of the trade in ozone depleting substances led to Tonga being a recipient of the “Asia Environmental Enforcement Award” in 2015; with industry support, Tonga, as the first country in the Pacific Islands Network banned the import of HCFC-based equipment, which has inspired the Pacific community to take more proactive action for the HCFC phase-out and better achieve sustainability.

“All of my colleagues and I found him to be an extremely humble, kind and a pleasant person to work with, who was always an excellent ‘ambassador’ for Tonga”, said James Curlin, the Acting Head of OzonAction. “We will sorely miss him for his various contributions to the national projects and supporting the Government of the Kingdom of Tonga including in the Pacific region”.

As an engaged and supportive National Ozone Officer, Mr. Vunga was also an active member of the Regional Network of National Ozone Officers of Pacific Islands Countries and was always a good friend and partner of OzonAction.

“We are very sad to hear this news, but the National Ozone Unit of Solomon Islands and other Pacific Island Countries will remember him and his family during this very difficult time in our daily prayers”, said Rinaldo Wale, the National Ozone Officer of Solomon Islands. “He was a very friendly, humble man to work with at all times, may his soul rest in peace”.

“It is indeed a very sad day”, said Shaofeng Hu, Senior Montreal Protocol Regional Coordinator, Asia Pacific Office. “We will remember him for his commitment, cooperation and friendship. May his soul rest in peace.”

Mr. Vunga was laid to rest in Tonga on 8 August 2020.

---

## 2. OzonAction Rolls Out Enhanced Informal Prior Informed Consent (iPIC) Platform

One of the central features of the [Montreal Protocol on Substances that Deplete the Ozone Layer](#) is that it regulates the international trade of certain chemicals that do harm to our Earth's protective shield, the stratospheric ozone layer, and also contribute to climate change. The treaty relies on compliance and enforcement of national customs regulations, import-export licensing systems, and other laws that restrict or prohibit those substances from entering a country's borders. It is therefore important for countries that export such chemicals to know what a specific destination country allows or does not allow to be imported into its territory, and vice versa for importing countries. If strategic information about such shipments is exchanged before a shipment leaves the dock, unwanted or illegal trade could be avoided. [UNEP OzonAction](#) has long recognised this need and developed a private platform for the [focal points – National Ozone Units](#) – to communicate confidentially between themselves: the online Informal Prior Informed Consent (iPIC).

iPIC is a voluntary and informal mechanism of information exchange on intended trade between countries in ozone depleting substances (ODS) and hydrofluorocarbons (HFCs), mixtures containing these as well as products and equipment. It enables countries to share details of eligible importers and exporters and designated iPIC focal points can carry out simple consultations with their trading partner countries prior to intended shipments of controlled substances.



After OzonAction released the revised and improved platform a few months ago, there has been an impressive revived interest in the platform and a steep uptake in its usage. To provide countries with more information on the revamped iPIC platform and demonstrate its functionality, OzonAction recently organised a series of regional webinars on the issue.

The webinars were held under the theme: “iPIC - Streamlined and Updated – how can your Country benefit?” They provided an introduction and overview as a quick refresher and outlined the improvements of the iPIC platform and its usefulness to countries in monitoring and controlling trade in controlled substances. This was followed by a live demonstration of the platform. The webinars concluded with ample time for questions and discussion.

The first of these webinars for the Caribbean region was held on Wednesday, 8 July at 9:00 Caribbean time, and attended by 17 participants from the region and further afield, including Argentina, Barbados, Cuba, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago.

---

The second webinar held for the Anglophone Africa region was opened by James Curlin, the Acting Head of OzonAction. It was held on Wednesday, 19 August at 3:00 pm Nairobi time (EAT) and was attended by 40 participants including those from 20 Anglophone Africa countries: Angola, Botswana, Egypt, Eswatini, Ethiopia, Ghana, Lesotho, Malawi, Mozambique, Kenya, Namibia, Nigeria, Rwanda, Sierra Leone, Somalia, South Sudan, Sudan, Uganda, Zambia and Zimbabwe.



The events were very well received, and there were several questions and good discussions. As a result of the webinars and ensuing follow up, many new members signed up and others updated their details and information in iPIC. Some countries that could not participate accepted the offer of subsequent individual presentations or requested follow up for assistance with access and use of the platform. OzonAction looks forward to hosting similar webinars in other regions as required.

Click on links to see the flyer on the [new iPIC platform](#) and visit the [iPIC Online platform](#).

**For more information please contact:**

[Donnalyn Charles](#), Caribbean region

[Patrick Salifu](#), Anglophone Africa

The [iPIC Administrators](#) can also respond to any questions

---

### 3. Address major holes in ozone hole treaty to avert stronger climate change and serious health risks, experts warn

A new paper, co-authored by a University of Sussex scientist, has revealed major holes in an international treaty designed to help repair the ozone layer, putting human health at risk and increasing the speed of climate change.



Photo by Ales Krivec on Unsplash

Evidence amassed by scientists in the 1970s and 1980s showed that the depletion of the ozone layer in the stratosphere was one of the first truly global threats to humanity.

Chemicals produced through economic activity were slowly drifting to the upper atmosphere where they were destroying the ozone layer, which plays an indispensable role in protecting humanity and ecosystems by absorbing harmful ultraviolet radiation from the sun.

In 1987, countries signed up to a treaty to take reparative action, known as the 'Montreal Protocol on Substances that Deplete the Ozone Layer, which was eventually ratified by all 197 UN member states'.

---

But in a paper published today in [Nature Communications](#), experts have flagged major gaps in the treaty which must be addressed if the ozone layer is to be repaired and avert the risks posed to human health and the climate.

[Professor Joseph Alcamo](#), Director of the [Sussex Sustainability Research Programme](#) and former Chief Scientist at UNEP, said: “The Montreal Protocol and its amendments have no doubt been an effective worldwide effort to control the toughest substances depleting the ozone. But our paper shows that the treaty has developed too many gaps to fully repair the ozone layer. It’s time to plug the holes in the ozone hole treaty.”

Professor Alcamo, along with lead author Professor Susan Solomon of Massachusetts Institute of Technology (MIT) and co-author Professor A. R. Ravishankara of Colorado State University, have identified several ‘gaps’ which consist of ozone depleting substances not covered in the treaty. These include:

- Unaccounted for new sources of CFC and HFC emissions recently detected in the atmosphere.
- Leakages of ozone depleting substances from old air conditioners, refrigerators and insulating foams.
- Inadvertent releases of ozone-depleting gases from some manufacturing processes.
- Emissions of the ozone-depleting gas, nitrous oxide, stemming mostly from agricultural activities.

The authors have called for a range of solutions to plug the gaps including:

- A toughening of compliance with the treaty by using provisions that are already part of the Montreal Protocol.
- Boosting the effectiveness of the treaty by adding in regular environmental monitoring of ozone-depleting substances.
- Controlling the emissions of substances that have slipped through the treaty up to now, including nitrous oxide emissions from agriculture, and ozone-depleting substances leaking from old refrigerators and other equipment.
- In addition, because ozone-depleting substances and their substitutes contribute significantly to global warming, the authors urge a faster phasing out of all of these substances as a way of combatting climate change.

The ozone layer absorbs harmful ultraviolet radiation from the sun, but this protective layer is slowly destroyed by industrial gases that slowly drift up from the earth’s surface including CFCs (chlorofluorocarbons) contained in refrigerants, foaming agents and, earlier, propellants in aerosol sprays.

Discovery of the ‘ozone hole’ above high latitudes in the 1980s provided final evidence of the importance of ozone depletion.

By 1985, countries had signed the Vienna Convention, which pledged to reduce CFCs and other ozone-depleting substances. Two years later, they signed the Montreal Protocol that laid out a plan of action.

---

During his time as the first Chief Scientist of UNEP, which hosts the Secretariat of the Montreal Protocol, Professor Alcamo coordinated groups of scientists in producing policy-oriented reports that addressed emerging ozone depletion issues.

UNEP reports that 98% of the chemicals targeted for removal in the Montreal Protocol had been phased out by 2009, avoiding hundreds of millions of cases of skin cancer and tens of millions of cases of cataracts. However, this new paper shows that some important sources were not targeted by the Protocol – and urgently need to be now.

Professor Alcamo said: “Since most ozone-depleting gases and their current substitutes are also potent greenhouse gases, it’s time to use the Montreal Protocol to draw down these gases even faster to help avoid dangerous global warming.

“We won’t be able to reach the global Sustainable Development Goals by 2030 without closing the gaps in the ozone treaty. It’s hard to imagine, for example, how the global health and climate goals could be reached without drastically drawing down all ozone-depleting gases and their substitutes. If we fail, humanity will have to face a higher risk of skin cancers and more rapid climate change.”

[University of Sussex, 26 August 2020, By: Stephanie Allen](#)

**See also >>> [Unfinished business after five decades of ozone-layer science and policy](#)** - Authors: Susan Solomon, Joseph Alcamo & A. R. Ravishankara, article in Nature Communications volume 11, Article number: 4272 (2020)

#### 4. Inconsistencies between chemistry–climate models and observed lower stratospheric ozone trends since 1998

##### Inconsistencies between chemistry–climate models and observed lower stratospheric ozone trends since 1998

William T. Ball<sup>1,2,3,4</sup>, Gabriel Chelidze<sup>5,6</sup>, Maria Abalos<sup>7</sup>, Jessie Abhang<sup>8</sup>, and Andrea Marchetti<sup>9</sup>  
<sup>1</sup>Department of Geological and Atmospheric Sciences, Faculty of Civil Engineering and Sciences, TU Delft, Stevinweg 1, 2628 LN Delft, the Netherlands  
<sup>2</sup>Institute for Atmospheric and Climate Science, Swiss Federal Institute of Technology Zurich, Universitätsstrasse 16, CH-8092 Zurich, Switzerland  
<sup>3</sup>Department of Atmospheric and Oceanic Sciences, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139, USA  
<sup>4</sup>Department of Applied Physics and Applied Mathematics, 3 Columbia University, New York, NY, USA  
<sup>5</sup>North China University of Technology, 100049 Beijing, China  
<sup>6</sup>Department of Atmospheric and Oceanic Sciences, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139, USA  
<sup>7</sup>Center for Global Change Science, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139, USA  
<sup>8</sup>Department of Earth and Atmospheric Sciences, University of Colorado Boulder, Boulder, CO 80509, USA  
<sup>9</sup>Department of Physics, University of Oxford, Oxford, UK  
Correspondence: William T. Ball (w.t.ball@tudelft.nl)



#### Abstract

The stratospheric ozone layer shields surface life from harmful ultraviolet radiation. Following the Montreal Protocol ban on long-lived ozone-depleting substances (ODSs), rapid depletion of total column ozone (TCO) ceased in the late 1990s, and ozone above 32 km is now clearly recovering.

However, there is still no confirmation of TCO recovery, and evidence has emerged that ongoing quasi-global (60° S–60° N) lower stratospheric ozone decreases may be responsible, dominated by low latitudes (30° S–30° N). Chemistry–climate models (CCMs) used to project future changes predict that lower stratospheric ozone will decrease in the tropics by 2100 but not at mid-latitudes (30–60°). Here, we show that CCMs display an ozone decline similar to that observed in the tropics over 1998–2016, likely driven by an increase in tropical upwelling. On the other hand, mid-latitude lower stratospheric ozone is observed to decrease, while CCMs that specify real-world historical meteorological fields instead show an increase up to present day.

However, these cannot be used to simulate future changes; we demonstrate here that free-running CCMs used for projections also show increases. Despite opposing lower stratospheric ozone changes, which should induce opposite temperature trends, CCMs and

observed temperature trends agree; we demonstrate that opposing model–observation stratospheric water vapour (SWV) trends, and their associated radiative effects, explain why temperature changes agree in spite of opposing ozone trends.

We provide new evidence that the observed mid-latitude trends can be explained by enhanced mixing between the tropics and extratropics. We further show that the temperature trends are consistent with the observed mid-latitude ozone decrease. Together, our results suggest that large-scale circulation changes expected in the future from increased greenhouse gases (GHGs) may now already be underway but that most CCMs do not simulate mid-latitude ozone layer changes well. However, it is important to emphasise that the periods considered here are short, and internal variability that is both intrinsic to each CCM and different to observed historical variability is not well-characterised and can influence trend estimates.

Nevertheless, the reason CCMs do not exhibit the observed changes needs to be identified to allow models to be improved in order to build confidence in future projections of the ozone layer.

**Authors:** William T. Ball, Gabriel Chiodo, Marta Abalos, Justin Alsing, and Andrea Stenke

[Atmos. Chem. Phys., Volume 20, issue 16](#)

---

## 5. Lower-GWP refrigeration & air conditioning innovation award

### What is lower GWP refrigeration and air-conditioning innovation award?

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



### Who are the awarding organizations?

Award recipients will be recognized by ASHRAE and UN Environment Programme.

### How often is the award issued/awarded?

Annually.

### What are the award categories?

Projects can be entered into one of two categories:

- Residential Applications
- Commercial/Industrial Facilities

### What is the entry criteria?

The award is open to individuals and to teams of individuals. If submission is by an individual, individuals must confirm the work was not a team effort. If a team of individuals is selected, the team itself shall determine which team members shall be

---

entitled to be certificated (maximum 5 per team). All awards will be made in the name of individuals, not in the name of their affiliations.

ASHRAE membership is not a requirement for submission.

#### **How do I enter for the award?**

To enter, please go to the link below and fill out the online form.

[www.ashrae.org/lowerGWP](http://www.ashrae.org/lowerGWP)

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

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

#### **How are the projects selected?**

Projects in each category will be selected based on innovative solutions for designs, practice, or research using lower-GWP technologies. The selection will take into account the following criteria:

- Innovative aspects in transforming conventional practices (40%);
- Extent of need (25%);
- Technical replicability in developing countries (25%); and
- Economy feasibility for developing countries (10%).

#### **What happens to the selected projects?**

Selected entries in each category will be publicized by both ASHRAE and the UN Environment Programme.

#### **When does the entry period opens and closes?**

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

---

**ASIA PACIFIC**

---



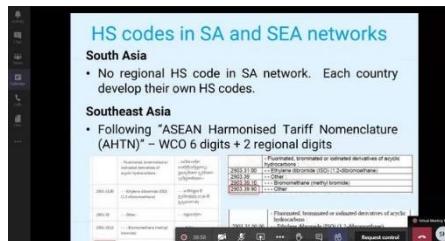
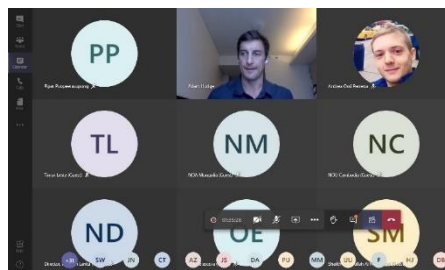
## 6. Asia-Pacific countries address HFC data challenges together

**Bangkok, 18 August 2020** – Accurate and timely data are the bedrock of the Montreal Protocol on Substances that Deplete the Ozone Layer. The data collected and reported by individual Parties to this multilateral environmental agreement are used for many purposes ranging from assessing a country's compliance to determining its eligibility for financial support. After the Protocol's Kigali Amendment entered into force on 1 January 2019, developing countries that have ratified the Amendment are facing novel challenges regarding data reporting for hydrofluorocarbons (HFCs), which are widely used as refrigerants in refrigerators and air conditioners and for manufacturing plastic foam. Those countries must report annual statistical data by substance to the [UN Environment Programme \(UNEP\) Ozone Secretariat](#) and are obliged to establish a licensing system to control imports and exports of HFCs by 1 January 2021. Both of those obligations rely on specific tariff codes used by Customs authorities, but at present, this is not so straightforward for HFCs and requires innovative approaches.

The [World Customs Organization](#) has developed the new Harmonized System (HS) customs codes that cover HFCs and blends, but those codes only enter into force in 2022. The HS codes currently being used do not account for differences in certain HFCs and HFC blends. Instead, they are categorized under broad subheadings, making it extremely challenging for countries to track commonly-traded HFCs by individual substance. How to accurately track HFCs during this interim period becomes a challenge both for the countries that already ratified the Amendment as well as others that intend to ratify it at a later date, since they too will need to start collecting annual trade statistics beginning this year in order to eventually set their legal baselines.

To help countries meet these data challenges, [UNEP OzonAction Compliance Assistance Programme \(CAP\)](#) in Bangkok convened 72 representatives of countries across Asia and the Pacific in a virtual meeting on 30 July to share experiences in updating their national licensing systems for HFCs. National Ozone Units and Customs authorities from countries in South and South-East Asia shared ideas and experiences to help determine a way forward to solve this problem before the adoption of the new HS version in 2022. Each country will have its own approach, but there have been lessons learned elsewhere that countries could consider when developing their own HS subcodes. The OzonAction team shared the Pacific Harmonized Commodity Description and Coding System for HFCs and blends as an example of a regional approach, while Malaysia shared its self-defined codes for HFCs and blends before 2022.

HFCs and blends are already imported and used widely in countries across the region. A number of them have already developed national codes, such as Afghanistan, Bhutan, Malaysia, Maldives, Mongolia, Philippines, Sri Lanka and Thailand. During the virtual meeting, many of these countries were able to share their challenges and solutions, in addition to Malaysia on how they approached the process.



### 35 Years of Ozone Layer Protection

Representatives took the opportunity of the virtual gathering, which is a service provided by UNEP as an Implementing Agency of the Protocol's Multilateral Fund, to discuss an approach to this year's [World Ozone Day](#), which is celebrated every year on 16 September. This year marks the 35th anniversary of the Vienna Convention for the Protection of the Ozone Layer.

Participants brainstormed and shared ideas on outreach activities at both the national and regional levels. A representative from UNEP's Asia and the Pacific Office presented ideas on the types of advocacy and outreach that has worked in the past around the region, and also highlighted the precautions and adaptation that would be needed to mark the Day amidst COVID-19 restrictions. Countries were also able to present their ideas, with Ditsy Aksella Widianingrum from Indonesia's National Ozone Unit proposing suggestions for potential region-wide activities to mark the day.

**Contact:** [Hu Shaofeng](#), Senior Montreal Protocol Regional Coordinator, Asia-Pacific, UNEP OzonAction

---

### 7. Chinese police raid counterfeit compressor operation

Four people have been detained following a raid by Chinese police towards the end of August 2020, on a company suspected of passing off refurbished air conditioning compressors as well-known international brands.



Refurbished compressors have been found to be re-branded using known international brands as far back as 2018.  
Image credit: Baofeng County Public Security Bureau

Under guidance from the Baofeng County Public Security Bureau of Henan Province, police officers raided an abandoned farm being used by a household electrical appliance repair company.

The investigation revealed that since May 2018, the company has been buying waste air conditioning compressors from various internet sites.

After being refurbished, the compressors were being branded with a registered trademark of an unnamed 'famous international brand' and then offered for sale via an online platform.

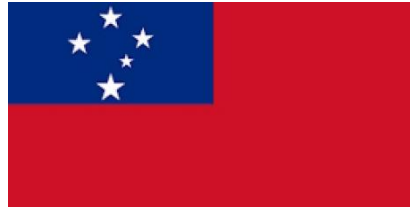
Currently the suspects have been detained and the case is under further investigation.

[HVACR online, 26 August 2020](#)

---

## 8. Samoa moves to fulfill Montreal Protocol obligation

Samoa is moving to fulfill her obligations under the Montreal Protocol with the freezing of hydrofluorocarbons (HFCs).



[...] Samoa Meteorology Office's Principal Ozone Officer, Tumau Neru, said the process is a long-term project with the goal being that by 2045, Samoa would have already phased out 85 percent of HFCs.

[...] "Under the Kigali Amendment Samoa along with other countries will commit to cut the production and consumption of HFCs by more than 80% over the next 30 years. It is expected that this will avoid up to 0.5° Celsius warming by the end of the century, while continuing to protect the ozone layer, according to UN Environment.

[...] Samoa was the 30<sup>th</sup> Party to ratify the Kigali Amendment to the Montreal Protocol on substances that deplete the Ozone Layer having ratified the Amendment on the 23<sup>rd</sup> March 2018.

"The ratification signifies Samoa's firm commitment to saving Planet Earth not only from ozone depletion but also from Global Warming."

She further stated that Samoa is currently phasing out Hydrochlorofluorocarbons (HCFCs) which has a different schedule from HFCs and 97.5% (reduction from baseline) of this substance should be phased out by 2030.

When asked about what is being done in Samoa that contributes to [reducing] global warming, she stated that in reducing global warming, the substances phased out under the Montreal Protocol have both ozone-depleting potential (ODP) and global warming potential (GWP).

"Therefore, as the Montreal Protocol controls and reduces consumption of ozone-depleting substances it is also contributing to reducing consumption of global warming substances," she said.

Ms. Neru also explained that awareness programmes are being carried out by MNRE [Ministry of Natural Resources and Environment] through the Ozone Section encourages importers of equipment such as refrigerators and air conditioning units to procure Environmentally safe technologies, such as appliances that run on low GWP refrigerants and non ODP refrigerants.

"Trainings are also carried out by the Ministry in collaboration with the Refrigeration and Air Conditioning Association of Samoa (RACAS) to build capacity of Refrigeration and Air conditioning (RAC) technicians to avoid emissions of ozone depleting and global warming substances," she said.

"Training for Customs officers are continuous to ensure effective border control of controlled substances. All companies importing controlled substances are to be licensed under the Ozone Layer Protection Regulations 2006 therefore imports without a license is prohibited."

---

She explained that ways the public can contribute to protecting the ozone layer is through awareness programs such as stakeholders' workshops, ozone awareness day, RAC Industry trade seminars that are carried out by the Ministry to encourage use of the right technologies.

"There has also been TV programs produced to inform the public about ozone protection which encourages the use of licensed RAC technicians to perform servicing of equipment in households and also companies to avoid accidents," she said.

"Simple household practices are also encouraged to maintain appliances conditions to avoid leaks and save energy. The general public are also encouraged to purchase environmentally safe technologies and inform overseas relatives to check banned technologies before sending items as personal effects."

Ms. Neru explained that alternatives to ozone depleting and global warming refrigerants that are found in Samoa are Refrigerators: R600a (Hydrocarbon) and Air Conditioning: R290 (Hydrocarbon) and R32 (HFC - GWP).

"Although these technologies are safe for the Ozone Layer and Global warming, they are flammable refrigerants thus require special skills and care during servicing," she said. "Thus, the Ministry have and continue to conduct training for RAC technicians to address the flammability and toxicity issues by promoting good RAC practices and use of Personal Protective Equipment for health and safety."

When asked if when Samoa will be completely Ozone friendly, she said, "The issue of being completely ozone friendly is currently uncertain."

"This is due to one of the ozone depleting substances used in the pre-shipment fumigation at the Quarantine Department that is exempted for use under the Montreal Protocol until an alternative is available for Samoa," she said.

Ms. Neru concluded that Samoa is in compliance with all her obligations under the Montreal Protocol on substances that deplete the ozone layer and continues to commit in fulfilling future obligations.

[Samoa Observer, 20 August 2020, By Marc Membrere](#)

---

### **9. The race is on to build an AC unit that doesn't cook the planet**

There's a \$1 million prize for anyone that can design a room air conditioner that costs no more than twice what a standard one costs and produces five times less greenhouse gas

One of the great ironies of climate change is that as the planet warms, the technology that people need to



stay cool will only make the climate hotter. By 2050, researchers expect the number of room air conditioners on Earth to quadruple to 4.5 billion, becoming at least as ubiquitous as cell phones are today. By the end of the century, greenhouse gas emissions from air conditioning will account for as much as a 0.5-degree Celsius rise in global temperatures, according to calculations by the World Economic Forum.

In short, air conditioning urgently needs an upgrade. The basic cooling technology behind air conditioning and refrigerators hasn't changed significantly since 1902, when a young American engineer named Willis Carrier devised the first air conditioner to solve a humidity problem for a printing company in New York City. It is no hyperbole to say that air conditioning has shaped our modern world—and will continue to do so well into an unprecedented climate future. In countries with fast-growing economies and already-dangerous levels of heat and humidity—such as India, Indonesia, and Brazil—billions of people will soon buy their first home air conditioner. Whether they'll be able to afford climate-friendlier units—or the pollution-heavy models that have long dominated the market—hangs in the balance.

Making sure that this wave of new customers can afford more-efficient air conditioners is the motivation behind the **Global Cooling Prize**. Strategically, the prize focuses not on the central air systems common in U.S. homes, nor on window units, but on a single-room air conditioner similar to those commonly installed in apartment buildings in India, where the competition will take place. In November 2019, eight finalists were announced for the \$1 million competition to design a room air conditioner that produces five times less greenhouse gas over the course of its lifetime than does a standard room unit.

Launched in 2018, the competition is sponsored by the Indian Department of Science and Technology, part of the Indian Ministry of Science and Technology; the Rocky Mountain Institute (RMI); a coalition of 24 additional countries; and Richard Branson, founder and CEO of the Virgin Group. The prize aims to accelerate the development of air conditioners that use dramatically less energy together with climate-friendlier coolants. If such a technology were rapidly deployed, it could prevent up to 100 gigatons of CO<sub>2</sub>-equivalent emissions by 2050, RMI estimates.

The winning unit must cost no more than twice what a standard room air conditioner costs and must keep people cool in the sweltering heat of an apartment block in Delhi, India, where the heat index—a measurement of how hot it *feels*—can reach 140 degrees Fahrenheit. After receiving in November \$200,000 to refine their proposals, the eight teams are now racing to build prototypes that will be shipped to India for testing in fall 2020.

**To understand the challenge**, it helps to picture the basic system that Willis Carrier invented—and that we are essentially still using today. It is known as the vapor-compression cycle, explains Clark Bullard, a mechanical engineer and professor emeritus at the University of Illinois. In its most stripped-down form, it consists of two metal coils, one located inside the space to be cooled, one outside. A liquid refrigerant circulates through the coils, alternately evaporating and condensing under varying pressure. As the refrigerant vaporizes, it gets cold and chills the metal coil inside the room. When it reaches the outdoor coil, the refrigerant condenses, ejecting heat into the air before beginning the next cycle. Meanwhile, a fan blows over the cold metal coil, cooling the air and removing humidity as water condenses on the coil like droplets “on a cold beer glass,” Bullard says.

Today's \$60-billion air-conditioning market, dominated by a few large corporations, has long focused on lowering the cost of vapor compression–based air conditioners, not reducing

---

the amount of energy needed to power them. In addition to making air conditioners more efficient, there's an urgent need to replace the hydrofluorocarbon (HFC) refrigerants that most air conditioners still use, despite global efforts to phase out the chemicals. Roughly 1,000–3,000 times more potent than CO<sub>2</sub> as a greenhouse gas, these refrigerants slowly leak into the atmosphere and escape when air conditioners are destroyed.

Despite decades of searching, few refrigerants have proven to be viable alternatives to HFCs, Bullard says. "We don't like them to be flammable. We don't like them to be toxic. We like them to have a certain boiling point. We don't like them to be too viscous, because it costs more to pump them around, and we don't want them to mess up the ozone layer or warm up the planet. By the time you start applying all of those constraints, you're down to just a handful of choices."

**Therein lies the dilemma** for innovators—should they focus their efforts on finding the climate-friendliest refrigerant, or on reducing electricity use? To attain the contest's goal of five times less impact on climate, an air conditioner using a standard HFC refrigerant would have to use 6.4 times less electricity than the baseline unit. In contrast, a unit that uses a refrigerant with zero potential to contribute to global warming would need to be only four times as efficient. [...]

Worldwide, extreme heat waves could kill more than 255,000 people each year by 2050, the World Health Organization estimates. New air conditioners won't be sufficient to stave off these deaths—other measures, such as building with better insulation materials than glass and concrete, are also needed. If history is any indication, the fastest route to transforming how we stay cool will be a combination of innovation, competition, and regulation. And speed is essential, as the stakes of the global cooling race are not just comfort, but survival.

[Anthropocene, 18 August 2020, By Emily Underwood](#)

## LATIN AMERICA and CARIBBEAN

### 10. Brazil introduces revised labeling scale for air conditioners

Brazilian policymakers have adopted a new efficiency labeling scale for air conditioners (ACs) that will better distinguish the highest-performing products in the market. The regulation, which was published in July, will more than double the stringency of energy labeling criteria over the next five years.



The change marks the first meaningful revision of Brazil's AC labeling requirements in nearly a decade. Most ACs in the national market bear an 'A' label, representing the highest efficiency class. As a result, it is difficult for consumers to distinguish between highly efficient

products and those that are more energy-intensive and costly to operate. The new labeling scale will provide consumers with better information on which to base purchasing decisions and is expected to drive a market shift toward more efficient AC models that will reduce CO<sub>2</sub> emissions by 21.5 MT cumulatively through 2030.

The new regulation also introduces a seasonal energy efficiency metric that considers variations in temperature and humidity conditions specific to the Brazilian climate. Use of the new labeling scale will be voluntary until 2022, when ACs will need to be 52% more efficient than current levels in order to qualify for an “A” rating. Performance levels will increase again in 2025, when units will need to show a 108% improvement over today’s ‘A’-rated units in order to maintain the grade.

#### **Timeline: An Evidence-Based Approach**

Adoption of the new regulation is the culmination of a multi-year collaboration between policymakers, CLASP, and the Instituto Clima e Sociedade’s (ICS) Kigali Network that included stakeholder consultations, market assessments, and analysis of policy options. [...]

[clasp, 10 August 2020](#)

## EUROPE & CENTRAL ASIA

### **11. Unlocking Kigali Amendment climate benefits: EIA calls for support of updated refrigerants safety**

A new safety standard proposed by an International Electrotechnical Commission (IEC) working group is [vital to maximizing emission reductions](#) from a global phase-down of super pollutant hydrofluorocarbons (HFCs) under the Montreal Protocol’s Kigali Amendment. If approved by a vote of IEC member countries, the proposal is on course to be adopted in the international standard for air conditioning, IEC 60335-2-40, allowing greater use of climate-friendly and energy efficient refrigerants in room air-conditioning (AC) systems around the world.



Clare Perry, EIA UK Climate Campaign Leader said: “The adoption of a revised safety standard to allow flammable refrigerants in room air-conditioning is vital for meeting climate targets and implementing agreements to phase down HFCs, such as the Kigali Amendment under the Montreal Protocol.”

Most common air-conditioners sold today contain refrigerants with a global warming potential (GWP) thousands of times that of CO<sub>2</sub>, while this standard would allow greater

use of flammable refrigerants such as propane with GWPs close to zero. Member countries represented on the IEC's sub-committee 61D will have from now until 30 October to vote on [the proposal](#).

"Climate-friendly hydrocarbon refrigerants have been safely used in billions of household refrigerators around the world for decades, but have been largely blocked in air-conditioning by outdated standards," said Christina Starr, Senior Climate Policy Analyst with EIA US, also a member of the US standards technical panel for air-conditioners, UL 60335-2-40. "It is incredibly important for countries to support this proposal to unlock the full climate benefits of reducing HFCs and increasing energy efficiency in cooling."

The number of room air-conditioners is set to triple to over 4.5 billion globally by 2050. A [new report commissioned for EIA](#) found that a shift away from HFCs in domestic split AC systems supported by updated product standards could avoid emissions of over two gigatonnes CO<sub>2</sub>-equivalent by 2030 and 5.6 gigatonnes CO<sub>2</sub>e by 2050.

"Many countries, particularly in the Global South that are A5 Parties to the Montreal Protocol, are in the process of phasing out ozone-depleting refrigerants, hydrochlorofluorocarbons. An updated standard that allows safe use of climate-friendly refrigerants will enable early action by these countries to 'leapfrog' super-pollutant HFCs and transition directly to better substitutes for air conditioning," added Starr.

EIA urges Montreal Protocol stakeholders to take note of the current voting period for this proposal and ensure support for its rapid advancement and finalisation. Once adopted into the revised IEC 60553-2-40 standard for air-conditioning, various regional and national standards bodies will need to adopt it to take full effect in some markets globally.

[The Environmental Investigation Agency \(EIA\), 17 August 2020](#)

---

## 12. Monitoring and Managing HVACR Systems – Webinar

Centro Studi Galileo is offering a free webinar to international HVACR Technicians, design Engineers & RAC companies: "[Monitoring and Managing HVACR Systems](#)".



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

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

Thu, Sep 17, 2020 4:00 PM - 6:00 PM CEST  
[Register](#)

---



## **5<sup>th</sup> Edition of Europe and Central Asia (ECA) Montreal Protocol Award for Customs and Enforcement Officers for 2019-2020**

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

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

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

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

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

Eligible enforcement actions include the detection of an illegal shipment and the subsequent seizure, detention or sending back of the disallowed goods, as well as successful iPIC consultation preventing the issuance of export / import licenses for illegal or unwanted shipments.

Enforcement actions are eligible if they have not been submitted to any other award schemes.

### **Geographical scope and time period**

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

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

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

[Learn more >>>](#)

## FEATURED



## OZONE SECRETARIAT



### Ozone for life: 35 years of ozone layer protection

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

[Learn more](#)

### [Overview for the meetings of the ozone treaties in 2020-2021](#)

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

Recent Meetings:

- [42<sup>nd</sup> Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer \(OEWG 42\)](#), 14-16 July 2020 | Online
- [31<sup>st</sup> Meeting of the Parties to the Montreal Protocol](#), 4 - 8 November 2019, Rome, Italy
- [Bureau Meeting of the 30<sup>th</sup> Meeting of the Parties to the Montreal Protocol](#), 3 November 2019, Rome, Italy
- [63<sup>rd</sup> Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol](#), 2 November 2019, Rome, Italy



Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to [date](#)

## The UN Environment Assessment Panels

The Assessment Panels have been vital components of ozone protection since the Montreal Protocol was first established. They support parties with scientific, technological and financial information in order to reach decisions about ozone layer protection and they play a critical role in ensuring the Protocol achieves its mandate. The Assessment Panels were first agreed in 1988 to assess various direct and indirect impacts on the ozone layer. The original three panels are:

- [The Technology and Economic Assessment Panel](#)
- [The Scientific Assessment Panel](#)
- [The Environmental Effects Assessment Panel](#)

In the past there were 4 main panels. The Panels for Technology and Economic Assessments were merged in 1990 into one Panel, now called the Technology and Economic Assessment Panel.

**Why are the three current panels important to ozone layer protection?** Each carries out assessment in its respective field. Every four years, the key findings of all panels are consolidated in a synthesis report.



## [THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL](#)

### Provisional agenda of the 85<sup>th</sup> meeting of the Executive Committee

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

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

### [Provisional Agenda](#)



## [The Multilateral Fund for the Implementation of the Montreal Protocol, April 2020](#)

Click [here](#) for the Executive Committee upcoming and past Meetings.

Recent meetings:

- [84<sup>th</sup> meeting of the Executive Committee](#)
- [83<sup>rd</sup> meeting of the Executive Committee](#)
- [82<sup>nd</sup> meeting of the Executive Committee](#)
- [Executive Committee Primer – 2019](#) - An introduction to the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol



## [OZONACTION](#)

### **Their National Ozone Officers,**

On behalf of the United Nations Environment Programme (UNEP) OzonAction, I would like to express our deep appreciation to your country for its continued high-level commitment to implement the Montreal Protocol on Substances that Deplete the Ozone Layer, including during these most difficult times facing the world with the COVID-19 pandemic.

I would like to assure you that during this very difficult period, OzonAction's Compliance Assistance Programme (CAP) – like the rest of UNEP – remains open for business. Our CAP teams in Bangkok, Manama, Nairobi, Panama City, and Paris continue to work with great dedication and diligence to support Article 5 countries with meeting their compliance, reporting and project-related needs. Our internal processes are all functioning well, including those related to finance and administration. Our CAP teams continue to provide technical support, including assistance with capacity building, equipment, training, and information and are maintaining partnerships and will continue to provide technical support and information to assist your work.

Our latest activities and social distancing requirements, a number of our Regional Network and Thematic meetings have been postponed. Rest assured that the CAP teams are working as diligently as possible to ensure the stability and to re-include all implementation activities until the situation allows. In the meantime, our Regional Coordinators are continuing with the Project Network activities to promote exchange of information and experiences between Ozone Officers.

Just like you and your colleagues, our CAP teams have had to adjust their personal lives and work arrangements to meet these new conditions. But our staff are now working tirelessly through a demanding atmosphere to ensure the continuous delivery of support to your countries. They are all committed with each other, our fans, and to UNEP headquarters through video conferencing, email and direct. They are all proud and available for communication with all National Ozone Officers.

Since 1988, UNEP OzonAction has been your close partner in the implementation of the Montreal Protocol and we will continue to be an ever-ready to implement partner. We will continue about that both your during challenging times both as during this pandemic.

OzonAction is here to support you, if you have any needs, challenges, or if you need us to share your situation please reach-out and contact the member of OzonAction including the Regional CAP team in your country.

Be safe and stay positive, your health and your colleagues health.

Yours sincerely,  
James S. Curlin  
Acting Head, OzonAction

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

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

and policy support. Our information clearinghouse, capacity building services, and refrigeration and air conditioning partnerships are still developing and distributing tools and information to support your work. [...] [Read/download](#)



### **IIR and UNEP OzonAction release the French and Spanish versions of the ‘Cold Chain Technology Briefs’**

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

#### **Download:**

- [Cold Storage and Refrigerated Warehouse](#)
- [Commercial, Professional and Domestic](#)
- [Fishing Vessel Application](#)
- [Refrigeration in Food Production and Processing](#)
- [Transport Refrigeration](#)

### **The new updated OzonAction GWP-ODP Calculator Application**

**“Quickly, efficiently and accurately convert between values in metric tonnes, ODP tonnes and CO<sub>2</sub>-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<sub>2</sub>-equivalent values, etc, now have to be addressed much more frequently by Ozone Officers during their daily work. Sometimes the terminology and values are complex and can be confusing, and it helps to have it all the official facts and figures in one place. Conversion formulas need to be applied to calculate CO<sub>2</sub>-eq values from both GWP and metric tonne values. This free app from OzonAction is a practical tool for Ozone Officers to help demystify some of this process and put frequently-needed information at their fingertips.



#### **What’s new in the app:**

- An updated more user-friendly interface
- Multilingual interface: English, French and Spanish

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

The new and updated UNEP OzonAction **GWP-ODP Calculator** application will help you to convert between values in metric tonnes, ozone depleting potential (ODP) tonnes and CO<sub>2</sub>-equivalent tonnes of substances controlled by the Montreal Protocol and their alternatives.

This application, available at no cost, is particularly useful for National Ozone Officers to assist with understanding and calculating quantities of controlled substances, both pure substances and mixtures, for quota assignment, reporting requirements, etc. Other stakeholders interested in ODP and global warming potential (GWP) values of controlled substances and their alternatives will also find this tool useful.

Operation of the application is very simple — just select a substance from the dropdown list and enter the known value in the appropriate field; the calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO<sub>2</sub>-equivalent tonnes and display the corresponding converted values. The ODP, GWP and information about the substance is provided. For mixtures, the components of the mixture and their relative proportions (metric, ODP, CO<sub>2</sub>- equivalent tonnes) are also calculated.

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

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

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

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

---

from the new features. The app can be viewed in English, French or Spanish.

#### Using the application:



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



Desktop Application: *GWP-ODP Calculator* is also available online on the OzonAction [website](#)



Watch the new short introductory tutorial **video** on the *GWP-ODP Calculator* - available now on [YouTube](#)

Read/download the [flyer](#) for more information

---

### RAC Technician Videos - Full length films!

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



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


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

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


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

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

- Any other interested national stakeholders

 You can watch these videos on the OzonAction YouTube Channel:

- [Techniques, Safety and Best Practice](#)
- [Flammable Refrigerant Safety](#)

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



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

The flyer is available from the [OzonAction website](#).

## The UNEP OzonAction WhatGas? application has been updated and improved

### New features:

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



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

### Using the application:



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

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



**Desktop Application:** WhatGas? is also available online on the OzonAction [website](#)

**For more information:** Watch the new short introductory tutorial [video](#) on WhatGas? available on [YouTube](#)

See/download the [WhatGas? flyer](#)

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

---

## Refrigerant Cylinder Colours: What has Changed

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

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

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



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

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

For more information read/download the [factsheet](#)

## Update on new refrigerants designations and safety classifications

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

The factsheet, produced by [ASHRAE](#) in cooperation with [UN Environment Programme OzonAction](#) is updated every 6 months.

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

Read/download the [factsheet](#)

The factsheet, as well as more information on ASHRAE-UNEP joint activities and tools, is also available on the [ASHRAE UNEP Portal](#).

### Contact:

- [Ayman Eltalouny](#), OzonAction, UN Environment Programme
- [W. Stephen Comstock](#), Manager of Business Development EMEA, ASHRAE





**OzonAction's iPIC system helps prevent an illegal shipment of 72 tonnes of HCFC-22**

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



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

**Contact:** [iPIC Online Administrators](#) for any further questions.



**[Servicing tail for HCFCs: What is it & why does it matter?](#)**

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

Details and explanations are provided in this [Policy Brief](#).

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



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

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

[Download the Factsheet](#)

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



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

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

[Download the Factsheet](#)

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

## UNEP OzonAction Training Programme for National Ozone Officer

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

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

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

For this reason, OzonAction has completely transformed and updated its NOO training programme to assist NOUs in successfully understanding all the roles and requirements



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



[Download the flyer >>>](#)

**Contact:** [Mikheil Tushishvili](#), Montreal Protocol Programme Officer, UNEP-OzonAction.



### [OzonAction Factsheet: Article 7 Data Reporting on HFCs - When Countries Need to Start Reporting](#)

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

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

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

[Download the Factsheet](#)

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



### [HS Codes for HFCs - Advice for countries in advance of the 2022 HS code update](#)

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

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

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

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

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

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

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

[Download the publication](#)

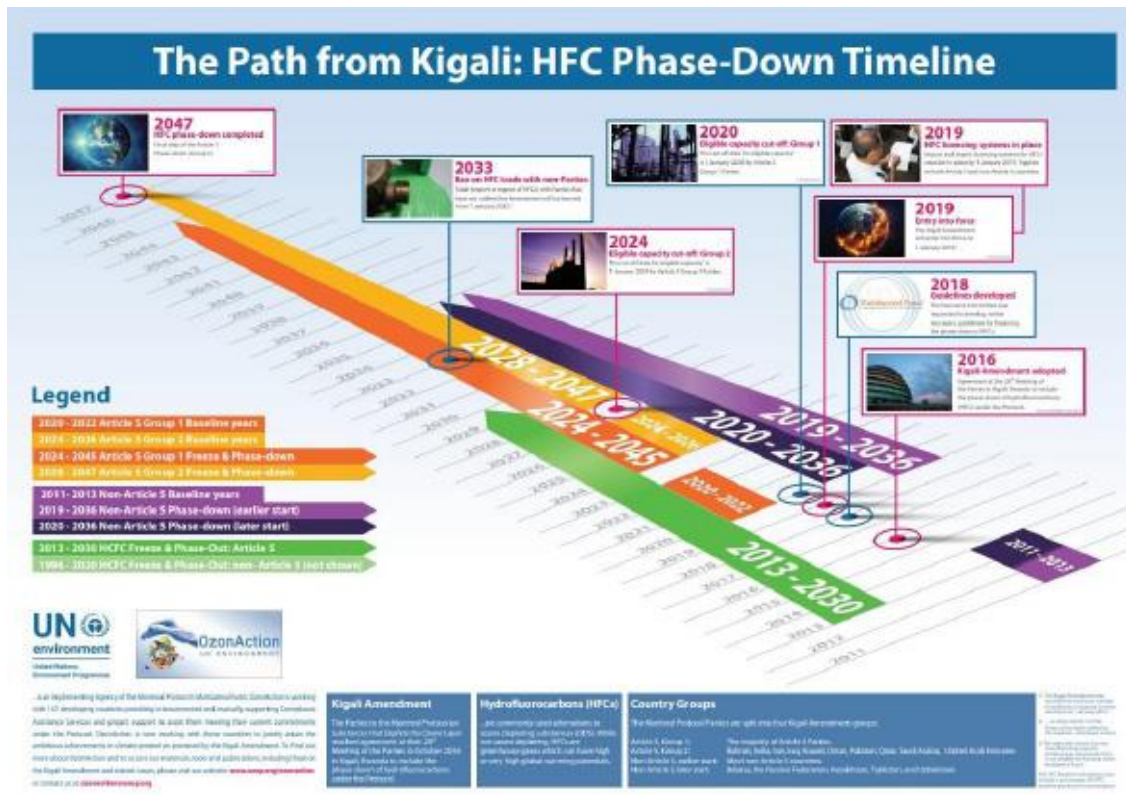
**Contact:** [Ezra Clark](#), UNEP, OzonAction



[Women in the refrigeration and air-conditioning industry: Personal experiences and achievements](#)

The United Nations Environment Programme's (UNEP), OzonAction, in cooperation with UN Women, has compiled this booklet to raise awareness of the opportunities available to women and to highlight the particular experiences and examples of women working in the sector and to recognise their successes. All of the professionals presented in the booklet are pioneers. They are role models whose stories should inspire a new generation of young women to enter the field and follow in their footsteps.

[Download the publication](#)



## The Path from Kigali: HFC Phase-Down Timeline

This timeline, produced by OzonAction, highlights key hydrofluorocarbons (HFCs) phase-down dates. Click [here](#) to download the timeline



### Good Servicing: Flammable Refrigerants Quick Guide

This is the electronic and interactive version of the UN Environment Programme OzonAction Quick Guide on Good Servicing Practices for Flammable Refrigerants. It offers easy reference to the key safety classification and technical properties of flammable refrigerants that are available in the market.

It also provides important safety guidance for the installation and servicing of room air-conditioners designed to use flammable refrigerants.

This interactive guide allows you to scroll and browse the text, jump to specific chapters or use the comprehensive dynamic index to locate specific keywords, figures and tables. The application also includes a refrigerant charge size calculator and a room size calculator for flammable refrigerants.

Available for [free](#) on the Google play store (Apple version coming soon). Search for “UNEP Quick guide” or use the QR code



## Refrigerant Identifier Video Series

Guidance on how to identify refrigerants using a refrigerant identifier.

This new OzonAction video series consists of short instructional videos showing how to use and maintain a refrigerant identifier.

The videos provide useful guidance on safety and best practice, understanding the difference between different identifier units, testing procedures and identification of results.

It is intended for use by Montreal Protocol National Ozone Officers, Customs and Enforcement Officers as well as technicians involved in the servicing and maintenance of refrigeration and air conditioning systems. The application features 10 short instructional videos on the following topics:

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

Available for [free](#) on the Google play store (Apple version coming soon). Search for “UNEP Refrigerant ID” or use the QR code





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

OzonAction has launched an exciting new application which hosts series of short instructional videos on techniques, safety and best practice for refrigeration and air-conditioning technicians.

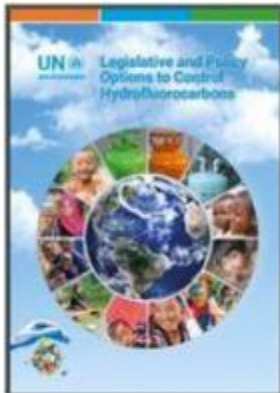
This application, consisting of short instructional videos on techniques, safety and best practice, serves as a complementary training tool for refrigeration and air-conditioning (RAC) sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training.

### **New videos on flammable refrigerants just added!**

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

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

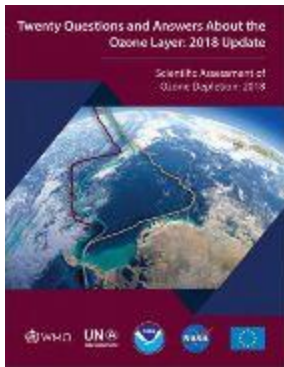
## PUBLICATIONS



### [Legislative and Policy Options to Control Hydrofluorocarbons](#)

In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures.

This booklet contains a recommended set of legislative and policy options which the developing (Article 5) countries may wish to consider for implementation. It is intended to be a guide/tool for countries.



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

**Lead Author:** Ross J. Salawitch

**Coauthors:** David W. Fahey, Michaela I. Hegglin, Laura A. McBride, Walter R. Tribett, Sarah J. Doherty

Read / Download:

[20 Questions and Answers about the ozone layer- 2018](#) | [Figures](#)



[Primer on Hydrofluorocarbons \(HFCs\)](#) - IGSD -11 January 2018

Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO<sub>2</sub>-eq by 2050, and avoid up to 0.5°C of warming by 2100.

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

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



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

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

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

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



life front

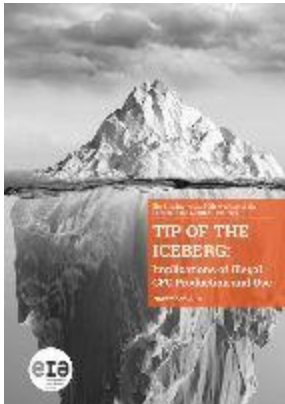
**Impact of Standards on Hydrocarbon Refrigerants in Europe – Market research report.** The market research report was realised for the EU-funded **LIFE FRONT** project. Amongst the main result of the market research:

- Current charge limits set in standards both restrict and obstruct the development of hydrocarbon technology
- Over 50% survey respondents already work with hydrocarbons to some extent
- Most of those planning to start working with hydrocarbons in the future will do that in 2019-2020 timeframe - revision of standards could have a major impact on the scale of this shift
- Large proportion of respondents indicated they manufacture equipment using multiple refrigeration circuits - allowing higher hydrocarbon charge limits per single refrigeration circuit would have a profound impact on cost and availability of larger units.



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

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



### [Tip of the Iceberg: Implications of Illegal CFC Production and Use.](#)

The Environmental Investigation Agency (EIA) recently released report urges Parties to the Montreal Protocol to address a number of remaining unanswered questions, in particular the absence of comprehensive data regarding the size of current banks of CFC-11 in PU foam and other products or equipment.



### [Cold Hard Facts 3 - Review of the Refrigeration and Air Conditioning Industry in Australia](#)

[...] This study provides a broad view of the composition, size and value of the industry, and projections for its future. This will assist industry and policy makers with management of ozone depleting substances as they are phased out, and synthetic greenhouse gases, including hydrofluorocarbons (HFCs) which are being phased down from January 2018.



[Ozone-depleting substances 2019 Aggregated data reported by companies on the import, export, production, destruction, feedstock and process agent use of ozone-depleting substances in the European Union, 2006-2018/1994-2019](#) - The 2019 edition of the European Environment Agency (EEA) report on ODS confirms that the EU has already achieved its goals on the phase-out of such substances under the Montreal Protocol. [...]



### [Benefits of Energy Efficient and Low-Global Warming Potential Refrigerant Cooling Equipment](#)

**Authors:** Nihar Shah, Max Wei, Virginie Letschert, Amol Phadke.

Energy Analysis and Environmental Impacts Division  
Lawrence Berkeley National Laboratory, August/2019



### [Lower-GWP Alternatives in Stationary Air Conditioning: A Compilation of Case Studies](#)

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

### [Climate and Clean Air Coalition \(CCAC\), 2019](#)



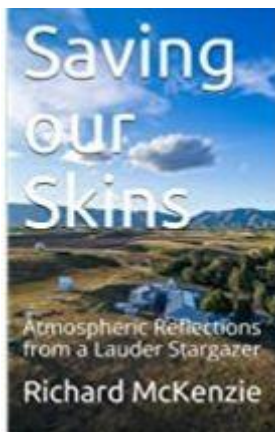
Latest issue of Centro Studi Galileo magazine,  
[Industria & Formazione, n. 6 - 2020](#)  
(in Italian language).



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



“[World Guide to Transcritical CO<sub>2</sub> Refrigeration](#)”, a free three-part resource looking at the global market penetration and potential of this natural refrigerant technology. As the use of transcritical CO<sub>2</sub> refrigeration systems increase at an exponential rate around the world, it has become apparent that there is a great need for reliable information from a neutral source. The newly included Part 3 focusses on specific trends relating to industrial applications and on the global transcritical CO<sub>2</sub> market in the future. It includes survey information, partner case studies and interviews, and “thought leader interviews” with important individuals from the industry.



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

humanity. Both serve to remind us of the fragility of our thin skin of atmosphere. Ultimately, McKenzie shows that with foresight and global cooperation, difficult problems in science can be solved. As world leaders grasp for solutions to the climate change threat, this book suggests they might find a model in the Montreal Protocol.

---

## MISCELLANEOUS

---

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



The United Nations Environment Programme, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the “**Montreal Protocol Who's Who**”.

We are pleased to invite you to submit your nomination\*, and/or nominate Ozone Layer Champion(s). **The short profile should reflect the nominee's valuable work related to the Montreal Protocol and ozone layer protection.** Please notify and nominate worthy candidates through the on-line form We look forward to receiving your nomination(s), and please feel free to contact our team for any further assistance concerning your nomination.

**Take this opportunity to raise the profile of women and men who made an important contribution to the Montreal Protocol success and ozone layer protection.**

- View the «Montreal Protocol Who's Who» [Introductory video](#)
- Contact : [Samira Korban-de Gobert](#), UN Environment Programme, OzonAction

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

---

**New International Journal of Refrigeration service for IIR members**

---



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

- Immediate and permanent access to the latest research and to IJR archive
  - Access the latest articles as soon as they become available online.
- Browse, search and read each one of the nearly 4,500 papers since Volume 1, Issue 1.
  - Unlimited access to seminal contributions to the field of refrigeration dating back to 1978.
  - Keep up-to-date with subscriptions to customized e-alerts on New Volumes, Topics and saved Searches. Enhanced content and functions
  - Easily export references, citations and abstracts.
  - Print, download or share articles with colleagues or peers.
  - See which papers, published in Elsevier or elsewhere, have cited any selected article.
  - Consult the research highlights overview of articles in volumes from 2012 onwards.

To access this new service, click "[activate my e-IJR subscription now](#)" and follow the instructions.

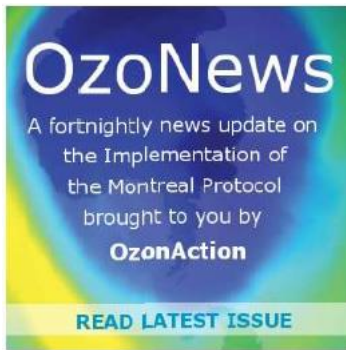


### [NatRef Virtual Trade Show Signs Up 75 Exhibitors and 1,000+ Attendees](#)

The Virtual Trade Show for natural refrigerant technology, organized by clean cooling accelerator shecco (publisher of this website), has so far signed up 75 exhibitors and 1,000+ attendees. The event will take place live around the world, over a 24-hour period on September 1-2. It is [free](#) to attend, and interested participants can sign up [here](#). It will connect the world's foremost natural refrigerant technology providers with the global cooling

marketplace... [Learn more](#)





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

**Disclaimer:**

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

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

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

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

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



