VATIS Update Ozone Layer Protection . May-Jun 2006

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THE SCIENCE OF OZONE LAYER

Ozone layer recovering!

According to researchers at Colorado University, the United States, the ozone layer is showing promising signs of recovery. This development is the result of decreasing emissions of ozone depleting chemicals. However, it is unlikely to stabilize at pre-1980 levels, opine researchers. Despite the signs of recovery, Dr. Betsy Weatherhead, who reported the findings, said people should still protect themselves from ultraviolet rays.

Dr. Weatherhead and Mr. Signe Bech Anderson of the Danish Meteorological Institute in Copenhagen analysed data from satellites and ground stations and information from 14 modelling studies. They found that ozone levels have stabilized or increased slightly in the past 10 years, though total recovery is still decades away. Shifting temperatures, greenhouse gases, nitrous oxide as well as atmospheric dynamics, which can influence ozone levels, are going to change in the future, they added. Volcanic activity has also been found to play a role in ozone depletion.

Website: www.today.reuters.co.uk

Study explores virgin areas of the upper atmosphere

NASA researchers conducted an airborne field experiment at a warm tropical locale to garner data about a largely unexplored region of the chilly upper atmosphere. This area is thought to be crucial to the recovery of the ozone layer and predicting future climate change. This very cold region far above the Earths equator (54,000 ft) is the main pathway where the lower part of the atmosphere, known as the troposphere, flows into the stratosphere.

High-altitude flights by a NASA aircraft based in Costa Rica during the month-long field campaign were choreographed with the orbits of Aura, NASAs latest Earth-observing spacecraft. NASAs WB-57F high-altitude aircraft carried a payload of 29 scientific instruments up to heights of 60,000 ft or 17 km. The Johnson Space Centre aircraft captured extensive, best-ever glimpses of this regions chemical brew, the ice crystals inside high-altitude clouds and a rarely observed class of hard-to-see clouds that may play an important role in climate change. This project, an integrated science and satellite validation campaign, was sponsored by NASAs Science Mission Directorate. Other participants in the project were scientists from NOAAs Earth System Research Lab, National Centre for Atmospheric Research, University of Wisconsin, Harvard University and University of Denver.

The Costa Rican National Centre of High Technology (CENAT) supplied high-altitude weather balloon observations as well as weather forecasting support.

Website: www.terradaily.com

Antarctic ozone hole update

The Antarctic ozone hole this year was the fourth largest to be recorded since measurements of ozone depletion commenced in 1979. According to Dr. Paul Fraser, CSIRO Marine and Atmospheric Researchs expert in ozone depletion, though the size of the ozone hole was large, it was more or less on expected lines. Other than year-to-year variability that mirrors temperature changes, Antarctic ozone depletion has remained at an approximately constant level for the past nine years. The 2005 ozone hole area reached 26.4 million square kilometres, about 3.5 times the area of Australia. This is the fourth largest hole after, in order, those in 2003, 2000 and 1998. However, ozone depletion in 2005 is the third greatest, in terms of depth, after 2003 and 1998.

Website: www.physorg.com

Unravelling the mysteries of ozone-eating clouds

Polar stratospheric clouds (PSCs) have been the focus of several research projects in recent years, following the discovery of their role in depleting the ozone layer. However, essential aspects of these clouds have so far remained a mystery. The Michelson Interferometer for Passive Atmospheric Sounding (MIPAS), an instrument on-board the European Space Agencys (ESA) Envisat satellite, is expected to remove this shroud of secrecy and facilitate in modelling ozone loss. Mr. Michael Hopfner of Forschungszentrum Karlsruhe GmbH, Germany, expressed that MIPAS is unique in its possibilities to detect PSCs since it is the first instrument with the ability to observe these clouds continuously over the polar regions, especially during the polar night.

Using data collected by MIPAS, researchers have uncovered a belt of nitric acid trihydrate (NAT) PSCs developing in the polar night over Antarctica in 2003 about a month after the first PSCs, which were composed of water crystals, were detected. NAT PSCs enhance the potential for chlorine activation and can also sediment and irreversibly remove nitrogen from the lower stratosphere, causing a process known as denitrification, which slows the return of chlorine to its inactive form.

Website: www.esa.int

Ozone hole confirmed over Qinghai-Tibet plateau

Scientists have confirmed a 2.5 million square kilometre hole in the low-level ozone layer over western Chinas Qinghai-Tibet plateau. Experts from the Chinese Academy of Sciences and the China Meteorology Research Centre have proved a significant decrease in total column ozone. The appraisal is based on comprehensive research and analysis of data from both ground monitoring and the Total Ozone Mapping Spectrometer, a satellite-borne instrument used to measure global ozone levels.

Website: www.news.xinhuanet.com

UV rays stronger this summer

According to a report released by the Canadian Environment Ministry, the levels of harmful ultraviolet (UV) radiation this year are expected to be higher than ever recorded, as the Earths protective ozone layer is constantly thinning. It is estimated that UV radiation reaching the Earth could rise by 4 per cent this summer and, as such, exposure to the sunlight could be more dangerous than ever. Cases of skin cancer, sunburn, cataracts and other ailments, as a result, are anticipated to increase correspondingly. Scientists suggest that people should avoid the sun between 11 a.m. and 2 p.m. when its rays are the strongest. Sunscreen should be used all year long as it blocks UV rays. They recommend that people should use plenty of sunscreen, be sure to wear hats and don sunglasses.

Website: www.english.people.com.cn

ODS PHASE-OUT IN INDIA

Mandatory registration for ODS importers

According to circular No. 2 (RE-06)/2004-2009, dated 10th April 2006, importers of ODS-based compressors have to register themselves with the competent authorities. The circular states that as per rule 12 of the Ozone Depleting Substances (Regulation and Control) Rules 2000, importers of compressors have to be registered with the competent authority for import of compressors using ODS. Registration requirement will not be applicable for importing compressors using non-ODS or compressors that do not contain any refrigerant gas.

Website: www.exim.indiamart.com

New HFC manufacturing plant

Refex Refrigerants, an Indo-Singapore joint venture, plans to invest about US$2.15 million for setting up a plant to manufacture hydroflurocarbon-based refrigerant gases. The plant, scheduled to come up in South India, would be completed by 2008.

The new facility would carry out refilling of HFC-based refrigerant gases that are used in car air-conditioners, refrigerators, residential/commercial air-conditioners, water coolers, refrigerating and cooling equipment, etc. With the ozone depleting CFCs slated for phase-out by 2010, HFCs would prove to be an environmentally friendly alternative with zero ozone depleting properties.

Website: www.economictimes.indiatimes.com

Quality norms eased for wheat imports

The government has significantly relaxed quality specifications for wheat imports. According to the terms of conditions stipulated in the latest tender, the earlier stringent specification that the wheat shall be totally free from Argemone mexicana, Lathyrus sativus, dwarf bunt (Tilletia contraversa) and ergot (Cleviceps purpurea), has now been restricted to the first two. Presence of the other two fungal pathogens dwarf bunt and ergot fungi is permissible to the extent of 0.005 per cent and 0.01 per cent, respectively. Also, the maximum moisture content of 12 per cent laid down earlier, with every additional basis point increase up to 13 per cent attracting a proportionate hike in the quoted price, has been toned down to allow for the incremental adjustment over the 12 per cent norm to 13.5 per cent.

The other major change relates to fumigation requirements. Earlier, it was necessary that the wheat cargo be fumigated with methyl bromide at 28C and above prior to export. Now, the exporter can opt for fumigation by aluminium phosphide before export and apply methyl bromide in-transit. There are a couple of other relaxations, including Bromus rigidus, an exotic weed seed, which is missing from the latest tender. The objective behind adopting more flexible quality specifications is said to be to facilitate wider exporter participation.

Website: www.thehindubusinessline.com

Conference on halon substitutes

Halons, whose exceptional characteristics allow for efficient fire-fighting operations, also possess high ozone depleting potential. The latter has been the cause for environmental concern. The Bureau of Indian Standards (BIS), which has formulated 13 standards on halon replacement technologies, organized a conference to disseminate information on the availability of halon substitutes. Participants included consumer organizations, manufacturers and regulatory bodies. During the event, many notable speakers like Mr. Tunir Chakraborty of Integrated Fire Protection, Mr. H. S. Kaprwan from UNDP and Mr. S. K. Dheri, former chief fire officer, Delhi Fire Service delved into the pros and cons of using halons.

In his presentation on the alternatives to halon-1211 portable extinguisher, Mr. Chakraborty stated that prior to the Montreal Protocol, the fire-fighting effectiveness of halon had led to its selection as an agent of choice in fire protection. During this period, the market for halons and their alternatives were divided into two distinctly separate uses like fixed systems and portable extinguishers. However, as halons had to be phased out, alternatives such as water-based extinguishers, CO2, etc. came into existence.

Website: www.cities.expressindia.com

IN THE NEWS

UNEP-GTZ support for Afghanistans phase-out plan

Afghanistans project proposal for a national phase-out plan, drawn up with assistance from UNEP and GTZ-Proklima, was approved during the 47th Executive Committee meeting of the Multilateral Fund. A joint delegation from UNEP and GTZ-Proklima camped in Kabul from 26-31 March 2006 to support the National Ozone Unit in working out its two-year activity plan for phasing out ODS use. Several approved projects were reviewed and draft work plans prepared.

Afghanistan ratified the Vienna Convention for Protection of the Ozone Layer and the Montreal Protocol along with all four amendments on 17th June 2004.

Contact: Mr. Zahid Ullah Hamdard, Ozone Officer, National Ozone Unit, the National Environmental Protection Agency, Darul Aman Road, Kabul, Afghanistan. Tel: +93 (79) 565 458

E-mail: zahidhamdard1@yahoo.co.in

Website: www.unama-afg.org

Global initiative for ozone-friendly agricultural products

The International Partnership for Phasing out Methyl Bromide has brought together many farms and companies that have shown leadership in protecting the ozone layer. These include farmers associations and supermarkets such as Marks and Spencer, international organizations like UNIDO, UNEP, UNDP, GTZ, MPS and CAB International.

A survey carried out for the Partnership has so far identified over 5,000 commercial farms that produce tomatoes, peppers, melons, strawberries and flowers without using methyl bromide. The farms are located in more than 30 countries around the world. The Partnership plans to establish a business-to-business (B2B) net-based service, linking grocery stores seeking goods produced without methyl bromide with farmers and suppliers who do not use methyl bromide. This will link with agricultural certification organizations (e.g. MPS, AENOR, etc.) so that companies can confidently purchase flowers, tomatoes, melons, strawberries and other products that are certified as grown without methyl bromide. Farms and companies that join the Partnership have already stopped using methyl bromide or will pledge to halt their use of methyl bromide by September 2007, in celebration of the 20th anniversary of the Montreal Protocol.

Website: www.unep.org

Multilateral Fund looks to 2007 and 2010 targets

The 48th meeting of the Executive Committee of the Multilateral Fund (MLF) for Implementation of the Montreal Protocol met in April this year to plan its business for 2006, 2007 and 2008. ExCom decided to allocate a higher percentage of its triennial budget of US$470 million for 2006 and 2007. One particular area of concern is the phase-out of CFCs in the refrigeration servicing sector in smaller countries, given their obligation to comply with the 2007 and 2010 protocol deadlines. MLFs implementing agencies were asked to do their utmost to advance plans for CFC phase-out in these smaller nations and present them, if possible, for consideration to the Committees 50th meeting in November 2006.

Contact: Ms. Julia Anne Dearing, Information Management Officer, Secretariat of the Multilateral Fund for Implementation of the Montreal Protocol, 1800 McGill College, 27th Floor, Montreal, QC H3A 3J6, Canada. Tel: +1 (514) 2821 122; Fax: +1 (514) 2820 068

E-mail: secretariat@unmfs.org

Website: www.multilateralfund.org

Portable fire extinguisher unveiled in India

DuPont Fluoroproducts, a business division of multinational DuPont, announced the launch of the first commercial, HFC-based, clean agent portable fire extinguisher for use in the Indian market place. India is the second country in Asia, after China, to launch this product. The new fire extinguishant is the result of a joint development effort between DuPont and IFP, an Indian portable extinguisher manufacturer based out of

Kolkata.

The product line utilizes HFC-236, marketed by DuPont under the trademark FE-36 clean agent fire extinguishant, in IFP designed extinguishing units. DuPont FE-36 extinguishants are clean agents, i.e. they are low in toxicity and leave no residues after application. This makes them ideal for use in areas containing sensitive or high-value assets such as IT /ITES and telecommunication facilities where, currently, the right choice of extinguishers are not available.

Website: www.melcole.com

ODS in the Philippines

The Philippines senate ratified the Montreal and Beijing Amendments to the Montreal Protocol on Substances that Deplete the Ozone Layer. The Montreal Protocol provides for a body of regulations to control production and trade of substances that deplete the ozone layer. The Montreal Amendment introduces a requirement for all state parties to establish import-export licensing systems of ODS while the Beijing Amendment aims to control the production and consumption of a new group of ozone depleting substances. According to Senator Miriam Defensor Santiago, Chair of the Senate Foreign Relations Committee, with the Senate action, the country can now expect technical and financial assistance under the Multilateral Fund to help phase out ozone depleting substances.

Website: www.journal.com.ph

DENR recommendation on anti-asthma inhalers

In the Philippines, metered-dose inhalers (MDIs) containing CFCs are among the items listed for phase-out. Environment and Natural Resources Secretary Mr. Michael T. Defensor expressed that any decision to phase out CFC-based MDIs will be made only when technically and economically feasible alternatives are available and sustainable in the market. These alternatives should have the same therapeutic effect as existing inhalers, but should be safer to the environment.

Dr. Quintin Kintanar, former director of the Bureau of Food and Drugs (BFAD) and a consultant of the National CFC Phase-out Plan Project Management Unit, has stated that the MDI with the brand name Salbutamol will be phased out in 2007. All other CFC-containing MDIs will be phased out by 2010 as mandated by the countrys commitment to the Montreal Protocol. Dr. Kintanar stated that some drugstores already sell CFC-free MDIs, which buyers could identify through the green CFC/ODS-free logo on their brand labels. Other MDIs for phase-in are breath-activated dry powder inhalers, that do not have any propellant, and pressurized MDIs, based on propellants that do not have ozone depleting potential, like Norflurane or HFA-134a or HFA-227. The Department of Health, through BFAD, is implementing a gradual transition and regulates the phase-out of CFC-containing MDIs to CFC-free alternatives.

Website: www.emb.gov.ph

National plan formulated to phase out CFCs

In Malaysia, the use of CFCs in the manufacturing industry will come to an end this year while its usage in the services sector will be eliminated by 2010. This is just one factor of the approved national CFC phase-out plan. Production of CFCs is banned while the import and export of HCFCs from/to countries that are non-members

of the Montreal Protocol was banned in January 2004. As a member of the protocol from 1989, Malaysia is duty bound to carry out its commitment, stated Mr. S. Sothinathan, the Deputy Minister of Natural Resources and the Environment.

Website: www.bernama.com.my

Registration of ODS traders

In the Philippines, Administrative Order 2004-08 (Revised Chemical Control Order for ODS) and Memorandum Circular 2005-21 of the Department of Environment and Natural Resources (DENR) stipulate that dealers, re-sellers and retailers of ODS, specifically CFCs and HCFCs, must register with DENRs Environmental Management Bureau (EMB). Only those registered with DENR-EMB and the Department of Trade and Industry would be allowed to purchase, re-sell, distribute and use the substances for allowable uses of ODS, said DENRs Secretary Mr. Michael Defensor.

Mandatory registration is a system of accreditation to define the capability of an individual in handling the substances. The Certificate of Registration given to eligible dealers, retailers and re-sellers is valid for one year only, renewable every year.

Contact: Environment Management Bureau, the Philippines. Tel: +61 (2) 9284 696/9281 244.

Website: www.emb.gov.ph

REFRIGRATION/AIR-CONDITIONING

Compact brazed heat exchanger based on R-410a and R-134a

Swep International has launched two new compact brazed heat exchanger (CBE) ranges. The P-range is designed for R-410a refrigerant, which has an established role in low capacity evaporator applications. Efficiency gains from optimization are significant; P80 offers 20-25 per cent higher efficiency than its non-optimized equivalent using the same refrigerant.

Both ranges include true dual models featuring Sweps patented construction. This is particularly important in the S-range, which is designed for R-134a. DS500 is the worlds largest true dual evaporator and represents a step change in CBE capacity for R-134a applications. With a capacity range of 220-420 kW, it poses a strong challenge to S&T solutions in this area. To complement the DS500, the new S400T evaporator is available for 140-280 kW applications. Moreover, with three more models in the pipeline S200T, DS200 and DS400 S-range will be the most competitive on the market for R-134a.

Website: www.jarn.co.jp

DuPont launches new series of refrigerants in North America

DuPont Refrigerants recently introduced the North American market to the DuPont ISCEON 9 Series refrigerants. DuPonts newly expanded HFC product portfolio includes easy-to-use, non-ozone depleting R-22 retrofit refrigerant blends.

Website: www.refrigerants.dupont.com

Air-cooled chillers

Carrier Corp., a unit of United Technologies Corp., reports to have achieved world class efficiencies of 10.9 EER full-load and 15.6 part-load on its premium line of Aquaforce air-cooled chillers. Aquaforce models employ non-ozone depleting HFC-134a refrigerant by utilizing new microchannel coil technology. Microchannel coils come standard with an industry exclusive three-year coil warranty on all Aquaforce models ranging from 80 to 500 tonnes, stated Mr. David Sabatino, Carrier air-cooled chillers. In addition to the Aquaforce chillers efficiency and enhanced corrosion resistance using the new microchannel coil technology, the chiller is now even more environmentally sound. Based on the unique microchannel arrangement, chillers utilizing these condenser coils operate with up to 30 per cent less refrigerant.

Website: www.corp.carrier.com

Compact chiller systems

In the United States, TWC series chillers are being offered in two capacities 24,000 and 36,000 BTU. Intended to enable flexible and economical circulated-water air-conditioning solutions for boats 70 ft and larger, these reverse-cycle systems provide heating as well as cooling for year-round comfort. Multiple units enable maximum flexibility and optimum power management for the boats electrical load. The chillers use environmentally friendly R-410a refrigerant.

Contact: Mr. Lou Siegel, Dometic Corp., United States of America. Tel: +1 (804) 7461 313

E-mail: lou.siegel@dometicusa.com

Website: www.dometic.com

CO2 heat pump water heater

In Japan, Hitachi Home and Life Solutions Co., Kansai Electric Power Co. and Tokyo Electric Power Co. have together developed a compact, powerful and high-efficiency heat pump water heater for commercial use. Adopting the eco-friendly refrigerant CO2, Hitachi Commercial-Use ECO CUTE incorporates a newly developed high-efficiency compressor and high-performance heat exchanger to accomplish the industrys top-class rated COP of 4.07.

With more energy saving water heating, energy costs are lowered and the systems compactness necessitates

less installation area. A flexible unit can be configured by combining up to two heat pump units, each having a heating capacity of 15 kW and up to six heat storage tanks, each having a storage capacity of 560 l , thus ensuring up to 30 kW of heating capacity and a hot water storage capacity of 3,360 l. As such, it is suitable for use in a variety of facilities like restaurants, homes for the aged, etc.

Website: www.jarn.co.jp

Recirculating chiller

Thermo Electron Corp., the United States, has launched its NESLAB ThermaFlex recirculating chiller platform. This platform provides the latest in temperature control technology, delivering high reliability, optimal performance and trouble-free maintenance. The platform was developed for the most demanding cooling applications, including analytical, printing, packaging, laser, university and semiconductor markets.

NESLAB ThermaFlex integrates air and fluid filters that can be changed during operation, resulting in zero downtime. The recirculation system includes integrated funnel, full flow filtration and visual fluid level indication as well as configurable options to suit application requirements. This results in unparalleled simplicity during start-up and the desired flexibility that customers seek. An intuitive controller allows customer-defined alarms for various parameters to alert users of potential problems.

Contact: Thermo Electron Corp., 81 Wyman Street, Waltham, MA 02454, United States of America. Fax: +1 (781) 6221 207

Website: www.thermo.com

Website: www.news.thomasnet.com

Chillers feature stepless capacity control

In the United States, Daikin has launched EWWD range of high-efficiency, flooded type, water-cooled chillers. The cooling only unit with stepless capacity control is based on R-134a. Incorporating single screw compressors with motor, EWWD range of chillers are available in seven different sizes with capacities varying from 360 kW to 1.1 MW and EER values from 5.2-5.35 at full load, rising as high as 8.0 at 50 per cent part load. Chilled water is supplied between 4-16C with a leaving condenser water temperature of 30-50C. Chillers modulate sliding valve position and enable the compressor to match capacity requirements. For process or ice storage applications, chilled water down to -5C is optional.

Carefully conceived components include flooded shell and tube evaporator fitted with internally and externally enhanced copper tubing. This tubing also features in the shell-and-tube condenser, along with a special header distribution system and an integral sub-cooler section. Overall electronic control is provided by Daikin intelligent adaptive control, complete with LCD touch screen panel offering detailed information and precise regulation of all operating parameters. Temperature control to within 0.5C and lead lag compressor control are provided along with current limiting or demand function and alarm and predictive maintenance history. Options available include dual setpoint, DIII Net connection for use with Daikin I-manager and remote monitoring via the Daikin Airnet. LON communication to an external BMS system is optional.

Contact: Daikin America Inc., 20 Olympic Drive, Orangeburg, New York 10962, the United States. Tel: +1 (914) 3659 500; Fax: +1 (914) 3659 515

Website: www.daikineurope.com

Website: www.news.thomasnet.com

New recirculating chillers

Kurt J. Lesker Co., the United States, is offering recirculating chillers with cooling capacities in the range of 480 W to 8.8 kW. Based on proprietary refrigeration circuitry that is both efficient and environmentally safe (no ozone depleting CFC or HCFC gases are employed), the systems operate using minimal energy. The chillers offer precise thermal management solutions for high energy, high technology products and processes. K1 and K3 units are ideal recirculating chillers for medium power dissipation, with cooling capacities of 1,750 W and 3,200 W, respectively. Identical in all other aspects (excluding weight), they are used in vacuum system applications to cool:

High power magnetron sputter sources;

E-beam evaporation sources;

Double-walled thermal shrouds around heated zone;

Substrates that have been exposed to high temperature sources;

Baffles for diffusion pump systems;

Medium pumping speed diffusion pumps;

Turbomolecular pumps; and

High-power electrical feedthroughs.

Contact: Kurt J. Lesker Co., 1925 Worthington Avenue, Clairton, PA 15025 2700, United States of America. Tel: +1 (412) 3879 200; Fax: +1 (412) 3842 519

E-mail: salesus@lesker.com

Website: www.lesker.com

Website: www.lesker.com

SOLVENTS

New cleaner

Super LP Deep Cleaner from Record Research Labs (RRL) allows for more better deep cleaning than before. Manufactured using quadruple deionized water, which is produced in a specially designed copper distillery, Super LP features super concentrated, less water more active cleaning ingredients. The active portion of this solution is a low level surfactant that is effective at lowering the surface tension, penetrating and lifting grease. This active formula is both alcohol and phosphate free. No volatile organic compounds or ozone depleting substances are used, making RRL fluids a true green cleaner.

Website: www.elusivedisc.com

ODS-free cleaners

Aviation Chemical Solutions (ACS), the United States, offers a range of eco-friendly cleaners. D-5665 NS, the latest addition to ACS CFC-free contact cleaner line, exhibits zero ozone depletion, total non-inflammability and is a safe and effective cleaning agent on a variety of substrates. D-5665 NS is extremely useful in and around activated circuits where flushing and fast drying are essential. D-5603 NS is an effective aid in locating defective components in electrical and avionics circuitry. Supplied in a DOT E-9393 container with a pinpoint extension tube for accuracy, the non-inflammable D5603 NS prevents heat transfer during soldering. D-5671 NS is effective on a wider range of soils and contaminants than its milder counterpart, D-5665 NS. D-5671 exhibits excellent surface wetting and can be used around all avionics equipment. It also cleans fluoridated grease residues from all substrates.

D-5605 NS uses non-ozone depleting compounds to generate a highly filtered stream of dry air for cleaning. It removes dust and other contaminants from instruments and precision parts effectively. Recommended for cleaning optical, photographic and recording equipment. The general purpose precision cleaner D-5640 NS, developed specifically as a CFC alternative, is free from chlorine and consequently does not contribute to atmospheric ozone depletion. Sur Prep 5672 contact cleaner, a multi-functional azeotrope, is ideal for use on electronic components and energized circuits. It is very effective in solubilizing a wide range of soils and surface contaminants.

Contact: Aviation Chemical Solutions, 7233 NW 54th Street, Miami, Florida 33166, United States of America. Tel: +1 (305) 5930 216; Fax: +1 (305) 5930 217

E-mail: sales@aviationchemicalsolutions.com

Website: www.aviationchemicalsolutions.com

Ecologically approved products

Green Seal, a non-profit independent organization, is focusing on achieving a healthier and cleaner environment by identifying and promoting products and services that cause less toxic pollution and waste, conserve resources and habitats while minimizing global warming and ozone depletion. Green Seals evaluations are based on state-of-the-art science and information using internationally recognized methods and procedures. National Chemical Laboratories Inc., the United States, has introduced e-solution line of Environmentally Responsible Cleaning Products that are Green Seal Certified according to the Green Seal GS-

37 Environmental Standard for Industrial and Institutional Cleaners. The products are readily biodegradable, free of VOCs, added dyes/fragrance, silicates, chelating agents and caustics. The e-solution range includes:

e-solution pH Neutral All Purpose Cleaner: This high-performance cleaner does not contain phosphates, solvents or nonylphenol ethoxylate surfactants;

e-solution Multi-Surface Cleaner with H2O2: Using the power of hydrogen peroxide, all-natural safe solvents and eco-friendly detergents, this cleaner allows for effective cleaning of windows, mirrors, tile, grout, carpets, hard surfaces and almost any washable surface;

e-solution Glass and Window Cleaner: is unique in that it is free from phosphates, solvents and nonylphenol ethoxylate surfactants;

e-solution Washroom Cleaner: can be used for all restroom applications. It is formulated without using phosphates, solvents or nonylphenol ethoxylate surfactants; and

e-solution Degreaser Cleaner: This synergistic surfactant system provides enhanced cleaning and degreasing performance without the use of solvents. Ideal for general purpose cleaning and degreasing in kitchens, food service, offices, light industrial facilities and other areas where worker safety and environmental responsibility issues are important.

Other products from the companys stable include a foaming hand cleaner and a neutral disinfectant cleaner. Contact: National Chemical Laboratories Inc., 401 N. 10th Street, Philadelphia, PA 19123, United States of America. Tel: +1 (215) 9221 200; Fax: +1 (215) 9225 517

E-mail: feedback@nclonline.com

Website: www.nclonline.com

Water-based alternative to IPA

Techspray Inc., the United States, is offering a new line of environmentally friendly and RoHS-compliant alternatives to isopropyl alcohol (IPA) for use in printed circuit board (PCB) assembly. The water-based SMT Stencil Cleaner removes all types of solder paste and uncured adhesive from screens, misprinted boards and equipment in PCB assembly. It is safe for use on stencils, squeegees and equipment surfaces. SMT oven cleaner removes all types of flux residues from reflow ovens, associated ventilation systems and wave soldering systems. It can also be used to clean small parts in ultrasonic cleaners.

Both cleaners are non-inflammable, non-toxic and biodegradable. Notable characteristics include strong cleaning ability, convenient packaging and mild odour. Contact: Techspray Inc., 1001 Northwest 1st Street, Amarillo, TX 79107, United States of America. Tel: +1 (806) 3728 523; Fax: +1 (806) 3728 750

Website: www.techspray.com

Website: www.news.thomasnet.com

Ultrasonic cleaner

Branson Ultrasonics Corp., the United States, offers IC series of ultrasonic cleaners for handling difficult industrial cleaning applications. These compact units incorporate 3/16, 15 gauge stainless steel construction and solid-state ultrasonic generator with 25 or 40 kHz industrial transducers. Digital display allows users to set temperatures up to 60C and time from 1-99 min. Each product comes with basket and cover.

Contact: Branson Ultrasonics Corp., 41, Eagle Rd., Danbury, CT 06813 1961, United States of America. Fax: +1 (203) 7969 838

Website: www.bransonultrasonics.com

Website: www.news.thomasnet.com

Precision cleaning agent

Shanghai Richem, China, offers solvents for use in the vapour degreasing process. The products include solvents of n-Pb, HCFC-141b, HFC-4310, HFE7-100 series and hydrocarbon series for semi-aqueous and bio-degreasing procedures, etc.

Contact: Mr. Xy Liu, Shanghai Richem, Pudian Rd.,Shanghai 200122, China. Tel/Fax: +86 (21) 6876 6883/0349.

Website: www.tradekey.com

Cleaner/degreaser

LPS Laboratories, the United States, offers a high flash point solvent for cleaning and degreasing parts and equipment. SPI LPS A-151 cleaner/degreaser is an ideal substitute for ozone depleting solvents and hazardous air pollutants. The A-151s penetrating action removes oil, grease, tar, resins, corrosion inhibiting compounds and other contaminants. It can be used in parts washers, dip tanks and ultrasonic cleaners. It is free from CFCs and 1,1,1-trichloroethane.

Contact: LPS Laboratories, P.O. Box 105052, 4647 Hugh Howell Road, Tucker, GA 30085 5052, United States of America. Tel: +1 (770) 2438 800; Fax: +1 (770) 2438 899.

Website: www.penntoolco.com

Non-chlorinated cleaner

Valvoline Canada offers a specially formulated aerosol-based non-chlorinated brake parts cleaner. This ODS alternative helps meet and improve air quality standards in the workplace. Key features of the easy-to-use cleaner include:

Removes brake fluid, oil and brake dust instantly;

Designed for use directly on pads, linings and other friction parts;

Does not contain chlorinated solvents or CFC propellants; and

Leaves no residue.

Contact: Valvoline Canada, Division of Ashland Canada Corp., 905 Winston Churchill Boulevard, Mississauga, Ontario L5J 4P2, Canada. Tel: +1 (905) 8234 701; Fax: +1 (905) 8233 843.

Website: www.valvoline.ca

AEROSOLS

New blowing agent allows for energy-efficient insulation

Honeywell Fluorine Products, Belgium, is offering Enovate blowing agent as a powerful solution in high performance polyurethane (PUR/PIR) foam insulation applications. Enovate offers a variety of benefits, including superior insulation, long-term performance, compliance with stringent fire tests, non-ozone depleting, non-inflammable and safe to use.

Contact: Honeywell Fluorine Products, Haasrode Research Park - Grauwmeer 1, 3001 Heverlee (Leuven) B3001, Belgium. Tel: +32 (16) 391 278.

Website: www.engineeringtalk.com

Blowing agent enhancers

Air Products and Chemicals Inc., the United States, has developed blowing agent enhancers for use in polyurethane (PU) foam production. These low molecular weight alcohols and/or ethers assist the action of blowing agents comprising a hydrohalocarbon compound. Hydrohalocarbon blowing agents used in the present invention for making rigid foams include, as non-limiting examples, HCFC compounds, HFC compounds and their mixtures.

Website: www.freepatentsonline.com

Additive for HFC-134a foams

HFC-134a is an ideal HCFC-141b alternative for polyurethane (PU) foam applications where non-inflammability, volatile organic compounds and blowing agent costs are major issues. However, HFC-134a suffers from one significant drawback it has limited solubility in PU raw materials, such as polyols. Researchers at Arkema Inc., the United States, have investigated into the use of trans-1,2-dichloroethylene (TDCE) to overcome these limitations of HFC-134a. The zero ODP TDCE is a liquid at room temperature and has very low global warming potential.

Researchers evaluated the effect of TDCE on the vapour pressure of several HFC-134a-polyol combinations. Results show that the presence of TDCE can reduce the vapour pressure of certain HFC-134a-polyol blends. More importantly, the presence of TDCE allows one to lower the levels of HFC-134a, significantly reducing the overall vapour pressure of HFC-134a containing systems. Finally, the presence of TDCE can dramatically decrease the viscosity of HFC-134a polyol blends, which is important for some applications.

Contact: Mr. Jinhuang We, Arkema Inc., 900 First Avenue, King of Prussia, Pennsylvania, PA 19406, United States of America.

E-mail: jinhuang.wu@arkemagroup.com

Website: www.cel.sagepub.com

Polymeric foam sheet using ambient gas blowing agent

Genpak LLC, the United States, has designed an annular die for manufacturing polymer foam using one or more ambient gases as a blowing agent. The die includes an exiting channel with an exit having a cross-sectional area between two and ten times that of a smallest point within the exit channel. The section of the die from the smallest point to the exit is thermally isolated from the rest of the die and the temperature thereof is independently controlled. In addition, the interior surface of the exit channel is laced with a friction-reducing coating. Low-density foam sheet can therefore be produced suitable for thermoforming into final products that have quality and part weights comparable in quality to current products on the market utilizing only ambient gasses as blowing agents (i.e. CO2, N and Ar).

Website: www.freepatentsonline.com

Low-density microcellular foam processing using CO2

Researchers at the University of Toronto, Canada, have developed a continuous extrusion process for the manufacture of low-density microcellular polymers. Microcellular polymers are foamed plastics characterized by a cell density greater than 109 cells/cm3 and a fully grown cell size in the order of 10 m.

Toronto researchers have devised an effective means for controlling cell growth to achieve the desired expansion ratio with CO2 as a blowing agent in microcellular foam processing. Promotion of a desired volume expansion ratio and prevention of cell coalescence during microcellular foam processing have been experimentally verified. By tailoring the extrusion processing parameters, microcellular HIPS foams with a cell density of 1010 cells/cm3 and a controlled expansion ratio in the range of 1.5 to 23 have been obtained.

Contact: Mr. Chul B. Park, Department of Mechanical and Industrial Engineering, Toronto University, Ontario M5S 3G8, Canada.

Website: www.interscience.wiley.com

Blowing agent blends

Atofina Chemicals Inc., the United States, has developed foam blowing agent blends of 5-50 molecular percentage HCFC-22 as well as 95-50 molecular percentage of n-pentane, i-pentane and/or cyclopentane. Polyol premixes and polyurethane foam formulations containing such blends are also feasible.

Website: www.freepatentsonline.com

Green foams

With the switch to cleaner blowing agents nearly complete, now the priority lies in tweaking foam compositions for optimal performance and cost. According to the Huntsman Advanced Technology Centre, PIR boardstock manufacturers can reduce costs while maintaining or enhancing performance by opting for pentane blowing agent. A formulation was tested with seven blowing agent packages. Results have shown that all-isopentane or an isopentane-rich mixture with n-pentane has the maximum potential for cost savings.

Oxid L.P reports that high-functionality polyol mixtures can be used to fine-tune HFC-245fa PUR spray formulations to achieve dimensionally stable, Class I fire-rated foam for wall insulation. Oxids new Terol 256 and 925 polyester polyols allowed for the production of dimensionally stable foams with Class I rating at 4.0 inch.

New silicone surfactants from GE Silicones can reportedly improve pour-in-place rigid foams for refrigerators and water heaters that are blown with zero-ODP blowing agents. The new Niax L-6952 has been shown to maximize both flow and insulating properties in HFC-245fa foams. Also, Niax L-6885 was found to be the best performer in cyclopentane blown foams for improving flow, insulation properties and solubility a frequent problem with pentanes. Niax L-6889 facilitates higher pentane solubility.

Website: www.plasticstechnology.com

HALONS

Eco-friendly fire extinguisher

An Airbus-led team of European companies has devised an environmentally friendly design of fire extinguishing system for engines and auxiliary power units (APU). They hope that their design will be cleared for use on airliners before the end of the decade.

Under the Ecolog (Extinguishing Concept Lowering Ozone depletion and Greenhouse effect) research project, Airbus joined hands with two partners for developing a replacement engine and APU fire extinguishing system. Partners in this endeavour include Siemens subsidiary SAS, a specialist in on-board fire safety, and PyroAlliance, a division of Frances SNPE. The collaboration resulted in the development of an environmentally friendly agent and a new extinguisher design. The latter, successfully tested last year, has been presented to the European Aviation Safety Agency and the United States Federal Aviation Administration. Siemens has stated that the new extinguisher system could be in service by 2008-9, enabling the system to be fitted as standard on the Airbus A350.

Website: www.flightglobal.com

Indirect release high-pressure fire suppression

Firetrace, manufactured by Firetrace International in the United States, extinguishes fire directly at its source using a unique pressurized flexi-tube delivery system that allows installation virtually anywhere fire protection is required. This tubing is leak-resistant, flexible and temperature-sensitive. Because Firetrace is a self-contained and stand-alone system, its operation is not affected by power or water main failures. Firetrace reacts reliably every time.

The Firetrace Indirect Release High-Pressure (IHP) System uses the Firetrace tube as a fire detection and system activation device, not as the discharge tube. Once the tubing senses the fire, the tube ruptures and the resulting drop in pressure causes the indirect valve to activate. Carbon dioxide (CO_2) is then discharged from the cylinder through a fixed piping network and out of the diffuser nozzles, flooding the area in extinguishant and suppressing the fire quickly and thoroughly.

Multiple diffuser nozzles may be added to meet the application requirements. One of the advantages of using CO_2 as the suppression agent is that it has no impact on the ozone layer. As with other gaseous agents, it quickly and easily penetrates all areas within an enclosure.

Contact: Firetrace International, 15678 N. Greenway-Hayden Loop, Suite #103, Scottsdale, AZ 85260, United States of America. Tel: +1 (480) 607 1218; Fax: +1 (480) 315 1316

E-mail: firetrace@firetrace.com

Website: www.firetrace.com

Water mist system for fire and explosion suppression

Pursuit Dynamics plc, the United Kingdom, has developed a unique water mist generation system for fire and explosion suppression. The PDX FireMist System is a revolutionary water mist system capable of continuous long distance projection with a Dv90 droplet size below 5 microns. Water mist suppresses fires through two main mechanisms: cooling and inerting. Both mechanisms benefit from the smallest possible water droplets; the smaller the droplet the greater the surface area generated from a quantity of water, the faster its evaporation and greater its cooling impact.

Several successful tests showed FireMist to be particularly well adapted to tackling blazes that involve trapped people such as plane crashes or industrial fires as it quickly lowered temperatures without the use of noxious chemicals such as Halon.

Contact: Pursuit Dynamics plc, Shackleton House, Kingfisher Way, Hinchingbrooke Business Park, Huntingdon, Cambs PE29 6HB, United Kingdom. Tel: +44 (1480) 422050; Fax: +44 (1480) 422059

E-mail: info@pursuitdynamics.com

Website: www.fs-world.com

Yulian Nozzle fire suppression system

The Yulian NozzleTM fire suppression system, from Newlink Global Engineering Corporation in the United States, is designed to replace Halon. Recent tests at the Federal Aviation Administration (FAA) Fire Test Centre, proved the Yulian Nozzle fire suppression system to be the most effective Halon alternative fire suppression system tested to date. These tests showed that the system reduced temperatures in a cargo compartment from 1,200 to 100F within 30 seconds of activation of the system. The system accomplished this without any noticeable water damage.

The Yulian Nozzle fights fires by attacking two legs of the fire triangle (heat and oxygen). FAA tests showed that it outperformed Halon in extinguishing fire by greater than 100 per cent. In the Argonne National Laboratory test, the Yulian Nozzle extinguished a fuel fire in less than 3 seconds. The unique design of the Yulian Nozzle eliminates the need for dangerous chemicals. This system uses significantly less water and pressure than traditional water mist systems.

Contact: Newlink Global Engineering Corpn., 6187 Grovedale CT, Suite 200, Alexandria, Virginia 22310-2553, United States of America. Tel: +1 (703) 971 3303; Fax: +1 (703) 971 3304.

Website: www.newlink.net

Replacement for Halon 1301

HFC-227ea is the leading chemical replacement agent for Halon 1301 in the special hazards suppression market. It is marketed by DuPont, the United States, under the trademark of FE-227TM. It has been preferentially selected by the market for its unique combination of efficiency, environmental properties, cost, people safety and ability to prevent or extinguish fires. For a system installation in an existing or new facility, FE-227 is the Halon 1301 replacement agent of choice because it is a clean, electrically non-conductive and non-corrosive agent that does not leave any residue.

FE-227 is safe for use in applications where people are normally present for both Class-A and Class-B fire assets. It is intended to prevent or suppress fires in situations where conventional extinguishing agents such as water, dry chemical and carbon dioxide are unacceptable because they may cause collateral damage, significantly interrupt business productivity or present a safety risk. These situations exist primarily where there is electrical or sensitive electronic equipment servicing a critical operation, the loss of which would be the cost of not only the equipment but also business interruption. Other situations involve delicate or irreplaceable materials such as those found in libraries, museums and historical sites.

Website: www.dupont.com

Fixed fire suppression system that uses gelled gas-powder

Sea-Fire Marine, the United States, is offering Fire Foe, a pre-engineered, automatic fire suppression system that provides efficient, site-specific fire protection utilizing Envirogel, an environmentally responsible non-corrosive, gelled gas-powder. As an alternative to Halon and its current replacements, Envirogel is safe for people and equipment. It is approved by SNAP, UL and USCG.

The self-contained device extinguishes fires through a self-activating, temperature-sensitive tube. As a fire begins, heat fills the affected compartment causing Fire Foes patented pressurized tube delivery system to flood the area with Envirogel. The chemical absorbs heat energy and covers the combustible material to prevent re-ignition. The system is maintenance-free and clean-up of agent residue is minimal. With a simple mounting bracket design, the tube is easily installed almost anywhere. Model sizes are available for protecting compartments from 15 cft up to 130 cft.

Contact Sea-Fire Marine Inc., 9331-A Philadelphia Road, Baltimore, MD 21237, United States of America. Fax: +1 (410) 687 5503

E-mail: info@sea-fire.com

Website: www.boatingonthehudson.com

Water mist fire extinguisher

The water mist fire extinguisher from Amerex Corporation, the United States, is a unique extinguisher that safely and effectively puts out Class A fires, where a Class C hazard (live electrical equipment) exists. It is claimed to be the safest extinguisher for human exposure because of its unique, fine spray of de-ionized water that leaves no residue and its non-toxic nature that will not cause any contamination. Approved by Underwriters Laboratories, the water mist extinguisher is available in 6 litred and 9 liltres units and can discharge a distance of 10-12 ft. The equipment has a non-magnetic construction and is tested by an independent lab to be safe in a Tesla-3 MRI environment.

Website: www.prweb.com

FUMIGANTS

Cinnamon bark and the sun as methyl bromide alternatives

Despite international treaties to phase out use of the ozone destroying methyl bromide by early 2005, roughly 9,500 metric tonnes are applied each year to crops in the United States alone. There is nothing else that kills weeds, pests and bacteria as well. At the Ecological Farm Conference held recently in Pacific Grove, California, the United States, researchers explained organic alternatives to methyl bromide. Founder of AgraQuest, Ms. Pamela Marrone, described a promising strain of fungus that releases a fumigant as it grows. Muscador albus was discovered on cinnamon tree bark in Honduras. When grown in a petri dish, it killed every living organism in the dish.

Extensive tests and field trials have proved that the fungus kills a wide range of diseases in the soil. It is non-toxic to humans and it is organic. The gases emitted by M. albus are all well known compounds mostly natural alcohols and acids but together they destroy pests. Pellets, made from the fungus and their food, can be applied to soil before tilling to kill many common plant diseases. Once the food is used up, the fungus dies. However, M. albus does not control weeds, one of the common uses for methyl bromide.

Two most pernicious weeds in Florida are pigweeds and nutsedges, which can be completely eliminated only by methyl bromide. Ms. Erin Rosskopf of the United States Department of Agriculture investigated two plant diseases that specifically kill pigweeds and nutsedges. The diseases do not harm crops or plants outside of the weeds immediate families. The main problem is that neither can be easily grown in the mass quantities needed to market them commercially. Until someone finds a way to grow these weed diseases, Ms. Rosskopf advocates using soil solarization.

Mr. Krishna Subbarao of University of CaliforniaDavis, discussed crop rotation as an alternative to methyl bromide. If broccoli is plowed into the ground after harvest, the properties of its leaves kill organisms that can cause wilting and rot.

Website: www.santacruzsentinel.com