VATIS UPDATE

Ozone Layer Protection

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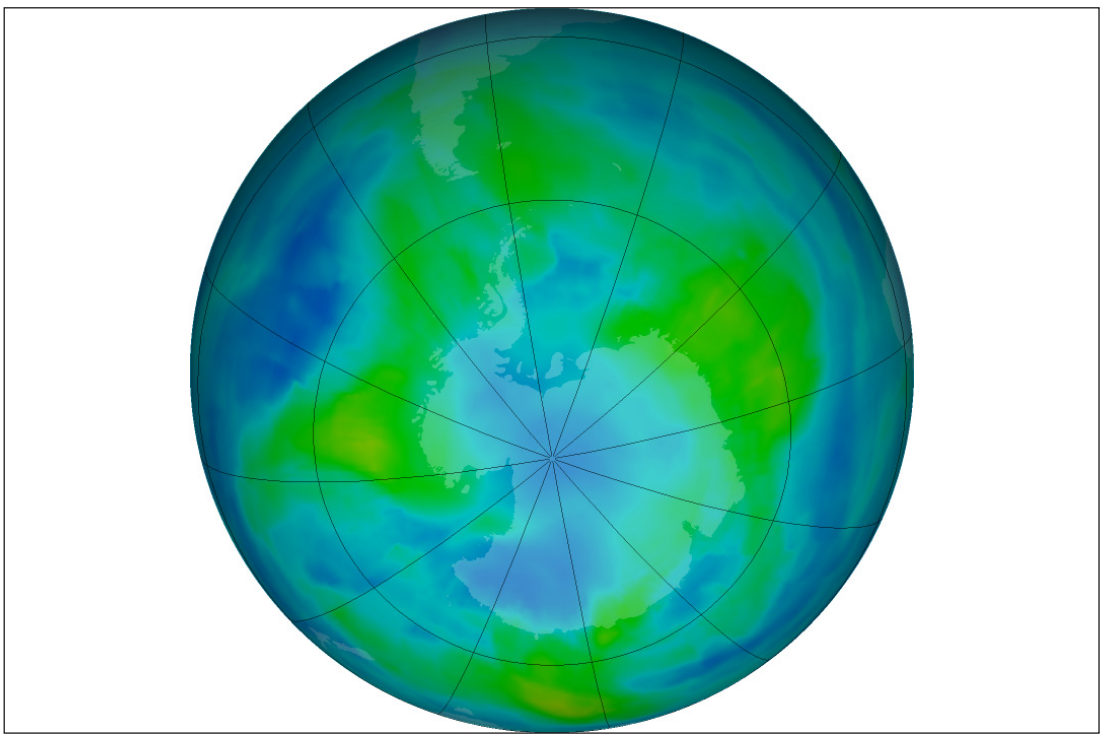


APCTT
Asian and Pacific Centre for Transfer of Technology

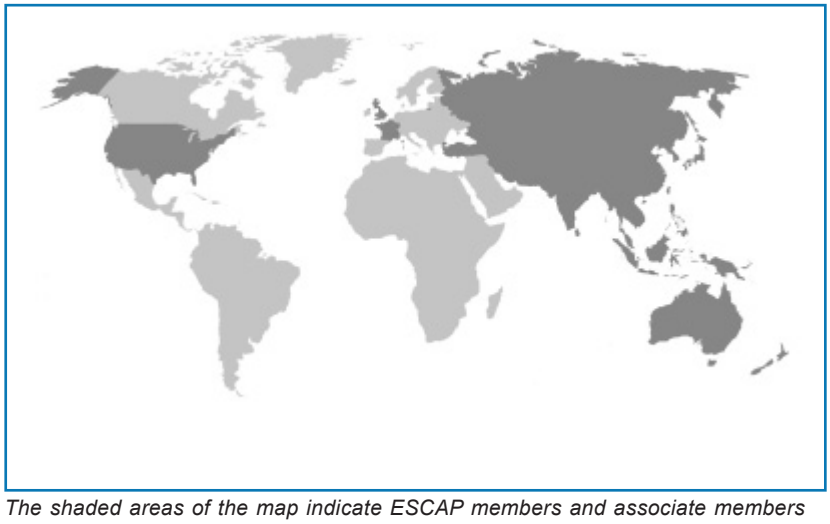
UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

Ozone Cell
Ministry of Environment and Forests
Government of India

The **Asian and Pacific Centre for Transfer of Technology (APCTT)**, a subsidiary body of ESCAP, was established on 16 July 1977 with the objectives: to assist the members and associate members of ESCAP through strengthening their capabilities to develop and manage national innovation systems; develop, transfer, adapt and apply technology; improve the terms of transfer of technology; and identify and promote the development and transfer of technologies relevant to the region.

The Centre will achieve the above objectives by undertaking such functions as:

- Research and analysis of trends, conditions and opportunities;
- Advisory services;
- Dissemination of information and good practices;
- Networking and partnership with international organizations and key stakeholders; and
- Training of national personnel, particularly national scientists and policy analysts.



The shaded areas of the map indicate ESCAP members and associate members

Cover Photo

The latest false-color view of total ozone over the Antarctic pole (17 April 2014). The purple and blue colors are where there is the least ozone, and the yellows and reds are where there is more ozone.

(Credit: NASA, USA)

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Ozone Layer Protection
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Scientists found new gases that harm ozone layer

According to a study, scientists from University of East Anglia (UEA), the United Kingdom, have detected four new man-made gases that damage the Earth's protective ozone layer, despite bans on almost all production of similar gases under the Montreal Protocol treaty. The experts pinpointed industrial sources of tiny traces of the new gases, perhaps used in making pesticides or refrigerants that were found in Greenland's ice and in air samples in Tasmania, Australia. The ozone layer shields the planet from damaging ultraviolet rays, which can cause skin cancer and eye cataracts, and has been recovering after a phase-out of damaging chemicals under the Protocol. "The concentrations are not yet a threat to the ozone layer." said lead author Johannes Laube.

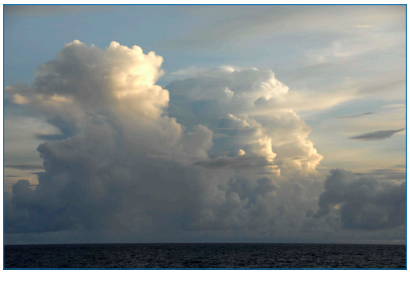
In total, the scientists estimated more than 74,000 metric tons of the four had been released to the atmosphere. None was present before the 1960s in Greenland's ice cores, according to the study in the journal Nature Geoscience. That is only a small fraction of the million metric tons of chlorofluorocarbon (CFCs) produced every year at a 1980s peak. "It was unknown if the emissions of the new gases were illegal, since the Montreal Protocol has some exemptions. We hope to tighten the loopholes." Laube said. A hole in the ozone layer was found in the 1980s over Antarctica but bans on damaging chemicals, for instance used in hairsprays, foams and refrigerants, means it is on target to recover in the next 50 years.

Hydrochlorofluorocarbon (HCFCs) have often been used to replace more damaging CFCs. One of the newly discovered CFCs was worrying since concentrations were rising fast. Such emission increases had not been spotted for other CFCs since the 1990s. The gases were detected earlier in Greenland than Tasmania, indicating they were produced in the northern hemisphere and then blown south. Research planes, taking air samples around the world, may be able to find the sources. The gases are also likely to be powerful greenhouse gases, albeit in tiny amounts. CFCs are often thousands of times more powerful than carbon dioxide at trapping heat in the atmosphere, Laube said.

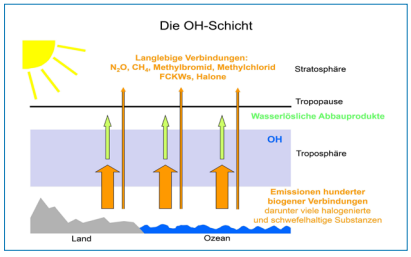
Source: http://www.reuters.com

Ozone depletion in the polar regions

An international team of researchers headed by scientist Dr. Markus Rex from the Alfred Wegener Institute (AWI), Germany, has discovered a previously unknown atmospheric phenomenon over the South Seas. Over the tropical West Pacific there is a natural, invisible hole extending over several thousand kilometres in a layer that prevents transport of most of the natural and manmade substances into the stratosphere by virtue of its chemical composition. Like in a giant elevator, many chemical compounds emitted at the ground pass thus unfiltered through this so-called "detergent layer" of the atmosphere. Scientists call it the



The "elevator" to the stratosphere



The OH shield

"OH shield". The newly discovered phenomenon over the South Seas boosts ozone depletion in the polar regions and could have a significant influence on the future climate of the Earth – also because of rising air pollution in South East Asia.

At first Dr. Rex suspected a series of flawed measurements. In October 2009, he was on board in the German research vessel "Sonne" to measure trace substances in the atmosphere in the tropical West Pacific. Tried and tested a thousand times over, the ozone probes he sent up into the tropical sky with a research balloon every 400 kilometres reported – almost nothing. The ozone concentrations in his measurements remained nearly constantly below the detection limit of approx. 10 per billion by volume (ppbv) in the entire vertical range from the surface of the Earth to an altitude of around 15 kilometres. Normally ozone concentrations in this part of the atmosphere are three to ten times higher.

However, a few research years later and after the involvement of other colleagues came confirmation Dr. Rex and his team on board the "Sonne" had tracked down a giant natural hole over the tropical South Seas, situated in a special layer of the lower atmosphere known as the "OH shield". The research results on the newly discovered OH minimum has been published in the journal "Atmospheric Chemistry and Physics", with the Institute

of Environmental Physics of the University of Bremen, Germany, and other international research institutions as partners. *Contact: Dr. Markus Rex, Alfred Wegener Institute, Potsdam, Germany. Tel. +49-331-288-2127, E-mail: Markus.Rex@awi.de.*

Source: http://www.awi.de

Plugging an ozone hole

Since the discovery of the Antarctic ozone hole, scientists, policymakers, and the public have wondered whether we might someday see a similarly extreme depletion of ozone over the Arctic. But a new study finds some cause for optimism – Ozone levels in the Arctic haven't yet sunk to the extreme lows seen in Antarctica, in part because international efforts to limit ozone-depleting chemicals have been successful. "While there is certainly some depletion of Arctic ozone, the extremes of Antarctica so far are very different from what we find in the Arctic, even in the coldest years," said Susan Solomon, at Massachusetts Institute of Technology (MIT), the United States, and lead author of a paper published in the *Proceedings of the National Academy of Sciences*.

To obtain their findings, the researchers used balloon and satellite data from the heart of the ozone layer over both polar regions. They found that Arctic ozone levels did drop significantly during an extended period of unusual cold in the spring of 2011. While this dip did depress ozone levels, the decrease was nowhere near as drastic as the nearly complete loss of ozone in the heart of the layer seen in many years in Antarctica. The MIT team's work also helps to show chemical reasons for the differences, demonstrating that ozone loss in Antarctica is closely associated with reduced levels of nitric acid in air that is colder than that in the Arctic. "We'll continue to have cold years with extreme Antarctic ozone holes for a long time to come. We can't be sure that there will never be extreme Arctic ozone losses in an unusually cold future year, but so far, so good -- and that's good news," said Solomon.

Source: http://www.sciencedaily.com

Mercury and ozone depletion events in the Arctic

A new study published in *Nature* by Dr. Chris Moore and Dr. Daniel Obrist of Nevada's Desert Research Institute (DRI), the United States, has established a link between Arctic sea ice dynamics and the region's changing atmospheric chemistry potentially leading to increased amounts of mercury deposited to the Earth's northernmost and most fragile ecosystems. The opening and closing of sea ice leads (large cracks in the ice that expose warmer seawater to the cold polar atmosphere) create a pumping effect, explained Dr. Moore, an assistant research professor, that in turn causes atmospheric depletion events. These events are coupled with the destruction of ozone and ultimately the deposition of atmospheric mercury onto snow and ice, a portion of which can enter Arctic ecosystems during snowmelt.

"The atmospheric mixing created when thinner, seasonal sea ice opens to form leads is so strong," Dr. Moore said, "that it actually pulls down mercury from a higher layer of the atmosphere to near the surface." Dr. Moore and his colleagues measured increased concentrations of mercury near ground level after leads opened

Scientists are examining changing atmospheric chemistry in fragile northern ecosystems (Credit: Desert Research Institute)

near Barrow, the United States, in 2012 during the NASA-led Bromine, Ozone, and Mercury Experiment (BROMEX) field project. They also used images from the Moderate Resolution Imaging Spectroradiometer (MODIS) instrument on NASA's Terra satellite to observe sea ice and a National Oceanic and Atmospheric Administration (NOAA), model of air transport to gain insight into what was upwind of their mercury measurements.

Dr. Obrist also a research professor said, "the 'aha' moment came when we combined satellite data with the air transport model and surface measurements. We considered a variety of chemical processes and sources to explain the increased levels of mercury we observed, until we finally realized it was this pumping process." The authors estimate the mercury pumping occurs about a quarter-mile (400 meters) above the Arctic surface, the height where visible roiling clouds spewing out of sea ice leads extend. Moore said while the initial findings support needed actions to curb mercury pollution across the globe, future research will be needed to establish the degree to which changes in sea ice dynamics across the Arctic alter ozone chemistry and impact mercury deposition throughout the sensitive region.

Source: http://www.sciencedaily.com

India gets UN award for record seizure of ozone-depleting gas

The Directorate of Revenue Intelligence (DRI), India, has been chosen for a United Nations award for seizing a record over 2.4 lakh kg of ozone-depleting restricted refrigeration gas 'R-22', which was being smuggled into the country. According to agency officials, DRI has registered several cases involving attempted smuggling of ozone-depleting substances and effected seizure of 2,41,463 kgs of R-22 gas in 2013. The gas, whose import is restricted, was being brought into the country illegally through various means including mis-declaration of good and outright smuggling. The illegal import of refrigerant 22 gas (R-22), which is used for air-conditioning applications, residential as well as process chillers and industrial refrigerant plants, has been noticed in India. "Smuggling of such ozone-depleting substances (ODS), reduces the incentives for users to shift to alternative technologies using ozone-and climate-friendly refrigerants and hence is a matter of concern," the officials said.

The DRI, country's premier intelligence agency dealing with matters relating to violation of customs law, has been awarded the prestigious 'ECA Ozone Protection Award for Customs & Enforcement Officers (3rd Edition)' by UN Environment Programme (UNEP) in recognition of its contribution to enforce the trade provisions applicable to ozone-depleting substances under the Montreal Protocol. Montreal Protocol is a multilateral environmental agreement aimed at restoring ozone layer via strategic management of ozone-depleting chemicals. India, being signatory to the Montreal Protocol, is required to phase-out consumption and production of ODS chemicals and for which legal framework has been put in place. Ozone-Depleting Substances (Regulation) Rules, 2000 regulates and restricts the import and export of ODS.

The UNEP award aims to provide incentive and recognition to customs and enforcement organisations and its officers, who succeed in preventing illegal or unwanted trade in ODS and ODS equipment. Though this award mainly covers European, Caucasus and Central Asian region, an exception was made this year due to the remarkable seizures affected by DRI. DRI is one of the five organisations or individuals recognised and awarded the '3rd edition' of the award this year.

Source: http://www.thehindu.com

India's HCFC phase-out management plan

The Ozone Cell, Ministry of Environment and Forests (MoEF), Government of India in cooperation with GIZ Proklima, India and UNEP Regional Office for Asia and Pacific, Bangkok, Thailand organized the 'National Awareness Workshop on HCFC Phase-out Management Plan: Stage I – Service Sector on 27th January 2014 in New Delhi, India. The workshop was attended by stakeholders from academia, Small and medium enterprises (SME) RAC sector, Room Air Conditioning (RAC) spare parts and refrigerant dealers, custom and relevant government officials, service sector senior technicians, companies, heating, ventilation, and air conditioning (HVAC) contractors, Railways, and industry associations.

The workshop deliberated on several key aspects such as:

- India's HCFC Phase-out Management Plan (HPMP) Stage-I;
- Technical options to HCFCs for RAC applications;
- HCFC phase-out – Requirement of Indian air-conditioning industry;
- The impact of application of flammable refrigerants to the servicing sector;
- Recovery, recycling, reclamation of refrigerants and good tools and equipment for better servicing practices;
- The impact of application of HFC based refrigerants to the servicing sector; and
- Role of RAC service sector society.

Source: http://www.ozonecell.com

Best service practices for air conditioning equipment

A one day workshop about "Selecting and Best Service Practices for Air Conditioning and Refrigeration Equipment Using Next-Generation Refrigerants for Energy Efficiency and Climate Protection" held at Mahratta Chamber of Commerce, Industries and Agriculture, Pune, India on 5th March 2014, that brought together India's business, government, air conditioning trade association, and civil society leaders to share the latest information on ozone-safe, low-GWP, energy-efficient Room Air Conditioning (RAC) and Mobile Air Conditioning (MAC). The workshop included 14 presentations and the participants summarized their recommendations in the "Pune Declaration on Low Global Warming Potential Alternatives to Ozone-Depleting Substances in India".

Source: http://www.area-eur.be

Hydrocarbon blends bound for Asia

Global Eco Innovations (GEI), Thailand, an energy-savings sales and consulting company, has made a deal with the refrigerant's developers AS Trust & Holdings, the United States. GEI Japan will be expanding its product line with energy-saving air conditioning systems based on R441a, a substitute for R134a, and R443a, a substitute for R22 and R410a refrigerants. It will also identify and recommend potential Asia-based distribution companies to AS Trust & Holdings.

GEI, Japan, will also have the exclusive right throughout Asia to manufacture and sell an AS Trust-developed safety valve that works in conjunction with all types of refrigerants. R441a, a blend of ethane, propane, butane and isobutane, and R443a, a blend of propane, propylene and isobutane are zero ozone-depletion potential (ODP), extremely low global warming potentials (GWP) hydrocarbon blends. R441a, also known as HCR188C, was the first hydrocarbon refrigerant to be approved for sale in the United States by the Environmental Protection Agency (EPA).

Source: http://www.coolingpost.com

Thailand's port introduces methyl bromide recapture

Laem Chabang, Thailand, of the top 20 largest container ports in the world, has made Methyl Bromide fumigant recapture a requirement for fumigation at the port. Cranes & Equipment Asia Co., Ltd. (CEA), Thailand, is coordinating the logistics for important components for the Gorgon project, from Thailand. Nordiko, Australia, a supplier of CEA has been selected to meet this standard, and commissioned a new Intermediate Bulk Containers (IBC) fumigant recapture system in March 2013. After performing its biosecurity function, this pesticide is recaptured on activated carbon filters, preventing the emission of this Ozone-Depleting Substance (ODS) to atmosphere.

Western Australia's (WA) largest mining project meets the most stringent quarantine standards, in order to protect the unique ecology of Barrow Island. In this case, Methyl Bromide fumigation was an Australian Government requirement for project cargo being shipped from Laem Chabang to WA. The port of Laem Chabang has set new environmental and safety standards in its operations, helping to protect the Ozone Layer by preventing emissions of this toxic Ozone Depleter.

Source: http://www.nordiko.com.au

Viet Nam stops licenses for ozone-depleting air-cons

The Ho Chi Minh City (HCMC) government, Thailand, has announced that no new or existing enterprises, be they domestic, joint-venture or foreign-owned, cannot make foaming agent R141b. The city will restrict and later end new installations of refrigeration equipment that runs on refrigerant gas R22 in the seafood processing industry. Luong Duc Khoa, coordinator of the ozone program of the Hydrometrorology and Climate Change Department (HCCD) said, "The city now had few enterprises manufacturing air conditioners using R22. Most of such products are produced in other parts of the country and transported to HCMC for sale."

The city will support firms to produce polystyrene insulation and refrigeration equipment to cover 90% of cost for technological upgrade to switch to using cyclopentane seen as the most promising zero ozone-depleting. Firms in Vietnam use less refrigeration equipment that run on refrigerant gas R22, especially in the area of seafood cold storage, and produce less household air conditioners using R22. Besides, exports and imports of ozone-depleting gas will be strictly monitored in the coming time.

Vietnam has signed the Montreal Protocol on ozone-depleting substances (ODS) in Canada in 1987. According to scientists, if the world works hard to control ODS, the ozone layer could be recovered in 2060-2070.

Source: http://www.vietnambreakingnews.com

Honeywell to boost supply of R1234yf

Honeywell, the United States, has announced that it has entered into a supply agreement with Asahi Glass Company (AGC), Japan, to increase production for the HFO R1234yf. AGC will manufacture the refrigerant in Japan, and Honeywell will sell the product to customers in the US, Europe and Asia. Under the agreement, AGC's production is expected to begin in mid-2015. "Honeywell's supply agreement with AGC will help us meet immediate demand for HFO1234yf, which is steadily increasing in response to concerns about greenhouse gas emissions and the need to comply with regulations," said Ken Gayer, vice president of Honeywell Fluorine Products.

Honeywell announced that the company and its suppliers would invest about $300 million to increase capacity for R1234yf, including building a new manufacturing plant for the refrigerant at Honeywell's existing Geismar location. The plant will use new process technology and is expected to be fully operational in 2016. The exact size of the plant will depend on supply agreements that Honeywell is putting in place with major customers.

Automakers in the US are also adopting R1234yf to help comply with Corporate Average Fuel Economy (CAFE) and vehicle greenhouse gas standards, Honeywell said, which aim to improve the average fuel economy and reduce greenhouse gas emissions associated with cars and light trucks. The US Environmental Protection Agency (EPA) allows automakers to receive credits for using HFO-1234yf. Nearly half a million cars are on the road today safely using HFO-1234yf, and by the end of 2014, the number of vehicles is expected to exceed 2 million, Honeywell added.

Source: http://www.racplus.com

A research on alternatives to ozone-depleting pesticide

Environment Canada has planned to conduct a research project on Prince Edward Island (P.E.I.), Canada, on a pesticide used to help grow strawberry runners, in the hopes of ending the use of a chemical that depletes the ozone layer. For the past few years Westech Agriculture Ltd, Canada, and P.E.I. has received approval from Environment Canada to use methyl bromide to fumigate the soil, where it grows strawberry runners. But under the Montreal Protocol on substances that deplete the ozone layer, methyl bromide is being phased out. Environment Canada said, P.E.I. is the last place in Canada it's routinely used.

The company has applied to use another pesticide, chloropicrin, in its place. But the province has raised concerns about the potential impact on groundwater. It will only allow that if research shows chloropicrin has no effect on groundwater. "We have one environmental issue that we're struggling with when we use methyl bromide and then we have another substance where there's a potential risk of groundwater contamination," said Lucie Desforges at Environment Canada. The research is expected to take up to two years to complete. In the meantime, Environment Canada said, Westtech may use methyl bromide again this year. The province said, there are no plans to have any public input on the project.

Source: http://www.cbc.ca

Pakistan orders confiscation of HCFCs

The government of Pakistan, has ordered confiscation of illegally imported hazardous substances and has put seven authorised importers under strict monitoring, a government official said. A senior official of the Climate Change Division said that the Federal Board of Revenue (FBR), Pakistan, had been asked to take action against illegal importers of hydrochlorflourocarbons (HCFCs) and take further necessary steps to confiscate illegal imports. The official also confirmed that "seven authorised importers had been placed under a moratorium and not given any quota for 2014", because of their inability to provide documentary proof of their imports of 2013.

The HCFCs are organic and synthetic substances used mostly by manufacturers of refrigerators, freezers, air-conditioners and fire extinguishing equipments etc and have been declared as ozone-depleting substances (ODS) under the Montreal Protocol of the United Nations Environment Programme (UNEP). The Montreal protocol requires the parties, including Pakistan, to phase-out production and consumption of such substances and restrict trade in these substances by 2020. The Climate Change Division stated that it had already reduced Pakistan's import quota for HCFCs for the current year by 10 per cent as required under the Montreal Protocol.

The Ministry of Commerce and the FBR were not only responsible for implementation of the quota imports but were also provided with details of the 23 selected importers. On completion of calendar year 2013, the Ozone Cell of the Climate Change Division collected import data from Pakistan Automated Revenue Limited (PRAL) of the FBR. "Climate Change Division had never issued any kind of quota to them. The total volume of illegal imports by unauthorised parties was 8.29 ODP tonnes," the Climate Change Division said. The quota for HCFCs imports for 2014 so far issued by the government stood at 131.7 ODP tonnes, which was below Pakistan's authorised quota. With effect from Jan 1, 2015, the baseline authorised to Pakistan will be reduced by 10pc. "From this onward until 2020, Pakistan will be authorised

to import 222.3 ODP tonnes," the ministry said.

Source: http://www.dawn.com

Asian countries to cooperate on certification schemes

At the Inter-regional Study Tour on the Certification of Refrigeration and Air-conditioning (RAC) Technicians of the Philippines organized by the United Nations Environment Programme (UNEP), OzonAction Branch in cooperation with the Philippines' Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB) from 17-19 March 2014, the governments of Cambodia, Oman, Philippines and Saudi Arabia, have agreed to further explore innovative means of cooperation between countries and regions.

Under the HCFC Phase-out Management Plans (HPMPs) of Cambodia, Oman and Saudi Arabia, their National Ozone Units (NOUs) plan to introduce the certification schemes as good practice tools and measures to improve HCFC management in the RAC sector. The complexity of the issues and market cultures has made it a challenge for these countries to finalize the development of such schemes in the past years. In the Philippines, the government linked the certification scheme under the Technical Education and Skills Development Authority (TESDA), the accreditation system under the Department of Trade and Industry (DTI) and the voucher system under the National CFC Phase-out Plan (NCPP) of the DENR-EMB. The establishment of policies and program about a decade ago has made the certification system in the country one of the most successful stories not only in Asia-Pacific but across developing countries worldwide.

This south-south cooperation aims to encourage peers to exchange experience/ideas on setting-up and operating the certification system for servicing technicians to reduce the consumption of HCFCs during equipment servicing; and to safeguard the wellbeing of technicians and end-users through proper measures and consideration of flammable and hazardous refrigerants increasingly being introduced into RAC equipment. The visiting participants expressed their appreciation of the south-south cooperation activity, and stressed the usefulness of the tour in their plans for developing their respective certification schemes.

Source: http://www.unep.org

Scientists confirm 'no risk' from R1234yf refrigerant in cars

A scientific review of the research by the European Commission's Joint Research Centre (JRC) regarding the safety aspects of the use of refrigerant R1234yf in Mobile Air Conditioning (MAC) systems has confirmed that there is no evidence of a serious risk in the use of this refrigerant in MAC systems under normal and foreseeable conditions of use. The European Commission (EC) is now expected to step up its actions against Germany, whose automotive manufacturers have refused to install the new refrigerant, and the UK, Belgium and Luxemburg, whose agencies did not enforce the Directive."

Honeywell said, "The JRC's independent and unimpeachable report marks the final word on the safety of this environmentally friendlier refrigerant, which automakers are using to comply with the EU Mobile Air Conditioning Directive." The JRC provides independent scientific and technical advice to the EC to broadly support policy-setting activities. It oversees seven scientific institutes across Europe with a wide range of laboratories and research capabilities. JRC came to its conclusion about the safety of R1234yf after a thorough and inclusive evaluation process of the extensive testing done by leading global automakers, independent test agencies and SAE International, the United States, the world's foremost automotive engineering body. The commission's work leaves no doubt that R1234yf is safe for automotive applications.

Du Pont, Japan, said "DuPont is pleased with the final conclusions of the JRC, as they reinforce our high level of confidence that R1234yf can be used safely in automotive air conditioning." The JRC focused, on the study conducted by Germany's Federal Motor Transport Authority, the Kraftfahrt-Bundesamt (KBA). KBA had concluded that its testing, based on the requirements of German product safety law, produced 'no adequate evidence' of a serious risk related to R1234yf. While the KBA had conducted additional tests under more extreme conditions, the JRC raised questions about the real-life relevance of the testing conditions. The JRC said that it would not be appropriate to use the more extreme testing to draw conclusions regarding safety of the refrigerant. DuPont is pleased to see that the EC is taking steps to ensure compliance with the MAC directive and to ensure conformance with applicable type approval registration processes.

Source: http://www.racplus.com

Ultra-low global warming potential refrigerant

Danfoss Turbocor Compressors Inc., the United States, has announced the release of a new TG310 compressor, which utilizes the ultra-low Global Warming Potential (GWP) refrigerant HFO-1234ze(E). The TG310 compressor is available for air-cooled, outdoor mounted chiller applications and will carry the CE mark and CE PED mark. It ranges from 310 - 65kW. It is suitable for use with 400 volt, 50 Hz power supplies. Similar to the current TT series compressors, the TG310 models are oil-free, variable-speed, magnetic bearing centrifugal compressors. The products provide outstanding full and part load energy efficiency and feature a small footprint, light weight, low vibration, very low sound, intelligent controls, and soft starting characteristics.

The ultra-low GWP, zero ozone-depletion potential (ODP) refrigerant HFO-1234ze(E) was developed and commercialized by Honeywell, the Unites States, and is trade named Solstice™ L13. While the refrigerant was initially assigned a GWP value of 6, it was recently announced by Honeywell that the GWP value is actually less than 1. The refrigerant exhibits improved energy efficiency compared to the current model using HFC-134a. When combined with the extraordinary environmental metrics for GWP and ODP, the TG310 offers customers a new benchmark in overall operational sustainability.

"The TG310 is a highly energy efficient and environmentally progressive compressor, and represents the innovation our customers expect from the pioneer and world leader of oil-free, centrifugal compressors for the HVAC industry. We are looking forward to the rapid adoption of the technology as customers seek to enhance the sustainability of their HVAC systems." said David Williamson, MD Europe & Middle East. *Contact: Danfoss A/S, Nordborgvej 81, 6430 Nordborg, Denmark. Tel: +45-7488-2222; Fax: +45-7449-0949.*

Source: http://www.danfoss.com

Integral two stage inverter drive screw compressor

As a pioneer of screw refrigeration compressors, KOBELCO, Japan, has taken the lead in the industrial all along, responding to customer's needs always with innovative ideas and proposals. As the new generational of conventional fixed speed drive model SH series, KOBELCO has developed iZ series in 2002, the world first Integral Two Stage Inverter Drive Freon Screw Compressor condensing units with higher cooling capacity than ever before. This series was followed in 2003 by iZα series of an epoch making non-ozone-depleting compressor condensing unit models using refrigerant R404A. iZαII series is iZα series second generation equipped with "New iZ monitor".

With maximized freezing capacity combined with outstanding energy-saving performance in an unheard-of way, iZα series compressor condensing units are being highly acclaimed by customers. KOBELCO's unique theory and technology (patent acquired) that backed iZ and iZα series have received high praise in various industrial circles, being granted the Technology Award from the Japan Society of Refrigeration and Air Conditioning Engineers (JSRAE) and the Japan Machinery Federation's Best Energy-saving Equipment Award.

Since the production of specified ozone-depleting hydrochlorofluorocarbon (HCFC) based refrigerants (R22) began to be sharply reduced in 2004 and will be completely banned in 2020, a prompt shift to non-ozone-depleting HFC refrigerants is required for compressor condensing units. With zero ozone-depleting potential, R404A is a new, environment-friendly HFC refrigerant. The new HFC refrigerant 404A is similar to the conventional HCFC refrigerant 22 in pressure property and easy to use. *Contact: Kobe Steel, Ltd., International Marketing Refrigeration System & Energy Department, Compressor Division Machinery Business, Japan. Tel: +81-3-5739-5343; Fax: +81-3-5739-5345.*

Source: http://www.kobelco.co.jp

The next chapter in home refrigeration from GE

Researchers from GE are developing the next leap in home refrigeration technology – magnetic refrigeration (magnetocaloric refrigeration). The technology uses no refrigerants or compressors and is 20 percent more efficient than what is used today. In addition, the technology can be applied to other heat pump applications such as heating, ventilation, and air conditioning (HVAC) and has the potential to impact nearly 60 percent of the average U.S. household's energy consumption.

The system uses a water-based fluid rather than a chemical refrigerant such as Freon to transfer heat from inside the refrigerator and achieve the cooling process.

Instead of a compressor, magnets are used to create a magnetic field that agitates particles in the fluid causing it to cool. The strength of the magnetic fields determines how cold the fluid becomes, and in turn, how quickly it cools the refrigerator.

The team's research is progressing rapidly, and is on track to move from the lab to residential homes within the next five years. "We figured out how to create heat or cold without a compressor or chemical refrigerants," said Venkat Venkatakrishnan, director of advanced technologies for GE Appliances. "This breakthrough can power your fridge with greater efficiency, and because the technology does not contain traditional refrigerants, recycling refrigerators at end of life will be easier and less costly.

In addition to the work, Oak Ridge National Laboratory (ORNL), the United States, is also working on the development. ORNL is funded by the U.S. Department of Energy (DOE) to work in conjunction with GE to assess specific component and material requirements for stable and reliable operation of the refrigerator-freezer, evaluate magnetocaloric effect materials, and maximize the performance of the refrigerator-freezer in laboratory testing. *Contact: Julie Wood, GE Appliances, USA. Tel: +1-502-452-5914; E-mail: julie_wood@ge.com.*

Source: http://www.businesswire.com

HFO-based air conditioning refrigerant

Asahi Glass Company (AGC), Japan, in collaboration with New Energy and Industrial Technology Development Organisation (NEDO), Japan, has announced its own AC refrigerant, based on the new hydrofluoro olefin (HFO) molecule HFO-1123, with a Global Warming Potential (GWP) under 350 a sixth that of R410A and half that of R32. AGC has followed up its production venture with Honeywell, the United States, on the automotive refrigerant R1234yf with the announcement of its own HFO-based refrigerant based on the hitherto unpublicised molecule HFO-1123.

AGC has worked with NEDO on the refrigerant, which it has branded 'Amolea', aiming at room air conditioning applications, and boasts a GWP of about one-sixth that of R410A, while having the same refrigerant characteristics. Perhaps more significantly, Amolea is said to have half the GWP of R32, currently being promoted by air conditioning giant Daikin – and expected to become widely used by AC manufacturers from next year onwards. AGC expects to launch commercial production in 2016, ahead of restrictions on the use of hydrofluorocarbons (HFCs) in Japan beginning in 2015, and in anticipation of global phasedown of the refrigerants.

The AGC said, "It will accelerate its efforts to commercialise new refrigerants and focus on developing refrigerants with even lower GWP. In cooperation with equipment makers, the Group will contribute to the early provision of air-conditioning systems with significantly low environmental loads."

Source: http://www.racplus.com

Technically credible refrigerants to meet MAC directive

According to a Co-operative Research Programme (CRP), a research group from SAE International, the United States, has reported that the AC5 and AC6 blends from Mexichem, the United States, offers risk profile equal or better than HFO 1234yf in all respects and have the potential of blended refrigerants to meet for the mobile air-conditioning systems (MAC) directive. The CRP said that it had elected to publicise its results, where more in-depth research into the two blends confirmed previous findings, to add to the current debate over low Global Warming Potential (GWP) alternatives for the MAC directive.

Specifically, the CRP wanted to ensure that the information it has generated regarding the performance, flammability and risk assessment of these low-GWP blended refrigerants is available to be included in the important discussion regarding replacement of MAC system refrigerant. Based on a detailed fault tree analysis, AC6 offers a risk profile that is equal to or better than that of R1234yf in all significant respects. AC5 is comparable to R1234yf.

The AC6 blend, which distinctively contains CO2, has a GWP of 130, compared to HFO 1234yf's GWP of 4. The blend has been found to have an 'extremely low level of risk for vehicle operators and repair workers.' It has zero flammability under 50°C, but is set to be classed in the A2L flammability category. The CRP said it agreed to validate the refrigerant based on lower flammability than HFO 1234yf and potentially greater capacity. The final phase of its testing will see further assessment of heat exchanger optimisation and hose materials, together with physical testing of service and filling procedures.

Source: http://www.racplus.com

New environmentally friendly solvent

Honeywell, the United States, has introduced a new high-performance, low-global-warming-potential (GWP) solvent that offers excellent cleaning power for metal and plastic parts. The new solvent, Solstice® PF, is a low GWP alternative to traditional solvents, helps manufacturers meet current and future environmental and safety standards. It effectively cleans oils, greases and other substances commonly encountered in many cleaning applications, ranging from electronics manufacturing to military and aerospace equipment repair. Solstice PF has a global warming potential (GWP) of 1, which is more than 99 percent lower than the GWPs of today's most commonly used solvents. The new material provides solvent users with a cost-effective, energy-efficient and environmentally-preferable alternative to high-GWP solvents.

"Solstice Performance Fluid meets all of the needs of today's solvent users, blending superior cleaning power with an excellent health, safety and environmental profile," said David Cooper, at Honeywell. Solstice PF is suitable for use in vapor degreasing equipment and line flushing, and can be dispensed from an aerosol can. It is an environmentally-preferable alternative to high-GWP HFC and HFE solvents used today, including HFC-4310mee and HFE-7100. It is also a suitable replacement for HCFC-225ca, which will be prohibited in the U.S. beginning January 2015.

Solstice PF is nonflammable, per ASTM E681 testing, and is not a volatile organic compound (VOC) as determined by the U.S. Environmental Protection Agency (EPA). Solstice PF also has an occupational exposure limit (OEL) of 800 parts per million (ppm), compared with 10 ppm for n-propyl bromide (nPB). Solstice PF is the latest addition to Honeywell's family of Solstice-branded products, which includes stationary and mobile refrigerants, liquid and gaseous blowing agents, and propellants. The Solstice product line is based on Honeywell's new hydrofluoroolefin technology, which is designed to help customers lower their carbon footprint without sacrificing end-product performance. *Contact: Dan Mulcahey, Honeywell International, 101 Columbia Rd., PO Box 4000, Morristown, NJ-07962, USA. Tel: +1-973-455-4242; Fax: +1-973-455-4807; E-mail: daniel.mulcahey@honeywell.com.*

Source: http://www.honeywell.com

Water-based heat sealing and heat activation coating

Developed by Aqua Based Technologies, (a division of ADM Tronics Unlimited, Inc.), the United States, the Aqualene® 1185HS is a new, eco-friendly, water-based heat sealable or heat activated coating, for a wide range of plastic films, such as polyester (PET), polystyrene (PS), vinyl (PVC), paper, paperboard, and aluminum foil. This heat-seal coating technology is suitable for a wide range of packaging applications where heat sealed or heat activated combinations are required.

Aqualene® 1185HS was designed to be applied by flexographic presses and other roller coating applicators used in both web and sheet-fed production equipment. Heat sealing or heat activation is achieved at only 210°-230°F (98°-110°C) allowing for use in a wide range of packaging structures. Aqualene® 1185HS is completely water-based, containing no volatile organic compounds (VOC-free) or ozone-depleting ingredients, making it environmentally safe, without requiring emission controls or safety procedures as are necessary for competitive, hazardous, solvent-based coatings. It is easy to clean up without the use of caustic or hazardous cleaning products. *Contact: Aqua Based Technologies, 224 Pegasus Avenue, Northvale, NJ-07647, USA. Tel: +1-201-767-6040; Fax: +1-201-784-0620; E-mail: sales@aquabased.com.*

Source: http://www.news.thomasnet.com

Ultrasonic vapor degreaser

The new Ultrasonic Vapour Degreaser (UVD) from Soniclean, Australia, provides precision cleaning of various components including oxygen, nitrogen, hydraulic, gyrosystems, airframe and engine parts. The UVD has been designed to be used with solvents that have been made to impact minimally on the environment, prevent pollution and conserve resources.

Soniclean's UVD uses pulse swept power to clean with superior penetration, precision and reliability. This technology uses pulsed ultrasonics to ensure powerful, reliable, uniform cleaning to fine parts without the risk of damage to delicate items. Our commitment to excellence means that all of our units are made to the highest standards. The units are designed to exceed the Australian Standards 2661 and to provide software driven precision cleaning process control, with an incredible small footprint powered from a standard 15 amps electrical supply. Its features includes:

- Safe and environmentally friendly;

- Microprocessor control for precise process management, cleaning and maintenance; and
- Easy access to maintenance areas such as the boil tanks.

Contact: Soniclean, 38 Anderson Street, The Barton, South Australia-5031. Tel: +61-8-823-483-98; Fax: +61-8-823-483-91; E-mail: sales@soniclean.com.au.

Source: http://www.soniclean.com.au

New ozone cleaning system

UVOTECH Systems, Inc., the United States, a manufacturer and distributor of surface treatment equipment, announced the release of a new UV-Ozone Cleaning System, Model HELIOS-500. The HELIOS-500 system is designed to be very compact, lightweight and economical. It includes an ultraviolet grid lamp for increased uniformity as well as a digital process timer which allows more accurate control over the process time. The drawer loading sample stage can accommodate up to 5"x5" substrates. Included pedestals allow for adjusting the distance between the UV source and substrate. This system also comes with a built-in hour-counter which will record the total hours of the UV lamp usage for maintenance purposes.

The UV Ozone Cleaning process is a photo-sensitized oxidation process in which the contaminant molecules of photo resists, resins, human skin oil, cleaning solvent residues, silicone oils, and flux are excited and/or dissociated by the absorption of short wavelength UV radiation. Atomic oxygen is simultaneously generated when molecular oxygen is dissociated by 185nm and ozone by 254nm ultraviolet wavelengths. The 254nm UV radiation is absorbed by most hydrocarbons and also by ozone. The products of this excitation of contaminant molecules react with atomic oxygen to form simpler, volatile molecules, which desorbs from the surface. Therefore, when both UV wavelengths are present atomic oxygen is continuously generated, and ozone is continually formed and destroyed.

Using a UV-Ozone Cleaner, near atomically clean surfaces can be achieved in minutes without any damage to your devices. This fast method of obtaining ultra-clean surfaces free of organic contaminants on most substrates, such as quartz, silicon, gold, nickel, aluminum, gallium arsenide, alumina, glass slides, etc. can easily be achieved by utilizing a UV-Ozone Cleaner in just a few minutes. *Contact: UVOTECH Systems, Inc., 1485 Civic Court, Concord, CA-94520, USA. Tel: +1-925-356-6242.*

Source: http://www.news.thomasnet.com

Latest aqueous cleaning solution from Kyzen

Kyzen, the United States, showcased AQUANOX® A4639, their latest aqueous solution for electronics assembly, at Productronica China – 2014, which took place on March 18-20, 2014 at the Shanghai New International Expo Centre (SNIEC) in Shanghai, China. AQUANOX® A4639 Electronic Assembly Aqueous Solution protects solder joints from chemical attacks and is effective on B-side misprints. The biodegradable aqueous solution does not contain chlorofluorocarbon (CFCs) or Hazardous Air Pollutants (HAPs).

AQUANOX® A4639 is designed to meet the demanding needs of customers – long bath life, a stable, filterable product, effective on the popular lead-free no-clean soldering materials that often present cleaning challenges. A4639 meets those needs and is very economical, easy-to-use, safe for the user and the environment, and is available throughout the world.

Source: http://www.smttoday.com

License agreement for production of a new cleaning agent

JNC Corporation, Japan, has concluded a license agreement related to production and sales of a new removing and cleaning agent used in processes for producing electronics products such as flat panel displays, semiconductors and electronic substrates with Bubbles & Beyond (B&B) GmbH, Germany. So far, strong acids, strong alkalis or organic solvents have been used for most removing and cleaning agents, which are difficult to handle and are occasionally harmful to the natural environment. However, products friendly to the environment are desired owing to a rise in environmental protection awareness in recent years.

The removing and cleaning agent of B&B GmbH is an environment-friendly aqueous product with excellent removing performance, having a unique feature of penetrating into adhesion interfaces and removing materials by physical action rather than removing the materials by chemically dissolving them. Moreover, this product does not dissolve the removed substances, and thus the removed substances can be easily separated from the removing and cleaning solution after the removal, resulting in excellent reusability. *Contact: JNC Corporation, Japan, Tel: +81-3-3243-6370; Fax: +81-3-3243-6487.*

Source: http://www.jnc-corp.co.jp

Water mist extinguishing system

The Aquatech® from Tema Sistemi S.p.A., Italy, is a highly in¬novative high-pressure water mist fire extinguishing system, characterized by a high level of modularity and by advanced operational performance in order to be able to extinguish the most dangerous fires due to the generation of a fog through the turbulent motion of directional water droplets.

The technological solutions based on water mist are contained in two product lines Aquatech® which uses only high-pressure water and Aquatech® Plus which operates at a low pressure and uses water mixed with a special additive wetting agent type. *Contact: Tema Sistemi S.p.a., 48123, Via Romagnoli, 4, Italy. Tel: +39-0544-4550-65; Fax: +39-0544-4591-40; E-mail: info@temasistemi.com.*

Source: http://www.temasistemi.eu

HCFC based fire extinguisher

The AF11E from Tyron Flat Tyre Protection Pte. Ltd., Singapore, is a single, clean fire extinguisher chemical, a careful blend of dichlorotrifluroethne, (HCFC123) and the Hartindo proprietary ingredient. Belonging to the Halocarbon group of vapourising liquid fire extinguishing chemicals it is similar in action to Halon, but without any of the environmental or toxicity problems associated with Halons. Of all the Halocarbon alternatives to Halon AF11E has the lowest overall environmental impact.

The AF11E aerosols have been specially designed so that when the contents inside reach a pre-determined temperature the increase in vapour pressure will fracture the container, discharging the entire contents. This action will provide automatic protection in confined areas where the occupant may have been in capacitated or be unable to operate a manual extinguisher. They may even be thrown into an enclosed area, where they will split open, release the contents and extinguish the fire. *Contact: Mr. Chris Koh, Tyron Flat Tyre Protection Pte. Ltd., Asia Master Distributor, 31, Tuas South Street 5, Singapore-637381. Tel: +65-6791-0777; Fax: +65-6790-0777.*

Source: http://www.tyronasia.com

Eco-friendly water mist technology

The Water Mist technology from Saudi Factory for Fire Equipment (SFFECO), Saudi Arabia, is designed for most fire risks, A, B, C, E and F. Safe for people and animals, Water Mist systems does not require evacuation before discharge. In turn it is 100% water and a toxic free agent, which is safe for fire fighting due to mist barrier, it creates between fire and operator. This also helps in fighting the fire from a closer distance. Water Mist is a highly effective extinguishing agent due to its speedy cooling and inverting effect.

Water Mist Systems are an interesting eco-friendly alternative to conventional gas and water based systems. It is as well quick and easy to refill and maintain. Water Mist Systems gives no thermal shock or electrical conductivity resulting from discharge. It has lower life cycle costs mostly because of the agent being water and as well minimal water discharge, indicating negligible post-application cleaning time, consequential damages and losses; thereby minimal down-time before operations are resumed. *Contact: SFFECO, P.O. Box 261281, JAFZA, Dubai. U.A.E. Tel: +971-4-880-9697; Fax: +971-4-880-9245.*

Source: http://www.isnrabudhabi.com

Environmentally friendly fire protection solution

SAPPHIRE cleaning agent system from Tyco Fire Protection Products (FPP), the United States, offers a greener and more environmentally friendly fire protection solution. The system is custom engineered for 3M™ NOVEC™ 1230 fire protection fluid, a clear agent with negligible global warming potential, zero ozone depletion and is safe for use in occupied areas. The award winning SAPPHIRE system includes 25 and 42 bar variations for effective fire suppression of critical petrochemical, oil and gas (POG) processing infrastructure.

SAPPHIRE is particularly suited to vital facilities in the POG industry, where specialist solutions that can suppress fires rapidly and are safer for use in occupied areas are a necessity. Technically it can deliver a rapid knock down extinguishment within 10 seconds, which can result in less damage to electronic or other sensitive equipment. This in turn can facilitate a much shorter recovery period; a key consideration in POG facilities.

The 42 bar SAPPHIRE system is ideal for applications which involve multiple risks. Selector valves are used to cover several areas from a central storage location creating a space saving and potentially more economical solution. There is also the opportunity for reduced pipe sizes, which can reduce installation time and increase overall cost effectiveness.

Source: http://www.energyglobal.com

Reliable metering of blowing agent

The Ecofoam System from Lewa, Germany, is a new complete solution including pump, measurement and control technology that is characterized by its precision and minimum downtimes. It conveys a volume of blowing agent proportional to the speed of the extruder, ensuring exact metering even under fluctuating pressures. The system was shown at the K 2013 trade show in Düsseldorf, Germany – along with heated systems for the metering of additives that permit fully automatic, reliable, and flexible extrusion.

With Lewa Ecofoam, blowing agents such as CO_2, propane, butane, halogenated hydrocarbons, and pentane can be precisely metered into the plastic melt of an extrusion process. Since the quality of the end product is primarily determined by the even expansion of the blowing agent, the metering system is optimized to that effect. Consisting of an Ecoflow metering pump, a suction side dirt trap, and two contact manometers for pressure monitoring in the pipeline, this system is suitable for pressures from 50 to 500 bar, with flow rates between 0.5 kg/hr and 250 kg/hr.

One special feature of this controller is that it knows the pump's characteristic curve. This enables the system to be adjusted significantly faster compared with a conventional PID controller. The pump's pressure-firm characteristics ensure exact metering – even at varying extruder pressures. A safety valve also protects the system from over-pressure. Due to its robust, hermetically tight pump technology, the Ecofoam system achieves a high level of operational safety. The result – independently of the process conditions – is minimum downtime with just one service inspection per year, and high productivity. *Contact: LEWA GmbH, Ulmer Str.10, 71229 Leonberg, Germany. Tel: +49-7152-14-0; Fax: +49-7152-14-1303; E-mail: lewa@lewa.de*.

Source: http://www.lewa-inc.com

Foam blowing agent technology for superior insulation

Whirlpool Corporation, the United States, has announced that it has implemented the use of Honeywell's Solstice® Liquid Blowing Agent (LBA), into its environmentally responsible and energy efficient insulation used in U.S. made refrigerators and freezers. The global warming potential (GWP) of the new foam blowing agent is 99.9% lower than 245fa, the most common foam blowing agent widely used within the U.S. industry.

"Whirlpool Corporation and Honeywell believe we have responsibility to be as proactive as we can to preserve our environment, and meet the demands of our consumers," said Joseph Liotine, president of Whirlpool U.S. operations. "By introducing this new insulation to our refrigerators, we've taken steps to reduce global warming potential, the most significant contributor to environmental impact for refrigerators without compromising quality or the energy efficiency of our appliances."

This is the first use of the innovative blowing agents in home appliances. Through the partnership Whirlpool Corporation is the world's first home appliance manufacturer to begin implementing Honeywell's new Solstice® blowing agent in its foam insulation. The company has already voluntarily begun phasing out its use of hydroflurocarbons (HFCs) in its U.S. refrigerators and freezers utilizing the co-developed foam that provides more energy efficiency than commonly used hydrocarbons and the lowest GWP in its class.

Source: http://www.achrnews.com

A blowing agent to produce insulation

A report by the United Nations Intergovernmental Panel on Climate Change (IPCC) has confirmed that fourth-generation hydrofluoroolefin (HFO) blowing agents and refrigerants have extremely low global warming potential (GWP). Honeywell, the United States, which markets HFO-123zd as Solstice Liquid Blowing Agent, previously estimated its GWP to be around 7, but as per the IPCC, Switzerland, Fifth Assessment Report on climate change notes a 20-year GWP of 5 (meaning that, in a 20-year period, the substance traps five times more heat than carbon dioxide) and a 100-year GWP of 1 (equal to that of CO_2).

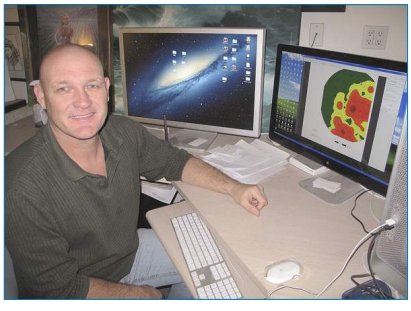
The Solstice Liquid Blowing Agent, which is listed in the report under its chemical name, (E)-1-Chloro-3,3,3-trifluoroprop-1-ene, was developed for use in polyurethane insulation, including spray polyurethane foam (SPF) and rigid polyurethane foam used in appliances. It is a low-GWP alternative to HFC-245fa. Besides, two other manufacturers Whirlpool, the United States and Midea, China, have agreed to adopt the new blowing agent for use in their appliances, and West Development Group, the United States, has developed an SPF formula using Solstice for roofing applications.

Source: http://www.buildinggreen.com

Researcher pioneers variable-rate fumigation

A researcher based in the United States has pioneered the concept of variable-rate fumigation to control nematodes in multiple crops. Unlike conventional techniques, in which entire fields are uniformly fumigated, variable-rate fumigation involves testing soil in 1- or 2-acre grids and then applying fumigants only where they're needed. "That allows the grower to take out the hot spots and not overuse fumigants in a particular field. It just doesn't make sense to put a treatment on an area where you don't have a problem." said Harry Kreeft, a nematologist and plant pathologist with Western Laboratories, the United States.

The concept involves treating each grid as an individual field. Several soil samples are taken within each grid and an analysis produces a map of nematode hot spots. "You don't get chemotherapy; you just remove the wart. That's how you can look at variable-rate fumigation. You take out the hot spots, the cancers, in the field. You don't nuke the whole field." Kreeft said. Variable-rate fumigation is a growing trend and one of the driving factors is a shortage of Telone II, a soil fumigant used to control all major species of nematodes in vegetable, field and nursery crops, fruit and nut trees and grapes. Since there's are few options available, so growers are looking for alternatives and the variable-rate idea just fits perfectly. The approach reduces fumigation by about 40 percent and as much as 75 percent in some fields. Fumigation costs about $340 an acre.



Harry Kreeft looks at the results of soil tests for nematodes on 2-acre grids at the Western Laboratories facility, USA Credit: Capital Press

Kreeft is helping Western Laboratories perform site-specific management of nematodes for multiple crops – including potatoes, onions, hops, apple orchards and grapes – in Idaho, Colorado, Oregon and Washington. Western Laboratories owner John Taberna, said beneficial microorganisms are not as severely set back when variable-rate fumigation is used. Their recovery rate is much faster with variable-rate than it is with a one-size-fits-all approach, so many farmers are still reluctant to try the variable-rate approach despite the cost savings. The farmers are so scared because they're used to treat everything and the crop advisors are afraid to advise the farmers to do it, too.

Source: http://www.capitalpress.com

A biological alternative to toxic fumigants

Marrone Bio Innovations, Inc. (MBI), the United States, a leading global provider of bio-based pest management and plant health products has announced that it has submitted MBI-601 EP, a biofumigant, to the United States Environmental Protection Agency (EPA) for registration. The product controls and suppresses plant parasitic nematodes, insect pests and soil-borne plant diseases in agricultural and horticultural soils. The active ingredient, Muscodor albus strain SA 13, produces volatile compounds that inhibit the growth of or kill economically important pests and plant diseases. It targets the most destructive species of nematodes – root knot, sting, ring, spiral, cyst, lance, and lesion and also the highly-damaging plant diseases Fusarium root rot, damping off, southern blight and Verticillium wilt. With this control, field trials show increased yields in treated strawberries, lettuce and other crops.

"We expect MBI-601 to fill a real need for high value fruit, vegetable, and ornamental growers. Soil fumigants have been valuable tools in protecting these crops worldwide and making their production economically feasible. However, many fumigants have been restricted or removed from the market due to increased regulatory restrictions and concerns about their toxicity to humans and the environment," said Jim Lappin, MBI's Vice President of Product Management and Business Development.

"MBI-601, a naturally occurring, biologically-based fumigant, will provide an alternative to the traditional synthetic materials. In fact, it is anticipated that workers can return to the treated acres quickly after the product has been applied and planting the crop after application will be shorter than with traditional fumigants. Additional uses in the future, as we further develop the product may include post-harvest, turf, silviculture and seed treatments," said Lappin. *Contact: Rich Fedigan, Marrone*

Bio Innovations, USA. Tel: +1-530-750-8755.

Source: http://www.globenewswire.com

Effective phosphine fumigation solutions at GEAPS 2014

Cytec Industries Inc. (CYT), the United States, presented their phosphine gas fumigation technologies at the GEAPS Exchange - 2014 on February 22-25. Cytec's phosphine gas technology offers fast and effective solutions to protect food and other commodities with significant advantages over traditional fumigants. Cytec's innovative fumigation products ECO2FUME® fumigant gas and VAPORPH3OS® phosphine fumigant have proven to be cost-effective and generate no waste or residues. These U.S. Environmental Protection Agency (EPA) approved products are easy to use and provide the ability to quickly achieve precise control of phosphine concentrations within minutes or hours rather than days.

"The benefits of cylinderized phosphine fumigant technologies offer the market a critical tool for driving improvements in insect management practice as well as compliance with ever increasing safety and environmental regulations," said Mike DePalo, Regional Sales Manager Phosphine Gases. Cytec partnered with Fosfoquim, the manufacturer of the unique Horn Diluphos System™, which allows on-site blending of Cytec's VAPORPH3OS® phosphine fumigant with ambient air. *Contact: Cytec Industries Inc., 5 Garret Mountain Plaza, Woodland Park, NJ-07424, USA. Tel: +1-973-357-3100; E-mail: custinfo@cytec.com*

Phosphine fumigation solutions by Cytec, USA

Source: http://www.cytec.com

Canada to test agricultural fumigant chloropicrin

Environment Canada (EC) is planning to allow a West Prince farm operation to test the fumigant chloropicrin on a small test plot in Ascension this year to determine whether the fumigant poses any threat to groundwater. The decision to test the chemical follows an application by Alberton-based Westech Agriculture to use chloropicrin on its strawberry fields in place of the fumigant methyl bromide (MB), which, in accordance with the Montreal Protocol, has been prohibited in Canada under the Ozone-depleting Substances (ODS) Regulations, since 2005.

An EC official said, because of no technically and economically feasible alternatives to MB for growers, Canada requested an exemption under the Montreal Protocol, yet remains committed to phasing it out. "The farm simply made application to use chloropicrin, that the actual testing is being conducted by EC," said Nora Dorgan, Westech Agriculture owner. The provincial Department of Environment is permitting the federal department to test the product on a small plot of strawberry plants.

An EC official confirmed that the application of chloropicrin will be done in accordance with the product label. The area to be fumigated during the test will not exceed five acres. Monitoring wells and lysimeters will be installed in order to collect groundwater and surface water samples, respectively, and samples will be tested by accredited laboratories in accordance with approved testing standards.

Source: http://www.journalpioneer.com

An update on new proposed fumigants

Patented, identified, and researched by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia, the Sterigas (EDN) and Cosmic (COS) are BOC trade names for new fumigants. CSIRO and BOC Limited, Australia, an international industrial gas company, has signed an agreement to globally market the new fumigants. CSIRO is supplying BOC with efficacy and related data to assist in the global registration of these new pesticides.

Sterigas (EthanediNitrile, EDN = C2N2) is a new environmentally-safe fumigant with initial focus on control of pathogens, weeds and insects in soil; control of timber pests in export logs and timber and the devitalisation of imported grains (sterilisation of grain and weed seeds plus elimination of any pathogens). At low doses Sterigas is effective against common stored product pests and is an alternative methyl bromide alternative. Cosmic (Carbonyl sulphide, COS) initial focus is a grain fumigant for use in phosphine resistance strategy.

Source: http://www.spiru.cgahr.ksu.edu

RECENT PUBLICATIONS

Training Manual for Customs and Enforcement Officers – Third Edition, Saving the Ozone Layer: Phasing-Out Ozone-Depleting Substances (ODS) in Developing Countries

An essential tool in building the capacity of Customs Officers, The Training Manual for Customs Officers provides the necessary guidance and information to effectively monitor and facilitate the legal trade in ozone-depleting substances (ODS) and to combat their illegal trade. It presents information on the international policy context and an overview of the technical issues, including information on chemicals and products traded and how these may be smuggled. The manual is intended to be used in conducting training programmes for Customs Officers as well as serving as a stand-alone reference document. Now in its third edition, this version takes into account the developments in international trade and provides new material to reflect changes in the Montreal Protocol, Harmonised System codes, licensing systems and other relevant information since its original publication in 2001 and its second edition in 2008.

Phasing-out Methyl Bromide in Developing Countries: A success story and its challenges

This booklet addresses the efforts undertaken to phase-out Methyl Bromide in developing countries, the lessons learned and what is pending to reach final phase-out. It further analyses factors that may impact or put at risk the continuity of the phase-out and possible ways to mitigate them. It aims to promote the south-south and north-south-south cooperation, facilitate information exchange on advanced technologies for materials, varieties, rootstocks, etc. and raise awareness on risk of reversibility of MB uses and encourage policy to avoid it happening.

For the above two books, contact: UNEP DTIE OzonAction Branch, 15 rue Milan, 75441 Paris Cedex 09, France. Tel: +33-1-4437 1450; Fax: +33-1-4437-1474; E-mail: ozonaction@unep.org

TECH EVENTS

18-21 May
Jeju Island, Republic of Korea

The 7th Asian Conference on Refrigeration and Air Conditioning
Contact: Congress Secretariat
#902, KSTC New Bldg, 22, 7-gil, Teheran-ro, Gangnam-gu, Seoul, 135-703, Republic of Korea
Tel: +82-2-554-8571
Fax: +82-2-552-3929
E-mail: acra2014@nate.com
Web: http://www.acra2014.org

31 Aug-2 Sep
Hangzhou, China

11th IIR-Gustav Lorentzen Conference on Natural Refrigerants
Contact: Mr. Wangyang HU
Tel: +86-10-684-346-83
E-mail: gl2014@car.org.cn
Web: http://www.gl2014.org

10-12 Sep
Singapore

REFRIGERATION ASIA – 2014
Contact: Informa Exhibitions Pte Ltd
111, Somerset Road #11-08
TripleOne Somerset, Singapore-238164
Tel: +65-6411-7777
Fax: +65-6411-7778

22-23 Oct
Istanbul, Turkey

14th International Water Mist Conference (ICEC)
Contact: Conference Secretariat
E-mail: info@iwma.net

28-30 Oct
Jakarta, Indonesia

HVAC INDONESIA 2014
Contact: Informa Exhibitions Pte Ltd
111, Somerset Road #11-08
TripleOne Somerset Singapore-238164
Tel: +65-6411-7777
Fax: +65-6411-7778

4-6 Nov
Florida, USA

Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reductions (2014)
Contact: Methyl Bromide Alternatives Outreach 6556 N. Dolores Ave.
Fresno, CA 93711, USA
Tel: +1-559-449-9035
Fax: +1-559-449-9037

20-21 Nov
Kobe, Japan

The International Symposium on New Refrigerants and Environmental Technology (2014)
Contact: The Symposium Secretariat
The Japan Refrigeration and Air Conditioning Industry Association
Kikai Shinko Bldg. 201, 3-5-8, Shibakoen, Minato-ku,
Tokyo 105-0011 Japan
Tel: +81-3-3432-1671
Fax: +81-3-3438-0308
E-mail: kobesympo2014@jraia.or.jp
Web: http://www.jraia.or.jp

PUBLICATIONS from APCTT

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