



OzoNews

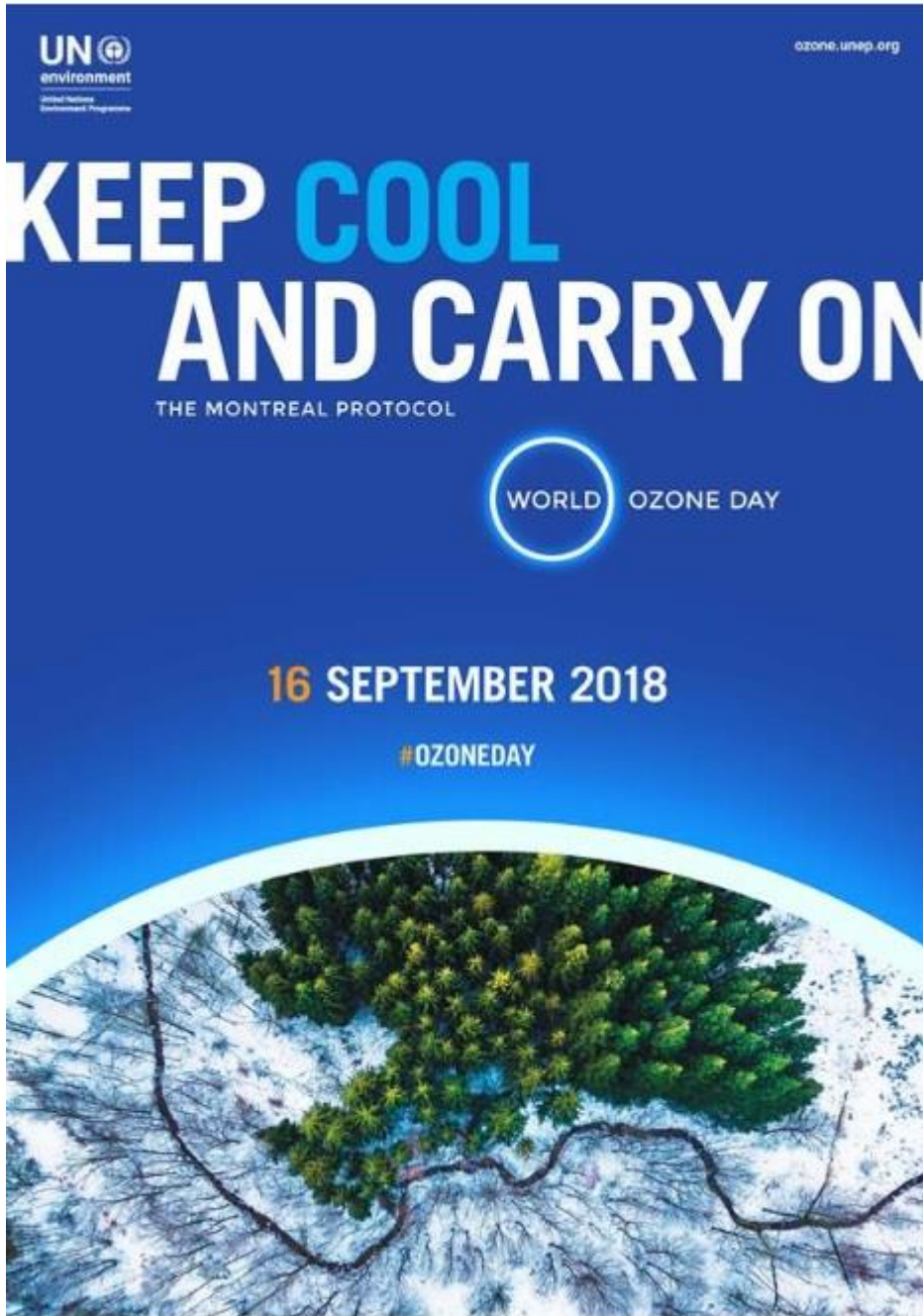
A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol brought to you by OzonAction

Volume XVIII

| 15 June 2018

In this issue:

1. "Keep Cool and Carry On", Theme for World Ozone Day 2018
2. Kigali Amendment: Thirty eight parties to the Montreal protocol have ratified
3. Nobel Laureate Mario Molina, "together we can change our environment for the better"
4. How G-7 Leaders Can Push for Relief to Global Warming [Montreal Protocol]
5. Shanghai Cooperation Organisation Summit 2018
6. The "Twinning workshop on energy-efficient and climate-friendly refrigeration and air conditioning" (Botswana)
7. South Africa targets HFC legislation 'within a year'
8. URR [Upper River Division] Governor Calls for Safe Domestic, Industrial Use of Refrigerants (Gambia)
9. The Philippines Technical Education and Skills Development Authority (TESDA) promotes use of safer, refrigerants for aircon systems
10. Kigali ratifier Grenada tests propane AC
11. Walk in cooler and freezer market to rear excessive growth during 2017 – 2027
12. AHAM wants EPA to raise limit to 150 g from 57 g so manufacturers can build larger R600a units in U.S.
13. Environment authority signed agreements to protect the ozone layer (Egypt)
14. CO2 courses in the Netherlands reach global audience
15. Auto firm fined €3,500 for F-gas breach (Czech Republic)
16. Tunnel vision proves R1233zd efficiency
17. Impact assessment of Split Air Conditioners - GIZ Proklima Webinar
18. CoolHeating in Šabac – biomass use for district heating (Serbia)



1. "Keep Cool and Carry On", Theme for World Ozone Day 2018

"Keep Cool and Carry On"

The theme is accompanied by the tagline:
The Montreal Protocol

The theme for this year's World Ozone Day is a motivational rallying call urging all of us to carry on with the exemplary work of protecting the ozone layer and the climate under the Montreal Protocol.

The theme has two connotations – that our work of protecting the ozone layer also protects climate and that the Montreal Protocol is a “cool” treaty, as exemplified by its outstanding success.

Ozone Secretariat is inviting people to join in keeping our planet cool and celebrating the Montreal Protocol's success in protecting the ozone layer and its contribution to combating climate warming by phasing out nearly 100% of controlled ozone-depleting substances that are also potent global-warming gases.

The Montreal Protocol is poised to contribute even more to the fight against global warming through the Kigali Amendment, which will enter into force on 1 January 2019.

The theme and tagline of this year's World Ozone Day in all the six official UN languages are posted on our [website](#) for wider dissemination.

To support your World Ozone Day communication activities, the Secretariat has developed two posters in all the six official UN languages. Please download them from our [website](#) for dissemination in your commemorative activities.

As in previous years, the United Nations Secretary-General's message for World Ozone Day and other materials will be shared prior to the day for further dissemination.

[UN Environment, Ozone Secretariat, May 2018](#)



2. Kigali Amendment: Thirty eight parties to the Montreal protocol have ratified

The Kigali Amendment to the Montreal Protocol will enter into force on 1 January 2019 after the threshold for the agreement to enter into force was met on 17 November 2017, when it was ratified by 20 parties.

Montreal Protocol parties continue to ratify the Amendment, which has so far been ratified by 38 parties. The parties, listed alphabetically, are: Australia, Barbados, Belgium, Benin, Bulgaria, Canada, Chile, Comoros, Costa Rica, Côte d'Ivoire, Democratic People's Republic of Korea, Ecuador, Finland, France, Gabon, Germany, Grenada, Ireland, Lao People's Democratic Republic, Luxembourg, Malawi, Maldives, Mali, Marshall Islands, Micronesia (Federated States of), Netherlands, Niue, Norway, Palau, Rwanda, Samoa, Slovakia, Sweden, Trinidad and Tobago, Togo, Tuvalu, United Kingdom of Great Britain and Northern Ireland and Vanuatu.

The Amendment was adopted by the 28th Meeting of the Parties to the Montreal Protocol on 15 October 2016 in Kigali, Rwanda. Under the Amendment, all countries will gradually phase down HFCs by more than 80 per cent over the next 30 years and replace them with more planet-friendly alternatives.

Developed countries will start reducing HFCs as early as 2019, while developing countries will start later. Phasing down HFCs under the Protocol is expected to avoid up to 0.5°C of global warming by the end of the century, while continuing to protect the ozone layer.

All prior amendments and adjustments of the Montreal Protocol, which marks its 30th anniversary in 2017, have universal support.

[UN Environment, Ozone Secretariat](#)



3. Nobel Laureate Mario Molina, "together we can change our environment for the better"

Having shown that CFCs damage the ozone layer, Nobel Laureate Mario Molina helped develop the Montreal Protocol which banned their use worldwide - proof that together we can change our environment for the better.

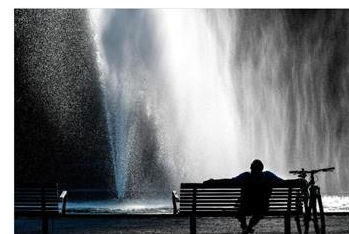
Listen to the [full interview](#) on the occasion of the 2018 World Environment Day

[Nobel Prize, June 2018](#)

4. How G-7 Leaders Can Push for Relief to Global Warming [Montreal Protocol]

Rising temperatures require world leaders to push for developing energy-efficient air-cooling devices.

This past weekend leaders of the world's leading industrial powers – also known as the Group of Seven, or G-7 – met in Canada to discuss the global economy, trade and climate protection.



A man cools himself off sitting next to a park fountain in Stockholm. (Anders Wiklund/AFP/Getty Images)

A critical issue that won't go away is this pernicious cycle: Climate change is causing temperatures to rise around the world. In response, people are racing to install more air conditioners to keep sweltering populations cool. This, in turn, increases demand for electricity and contributes to warming the climate.

Why is this a problem and what can be done about it?

During the past four decades, extreme heat has caused the deaths of thousands of people. In 2003 alone, a heat wave across Europe led to approximately 70,000 untimely deaths.

Economies are also impacted: In July 2017, 40 commercial flights were canceled in Phoenix, Arizona, as temperatures reached nearly 50 degrees Celsius (122 degrees Fahrenheit), making it too hot to fly. Scientists expect this trend to continue, resulting in a "non-trivial cost on airlines" and impacting aviation operations around the world.

Protecting public health and safeguarding economies in a warming world requires purchasing and deploying powerful air conditioners and other cooling devices.

Global energy demand from air conditioners is expected to triple by 2050, according to a recent report by the International Energy Agency. This means we will need to produce new electricity to power this demand to the same scale as what is now produced in all of the United States, the European Union and Japan.

Air conditioners and electric fans currently account for roughly 10 percent of total electricity demand. By 2050, they will be the second-largest source of global electricity demand.

There is a small window to get this growth trajectory right, from a climate perspective. A first priority is to ensure that the cooling agents used in the next generation of air conditioners have the lowest feasible climate footprint.

Fortunately, there is an international legal agreement to help get there: the Montreal Protocol, an international treaty that mandates phasing out the production and consumption of ozone-depleting substances. Since it was implemented in 1989, the protective ozone layer in the stratosphere over Antarctica has begun to heal and, millions of people have been able to avoid developing skin cancer, according to researchers.

The Montreal Protocol has also been the most successful example of coordinated action to tackle climate change to date, because the same chemicals destroying the ozone layer were also warming the climate. By curbing these potent super-pollutants, starting with chlorofluorocarbons, the Montreal Protocol and associated national and regional measures solved an amount of the climate problem that otherwise would have equaled the amount caused today by carbon dioxide.

The Montreal Protocol was amended two years ago in Kigali, Rwanda, to phase down the use of hydrofluorocarbons, or HFCs, which are used in the cooling sector. The Kigali Amendment will enter into force on January 1, 2019. With full compliance, the amendment is set to deliver up to 0.5 degrees Celsius of avoided warming by the end of century.

One way to bring about additional and substantial climate benefits is by ensuring that, while we transition to climate-friendly refrigerants, we also prioritize energy-efficient air conditioning. This will boost innovation, reduce fossil fuel consumption and protect public health by cutting deadly air pollution. At the same time, new jobs will be created in the air conditioning and refrigeration sectors, fostering prosperity.

To put these benefits into context, a modest 30 percent improvement in energy efficiency of room air conditioners would be able to save enough energy to avoid building between 680 and 1,587 medium-sized peak-load power plants by 2030, and between 1,090 and 2,540 by 2050, according to a study by the U.S. Lawrence Berkeley National Laboratory.

Targeted financial support can help move these twin strategies to the scale needed to capture the broad package of benefits. In late 2016, World Bank President Jim Kim pledged the organization would increase spending to \$1 billion – specifically to improve energy efficiency in cooling equipment in urban areas, as well as helping decrease use of HFCs.

But there is a world of difference between rhetoric and action. To make sure the World Bank acts on its promise, attendees of the G-7 meeting will need to request the bank to urgently report on its progress. A warming world is waiting for answers.

[US News, 11 June 2018, By: Romina Picolotti, Scott Vaughan and Durwood Zaelke](#)

See also: [Non-State Actors Urge G7 to Send Strong Signals on Climate](#), article in IISD, 7 June 2018, By: Gillian Nelson



5. Shanghai Cooperation Organisation Summit 2018

On 9-10 June 2018, Qingdao, PRC [China], hosted a meeting of the Council of Heads of State of the Shanghai Cooperation Organisation (CHS SCO).

The meeting was attended by Prime Minister of the Republic of India Narendra Modi, President of the Republic of Kazakhstan Nursultan Nazarbayev, President of the People's Republic of China Xi Jinping, President of the Kyrgyz Republic Sooronbay Jeenbekov, President of the Islamic Republic of Pakistan Mamnoon Hussain, President of the Russian Federation Vladimir Putin, President of the Republic of Tajikistan Emomali Rahmon, and President of the Republic of Uzbekistan Shavkat Mirziyoyev. [...]

Among other adoptions, the participants jointly adopted:

[...] the Memorandum on the exchange of information on transboundary movements of ozone-depleting substances and hazardous waste. [...]

[Modern Diplomacy, 12 June 2018](#)

Africa



6. The “Twinning workshop on energy-efficient and climate-friendly refrigeration and air conditioning” (Botswana)

24-25 May 2018, Gaborone, Botswana - The “Twinning Workshop on Energy-Efficient and Climate-Friendly Refrigeration and Air Conditioning” aimed to strengthen cooperation between two traditionally separate communities - those responsible for managing compliance with the Montreal Protocol on substances that deplete the ozone layer, and those who craft national energy policies.

With their combined expertise and remits, these officials are key to transitioning global markets toward better performing cooling products.

The workshop was organized by UN Environment’s OzonAction and United for Efficiency initiatives in cooperation with the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

The workshop series is supported by the Kigali Cooling Efficiency Program, a new philanthropic initiative that is committing US\$ 52 million to help developing countries transition to energy-efficient, climate-friendly, affordable cooling solutions.

Contact: [Jim Curlin](#), UN Environment, OzonAction, and [Brian Holuj](#), UN Environment, United for Efficiency initiative

7. South Africa targets HFC legislation 'within a year'



The South African government is putting in place legislation to regulate HFCs, heard participants in ATMOSphere Network Frigair 2018, held on Thursday (8 June) at the Gallagher Convention Centre in Johannesburg as part of Frigair 2018 – Africa’s only dedicated HVAC&R tradeshow.

“Within a year, we’ll have in place some kind of legislation to regulate HFCs,”

Obed Baloyi, chief director, chemicals management in the Department of Environmental Affairs, Republic of South Africa, told the event.

South Africa intends to ratify the Kigali Amendment to the Montreal Protocol, which puts in place a global HFC phasedown pathway, before it comes into effect in January 2019.

“The government is putting in place a Climate Change Act, one of whose goals is to stop pumping HFCs into the South African market,” Baloyi announced.

“We’re plugging HFC management into that Act,” he said. “We will have legislation to make sure that we phase down HFCs in our country.”

The Climate Act is already in the process of being developed. “It should go into parliament soon. So we’re already looking into this,” Baloyi said.

“In less than a year, we should have something in place,” he said.

Leapfrogging HFCs

“What’s most important for us is to make sure that we leapfrog HFCs,” Baloyi said. “The good news is that alternatives to HFCs do exist,” he added.

“We issue permits, but we haven’t started issuing quotas yet. We’re a little bit late, but we’re only five minutes late,” Baloyi said.

“We don’t want to be 30 minutes late, or we’ll end up with huge stockpiles of HFCs in our country,” he said. “We want to get the balance right from the beginning, to make sure that we don’t create a new problem for ourselves going forward.”

The ATMOSphere Network Frigair conference provided a forum for HVAC&R stakeholders to discuss the market for natural refrigerants in South Africa.

“The formula for success is government and industry working together with commitment. We, as South Africa, know what we need to do,” Baloyi said .

[Coowor, 12 June 2018](#)



8. URR [Upper River Division] Governor Calls for Safe Domestic, Industrial Use of Refrigerants (Gambia)

Fatou Jammeh Touray, the Governor of URR, has reiterated that her office is committed to ensuring a clean environment that is protected from any form of emission particularly substances produced by our domestic and local industrial activities, especially cooling systems and refrigerants. Governor Touray noted that Government has environment issues on top of her development agenda and will endeavor to sustainably improve the environment for all to benefit.

Governor Touray made these remarks in a speech delivered on her behalf by Momodou BillO Jallow, Population Officer for the Region, during the opening ceremony of a four days training workshop organized by the National Environment Agency (NEA), for refrigeration and air conditioning technicians on the handling of refrigerants and flammables and their safe use. The workshop was held at the Basse Area Council chambers. Governor Touray enjoined participants to be professional in their profession and exercise caution in handling flammables and refrigerants which are a substitute to ODS gas.

“It is therefore important for you to actively participate in this capacity building training where you will discover new skills and innovations to serve you in your profession as technicians. Try to share the new ideas you are going to discover, with those who could not have the opportunity to attend this workshop,” She pointed out.

In his opening statement, the Director of Admin. and Finance at the NEA disclosed that the workshop came at a time when the refrigeration and air conditioning subsectors are experiencing a lot of transformation in terms of technology, with the introduction of new refrigerants, in a bid to replace the ones that are Ozone depleting substances that contribute to the warming of the environment.

Muhammed Denton called for concerted effort in curbing the negative practices in refrigeration management.

“All of us here present, have a role to play in reducing the production and consumption of such refrigerants that is threatening our survival and existence on earth. As technicians and major stakeholders in the service sector, you should encourage end-users to convert to Ozone friendly refrigerants like R290, which is now available in our markets and can be used in our air conditioning systems. Importers also need to support us by importing such alternatives, to gradually phase out current refrigerants. This will ensure our compliance to the Montreal Protocol obligations on the use of Ozone depleting substances,” Denton said.

ODS Agency Officer Alhagie Sarr, said the objectives of the training is to identify technology needs, country specific barriers and requirements for the application of such technologies and the formulation of a roadmap to promote green cooling and inter regional technology transfer; that they should try and promote natural

refrigerants such as carbon dioxide, ammonia and hydrocarbon technologies and share information on low global warming technologies with their fellow technicians.

FOROYAA, 8 June 2018, By Sheikh Alkinky Sanyang

Asia Pacific



9. The Philippines Technical Education and Skills Development Authority (TESDA) promotes use of safer, refrigerants for aircon systems

As part of its bid against global warming and climate change, the Technical Education and Skills Development Authority (TESDA) will be promoting the use of safer, natural alternative refrigerants for split-type air-conditioning systems.

In a campaign launched this week at the agency's Green Technology Center in Taguig City, the use of environmentally friendlier alternative refrigerants, such as R290 Hydrocarbon, was endorsed as 9 hydrocarbon (R290) split air-conditioning units and workshop equipment were turned over to TESDA.

The R290 Hydrocarbon, as an alternative refrigerant, will help the Philippine's RAC sector to achieve the goals of international protocols and environmental agreements such as the Kyoto Protocol (1997), Montreal Protocol (2007), Paris Agreement (2015), and Kigali Agreement (2016).

These will be used in the demonstration and training programs for the proper installation and safe use of alternative refrigerants.

Secretary Guiling Mamondiong, said that TESDA, through a cooperation agreement with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH of Germany, will introduce the safe use of the R290 Hydrocarbon refrigerant for split-type air-conditioning systems as part of a program dubbed "Cool Contribution Fighting Climate Change (C4) Project".

In the Philippines, the project is done in coordination with the Climate Change Commission for Nationally Determined Contributions, the Department of Environment and Natural Resources for refrigerants, the

Department of Energy to improve the energy performance of climate-friendly alternatives, and the Department of Trade and Industry for the introduction and safe use of alternative refrigerants.

The C4 Project is an initiative funded by Germany's Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU-IKI), which is represented by its implementing agency, GIZ. The project aims to advance a comprehensive international system for controlling the use of climate-damaging fluorinated greenhouse gases (F-gas) such as hydroflourocarbons (HFCs), which are commonly used as refrigerants in refrigeration and air conditioning (RAC).

The C4 project is currently being implemented by five other country-partners: Cuba, Grenada, Costa Rica, Iran, and Vietnam in support of their respective commitments to the Paris Agreement.

A "green" technical and vocational education and training (TVET) (Green TVET) forum was conducted recently in preparation for the agency's plans to adopt more environmentally safe technology and encourage technical-vocational (tech-voc) scholars to support the government's advocacy to protect and preserve the environment, Mamondiong said.

As part of TESDA's cooperation agreement with GIZ, and to ensure the safe use of hydrocarbon refrigerants, a demonstration-workshop session on R290-driven air-conditioning units as well as five-day training of trainers (TOT) programs will be conducted for RAC trainers, manufacturers, refrigerant dealers and technicians.

Mamondiong said that the information on the use of hydrocarbons will soon be included in the training curricula of the RAC Sector.

[Manil Bulletin, 19 May 2018, By: Dhel Nazario](#)

Latin America and Caribbean

10. Kigali ratifier Grenada tests propane AC

The Caribbean island of Grenada, the 37th country to ratify the Kigali Amendment, is to implement an air conditioning project using propane refrigerant.

The Government of Grenada has received 30 mini split air-conditioning units from the German government through the German development agency GIZ. The shipment comprises 20 18,000Btu (5.2kW) and 10 12,000Btu (3.5kW) units, all operating with R290 (propane).

The units manufactured by Indian company Godrej will be used as part of a "natural" refrigerants demonstration project, the first of its kind in the Caribbean. The project will collect, compare and analyse data between already installed units using synthetic refrigerants and the new systems using propane.

On May 29, Grenada became the 37th country among the 197 Parties to the Montreal to ratify the historic Kigali Amendment. Grenada is the third country in the Caribbean to achieve early ratification, behind Trinidad and Tobago, and Barbados.

[CoolingPost, 4 June 2018](#)



North America

11. Walk in cooler and freezer market to rear excessive growth during 2017 – 2027



Rapid Growth of food & beverages industry coupled with the rising number of warehouse and logistics are accelerating the global walk in cooler & freezer market during the forecast period. Furthermore, rapid industrialization, particularly in developing nations, and significant emphasis on energy conservation has led to noteworthy advancement in the global walk in cooler & freezer market. [...] Demand for walk in cooler & freezer in commercial sectors is rising owing to grow the economy, higher per capita income, increase consumption of beverage, food, urbanization and other such factors that are increasing [...]

Various governments and non-governmental organizations offer rebates to manufacturers of walk in cooler & freezer refrigeration systems for energy-efficient products and services. Such as ENERGY STAR, a U.S. Environmental Protection Agency (EPA) voluntary program, offers businesses and individual's rebates and also helps in protecting the environment by specifying superior energy-efficient norms. Seasoned markets for the global walk in cooler & freezer market have high demand for technologically advanced and more energy efficient products. Presently supermarket and convenience stores collectively holds over 60% share in the annual retail sales in regions such as North America and Western Europe. Prominence of supermarket, hypermarkets and convenience stores in these regions, which demand large space, proper utilization of space and at the same time maintaining the interior environment of the space has made these firms to use refrigeration system with remotely located condensers, so as there is no heat dissipation in the store interior and at the same time also provides more storage space. [...]

Walk In Cooler And Freezer Market Segmentation By Refrigerant Type – HFCS, Ammonia, CO₂, Other Refrigerant; By Application – Food Processing, Beverage production, Chemicals and Pharmaceuticals, Petrochemicals, Energy, Logistics (storage -warehouses); By Product Type – Indoor Walk-in Coolers & Freezers, Outdoor Walk-in Coolers & Freezers; By Operation – Self-contained Unit, Remote Operated Unit; By Sales Channel – OEMs, Aftermarket [...]

A sample of this report is available upon request [here](#)

[The Columnist, 29 May 2018](#)

12. AHAM wants EPA to raise limit to 150 g from 57 g so manufacturers can build larger R600a units in U.S.



For the past decade, the Washington, D.C.-based Association of Home Appliance Manufacturers (AHAM) has been playing “whack-a-mole” when it comes to transitioning to isobutane (R600a) refrigerants for home refrigerators, said Kevin Messner, its senior vice president, policy & government relations.

That is, as soon as one issue is addressed, another one pops up.

“We’re an industry that is willing and committed to transition to isobutane,” he said. “We make these products for the rest of the world and it would be great from a manufacturing perspective to get them as harmonized as possible.”

Domestic refrigerator manufacturers have already invested close to \$100 million in gearing up to make conventional home refrigerators with isobutane, he said.

To enable the complete transition to happen, AHAM has been pushing for the charge limit for isobutane in home fridges set by the Environmental Protection Agency to increase from 57 g to 150 g. That is the standard outside of the U.S., and the amount of isobutane needed to cost effectively produce large home refrigerators. The 57 g limit – set by the EPA in 2011 when it permitted isobutane to be used as a replacement gas under its Significant New Alternatives Policy (SNAP) program – has allowed only compact refrigerators to be made in the U.S., Messner said.

Last December, it looked as if AHAM would get its wish as the EPA issued a “direct final rule” raising the hydrocarbon charge limit to 150 g for domestic fridges, based on a UL standard set last year that raised the charge limit to that amount. However, that was pending a comment period, and in February EPA reversed course in SNAP Rule 22 after receiving a small number of “adverse comments” on the change.

But the agency said it would address those comments as it continued to consider the charge increase.

AHAM was also eager to see the charge limit rise to 150 g because the EPA SNAP program announced in 2016 that R134a, the primary HFC used in U.S. domestic refrigerators, would no longer be allowed beginning in 2021. Given its difficulties getting the charge limit raised for R134a's replacement, AHAM considered the 2021 deadline too soon, and requested that it be moved up to 2024. "Rushing it would not be good for anybody," said Messner. "And another few years would have a negligible impact on the environment."

However, that scenario has changed as a result of a U.S. Court of Appeals ruling last August invalidating the EPA's ability to strike HFCs from use as replacements for ozone-depleting gases. Though the rule only applied to EPA SNAP Rule 20, which didn't contain the impending prohibition against R134a in home fridges, the ruling is expected to apply equally to Rule 21, which does contain that prohibition. That would remove the 2021 deadline for replacing R134a, and it doesn't preclude manufacturers from using R600a – results favorable to AHAM.

On the other hand, last month, the EPA said it "plans to begin a notice-and-comment rulemaking process to address the remand of the 2015 rule." The agency added that it "intends to consider the appropriate way to address HFC listings under the SNAP program in light of the court's opinion" and also consider "the larger implications of the court's opinion remanding the rule to the agency."

In addition, a bill was introduced in February in the U.S. Senate that would provide the EPA with the power to regulate HFCs; the Senate may also take up for ratification the Kigali Amendment to the Montreal Protocol, which calls for a global phase-down of HFCs.

Further complicating matters, the California Air Resources Board announced in March that it was preserving the SNAP rules on HFCs in the Golden State.

The upshot for AHAM, explained Messner, is that AHAM still wants to see the EPA raise the charge limit for isobutane to 150 g as soon as possible; that would give manufacturers certainty about moving forward with their plans for using the refrigerant in larger U.S. home fridges, even as the U.S. government figures out how it wants to regulate HFCs, which Messner thinks could take a while.

Even without the EPA increasing the charge limits, the court ruling allows manufacturers to use 150 g of isobutane under standards set by UL (and CSA in Canada). But AHAM is still seeking the EPA's endorsement of the charge limit change, which would be the quickest way to achieve it, said Messner.

"There's the final investment that can't happen till we know what the charge size is," said Messner.

In preparation for the transition to isobutane, AHAM last year released guidelines for the safe servicing of residential appliances with flammable refrigerants.

Messner noted that domestic fridge manufacturers are not able to use HFO refrigerants and are not interested in using HFO blends that have a GWP up to 700. "They'd rather just go for the natural refrigerant."

[hydrocarbons21, 22 May 2018, By Michael Garry](#)

West Asia



13. Environment authority signed agreements to protect the ozone layer (Egypt)

البيئة توقع اتفاقية لحماية طبقة الأوزون

وقع محمد شهاب عبد الوهاب الرئيس التنفيذي لجهاز شئون البيئة، اليوم الأربعاء، اتفاقية تعاون مع كلا من جهاز حماية المستهلك، ومصلحة الكفاية الإنتاجية والتدريب المهني بوزارة التجارة والصناعة بشأن تنفيذ بعض الأنشطة الخاصة بالتخلص من استخدام المواد الهيدروكلوروفلوروكربونية المستنفدة لطبقة الأوزون، وذلك في إطار تنفيذ البرنامج المصري لحماية طبقة الأوزون.

وأوضحت البيئة، في بيان لها، ان الاتفاقيتين تنصان على تنفيذ أنشطة محددة ذات صلة بوقف استخدام وسائط التبريد الخاضعة للرقابة وفق الالتزامات المصرية بأحكام بروتوكول مونتريال وتعديلاته المختلفة كالمراجعة والتقييم المفصل لوسائط التبريد التي يتم إدخالها إلى الأسواق المحلية ومراجعة وتحديث اللوائح وإصدار نظام للرصد ومراقبة الأسواق ووسائط التبريد، بما يحقق الإدارة السليمة للتعامل مع المواد والمعدات الخاضعة للرقابة.

Al Bawaba News, 6 June 2018

Europe & Central Asia

14. CO₂ courses in the Netherlands reach global audience

From 29th of May to June 1st, the CO₂ Academy (a Swedish brand owned by Frigo Natural AB in Sweden) in Aeres Tech, Netherlands, ran a four-day training course on CO₂ technology with a multinational audience of engineers, project managers and refrigeration technicians

The 19 attendees from Canada, U.S., Iceland, Romania, Spain and Poland learned through practical and theoretical methods how to use CO₂ technology.

The theoretical training did not just cover how to use a standard CO₂ booster system but delved into newer technology like parallel compression and ejectors, along with other warm-climate solutions, as well as heat recovery.

The attendees were pleased with the training they received. "I just spend a marvelous time learning and getting trained on CO₂ thanks to the CO₂ Academy," said German Robledo, Latin America Sales Manager at Vilter - Industrial Refrigeration - Emerson Commercial & Residential Solutions who attended the May/June course, in a press release from CO₂ Academy.

Practical exercises with a transcritical booster unit connected to fridges and freezers included a demonstration of start-up tests, and a checklist for working on the refrigeration system safely and avoiding mistakes when installing CO₂ systems.

"I have taken other CO₂ trainings in other sites and so far, the CO₂ Academy surpass [my] expectations. I recommend to anyone involved in CO₂ to take this training, you will not be disappointed," Robledo said.

The CO₂ Academy is running the following training sessions, in English and Swedish, during September:

A two-day training for theoretical engineers 25-26 September;

A two-day training practical training for technicians 27-28 September;

And a four-day training that covers both theoretical and practical approaches to CO₂ technology 25-28 September.

Click [here](#) to visit the CO₂ Academy website to learn more and register for the courses.

r744, 6 June 2018, By: Charlotte McLaughlin



Practical demonstration during the May/June training at the CO₂ Academy. (Photo Credit: CO₂ Academy)

15. Auto firm fined €3,500 for F-gas breach (Czech Republic)

An auto dismantling company has been fined CZK90,000 (€3,500) for failing to fully recover R134a from car air conditioning systems.

The Czech Environmental Inspectorate (ČIŽP) discovered breaches of the European F-gas regulations at Carmel Auto CZ, sro. The company carries out the dismantling of new Hyundai Tuscon at its facility in Ostrava-Radvanice.

The individual parts are repackaged for sale abroad. As part of the dismantling of each vehicle, the R134a was also recovered for sale.

According to the CEI Regional Inspectorate in Ostrava, the company did not fully recover the R134a from the air conditioning units. The total amount of refrigerant not recovered in accordance with the current legislation, was said to be more than 900kg.

The company is also said to have failed to secure the recovery of the refrigerant by a person with the required certificate.

[CoolingPost, 1 June 2018](#)



16. Tunnel vision proves R1233zd efficiency

Initial results show that energy savings of 33% have been achieved by the new Trane CenTraVac chillers using the HFO 1233zd(E) to cool the Channel Tunnel link between the UK and France.

The figures released yesterday for Europe's largest cooling system reveal an energy reduction of 4.8GWh, relating to savings of approximately €500,000 in 2017. Going forward, operators are confident that annual savings of around 40% can be sustained.

The four Series E chillers using the new HFO refrigerant 1233zd(E) have been installed over the last two years to mitigate the effects of the heat generated by the high-speed trains as they pass through the tunnel connecting the UK with France. They replaced eight ageing York Titan chillers which have served the tunnel since it opened in 1994.

Without round-the-clock cooling, the heat generated by high-speed trains passing through the 50.5km-long tunnel under the English Channel would drive indoor temperatures above 35°C, which is the maximum that can be reached while still running services in optimal condition. The new system ensures that ambient temperatures stay at or around 25°C.

The original solution developed at the time by York and Transmanche-Link, the British/French tunnel construction consortium, involved installing two systems of 24in diameter cooling water pipes, carrying 18.5 million gallons of water in a network totaling 300 miles in length.

The network was originally supplied by eight York Titan chillers running on R22. Four chillers, each with 2,000 tons of cooling capacity were installed at in Dover with the other four, each with 1,700 tons of cooling capacity, installed at Sangatte on the French coast.

These have now been replaced by four Trane Series E CenTraVac chillers. Two 9MW CenTraVac's have been operational in Sangatte, France, since 2016, and two 11MW CenTraVac's at Shakespeare Cliff, UK, have been operational since late October 2017.

The chillers were replaced during the winter period when free-cooling via the plant's dry-coolers carry much of the cooling load.

Each chiller is charged with around 2,000kg of R1233zd(E), a non-flammable refrigerant with a GWP of 1. It was designed as an alternative to the HCFC refrigerant R123 in low pressure chillers.

As well as increased efficiency, the chillers installed currently offer 42% spare capacity for future traffic increases.

"We saw the replacement of the Channel Tunnel cooling system as a chance to reduce our energy consumption and carbon footprint," said François Gauthey, deputy CEO of Channel Tunnel owner Getlink. "This effort required installing a new cooling system – Europe's largest – to maintain the Channel Tunnel at optimal ambient temperatures. Honeywell's Solstice zd refrigerant, with its ultra-low global warming potential, and Trane's chillers,



which are already being used to cool large buildings and infrastructure, provided the best combination of features to help us meet our energy and environmental goals,” he added.

Trane was the first company to develop a chiller for use with 1233zd when it launched the Series E CenTraVac in 2014. Jose La Loggia, Trane’s general manager commercial HVAC Europe, gave credit for Eurotunnel’s vision in adopting this new refrigerant technology. “When we worked together on this project these chillers were just out of the box,” he said. “No-one had worked with chillers like this before. They had the vision to trust us to deliver on what we said.”

[CoolingPost, 1 June 2018](#)

17. Impact assessment of Split Air Conditioners - GIZ Proklima Webinar



Split-type air conditioners are responsible for the largest share of energy consumption and GHG emissions in the refrigeration and air conditioning sector worldwide. Distinct information and sound knowledge of the national and international split AC markets are required, in order to develop policy frameworks that effectively improve efficiency and reduce refrigerants’ GWP levels.

Against this background, the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH through its Cool Contributions fighting Climate Change (C4) project will be hosting a webinar on “Cost, Energy and Climate Impact Assessment of Split Air Conditioners” to present key findings of a recently conducted new market study¹.

The assessment counts with primary data from around 1.500 mini-splits across 68 brands in nine partner countries in Africa, Latin America and the Caribbean, the Middle East and Asia. This webinar will focus on results in selected Asian countries.

All participants are encouraged to participate in an insightful discussion about the presented results. Please note, that the number of participants is limited. For any queries related to this webinar, please contact [Nicole Mueller](#)

**Wednesday, 27 June 2018
10:00 AM - 11:00 AM CEST**

To register for the webinar, click [here](#)

18. CoolHeating in Šabac – biomass use for district heating (Serbia)



The University of Belgrade School of Electrical Engineering (ETF), together with partners on the CoolHeating project, has completed pre-feasibility studies for two investment projects concerning small modular renewable district heating systems in the City of Šabac: the Summer House – biomass use in suburban areas and the New District Heating Plant – biomass use in urban areas.

The project goal is to support the development of the market for small modular renewable heating and cooling systems in cities and municipalities of South-East Europe (SEE). This goal will be achieved through the transfer of knowledge and joint activities of partners from countries with good practice examples (Austria, Denmark, and Germany) and countries with modest development in this sector (Croatia, Slovenia, Macedonia, Bosnia and Herzegovina, and Serbia).

Bringing projects of small modular renewable district heating and cooling systems in five selected cities and municipalities to the pre-investment phase would be the final outcome. Project activities are taking place in several cities and municipalities in the region of SEE: The City of Ozalj (Croatia), the Ljutomer Municipality (Slovenia), the Visoko Municipality (Bosnia and Herzegovina), the Municipality of Karpoš (Macedonia), and the City of Šabac (Serbia).

Small modular renewable district heating and cooling systems are based on a variety of energy sources, including solar collectors, biomass, and waste energy (for example, from industrial processes or a biogas plant). The solar energy and biomass mix is interesting as it provides security of supply, price stability, local economic development, and employment in rural areas. [...]

[Balkan Green Energy News, 6 June 2018](#)

Featured



**OZONE
SECRETARIAT**

OZONE SECRETARIAT

- [40th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol](#), 11-14 July 2018, Vienna, Austria

The documents for the forthcoming 40th meeting of the Open-ended Working Group of the Parties to the Montreal Protocol (11 to 14 July 2018, Vienna), and the associated workshop on energy efficiency opportunities while phasing-down hydrofluorocarbons (9 and 10 July 2018) are available on our meeting portal and mobile app.

Please find the documents at the following links on the meeting portal:

- [40th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol](#)
- [Workshop on energy efficiency opportunities while phasing-down hydrofluorocarbons \(HFCs\)](#)

Mobile app

How to access the app:

Step 1: Download the 'UN Environment Events' app from your app store and install it on your device.

Step 2: Open the app and tap the event titled 'OEWG40 & Energy Efficiency Workshop' to download it.

Step 3: Once the download is complete, the app is available to use. Tap any icon on the app to browse and engage with the content.

The Secretariat will continue to update the meeting portal and mobile app with relevant documents and other material.

- Vienna Convention and Montreal Protocol Meetings: A Primer - [Read/Download](#)
 - [29th Meeting of the Parties to the Montreal Protocol](#)
 - [28th Meeting of the Parties to the Montreal Protocol](#)
 - Final text of the Kigali Amendment to the Montreal Protocol available in all the six official UN languages ([A](#) [C](#) [E](#) [F](#) [R](#) [S](#))
 - OEWG 39: The 39th Session of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer, preceded by the 58th meeting of the Implementation Committee under the Non-Compliance Procedure for the Montreal Protocol, held on 9 July and a workshop on safety standards relevant to the use of low-GWP alternatives to HFCs, held on 10 July 2017.
 - [Draft report of the thirty-ninth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer - Addendum](#)
 - [Draft report of the thirty-ninth meeting of the Open-ended Working Group of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer](#)
 - Click [here](#) for further information.
 - Browse through the Ozone Secretariat "[In Focus](#)" to learn about latest updates.
 - Click [here](#) for Montreal Protocol Meetings Dates and Venues
-

The UN Environment Assessment Panels have been the pillars of the ozone protection regime since the very beginning of the implementation of the Montreal Protocol. Through provision of independent technical and

scientific assessments and information, the Panels have helped the Parties reach informed decisions that have made the Montreal Protocol a world-recognized success.

UNEP initiated the process of setting up the assessment panels in 1988, pursuant to Article 6 of the Montreal Protocol, to assess the scientific issues of ozone depletion, environmental effects of ozone depletion, and the status of alternative substances and technologies and their economic implications.

Four panels, namely the panels for Scientific, Environmental Effects, Technology, and Economic Assessments were formally established and approved at the First Meeting of the Parties to the Montreal Protocol in 1989 where their first set of Terms of Reference were adopted. Shortly after the Second Meeting of the Parties in 1990, the Panels for Technical Assessment and the Panel for Economic Assessment were merged into one Panel called the Technology and Economic Assessment Panel (TEAP), which together with the Scientific Assessment Panel (SAP) and the Environmental Effects Assessment Panel (EEAP) make up the three assessment panels active today.

In accordance with Article 6 of the Montreal Protocol and subsequent decisions of the Parties, the three panels carry out a periodic assessment at least every 4 years. The first assessment reports were published in 1989 and since then major periodic assessments have been published by all three panels in 1991, 1994, 1998, 2002, 2006 and 2010. For each periodic assessment, the key findings of the panels are synthesized into a short report. The full SAP assessment report for 2014 was published in December 2014, while the EEAP assessment report for 2014 was published in January 2015.

PROGRESS & QUADRENNIAL ASSESSMENT REPORTS

- [EEAP](#)
- [SAP](#)
- [TEAP](#)

SYNTHESIS REPORTS

- [2014 assessments](#)
- [2010 assessments](#)
- [2006 assessments](#)

[Assessment Panels List of Meetings](#)



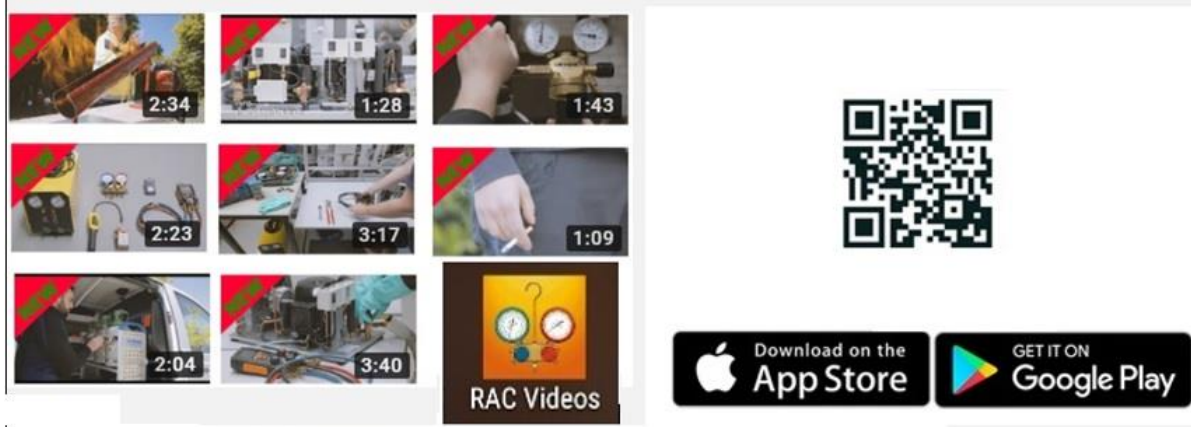
THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

- [81st meeting of the Executive Committee](#), Montreal, Canada, 18 to 22 June 2018
- [2018 Executive Committee Primer](#)
- [Report](#) of the 80th meeting of the Executive Committee
- [Report](#) of the 79th meeting of the Executive Committee

[Learn more](#)



OZONACTION



New videos available on the OzonAction RAC video application

A series of new videos has just been released on the Refrigeration and Air-conditioning Technician Video Series application, with a focus on working with flammable refrigerants ...

50,000 downloads and counting!

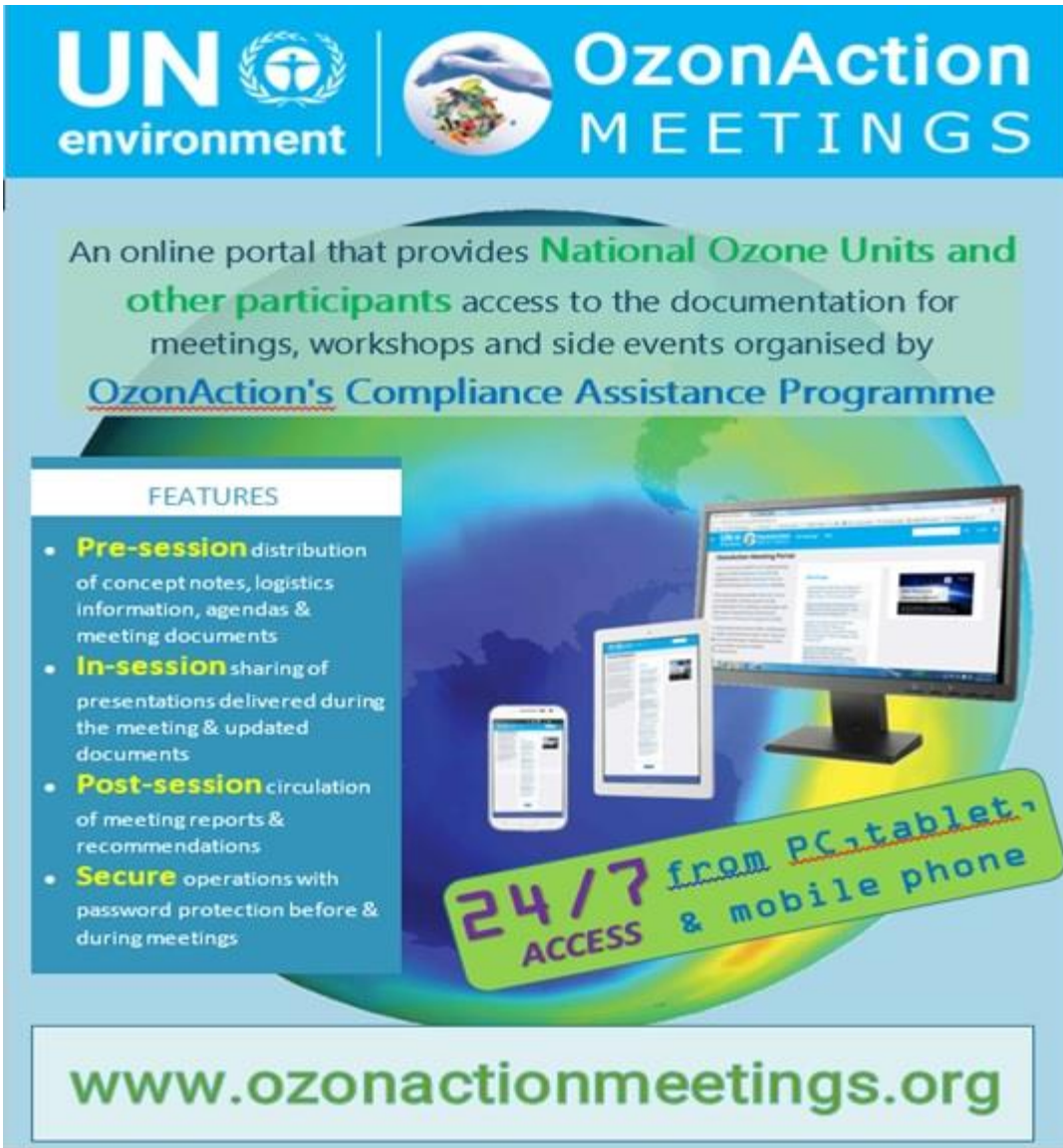
To install, search for "RAC Video" in the Google Playstore or Apple IOS store, or scan the QR code.

OzonAction launches initiative to highlight 'Women in the refrigeration and air-conditioning sector'

OzonAction, in cooperation with UN Women, is seeking to collect experiences and short 'stories' from women working in the refrigeration and air-conditioning (RAC) sector. From female service technicians to installers, from designers to trainers, from manufactures to RAC associations, UN Environment OzonAction are looking to highlight your experience...

"Women in the RAC Sector" [flyer](#) | [Submission Form](#)

Learn more [UN Environment, OzonAction, March 2018](#)



UN environment | **OzonAction MEETINGS**

An online portal that provides **National Ozone Units and other participants** access to the documentation for meetings, workshops and side events organised by **OzonAction's Compliance Assistance Programme**

FEATURES

- **Pre-session** distribution of concept notes, logistics information, agendas & meeting documents
- **In-session** sharing of presentations delivered during the meeting & updated documents
- **Post-session** circulation of meeting reports & recommendations
- **Secure** operations with password protection before & during meetings

24/7 ACCESS from PC, tablet, & mobile phone

www.ozonactionmeetings.org

Visit the [OzonAction Meetings Portal](http://www.ozonactionmeetings.org) and learn more about our current, upcoming, and future events



OzonAction Scoop- A tri-annual newsletter by UN Environment, OzonAction under the Multilateral Fund for the Implementation of the Montreal Protocol.
Issue#1 | Issue#2



The application allow you to easily convert ODP, CO₂-eq and metric quantities of refrigerants and other chemicals

- Helps in understanding and reporting under the Montreal Protocol (and future commitments under the Kigali Amendment)
- The calculator will automatically perform the conversion between metric tonnes, ODP tonnes and/or CO₂-equivalent tonnes (or kg) and display the corresponding converted values
- The app includes both single component substances and refrigerant blends
- The components of a mixture and their relative proportions (metric, ODP, CO₂-eq) are also displayed.

Available for free from the Apple IOS store and Google PlayStore. Search for "GWP ODP CALC" in the Playstore to install!

Download it Now!



OzonAction Smartphone Application WhatGas? Quickly search for the information you need

- Chemical name
- Chemical formula
- Chemical type
- ASHRAE designation
- Trade names
- HS code
- CAS number
- UN number
- Montreal Protocol Annex and Control measures
- Ozone depleting potential (ODP)
- Global warming potential (GWP)
- Blend components
- Toxicity and flammability class
- Main uses

OzonAction Smartphone Application WhatGas?
Available for **free** in the Google Play and Apple IOS Store
Scan the QR code or search for “UNEP”, “OzonAction” or “WhatGas?”



The Kigali Amendment to the Montreal Protocol - Opportunities and Next Steps - OzonAction Video

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase down hydrofluorocarbons (HFCs). The UN Environment, OzonAction developed a video to find out from renowned international scientific, health, technical, financial and national experts about background and significance of this Kigali amendment.

The amendment presents many opportunities: improving the environment, refrigeration and air-conditioning systems and especially energy efficiency. It also presents new challenges. It is absolutely critical now for industry, governmental bodies and civil society to work together to adopt greener technologies in each country of the world and fight global warming.

[OzonAction YouTube](#) | See also: [United Nations Treaty Collection](#)

OzonAction Factsheets



Click [here](#) to access **OzonAction Series of Fact Sheets** relevant to the **Kigali Amendment**.

UNEP
HS Nomenclature (HS Codes) for HCFCs and Certain Other Ozone Depleting Substances
Post-Kigali Update

INTRODUCTION

In recent years, trade patterns in ozone depleting substances (ODS) have changed with the complete phase-out of chlorofluorocarbons (CFCs) as of 1 January 2010 (except for a few exempt uses), the hydrochlorofluorocarbon (HCFC) phase-out in progress and the increased trade hydrofluorocarbons (HFCs) and other alternatives as replacement substances.

To better facilitate monitoring of trade in ODS, the Parties to the Montreal Protocol requested the World Customs Organization (WCO) to revise the Harmonized Commodity Description and Coding System, and to issue as the Harmonized System (HS) codes for HCFCs. The result of a working group, established in 2009, is the HS classification for ODS, as set out in Chapter 29 of the HS with the objective of assigning specific eight digit HS codes to the most commonly used HCFCs, and at the same time labelling individual HCFC codes previously assigned to CFCs. This amendment entered into force on 1 January 2012.

With the 2016 Kigali Amendment to the Montreal Protocol, phase-down HCFCs is expected that a future amendment of the HS will assign separate HS codes for the most commonly used HCFCs and remove remaining HCFCs.

HS Classification for ODS (2012)

Under the HS 2012 HCFCs and certain other ODS are to be classified in the HS as follows:

Chapter 29. Organic chemicals
29.03 Halogenated derivatives of hydrocarbons.

29.03.1 - Halogenated derivatives of acyclic hydrocarbons containing two or more different halogens

2903.11 - Chlorofluoromethane (= HCFC-22)
 2903.12 - Dichlorodifluoromethane (= HCFC-123, covers two isomers)
 2903.13 - Chlorotrifluoromethane (= HCFC-113, covers 3 isomers including the most popular HCFC-R113B)
 2903.14 - Chlorodifluoroethanes (= HCFC-142, covers 3 isomers, including the most popular HCFC-R142B)
 2903.15 - Dichloromonofluoroethanes (= HCFC-215, covers 9 isomers, including the most popular HCFC-R215a and HCFC-R215b)
 2903.16 - Bromochlorodifluoroethanes, bromochloromethane and dibromodifluoroethanes
 2903.17 - Other (= all remaining HCFCs and a number of other halogenated derivatives of acyclic hydrocarbons containing two or more different halogens, including other air conditioning and refrigeration substances controlled by the Montreal Protocol: hydrochlorofluoroethanes (HCFCs) and bromochloromethane (BCMC))

Download a presentation a comparison table showing the previous HS classification of ODS until 31 December 2011 (HS 2007) and the revised classification which were applicable from 1 January 2012 (HS 2012). Information is also provided on the current HS codes for ODS-containing features (see back page).

HS codes for HCFCs and certain other Ozone Depleting Substances ODS(post Kigali update)

UNEP
The Kigali Amendment to the Montreal Protocol: HFC Phase-down

28th Meeting of the Parties to the Montreal Protocol
 15-19 October 2016, Kigali, Rwanda

INTRODUCTION

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluorocarbons (HFCs).

HFCs are commonly used alternatives to ozone depleting substances (ODS), while not ozone depleting, substances. HFCs are greenhouse gases which can have high or very high global warming potentials (GWPs), ranging from about 12 to 14,800.

The phase-down of HFCs under the Montreal Protocol has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment (Decision XXXVI) and accompanying Decision XXXVII continues the historic legacy of the Montreal Protocol.

This fact sheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

OVERVIEW OF AMENDMENT

The Kigali Amendment adds to the Montreal Protocol the phase-down of the production and consumption of HFCs. The main features of the amendment are the following:

- The Kigali Amendment will enter into force on 1 January 2019, provided that it is ratified by at least 20 Parties to the Montreal Protocol (or 90 States after ratification by the UNFCCC).
- There are four groups of Article 5 Parties with different cessation dates and phase-down schedules (see chart and graph on page 2).
- Some non-Article 5 Parties have already submitted calculations and different initial phase-down rates from the main group (non-Article 5 Parties) (see chart and graph on page 3).
- A new Annex F has been added to the Protocol. This lists the HFCs separated into two groups:
 - Annex F, Group 1: all HFCs (except HFC-125 and HFC-134a)
 - Annex F, Group 2: HFC-23.
- Global warming potential values have been added to the Protocol for HFCs and selected HCFCs and CFCs (see page 6).
- Production, consumption, import, export and stocks as well as consumption baselines of HFCs and the agreement on carbon dioxide (CO₂) equivalent.
- Baselines are to be calculated from both HFC and HCFC production/consumption.
- There is an exemption for high ambient temperature countries (see page 6).
- Trade and Parties that have not ratified the Amendment ("non-Parties") will be banned from 1 January 2023.
- The Executive Committee is required to develop, within two years, guidelines for trading of the phase-down HFCs.
- A timeline of the HFC phase-down is provided on page 4.

The Kigali Amendment to the Montreal Protocol: HFC Phase-down - The phase-down of HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment at the 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluoro-carbons (HFCs) continues the historic legacy of the Montreal Protocol.

This factsheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

UNEP
Refrigerant Blends: Calculating Global Warming Potentials
Post-Kigali Update

INTRODUCTION

The number of single component refrigerants with different thermodynamic properties suitable for different types of equipment is limited. Growing demand for refrigerant and air conditioning with diversified applications has led to a continued search for suitable refrigerant blends. A number of such blends have been developed by mixing two or more single component refrigerants in different proportions. The resulting blends have entirely different properties from that of its components.

While it is common to use the term "blends" in the context of the Montreal Protocol, it is important to note that the term "mixtures" is also used to describe refrigerants which are composed of more than one component. The terminology "mixture" is specifically used in the Working Customs Organization (WCO) Harmonized Commodity Description and Coding System, also known as the Harmonized System (HS) codes.

TYPES OF REFRIGERANT BLENDS

A refrigerant blend or mixture of refrigerants is made up of two or more single component refrigerants. These blends can be of two types: Azeotropic and Zeotropic.

Azeotropic blends
 These blends behave like a single component refrigerant, in that they boil and condense at a constant temperature at a given pressure. In the azeotropic refrigerant mixture, there is no change in composition. These blends are assigned numbers for ASHRAE codes in the 500 series, e.g. R502A.

Zeotropic blends
 These blends boil and condense through a range of temperatures at a given pressure. This range of temperatures is called the "temperature glide". Zeotropic blends are assigned ASHRAE codes in the 400 series, e.g. R404A, R407C, etc.

GWP

Global warming potential (GWP) is a measure which enables comparison of the global warming effects of different gases. It compares the amount of heat trapped by a certain mass of a gas to the amount of heat trapped by a similar mass of carbon dioxide over a specific period of time. Carbon dioxide was chosen by the Intergovernmental Panel on Climate Change (IPCC) as the reference gas and its GWP is taken as 1.

Following the 2016 Kigali Amendment, the Montreal Protocol has adopted flexible trading arrangements for ODS in HFCs. These include hydrochlorofluoroethanes (HCFCs) and CFCs which have been incorporated into the list of the Protocol in Annexes A, C and F.

GWP values for some common refrigerants

Substance	GWP value
CFC-12	10,900
HCFC-22	1810
HCFC-124	800
HCFC-142b	2100
HFC-134a	1430
HFC-152a	124
HFC-23	14,800
HFC-32	675
HFC-125	3000
HFC-134a	1430
HFC-152a	124
HFC-124yf	<1
R-290 (Propane)	3

Refrigerant Blends: Calculating Global Warming Potentials (post-Kigali update)



Global Warming Potential (GWP) of Refrigerants: Why are Particular Values Used? (post-Kigali update).



Tools Commonly used by Refrigeration and Air-Conditioning Technicians



OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - 50,000 download 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)



OzonApp eDocs+ launched in Android Play Store and Apple Store.

This new application launched by OzonAction on February 12, includes publications, videos, fact sheets and other awareness materials to help National Ozone Units (NOUs) and other stakeholders to build their capacity to implement the Montreal Protocol in a sustainable manner and at the same time to derive climate benefits.

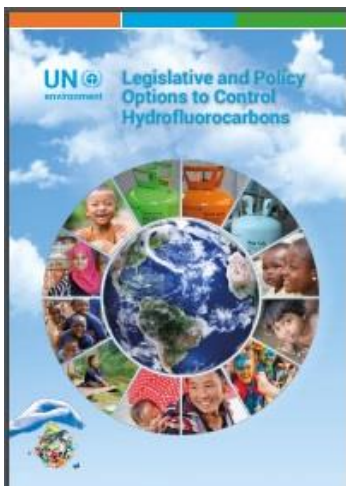
OzonApp eDocs+ available in the [Android Play Store](#) and [Apple Store/iTunes](#).
(Just search for "OzonAction", or scan this QR code)



Publications



Twinning of National Ozone Officers and Energy Policymakers - Under the Kigali Cooling Efficiency Program (K-CEP), UN Environment is implementing a two-year "twinning" project to build the capacity of National Ozone Officers and national energy policymakers for linking energy efficiency and Montreal Protocol objectives in support of the Kigali Amendment.



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.

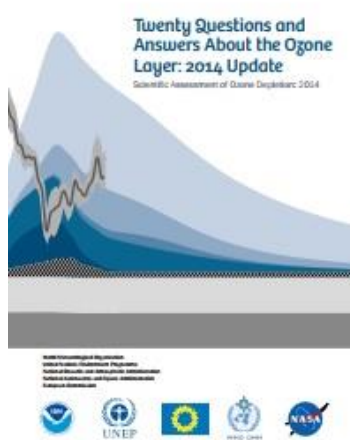
Events

2018

- [13th IIR-Gustav Lorentzen Conference on Natural Refrigerants](#), 18-20 June 2018, Valencia, Spain
- [9th Ibero-American Congress of Refrigeration Science and Technology](#), 19-21 June 2018, Valencia, Spain
- [24th International Compressor Engineering Conference at Purdue](#)
- [17th International Refrigeration and Air Conditioning Conference at Purdue](#)
- [5th International High-Performance & Green Buildings Conference at Purdue](#)
9-12 July 2018, West Lafayette, Indiana, USA
- [International Conference on Emerging Technologies for Sustainable and Intelligent HVAC&R Systems](#), 27-28 July 2018, Kolkata, West Bengal, India
- [Solar Heating and Cooling Forum](#), 9 August 2018, Brisbane, Qld, Australia
- [1st IIR International Conference on the Application of HFO Refrigerants](#). 2-5 September 2018, Austin Court Conference Centre, Birmingham, United Kingdom.
- [The Future of HVAC Conference 2018](#), 12–13 September, Melbourne, Australia.
- [3rd IIR Conference on Cold Application in Life Sciences 2018](#), 12-14 September 2018, St. Petersburg, Russia
- [3rd IIR Conference on Cold Application in Life Sciences 2018](#), 12-14 September 2018, St. Petersburg, Russia
- [8th International Conference on Magnetic Refrigeration at Room Temperature \(Thermag VIII\)](#), 16-20 September 2018, Darmstadt, Germany
- [Healthcare ColDays](#), 15 November 2018, Lyon, France,

See other [IIR upcoming events](#)

Reading



[Twenty Questions and Answers About the Ozone Layer](#), presents complex science in a straightforward manner. It complements the [2014 Scientific Assessment Report of Ozone Depletion](#) by WMO and the U.N. Environment Programme.

Lead Author:
Michaela I. Hegglin

Coauthors:
David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash



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

Summary:

Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO₂-eq by 2050, and avoid up to 0.5°C of warming by 2100.

Lead authors:

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

Contributing authors:

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



The [IIR International Dictionary of Refrigeration Available in 11 languages](#), the complete version of the International Institute of Refrigeration (IIR) International Dictionary of Refrigeration is now freely accessible online.

The IIR International Dictionary of Refrigeration offers researchers, industrialist or administrations the practical resources required to produce content related to refrigeration technologies in multiple languages.

This online tool allows you to find definitions, in English and French, of scientific and technical terms, as well as identify terms in the language of your

choice and find corresponding translations in the 10 other languages.

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

The dictionary in numbers:

- more than 4,300 terms in English and French, including 800 synonyms,
- around 3,500 definitions in English and French,
- approximately 7,800 terms, synonyms and definitions
- content in 11 languages.

This international tool is the result of the work of nearly 200 experts, members of the IIR network, from around 30 countries throughout the world.

The dictionary's content covers all areas of refrigeration such as:

- basic principles (thermodynamics, transfer of heat and mass ...)
- production of refrigeration (refrigerated systems, refrigerants...)

- refrigerated installations
- methods of chilling, refrigeration and freezing
- storage, transport and distribution
- refrigeration applications for perishable products and the agro-food industry
- air conditioning
- heat pumps
- cryogenics
- environment

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



Letter to the Editor

Refrigerants: There is still no vision for sustainable solutions

Risto Ciconkov

Refrigerants: There is still no vision for sustainable solutions

by Risto Ciconkov

Letter to the Editor, International Journal of Refrigeration

[Abstract and highlights](#)



University of Birmingham. "Draining peatlands gives global rise to greenhouse laughing-gas emissions." ScienceDaily, 28 March 2018.

Miscellaneous



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

The United Nations Environment, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the "Montreal Protocol Who's Who" as part of the 30th Anniversary of the Montreal Protocol celebration.

The new website was launched during the 29th Meeting of the Parties to the Montreal Protocol, Montreal, Canada, 20-24 November 2017.

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 men and women 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, OzonAction

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



New *International Journal of Refrigeration* service for IIR members - As of January 2017, not only will IIR members continue to receive the hard copy of the journal but IIR membership will now also give members access to 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.

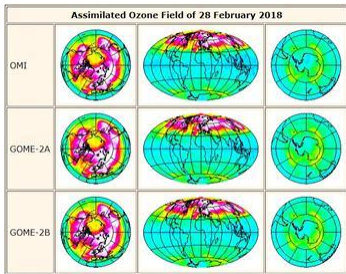
Enhanced content and functions

- 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.

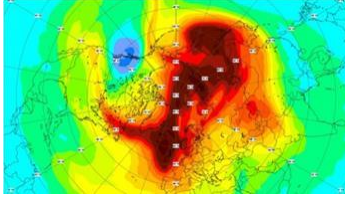
To access this new service, click "[activate my e-IJR subscription now](#)" and follow the instructions.



International Observers - New AREA membership category - Due to the significant worldwide interest in European legislative developments and the increase in competence of personnel who handle new refrigerants, AREA is pleased to introduce its brand new "International Observer" membership category. This provides a fantastic opportunity for non-European RACHP installer bodies the world, to benefit from the expertise and discussions within Europe through access to AREA. Contact: info@area-eur.be



TEMIS -- Near-real time global ozone field. The in near-real time delivered total ozone columns, derived from satellite observations, are input to a data assimilation program which provides global ozone fields for today and a forecast for the coming days.



Copernicus Atmosphere Monitoring Service. Since 7 February, CAMS has predicted the appearance of an ozone mini-hole over western Canada around 12-13 February. The 5-day forecast from the ECMWF Copernicus Atmosphere Monitoring Service (CAMS) showed the location of this ozone mini-hole and predicted its shape and size. This prediction was broadly consistent with other leading global atmospheric composition forecasting centres. Satellite observations acquired on 12 and 13 February data assimilation actually confirmed these predictions. "It is a nice way for us to show that our models really work and can accurately predict these kinds of events," says Mark Parrington, senior scientist for CAMS...



The 2018 Climate & Clean Air Awards are now open for nominations! For the 2nd consecutive year, we are calling on the SLCP community to recognise the projects and policies making an impact on climate change and air pollution.



AIRAH Awards 2018 nominations now open! The AIRAH Awards recognise the individuals, companies, research projects and products across the diverse specialist fields that make up the HVAC&R industry. Open to individuals, companies, corporate bodies, institutions and government authorities, the 2018 Awards will recognise work carried out during 2016/2017.



Australia's top HVAC&R publisher launches online newsroom Australia's leading publisher of HVAC&R magazines, AIRAH, is taking its news offering online through the launch of a digital newsroom. The [website](#) provides the latest information about goings-on in the industry, both locally and globally.

Current and previous OzoNews Issues, are available from [OzonAction website](#)

OzoNews is Turning 15!

15 years on, OzoNews remains a leading source of information on ozone and air quality, providing regular and concise news updates directly to you, based on the latest research and data. Thank you for your continued interest in the magazine and for your support in making it what we hope is your favourite magazine.

Thank you for your continued interest!

10 Key News:

1. Freon-free Regional Technical Workshops and Regional Network Meetings for National Ozone Offices
2. Launch of the Global Wavelength Awards for Customers and Air-Conditioning Offices
3. IEA Study: First Steps Road of Economic Recovery Due to Climate Bill
4. AEC Integrated Market Outlook, Demographic Insights, Industry Size & Status, Comprehensive Analysis to 2022
5. Le Monde sees the end of central climate
6. New rules about the environment: Priority Maintenance of Refrigeration and Air Conditioning (AC) Units
7. Canada's AEC Goes Digital in Berlin
8. An RPOD: European Commission's Green Deal 'Fit' Foundation from APOE: Requires Further Research
9. Return/Update From South Party with F. (the Regulation)
10. New Road to Network Growth: University in Berlin

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: Shamila Nair-Bedouelle, Head OzonAction Branch, and 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@uneenvironment.org



[unsubscribe](#)

