OzoNews

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In this issue

UNEP

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A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol

GLOBAL

1. Ozone and Climate: Restored by a World United: Working towards Reducing Global-Warming HFCs under the Montreal Protocol

The theme for this year's International Day for the Preservation of the Ozone Layer to be marked on 16 September is: ***Ozone and climate: Restored by a world united*** The theme is complemented by the tagline: ***Working towards reducing global-warming HFCs under the Montreal Protocol***

The theme for this year's International Ozone Day recognizes the collective efforts of the parties to the Vienna Convention and the Montreal Protocol towards the restoration of the ozone layer over the past three decades and the global commitment to combat climate change.

As a result of concerted international efforts, the ozone layer is healing itself and is expected to recover by the middle of this century. In addition, the Montreal Protocol has significantly contributed to the mitigation of climate change by averting the emission of more than 135 billion tonnes of carbon dioxide equivalent into the atmosphere by simply phasing out ozone-depleting substances.

Additionally, as mandated by the "Dubai Pathway on Hydrofluorocarbons (HFCs)" adopted in 2015, parties are working within the Montreal Protocol to an HFC amendment in 2016 by first resolving challenges by generating solutions in the contact group on HFCs. According to scientific information, reducing HFCs under the Montreal Protocol can avoid 0.4°C of global warming by the end of the century, while continuing to protect the ozone layer.

The theme and tagline in all the six official UN languages are posted on the Ozone Secretariat website for wider dissemination.

To support your public awareness activities, the Secretariat has developed a poster that is also available for downloading from the Secretariat website. You are encourage to disseminate the poster widely in your commemorative activities. The Secretariat would also be pleased to receive any information products for your planned commemorative activities for wide dissemination through our website.

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

Once again, the Secretariat will provide limited financial assistance to four developing countries to contribute towards organizing their national activities to commemorate the day. The Secretariat invites the parties to submit their plans of celebration activities and requests for assistance by **3rd June 2016**. Kindly send them to the Secretariat at dan.tengo@unep.org and ozone.info@unep.org

2. European Union Communication in Relation to Decision XXVI/8 on Measures to Facilitate the Monitoring of Trade in HCFCs and Substituting Substances

As a follow up to the Ozone Secretariat's letter dated 28 April (*see below*), the European Union has requested the Ozone Secretariat to convey to the parties to the Montreal Protocol for their information, the contents of the self-explanatory communication in relation to Decision XXVI/8 on measures to facilitate the monitoring of trade in HCFCs and substituting substances.

- Click here to Read/Download the European Union Communication
- **Ozone Secretariat's letter, dated 28 April, on Decision XXVI/8 on Measures to Facilitate the Monitoring of Trade in HCFCs and Substituting Substances**

Following the adoption of decision XXVI/8 on measures to facilitate the monitoring of trade in HCFCs and substituting substances by the Twenty-Sixth Meeting of the Parties to the Montreal Protocol in 2014, the World Customs Organization (WCO) has been working towards the insertion of separate Harmonised System (HS) codes for the chemicals requested by the Parties.

The WCO Secretariat has prepared two options (Option 1 and Option 2) for the possible amendment of the Nomenclature in respect of ozone-depleting substances and their substitutes. These options, in square brackets,

which have already been considered by both the 49th session of Harmonised System Review Sub-Committee in November 2015 and the 31st session of the Scientific Sub-Committee (SSC) in January 2016 are set out in the attachment to this (*see below)*. The Ozone Secretariat has been informed that both options presented in the attachment are technically correct and feasible. Under Option 1 the structure of subheading 2903.3 would be maintained with fewer subheadings for chemicals and products grouped under a single subheading. Option 2 includes more subheadings to distinguish separate chemicals and products as listed under the subheading. During the 49th Harmonised System Review Sub-Committee meeting in November 2015 when these two options were first discussed, most of the countries that contributed to the discussion seemed to favour Option 2.

In the light of the above information, the Ozone Secretariat has been requested to express the preference of the parties for either Option 1 or Option 2 and to present those views to WCO Secretariat in time for the next meeting of the Harmonised System Review Sub-Committee that will be held at the WCO headquarters in Brussels from 23-27 May 2016.

Accordingly, the Ozone Secretariat is seeking and should be grateful receiving, by 18 May 2016, your country's preference for either of the two possible options for the amendment to the structured nomenclature to heading 29.03, as set out in this attachment.

- Please send your comments to the Ozone Secretariat to the attention of Gilbert Bankobeza

3. Aerosol Propellant Market Worth $27.09 Billion By 2022

The global Aerosol Propellant Market is expected to reach USD 27.09 billion by 2022, according to a new report by Grand View Research, Inc. Increasing demand for aerosol in personal care products, mainly cosmetics, is expected to drive market growth. Rising consumption of carbon dioxide and nitrous oxide aerosol propellant for dispensing dental creams, food products, ointments and hair preparations will augment growth over the forecast period.

Asia Pacific is expected to witness significant gains in terms of volume at a CAGR [Compound Annual Growth Rate] of 5.5% from 2015 to 2022, on account of supporting regulations and high demand for household & cosmetic products. Growing demand for shaving creams and deodorants, particularly among the younger population, in emerging economies including China and India, is expected to have a positive impact on market growth.

- Global Aerosol Propellant Market demand was 9,521.5 kilo tons in 2014 and is expected to grow at a CAGR of 4.5% from 2015 to 2022. U.S. EPA support for utilization of hydrocarbon propellants as they have zero ozone depletion potential and less atmospheric residence time, is expected to drive growth. […]

- Grand View Research, May 2016

ASIA PACIFIC

4. RAC Industry Expo Showcases Latest Ozone- and Climate-Friendly Technologies

Beijing, 7 April 2016 – The latest refrigeration and air-conditioning (RAC) technologies were on display at a global exhibition in Beijing, China, where the Asia-Pacific RAC industry also reviewed challenges it faces as it moves beyond phasing out ozone-depleting substances towards new generation climate-friendly and energy-efficient alternatives.

Following up on the Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer's landmark agreement by 197 nations, in November 2015, to consider controls on the growing use of zero ozone-depleting but high global warming-potential hydrofluorocarbons (HFCs), the 13th Ozone2Climate (O2C) Industry Roadshow and Roundtable, held on 7-9 April 2016, exhibited the

newest ozone and climate-friendly technologies. It also engaged industry decision-makers in discussions on the availability, affordability and need for alternative technologies, especially the readiness of the servicing sector for such technologies and refrigerants.

"The Roadshow event provided a platform for the audience and attendees interested in O2C technologies to interact or discuss directly with the industry players who were presenting at the event" said Ms. Li Xiaoyan, Project Officer of China's Foreign Economic Cooperation Office (FECO) which co-organised this Roadshow.

Organised by the China RAC Industry Association with support from the United Nations Environment Programme (UNEP) OzonAction, the 13th Ozone2Climate event was held on the sidelines of the annual International Exhibition for Refrigeration, Air-conditioning, Heating and Ventilation, Frozen Food Processing, Packaging and Storage (CRH Expo) which was visited by more than 40,000 people from around the world.

For the first time, the Roadshow also showcased achievements of the RAC servicing sector. Six Chinese vocational schools offering RAC training participated in the Roadshow. "They [the schools] found the Roadshow very interesting and helpful in accelerating their capacity building" Ms. Xiaoyan said.

Some HFCs, used in air conditioning and refrigeration as replacements for ozone-depleting hydrochlorofluorocarbons (HCFCs) being phased out under the Montreal Protocol, can have high, or very high, global warming potentials. HFC emissions are estimated to be growing by about 7 per cent annually, potentially jeopardising the substantial climate benefits achieved by the successful implementation of the Montreal Protocol so far. Reducing HFC use would result in substantial reductions in CO_2-equivalent emissions and could also result in significant energy efficiency gains for the industry.

Participants in the 13th Ozone2Climate event reviewed progress in the RAC industry's contribution to implementing the Montreal Protocol and the relevant policies, regulations and standards for alternative refrigerants. They also learned about China's progress in implementing its HCFCs phase-out management plan.

The Ozone2Climate event was the 13th to be held since the inaugural event held in May 2011 in Male, Maldives and was supported by the UNEP OzonAction Compliance Assistance Programme.

- **Contact:** Shaofeng Hu, Regional Network Coordinator, OzonAction Compliance Assistance Programme, UNEP Regional Office for Asia and Pacific

5. Change in Safety Standards a Must for Successful Transition from HFCs to Hydrocarbons (India)

The Only Major Barrier to the Large Scale Use of Hydrocarbons has Been the Safety Concerns over the High Flammability of these Refrigerants

As part of the current negotiations on Hydrofluorocarbons' (HFC) phase-down under the Montreal Protocol, countries are being urged to move from high Global Warming Potential (GWP) HFCs to low GWP alternatives.

Hydrocarbons have come up as a major contender for replacing HFCs in the current phase-down. Hydrocarbons are long-term refrigerants without any uncertainty with respect to emerging environmental regulations. These gases, in addition to having low GWP, are also freely available and have higher energy efficiency than traditional f-gases. This means that in addition to the direct emissions from HFCs, a switch to hydrocarbons will also save on indirect emissions from the high energy efficiency offered by these refrigerants.

The only major barrier to the large scale use of hydrocarbons has been the safety concerns over the high flammability of these refrigerants especially in room air-conditioning. In order to address the restrictive nature of the safety standards, Centre for Science and Environment (CSE) [an Indian public interest research and advocacy organisation based in New Delhi] organised a workshop on developing appropriate safety standards for hydrocarbon refrigerants in the RAC sector on April 26-27.

The workshop brought together experts from all over the world working in the field of Refrigeration and Air-conditioning (RAC). These experts came together to articulate the specific issues that need to be addressed in order to develop an Indian standards (BIS) for use of hydrocarbons in RAC sector. The workshop included presentations on the current state of international negotiations and the benefits from the use of hydrocarbon-based refrigerants, barriers to

switching from f-gas to hydrocarbon-based RAC systems in India and the international state of standards and changes needed for wide scale implementation of hydrocarbon refrigerants in India. The presentations were followed by breakout sessions, where the changes needed in the international standards were discussed and articulated.

According to the technological and economic assessment panel (TEAP) created under the Montreal Protocol, hydrocarbons can be used as an alternative in all RAC sectors, with the possible exception of mobile air-conditioning. The only major barrier to the large scale use of hydrocarbons has been the safety concerns over the high flammability of these refrigerants especially in room air-conditioning. These concerns stem from studies that were performed decades ago, with little consideration for the technological improvements made to ensure safety in hydrocarbon-based RAC systems. This perception of diminished safety has led to restrictive safety standards under the two major international standards regimes, i.e. International Electrotechnical Commission (IEC) and the International Standards Organisation (ISO).

New studies have shown that the maximum charge size limits set under these standards are restrictive. This has been because the test conditions used to come up with the current standards were suboptimal and not representative of practical use. More realistic studies of the safety concerns related to gas leakages in hydrocarbon-based RAC systems reveal that the charge size of these systems can be increased (with the use of available safety features) by up to three times the current limits. This will allow for the use of hydrocarbon-based RAC systems with higher cooling capacity in much less restrictive circumstances (room size limits). It is estimated that such a change in the hydrocarbon standards can allow for a smooth transition to hydrocarbons in almost all stationary air-conditioning (SAC) applications. The SAC sector accounts for more than 30 per cent of the global HFC emissions and a switch to hydrocarbons in this sector will make a significant impact on mitigation of HFC emissions.

Some of the key findings and recommendations from the workshop hosted by CSE were:

- To modify the two relevant ISO and IEC standards to make them more suitable to Indian conditions
- To compile latest information on safety of hydrocarbons including tests done on hydrocarbon based RAC equipment and develop a dossier to support the need for an appropriate standard for India. If required, additional tests could be conducted in labs to substantiate the global experience on safety of hydrocarbons in the RAC sector.
- To prepare draft standards for charge size in hydrocarbons taking into account EER improvements and average heat load for Indian conditions (between 75-150 W/m^2).
- To engage with a wider group of stakeholders for consensus

Down to Earth, 9 May 2016

NORTH AMERICA

6. US EPA Repeats Warnings on R22 "Substitutes"

The US Environmental Protection Agency (EPA) has repeated warnings of the dangers of using hydrocarbon refrigerants as substitutes for R22 in existing equipment.

The EPA warns that using a propane-based refrigerant in a vehicle or home air conditioner that is not designed to use flammable refrigerants poses a threat to homeowners as well as service technicians.

"Systems that are recharged with an unapproved alternative called "22a" can catch fire or explode, resulting in injury and property damage," it says.

A number of refrigerants with "22a" or "R-22a" in the name contain highly flammable hydrocarbons, such as propane, and have been marketed to US consumers and contractors seeking to recharge existing R22 systems.

These refrigerants have not been submitted to the EPA for review under its SNAP programme, so are prohibited from use. Further, the EPA recently issued a proposed rule that would list refrigerant products sold as 22a and all refrigerants identified as flammability Class 3 in ANSI/ASHRAE Standard 34–2013 as unacceptable for retrofitting residential and light commercial AC and heat pumps—unitary split AC systems and heat pumps.

In March, a Louisiana man was arrested for selling a product called Super-Freeze 22A. According to reports,

most of the individuals who purchased the product were unaware it was potentially flammable.

In January of this year, Northcutt Inc, of Wichita, Kansas, agreed to pay a $100,000 civil penalty and discontinue US marketing and sales of unapproved flammable hydrocarbon refrigerants sold as ES 22a and ES 502a.

Last year, Enviro-Safe Refrigerants of Pekin, Illinois, agreed to pay a $300,000 civil penalty and cease marketing and sales of hydrocarbon refrigerants HC-12a, HC-22a and HC-502a, as substitutes for ozone-depleting substances.

The EPA says it continues to investigate instances where propane-based refrigerants have been illegally marketed and used as substitutes for HCFC22 (R22) and will continue to take enforcement actions where appropriate.

"Using an unapproved, flammable refrigerant in a system that wasn't designed to address flammability can lead to serious consequences, including explosion or injury in the worst cases," said Janet McCabe, acting assistant administrator for EPA's Office of Air and Radiation. "As the summer cooling season gets started, we want to make sure consumers and equipment owners know what is going into their system is safe."

CoolingPost, 4 May 2016

7. HFC Refrigerants Phase-Down Is Coming. Is Your Company Prepared?

Carbon dioxide emissions aren't the only greenhouse gases that corporations need to address when considering how to close the emissions gap and keep global warming below 2 degrees Celsius.

Hydrofluorocarbons (HFCs) are greenhouse gases that the EPA says can be up to 10,000 times more potent than carbon dioxide and are used in commercial refrigeration, building and vehicle air conditioning and other equipment.

In March the EPA issued a proposed rule under the Significant New Alternatives Policy (SNAP) program that will expand the list of climate-friendly HFC alternatives and phase out certain HFCs in favor of safer options that are already available.

And globally, 197 countries are working to amend the international Montreal Protocol agreement to phase out HFCs. The phase-down could begin as early as this year. […]

Some businesses are already taking steps to reduce and eliminate HFC use and emissions. In 2014 more than 20 companies, working with the White House, announced a series of commitments to curb HFCs. Among these: Coca-Cola set a goal for 100 percent of its newly purchased cold drink equipment to be HFC-free. And Honeywell committed to increase production of its low-global-warming-potential (GWP) refrigerants, insulation materials, aerosols and solvents.

Last October the White House hosted a second HFC roundtable discussion with businesses that saw additional HFC progress. Lapolla, a small spray-foam-insulation company, announced that it has completed a transition of all foam operations to climate-friendly alternatives ahead of schedule. Target announced that all new stand-alone coolers in its stores will be HFC-free and said it will expand the use of carbon dioxide refrigeration systems to replace HFCs in new stores.

"There is tremendous leadership and innovation in American business, all up and down the value chain — from deploying new, safer chemicals all the way to the freezer in your local grocery store," wrote EPA administrator Gina McCarthy in a blog about the roundtable.

A global HFC-phase [Down] also means growing demand for low-global-warming-potential refrigeration chemicals —and the opportunity for chemical companies to grow this piece of their business. Occidental Chemical last month said it will spend $145 million to expand its Geismar, Louisiana, site to make a raw material for "next-generation, climate-friendly refrigerants," according to a Chemical & Engineering News report.

Also in April, Honeywell announced that it and its suppliers are investing about $300 million to scale up the global production capacity of Solstice yf, its low-global-warming-potential air conditioning refrigerant, for use in vehicle air conditioning and commercial refrigeration. Solstice yf, also known as HFO-1234yf, has been approved by the EPA as a climate-friendly HFC alternative.

Honeywell last month entered into a supply agreement with a Chinese manufacturer to produce Solstice yf and is also building a new "world-scale" manufacturing plant at its existing Geismar refrigerants manufacturing site.

Meanwhile EOS Climate has developed a way for companies to reduce HFC emissions immediately while they are transitioning their equipment to lower-global-warming-potential alternatives.

EOS Climate just completed the first project to generate verified emission reductions (VERs) — or carbon credits — from the reclamation and re-use of HFCs. Credits created from this methodology represent carbon emission reductions from the displacement of virgin HFCs with reclaimed and reused HFCs.

EOS says it authored the methodology, approved by the American Carbon Registry, to support global HFC reduction efforts.

Hannaford Supermarkets is one of the initial companies that will test how the VERs enhances its efforts to mitigate HFC emissions while it phases out the refrigerant.

EOS Climate senior VP Jeff Cohen told Environmental Leader that the HFC credits program has a range of applications including hotels, universities, data servers, food production, supermarkets, sports stadiums, and appliance and automobile manufacturers.

"Much of the focus on mitigating the climate impacts of HFCs is on a gradual production phase-down and restricting use of HFCs in newly manufactured equipment," Cohen said. "Even with these measures there will be continued demand for HFCs to service existing HFC-based refrigeration and air conditioning systems beyond the next decade. This new methodology creates a financial incentive to recover and re-use HFCs to fill that servicing demand, rather than rely on new production. It is a great illustration of how market-based mechanisms can enhance the effectiveness of command-and-control approaches and how commodities like refrigerants can be differentiated based on their environmental impacts."

A white paper authored by EOS Climate found that if just 30 percent of HFC refrigerants are reclaimed for re-use by 2030, the equivalent of about 18 billion metric tons carbon dioxide (CO_2) would be prevented from reaching the atmosphere over the next 25 years.

Environmental Leader, 3 May 2016

8. Clifton, N.J. Recycling Company to Install Pollution Controls for Air Pollution Violations

Clifton, N.J. Recycling Company to Install Pollution Controls for Air Pollution Violations

All Recyclers are Required to Remove CFCs Before Crushing Appliances

(New York, N.Y. – May 4, 2016) The U.S. Environmental Protection Agency and U.S. Department of Justice announced a settlement today that requires Parkway Iron and Metal Co. to pay $145,000 and spend approximately $260,000 to install pollution controls for alleged Clean Air Act violations at its scrap metal recycling business in Clifton, N.J. The company was fined for improperly shredding dozens of refrigerators, freezers and air conditioners without first removing refrigerants, including chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HFCs). Appliances containing CFCs and HFCs can be recycled as long as the refrigerants are properly removed first.

"Chlorofluorocarbons damage the ozone layer, which shields the earth from harmful radiation that contributes to increased skin cancer," said Judith A. Enck, EPA Regional Administrator. "EPA's work will benefit the people of Clifton and result in less greenhouse gases and ozone depleting chemicals being released into the atmosphere."

HFCs are potent greenhouse gases that contribute to climate change. Climate change impacts people's health in a number of ways, including by damaging air quality. Higher temperatures lead to an increase in allergens and harmful air pollutants. For instance, longer warm seasons can mean longer pollen seasons – which can increase allergic sensitivity and asthma episodes and diminish productive work and school days. Higher temperatures associated with climate change can also lead to an increase in ground level ozone, a harmful air pollutant. CFCs are atmospheric ozone depleting chemicals that cause the protective ozone layer to thin – allowing more cancer-causing ultraviolet rays to reach the Earth.

The EPA requested information from Parkway to ensure compliance with ozone-depletion regulations and inspected the company on multiple occasions. These inspections revealed violations of Clean Air Act regulations, resulting in this settlement.

In addition to paying the penalty, Parkway has agreed to comply with the Clean Air Act. Before recycling appliances, Parkway will remove all refrigerants at no cost to the appliance seller. Parkway will properly dispose of the recovered refrigerants, ensuring that CFCs and HFCs are not released to the atmosphere.

As a final part of the settlement, Parkway will install a baghouse on its metal-sorting conveyor belts. This pollution control device will make the facility even cleaner than required by law by reducing the quantity of fine particles and metals released into the air during the shredding and metal sorting process. The EPA estimates that this new equipment will cost about $260,000.

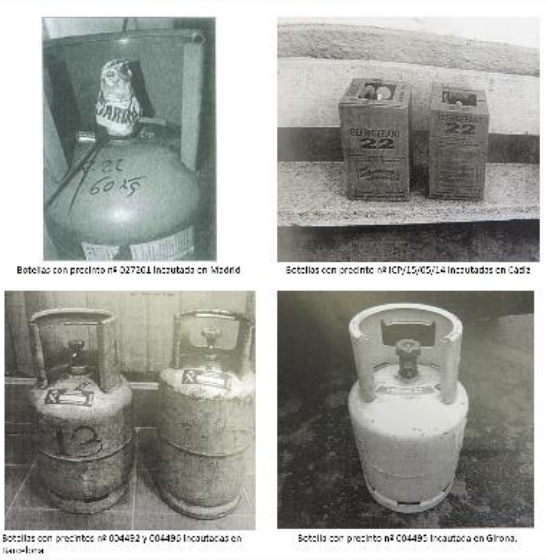
The proposed settlement was lodged with the United States District Court for the State of New Jersey, and is subject to a 30-day public comment period. During the public comment period, the Consent Decree may be examined and downloaded at this Justice Department website

- Contact: Elias Rodriguez, US EPA
- Newsroom America Feeds, 4 May 2016

EUROPE & CENTRAL ASIA

9. Cyber Criminals Sentenced for Violating ODS Legislation in Romania and Spain

In 2012 and 2013, the Public Prosecutors Office for the Protection of the Environment and the Civil Guard (SEPRONA unit) in Spain investigated possible illegal trade in ozone-depleting substances (ODS), focusing on refrigerants offered for sale on the Internet. The investigation started by a thorough search of websites containing advertisements for the sale of refrigerants as well as products and equipment containing ODS. As a result, a number of advertisements were identified which offered HCFCs and even CFC (R-12) for recharging refrigeration equipment. In one case, a person based in Madrid was offering a 60 kg cylinder containing R-22 on the Internet. The persons involved were accused and prosecuted. A similar case was also prosecuted in Valencia. Subsequently, eleven further breaches of the Spanish regulation on ODS were detected. This operation led to the arrest of 110 persons involved in these activities and the seizure of large quantities of refrigerants, particularly R-22.



The investigations continued in 2014, and another campaign was launched in order to identify the same type of refrigerants and products offered online. Although the previous campaign resulted in a considerable decline in the number of online advertisements, it was still possible to find about 20 advertisements for R-22 on different websites. The inspectors of the SEPRONA unit contacted the person offering the refrigerants by phone and email specified in the advertisement, posing as buyers interested in purchasing refrigerants. The approach was to then organize a meeting with the person who offered the goods online to verify that they actually had the relevant cylinders in their possession. This resulted in the accusation of four people in Cadiz, Gerona, Barcelona and Alicante (one in each city) and the seizure of six cylinders containing 62 kg of R-22 in total.

The content of the seized cylinders was analysed and they were temporarily stored in the Central Customs Laboratory. The cylinders were so old and corroded that the original labels were not readable. The investigation revealed that they were purchased legally in the past, but today placing them on the market in the European Union is banned.

The court cases are ongoing. One of the offenders has already been sentenced to six months in prison, a fine of 730 euros and a ban on practicing any profession resulting in air pollution for six years.

A similar case was reported in Romania, where the National Environmental Guard investigated similar online advertisements offering refrigerants for sale, including R-12, R-22, R-407C, R-410A and R-134a at the price of approximately 110 euros / cylinder. Posing as a potential buyer, a government official contacted the seller by a phone number found on the website. After obtaining the relevant information, the police and environmental guard inspected the seller's residence and found about 20 refrigerant cylinders containing 240kg of R-12 and R-22. The cylinders were seized and the seller was imprisoned for 6 months.

The enforcement officers and institutions involved in these investigations will receive the UNEP ECA Ozone Protection Award for Customs & Enforcement Officers during the ceremony in Ashgabat, Turkmenistan, 24-25 May 2016.

- Contact: Halvart Koeppen, Regional Coordinator ECA Network, UNEP OzonAction Compliance Assistance Programme

10. Application of Natural Cooling Technologies in Belarus

On March 31, 2016 the enterprise "Santa Bremor" (Brest, Belarus) launched into operation the absorption refrigeration unit (chiller) within the framework of cooperation with the UNDP in Belarus under the UNDP-GEF

Project "Initial Implementation of Accelerated HCFC Phase Out in the CEIT Region". The introduction of such innovative technology at an industrial enterprise is an important step in the development of environmentally friendly and energy-efficient equipment. Cooperation with UNDP has enabled the creation of a demonstration platform for the promotion of such technology in Belarus that adopts an integrated ozone friendly and low GWP impact technology in refrigeration and air-conditioning.


Santa Bremor is one of the biggest producers of chilled and frozen products in Belarus. The new water-based absorption chiller substituted two direct air cooling compressor units based on HCFC-22 ensuring the phase-out of ozone depleting refrigerants use.



Operation of the new chiller will also deliver economic benefits for the enterprise. In summer, the enterprise experiences the increased need for air conditioning of its workshops with installed capacity of approximately 1.2 MW. At the same time, it possesses excess heat. Operation of the absorption chiller enables the company to utilize the heat surpluses by transforming the extra heat for refrigeration and cooling purposes in chiller. The produced cold water will be used in the air-conditioning systems of two workshops with the total area of 9,200 sq. m producing red fish and ice cream. Absorption cooling technologies provide for energy savings of up to 1,148,000 kWh per year compared with the compressor units. Such amount of energy is sufficient to supply 640 private houses with the electricity annually thus reducing the CO_2 emissions.



The launch of this equipment creates a demonstration platform to promote advanced energy saving and ozone-friendly technologies in Belarus.

- For more information about UNDP work on Montreal Protocol please see http://www.undp.org/ozone

11. EU F-Gas Regulation Phase-Down: BRA Stresses the Vital Part of Reclaimed/Recycled HFCs

The report "Putting into Use Replacement Refrigerants" produced by an Action Group made up of members of the British Refrigeration Association (BRA) aims to help industry players meet some of the requirements of the EU F-Gas Regulation which came into force on January 1, 2015, especially the ban on using refrigerants with a GWP of more than 2,500 from the year 2020.

Reclaim refrigerant can be used for servicing until 2030. It is generally accepted in the industry that R404A (GWP=3922) availability is likely to reduce substantially well before 2020.

According to the report, it is not going to be possible in terms of human resources or financing for all R404A systems to be replaced or charged with new refrigerants by 2020. These number ranges between 12,000 to 20,000 systems in the UK. Changing 10% of existing systems using R404A each year is the fastest rate at which this can be reasonably achieved.

A working hypothesis would be that 5% are replaced by low-GWP systems and the other 5% by change of refrigerant. If this were to be achieved, migration away from R404A systems would be complete by 2025. To keep the remaining R404A systems going, it will be necessary to use recycled or reclaimed R404A. It is crucial that R404A removed from systems is kept for servicing systems that remain in use.

Owners of R404A systems should ensure they manage product removed, and that it is recycled or reclaimed. The period of maximum stress will be when virgin R404A becomes short and there are still a large number of R404A systems in use. This is likely to be around 2019 to 2021.

IIR/IIF, 3 May 2016

12. Climate Center to Stock R32 in Branch

Climate Center has invested heavily to respond effectively to the changes to the F-Gas regulations by ensuring the lower GWP R32 refrigerant is readily available for customers in all of its 45 branches nationwide, as an alternative to R410A.

The changes to the F-Gas Regulations came into force with the aim of encouraging users to use refrigerants with a lower global warming potential (GWP). From 2025 any gas with a GWP higher than 750 will be banned in new split air conditioning systems.

With these measures in place, installers are increasingly seeking an alternative to R410A equipment. Climate Center's investment also coincides with manufacturers Daikin and Toshiba launching their new R32 air conditioning ranges.

R32 is a single component, zero ozone depletion potential (ODP) gas with a GWP of 675, significantly less than R410A, which has a GWP of 2088. In addition the use of R32 will lead to a reduction of refrigerant charge of up to 30%. This means that heat exchangers and components can be made smaller resulting in more compact systems.

Robert Franklin, national development director at Climate Center, said: "Climate Center is committed to distributing lower GWP refrigerants, however new legislation has inevitably conjured up concern across the industry in terms of how it will affect businesses. We have been working extensively to ensure that it has minimal impact on our customers by making sure they are up to date with F-Gas regulations and have the resources to comply. Ensuring that the alternative to R410A is readily available is a fundamental part of this."

Climate Center, 10 May 2016

LATIN AMERICA & CARIBBEAN

13. ODS Destruction in Ecuador

The environmentally benign destruction of unwanted Ozone Depleting Substance (ODS) is still a challenge for

many Article 5 countries of the Montreal Protocol. Different programmes have led to the creation of ODS banks to be eliminated; however the lack of destruction options has created environmental liabilities. In Ecuador, through a governmental initiative to replace old and inefficient domestic refrigerators under 'Plan RENOVA', carried out since 2013, almost 80,000 refrigerators have been collected in a first phase. So far, approx. 2.7 tons of ODS (refrigerant R-12 or CFC-12) have been recovered from these refrigerators and stored for destruction.

Ms. Ana Correa, Ozone Officer, and Ms. Veronica Villacis, UNIDO national consultant, in cooperation with Mr. Rodrigo Serpa, UNIDO project manager, were looking for efficient, cost attractive and environmentally friendly options to destroy ODS banks. The first option was the ASADA On-site Plasma-induced Device for Freon purchased within the CFC phase-out project. The unit was installed and tested in Quito in December 2012. Having obtained environmental permission and raw materials the device has been used for tests, though the rate of destruction is only 1kg/hr for CFC-12.

Due to the high amounts of ODS expected, further solutions were sought and rotary cement kilns were explored as potential alternatives for destruction. However, deviations during the CFCs destruction process in these kilns implicated high maintenance costs because of the recirculation of dust and gas containing chlorine into the system. Therefore, the process is not welcomed by cement producers.

In May 2013, a co-processing (the use of waste as a raw material or as source of energy, or both – environment service) forum for cement industries was organized by the Ecuadorian Institute of Cement and Concrete - INECYC (Instituto Ecuatoriano del Cemento y del Hormigón). With the aim of sharing the experience gained from previous ODS destruction in cement kilns, UNIDO's technical support was provided by Ms. Ester Monroy, who led a successful test of ODS destruction in a cement kiln in Venezuela. Ms. Monroy presented the experience and lessons learned, adding supporting material of international well-recognized sources, which addressed rotary cement kilns as a feasible alternative for ODS destruction.

As a result, Cementos Chimborazo showed interest in developing a burn - trial of CFC-12 in their rotary kiln. On 28 March, 2014, the first ODS destruction test took place in the Cementos Chimborazo facilities. The national laboratory, CESSTA, monitored the exhaust gases in the chimney in order to ensure the total destruction and non-emission of dioxin and furans of CFC feeding in the process. The test was not successful, however, many lessons were learned; it appeared that the reason for the unsuccessful test might have been specific to the plant.

Despite the cancellation of the trial the team continued searching for alternatives. Finally UNACEM 'Union Andina de Cementos S.A' accepted the challenge. Ms. Villacis was invited to present the project, options, and outcomes of previous experiences and, as a result, UNIDO was invited to carry out a trial in the facilities located in Otavalo in the north of the country. On 16 November, 2015, the test took place in rotary kiln No. 2 of the UNACEM plant. The trial was monitored by CESSTA. For the test ca. 33 kg of CFC-12 were destroyed with the normal process of clinker production. No alteration or problems were reported, neither in the kiln and exhaust gases treatment nor in the clinker production.

The preliminary results from the test monitoring of gases, including samples sent to USA, were presented on 5 April, 2016, by CESSTA. The national limit parameters and UNEP´s standardized maximum emission levels for the process were achieved; and even exceeded national and international requirements.

In conclusion, the ODS destruction in the UNACEM plant was a success and this co-process will be implemented as a common procedure, within the environmental license of UNACEM, as soon as the Ministry of Environment

(MOE) authorizes the addition of CFC to the substances co-processed by UNACEM. Once permission is granted, the cement producer will request a green seal from the MOE and also other national recognitions or revenues for this environment-friendly process.

The destruction of the stored amount can be carried out in less than three weeks, avoiding the emission of ca. 29,400 tons of CO_2 equivalent to the atmosphere. In the future, more CFC will be collected through the Plan RENOVA and destroyed in UNACEM facilities. Ecuador is thus recognized as the first country in Latin America to destroy the ODS banks in rotary cement kilns as co-process, a green and sustainable initiative promoted by UNIDO.

- Contact: Rodrigo Serpa Fonnegra, UNIDO United Nations Industrial Development Organization

WEST ASIA

14. Qatar Will Ban Inefficient Air Conditioners

The importation, storage, display and sale of inefficient air conditioners is to be banned in Qatar from July 1, 2016.

The Qatari Ministry of Municipality and Environment has set a new deadline of July 1, 2016 for phasing out all conventional air conditioners from the local market that do not meet the Qatar General Organisation for Standardisation (QS). Window and split air conditioners (ACs) that fail to reach an EER (Energy Efficiency Rating) of 8.5 under new standards and technical regulations will be banned.

The aim of the rationalisation programme on all electrical appliances is to reduce average energy consumption by 20%. The energy-saving air conditioners that will eventually replace the conventional ones are expected to be slightly more expensive. However, the customers will benefit from reduced electricity bills due to lower energy consumption.

In the same time, importers and dealers are gearing up for the proposed ban on conventional ACs but they are anticipating a grace period to clear the existing stocks.

According to a senior official of a company dealing in a popular brand of electrical and electronic products, dealers are now placing new orders with manufacturers to deliver ACs meeting the new specifications. However, he pointed out that despite repeated reminders by the authorities and several extended deadlines, few in the market have anticipated that the regulation could be implemented this year.

Sources from another company dealing in a different brand of ACs said the traders will find it extremely difficult to clear their existing stocks by July 1. “From the beginning of this year, we have placed orders for thousands of units with the old specification and we have been revising the orders as per demand. How are we going to dispose of all these stocks by July? The demand for ACs will start only at the beginning of summer,” said an official.

The ministry has warned of legal action against traders and importers violating the rule but has not so far mentioned about a possible grace period.

The Qatar General Organization for Standardization (QS) at the ministry had said that it will conduct intensive inspection campaigns after the July 1 deadline.

- IIR/IIF, 13 April 2016

FEATURED

OZONE SECRETARIAT

- Browse through the Ozone Secretariat “In Focus” to learn about latest updates.

– Resumed 37th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol, Vienna,

Austria,15-16 July 2016

- 38th Meeting of the Open-ended Working Group of the Parties to the Montreal Protocol, Vienna, Austria,18 - 21 July 2016
- Third Extraordinary Meeting of the Parties to the Montreal Protocol, Vienna, Austria, 22 – 23 July 2016
- 56th Meeting of the Implementation Committee Under the Non-Compliance Procedure of the Montreal Protocol, Vienna, Austria, 24 July 2016

Click here for more Montreal Protocol Meetings Dates and Venues

- Methyl Bromide Technical Options Committee 2014 Assessment Report
- Medical Technical Options Committee 2014 Assessment Report

Progress & Quadrennial Assessment Reports:

- Environmental Effect Assessment Panel (EEAP)
- Scientific Assessment Panel (SAP)
- Technology and Economic Assessment Panel (TEAP)

Halon Technical Options Committee Reports:

- Halons Technical Options Committee 2014 Assessment Report (Volume 1)
- Halons Technical Options Committee 2014 Supplementary Report #1 - Civil Aviation (Volume 2)
- Halons Technical Options Committee 2014 Supplementary Report #2 - Global Halon 1211, 1301, and 2402 Banking (Volume 3)
- Technical Note #1- Revision 4 - Fire Protection Alternatives to Halon - 2014
- Technical Note #2 - Revision 2 - Halon Emission Reduction Strategies - 2014
- Technical Note #3 - Revision 2 - Explosion Protection - Halon Use and Alternatives - 2014
- Technical Note #4 - Recommend Practices for Recycling Halon and Halocarbon Alternatives - 2014
- Technical Note #5 - Halon Destruction - 2014

THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

Call for consultants for the evaluation of the HCFC phase-out projects in the refrigeration and air conditioning (RAC) manufacturing sector. The Multilateral Fund for the Implementation of the Montreal Protocol invites applications from qualified consultants for the second phase of the evaluation of the refrigeration and air-conditioning (RAC) manufacturing sector. A first phase, a desk study, has already been completed (document UNEP/OzL.Pro/ExCom/75/9) and the terms of reference for the second phase have been presented to the Executive Committee at the 75th meeting (Annex 1 of document UNEP/OzL.Pro/ExCom/75/11/Rev.2).

Interested candidates are invited to apply on the United Nations careers website (consultancy job opening ID #59768) no later than 22 May 2016. Applications from women experts and experts from developing countries are particularly encouraged. For more information on the Multilateral Fund, please visit our web site: www.multilateralfund.org … Learn more

Agenda and documents for the 76th meeting of the Executive Committee 9 - 13 May 2016 in Montreal.

The Executive Committee decided to continue convening two meetings per year from 2015 onwards with the possibility of holding an additional brief meeting, if required, between those meetings to consider project proposals. On this basis the second meeting in 2016 could be scheduled to take place in November/December 2016 taking into account decision XXVII/1 of the Parties (MOP) to the Montreal Protocol, in which it was decided inter alia to hold a series of Open-ended Working Group (OEWG) and other meetings, including an Extraordinary Meeting of Parties in 2016.

Learn more

OZONACTION

UNEP, OzonAction highlights

OzonAction News Drops - UNEP OzonAction is presenting a series of short video "**News Drops**" which focus on ozone layer protection, climate change and the importance of continuing ozone observations. Click here to access the News Drops

New **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. Now available in the Android Play Store and Apple Store/iTunes.

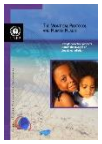
(*Just search for: "UNEP OzonAction" and install the application, Or just scan the QR code:*

OzonAction Recent Publications

NATIONAL CERTIFICATION SCHEMES FOR RAC SERVICING TECHNICIANS - This publication aims to provide introductory information for institutions in developing countries to better understand the issue of certification in the field of refrigeration and air conditioning, to assist in the creation of such certification and training schemes and to demonstrate to service technicians and enterprises why it is in their interest to participate. Read/Download

OZONACTION SPECIAL ISSUE 2015 - 30 Years of Healing Ozone Together: BEYOND HCFCs

Read/Download



THE MONTREAL PROTOCOL AND HUMAN HEALTH - This booklet summarizes how the successful implementation of the Montreal Protocol has protected human health. It describes how ozone depletion would have led to increases in UV radiation and, based on current understanding of the mechanisms by which UV affects biological processes, how that would have led to a dramatic increase in skin cancers, cataracts and affected human health in other ways. It also covers recent progress in understanding the 'World Avoided' – that is the world we would have lived in without a successful Montreal Protocol. Read/Download

FINANCING THE CLIMATE CO-BENEFITS OF THE HCFC PHASE-OUT - A guide for Low Volume Consuming Countries - Hydrochlorofluorocarbons (HCFCs) are being phased out worldwide under the Montreal Protocol on Substances that Deplete the Ozone Layer. The Parties to this treaty encouraged countries to promote the selection of alternatives to HCFCs that minimise environmental impacts, in particular impacts on climate. The Protocol's Multilateral Fund encourages developing countries to explore potential financial incentives and opportunities for additional resources to maximise the environmental benefits from HCFC Phase out Management Plans (HPMPs). This booklet explains how Ozone Officers in low volume consuming countries can explore such opportunities for climate co-benefits. Read/Download in English | French | Spanish

INFORMAL PRIOR-INFORMED CONSENT (iPIC) - Supporting Compliance Through prevention of Illegal and Unwanted Trade in ODS - The 'informal Prior-Informed Consent' (iPIC) mechanism was launched in 2006 by the UNEP DTIE OzonAction as part of its work in providing assistance to developing countries to fulfil their commitments under the Montreal Protocol on Substances that Deplete the Ozone Layer. This initiative was developed in order to better manage trade in ozone depleting substances (ODS) that are controlled under the Protocol. iPIC has become a global voluntary initiative used by 113 like-minded states who wish to strengthen the implementation of their national licensing system for ODS. In 2014, of the reported 141 iPIC consultations, 68% resulted in approved trade amounting to 2,257 metric tonnes of ODS. Rejections or cancellations of requests following iPIC consultations prevented unwanted trade in more than 545 metric tonnes of ODS including hydrochlorofluorocarbons (HCFCs) and halons. More recently iPIC is also being used to screen shipments of hydrofluorocarbons (HFC), which are not ODS. The booklet describes how the iPIC system works and its advantages, it provides some information on results and successes from iPIC in 2014 and encourages countries which are not yet members to join and to begin to reap the benefits of this initiative. Read/Download

SAFE USE OF HCFC ALTERNATIVES IN REFRIGERATION AND AIR CONDITIONING - An Overview for Developing Countries - Many of the alternative refrigerants to hydrochlorofluorocarbons (HCFCs) have particular characteristics in terms of toxicity, flammability and high pressure which are different from those used previously. It is therefore important that the refrigeration and air-conditioning industry adapts to both the technical and safety issues concerning these refrigerants. This publication provides an overview of the alternatives, their general characteristics and their application in the context of the safety issues. It provides guidance for National Ozone Units (NOUs) and other interested parties in developing countries on how they can advise and assist their national stakeholders in the selection and implementation of alternative refrigerants. Read/Download

PHASING-OUT HCFCS IN SMALL AND MEDIUM-SIZED ENTERPRISES - This booklet aims to assist foam enterprises, especially SMEs, to better understand policies on HCFC phase-out, access to assistance from the Multilateral Fund for the Implementation of the Montreal Protocol and access alternative technologies in different foam applications taking into account challenges in converting to alternative technology. It also discusses some tips on how to identify enterprises that may use HCFCs and verify the HCFCs consumption of enterprises. Read/Download

INTERNATIONAL STANDARDS IN REFRIGERATION AND AIR-CONDITIONING - This guide provides an introduction and simple overview of the issues related to international standards in the refrigeration and air-conditioning sector and how they can be useful in the context of the phase-out of hydrochlorofluorocarbons (HCFCs) in developing countries as required by the Montreal Protocol on Substances that Deplete the Ozone Layer. Read/Download in English | French | Spanish

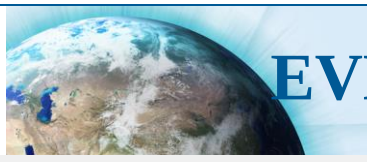
Guide on Good Practices: Phasing out HCFCs in the Refrigeration and Air-conditioning Servicing Sector -

Phasing out HCFCs in Small and Medium-sized Foam Enterprises

Demonstrating the feasibility of R-290 based AC manufacturing: China's Midea and Meizhi case

Low-GWP Alternative for Small Rigid PU Foam Enterprises

Learn more about OzonAction publications



EVENTS

2016

11th IIR Conference on Phase-change Materials & Slurries for Refrigeration & Air Conditioning, 18-20 May 2016 in Karlsruhe, Germany

IIR International Conference of Cryogenics and Refrigeration Technologies, which will be held for the first time in Bucharest, Romania, 22-25 June 2016 - See other Upcoming IIR events

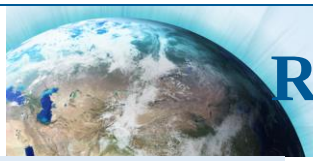
Call for Papers **2016 Purdue Conferences** Refrigeration and Air Conditioning, Compressor Engineering, High Performance Buildings, 11-14 July 2016, Indiana, USA

12th IIR Gustav Lorentzen Natural Working Fluids Conference, 21-24 August 2016, Edinburgh, Scotland. World experts gather in Edinburgh to discuss the future of natural working fluid…

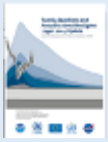
AIRAH's Future of HVAC 2016 Conference **Calls for Abstracts** - Held at the Queensland University of Technology's Gardens Point campus in Brisbane, Australia, from September 7–8, the Conference will explore advances in the design process, HVAC and smart grids, net-zero buildings, and Big Data, among other topics.

7th International Conference on Magnetic Refrigeration at Room Temperature (Thermag VII), 11 - 14 September 2016, Turin, Italy

Salon Interprofessionnel du Froid et de ses Applications / Interprofesionnal Refrigeration and its Application Trade Show, 14 - 15 septembre 2016, Nantes, France



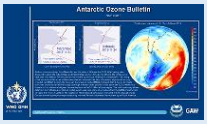
READING



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.

Reducing global health risks through mitigation of short-lived climate pollutants

UNEP and USEPA: Promoting ozone and climate-friendly technologies in public procurement - a scoping study of Asia Pacific



WMO Antarctic Ozone 2016 Bulletins - Containing information on the state of the ozone layer in the Antarctic at roughly two week intervals from August to November. The bulletins are based on data provided by WMO Members which operate ozone monitoring stations in the southern hemisphere and satellites to observe ozone globally.

The **EU F-Gas Regulation Handbook**, Keeping Ahead of the Curve as Europe Phases Down HFCs - a free online resource for climate media and other concerned parties, published by the London-based Environmental Investigation Agency (EIA).

Alternative Refrigerant Evaluation for High-Ambient-Temperature Environments: R-22 and R-410A Alternatives for Mini-Split Air Conditioners

AREA Guidance on minimum requirements for contractors' training & certification on low GWP Refrigerants - AREA has updated its Guidance on minimum requirements for contractors' training & certification on low GWP Refrigerants.

Free guide to F-gas changes The European contractors association AREA has produced a timely guide to the F-gas regulations which clarifies the new rules, their impact and their practical application…Read more

The recent **Alternatives to HCFCs/HFCs in developing countries** with a focus on high ambient temperatures" study carried out by Öko-Recherche for the European Commission stresses that the refrigerant and blowing agent demand is expected to triple by 2030 in developing countries as a result of economic growth. A sector by sector analysis shows that a climate-friendly replacement for current and future of HCFCs and high GWP HFCs is possible in most applications …

Primer on Hydrofluorocarbons, Fast action under the Montreal Protocol can limit growth of HFCs, prevent up to 100 billion tonnes of CO_2-eq emissions by 2050, and avoid up to 0.5°C of warming by 2100. IGSD, January 2014, Lead authors: Durwood Zaelke, Nathan Borgford-Parnell, and Danielle Fest Grabiel. Contributing authors: Stephen O. Andersen, Xiaopu Sun, Dennis Clare, Yuzhe Peng Ling, and Alex Milgroom.

Flammable Refrigerants Safety Guide, AIRAH - Many of the refrigerants traditionally used in refrigeration and air conditioning systems in Australia have been non-flammable, non-toxic, synthetic greenhouse gases (SGGs) that have a high global warming potential (GWP). These were typically synthetic refrigerants including CFCs, HCFCs and HFCs. Due to the growing national and international concern regarding the resulting atmospheric effects of SGGs, the use of alternative low GWP refrigerants is increasing. …

Recent Trends in Global Emissions of Hydrochlorofluorocarbons and Hydrofluorocarbons: Reflecting on the 2007 Adjustments to the Montreal Protocol. S. A. Montzka *†, M. McFarland ‡, S. O. Andersen §, B. R. Miller †‖, D. W. Fahey †, B. D. Hall †, L. Hu †‖, C. Siso †‖, and J. W. Elkins †

† Earth System Research Laboratory, National Oceanic and Atmospheric Administration, Boulder, Colorado 80305, United States ‡ DuPont Chemicals & Fluoroproducts, Wilmington, Delaware 19805, United States § Institute for Governance & Sustainable Development, Washington, D.C. 20007, United States‖ Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, Colorado 80309, United States

Geothermal Heating and Cooling: Design of Ground-Source Heat Pump Systems-ASHRAE

Principles of Heating, Ventilating and Air-Conditioning, 7th Ed. ASHRAE

A first edition, the IIR guide "**CO_2 as a Refrigerant**" highlights the application of carbon dioxide in supermarkets, industrial freezers, refrigerated transport, and cold stores as well as ice rinks, chillers, air conditioning systems, data centers and heat pumps. This guide is for design and development engineers needing instruction and inspiration as well as non-technical experts seeking background information on a specific topic. Publication, IIR Technical Guide, 2014.

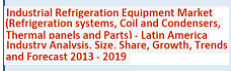
GUIDE to Natural Refrigerants in China - State of the Industry 2015 - Launched by shecco - is the first-ever in-depth report on the use of natural refrigerants - carbon dioxide (CO_2), hydrocarbons (HCs), ammonia (NH_3), water (H_2O) and air - in China.

Chlorofluorocarbon Market: Global Industry Analysis and Forecast 2014 – 2020

FREE **HVAC Optimisation Guide released** by AIRAH and the NSW Office of Environment & Heritage outlines 20 HVAC optimisation strategies and how they can be applied to the vast majority of commercial systems, both in older and modern buildings…

Organic Bromine Compounds—another threat to the ozone layer

HVAC: **Keeping cool – and sustainable – in the Gulf**



Latin America Industrial Refrigeration Equipment Market Benefits from Region Flourishing Food and Beverage Production and Processing Market – Trends and forecast 2013-2019.

Solvents & Bio Solvents Market Outlook - Global Trends, Forecast, and Opportunity Assessment (2014-2022)

GUIDE+ Directory of Natural Refrigerant Businesses in China 2015, shecco publications, October 2015

R444B tops high ambient R22 drop-in test

Chlorofluorocarbon Market: Global Industry Analysis and Forecast 2015 to 2021

Getting The World Off the Chemical Treadmill: A per capita convergence framework for an ambitious phase-down of HFCs under the Montreal Protocol, By: Umang Jalan, Research Associate, Climate Change Programme, Centre for Science and Environment

Refrigeration on Fishing Vessels

AIRAH's comprehensive technical bulletin on kitchen exhaust fire safety, available online

Accelerate America, Published by shecco, April 2016 edition

Pesticides Des impacts aux changements de pratiques, Les pesticides font aujourd'hui l'objet d'enjeux environnementaux considérables…

MISCELLANEOUS

Special Programme on Chemicals and Waste: Call for Proposals - The Special Programme is calling developing countries and countries with economies in transition to submit projects proposals for funding between USD $50,000 to $250,000. **The deadline for applications is 4 July 2016.**

The Special Programme aims to strengthen national institutions and to promote the mainstreaming of the sound management of chemicals and waste. Key activities supported by the programme provide countries to advance institutional capacity for the implementation of the Basel, Rotterdam and Stockholm Conventions, the Minamata Convention and SAICM. Activities supported by the programme intend to strengthen national capacities, monitor implementation and enforcement of legislation and regulatory frameworks, and this includes developing national plans, budgets, policies, legislation and implementation frameworks for the sound management of chemicals and wastes throughout their life-cycle and at all levels.

Fundamentally linking chemicals and waste management with the economic, environmental and social development agenda is essential to sustainable development. It creates new impetus for the implementation of international chemicals and waste agreements, as well as other relevant international commitments and policy frameworks, including the Strategic Approach to International Chemicals Management (SAICM). The integration of sound management of chemicals and waste in the 2030 Agenda for Sustainable Development is a major achievement.

Project proposals should include a timeline for completion within three years. In some cases, project allocations may be increased up to a maximum of US$500,000, where adequate justification and evidence is given for a comprehensive approach to institutional strengthening at the national level and taking into account as well, the amounts of funds available in the Trust Fund.

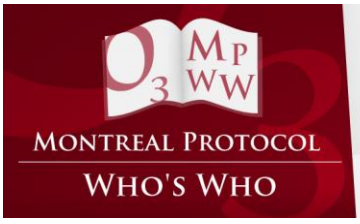
New pesticide guidelines seek faster phase-out of risky toxins - FAO and WHO offer road map to deal with Highly Hazardous Pesticides, 10 May 2016, Rome - FAO and WHO have released new guidelines aimed at reducing the damage done by pesticides that pose especially high toxic risks to human health and the environment…

INVITATION by shecco to participate in this **industry survey** that will help improve the understanding of the market for natural refrigerants training (CO_2, hydrocarbons, NH_3, water, air) across the globe.

The questionnaire takes around 15 minutes to complete, depending on the level of detail you provide, and there is a maximum of 25 questions. The collected survey results will be analysed and used to complement on-going research for shecco Market Development's two upcoming publications, GUIDE to Natural Refrigerants Training in Europe & GUIDE to Natural Refrigerant Training in North America, which will be released later in 2016.

Take the survey here

CFC Practice Exam (100 Questions) – A 100 Questions quiz produced to test knowledge of safe refrigerant handling and EPA regulations regarding the HVAC industry.



The Montreal Protocol Who's who

See the latest nominations /

Nominate Ozone Layer Protection Champion

From Your Country /Region **>>**

http://www.unep.fr/ozonaction/montrealprotocolwhoswho

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