



# MOPIA

Reach us at:

1980-B Main Street  
Winnipeg, Manitoba, Canada R2V 2B6

Email: [mopia@mts.net](mailto:mopia@mts.net) Web: [www.mopia.ca](http://www.mopia.ca)



Manitoba

## Stratospheric Ozone Layer & Atmosphere Protection

MOPIA's Monthly E-Bulletin for our Subscription Members and Select Stakeholders

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### New Refrigerant Recognized

The European Union has long been a leader in climate mitigation measures. Back in 2006, they mandated that new auto air conditioning systems beginning in 2011 contain a refrigerant with a global warming potential (GWP) of less than 150. Hence, HFC 134a with a GWP of over 1,300 would become restricted effective as early as 2011, in Europe. This decision would have global impact.

The search for a new, more environmentally friendly refrigerant took shape. Carbon dioxide and hydrocarbons were seen as early leading alternatives with a GWP of 1 or less. However, through the dynamics of corporate and political lobbying and developmental science, another substance emerged. Hydrofluorolefine (HFO), HFO 1234yf - a fluorinated hydrocarbon and a new class of refrigerants with a GWP of 4 has recently been introduced.

Further, in a recent landmark decision, The United States Environmental Protection Agency (US EPA) will allow HFO 1234yf for use in auto air conditioning. General Motors has noted this will begin as early as 2013 in North America.

Several organizations are concerned about this decision. "The US administration has approved a substance whose evolution is not fully foreseeable yet. HFO-1234yf can be the next environmental time bomb: HCFC destroyed the ozone layer and HFCs are climate warming gases. Each time, chemical substances were praised to be the solution for all problems, only to reveal their nasty surprises in the short run", says Christianna Papazahariou, head of the campaign BeyondHFCs. See: [www.beyondhfc.com](http://www.beyondhfc.com)

They note that 1234yf raises some concerns when used in a cars' climate control system:

- **flammability:** 1234yf is a flammable refrigerant;
- **toxicity:** results by the German Federal Institute for Materials Research show that 1234yf forms highly toxic hydrogen fluoride at concentrations dangerous to human life when burning or in contact with hot surfaces;
- **environmental impact:** the decomposition products include trifluoroacetic acid (TFA) which can lead to water toxicity.

MOPIA will continue to monitor and report on how these important developments will affect our stakeholders.

### Plan to Attend MOPIA's AGM

MOPIA's 17<sup>th</sup> Annual General Meeting (AGM) will be held in Winnipeg on Monday, March 14. It is an opportunity to hear program details including our Annual and Financial reports, the election of members to our Board and related corporate business.

There is no cost to attend and refreshments will be provided. So, plan to share in our success!

Location: Red River College  
Room A1-37 - 2055 Notre Dame Ave.  
Winnipeg, Manitoba, Canada

Time: 7:15 PM – 9 PM

### MOPIA to Speak at Institute of Power Engineers

MOPIA will be speaking at the next meeting of the Institute of Power Engineers – Winnipeg Branch, Wednesday, March 16 at 7:30 pm in Winnipeg. The session takes place at Red River College. For more information, visit: [www.winnipegipe.com](http://www.winnipegipe.com)

### MOPIA at HRAI March 23

MOPIA's Chair (George Kurowski) and Executive Director (Mark Miller) will be speaking at the next meeting of the Heating, Refrigerating and Air Conditioning Institute (HRAI – Manitoba) on Wednesday, March 23 (noon) at the Hilton Hotel in Winnipeg. They will be sharing information on Manitoba's halocarbon program, emerging refrigerants and industry trends.

For more details on HRAI or to attend the meeting, please contact Louise Hardman at [lhardman@buildingprofessionals.ca](mailto:lhardman@buildingprofessionals.ca)

HRAI Manitoba is a branch of HRAI Canada, a national non-profit trade association of manufacturers, wholesalers and contractors in the heating, ventilating, air conditioning and refrigeration sectors. See: [www.hrai.ca](http://www.hrai.ca)



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## MOPIA Hosts an Environment Canada Official

MOPIA was pleased to host Lori Forster, an official from Environment Canada's Edmonton office over a two-day period in late February.

She attended MOPIA's one-day certification training session in an effort to gauge its content in comparison to other training curriculums recognized in Canada. In addition, she addressed students and staff at Red River College highlighting elements of the federal halocarbons regulations.



At left: George and Lori at a decommissioned CFC-11 Chiller originally installed at a facility back in the 1970's that had contained over 1100 lbs. of ozone destroying R-11 refrigerant. It will be cut up into scrap metal for recycling.

Lori also assisted MOPIA in the interpretation of the federal halocarbon regulation.

Of particular interest, it was noted that HCFC 22 equipment is prohibited (as of January 1, 2010) to be manufactured or imported into Canada. See: [www.ec.gc.ca/ozone/default.asp?lang=En&n=24B589A5-1](http://www.ec.gc.ca/ozone/default.asp?lang=En&n=24B589A5-1)

## Next One-day Training Session

MOPIA continues to offer our environmental and regulation awareness certification training class. If you know someone who may be interested or plans to handle regulated products (i.e. refrigerant or parts), they should sign-up to take a future class. Obtain the training registration form from our website at: [www.mopia.ca](http://www.mopia.ca) Our next all-day class is tentatively scheduled for Monday, March 28 in Winnipeg.

All persons working with regulated refrigerants in Manitoba must maintain valid certification.

## Seizure of 5,315 cylinders of R-22

March 7, 2011: Environment Canada reported that following an investigation, some 5,315 cylinders of HCFC-22 have been seized from a warehouse in Saint-Jerome, Quebec as the products were illegally imported into Canada. The company Gestion Alexis Dionne Inc. has been charged with 4 counts of illegal importation under Canada's ODS Regulations, 1998. See: [www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=497692DD-50E5-4BDB-B3E6-709714BC4005](http://www.ec.gc.ca/default.asp?lang=En&n=714D9AAE-1&news=497692DD-50E5-4BDB-B3E6-709714BC4005)

## Perspective from George Kurowski



The various HVAC, refrigeration and air conditioning sectors are rapidly evolving. We now see the elimination of new HCFC-22 equipment manufacture and import into Canada. We are transitioning to an HFC era of refrigerants like HFC-407C for Commercial A/C and HFC-410A Residential A/C, with HFC-134A being used in Industrial Chillers and

HFC-404A and HFC-507 are being used in Supermarket medium and low temperature applications.

An entire range of over seven ISCEON refrigerant product options are now available to replace any of the older applications that may have used CFC's or HCFC's in the past. The ISCEON group is composed of HFC blends made up of application specific percentages of HFC-32, HFC-125, HFC-134A and n-butane (HC-600) and Isopentane (HC-601A). The latest offering ISCEON MO-99 can be used to replace a broad range of A/C, as well as low and medium temperature refrigeration applications.

The next generation of fluids will be called the OPTEON series, like HFO1234yf which will be used in future automotive A/C applications in North America as well as Europe, starting as early as the fall of 2011 for 2012 model year production. Other developmental OPTEON blends, like DF-11 will be commercialized to replace various existing HFC-134A Chiller applications with a product that is both non-flammable and has a Global Warming Potential (GWP) of only 600 by comparison to the 1430 GWP of HFC-134A. United Laboratories (UL) is in the process of setting standards for the use of the other mildly flammable OPTEON fluids which will be classified as A2L with flame speeds of less than 10 cm/sec. These will be developed to replace current HFC Refrigerant product lines with low GWP, but these fluids will be designed for use on newly Designed and Engineered applications, NOT for use on Retrofitted Applications.

Beyond that, the Five Natural Refrigerant options of Ammonia, Carbon Dioxide, Pure Hydrocarbons, Water and Air are being blended for even higher efficiencies, reduced pressures, and lower leakage rates, with reduced system charges. Some examples of these products include Carbon Dioxide (R-744) blended with HFC-41 (Fluoromethane) known as ECP-744. Ammonia (R-717) blended with Dimethylether (RE-170, DME) in various proportions to be known and applied in different application ranges as R-723, R-510A, R-429A, R-432A, and R-435A. These DME blends are even being adopted by the Aerosol Industry for propellant applications as an environmentally sounder solution than R152a and R-134A. We even have proportional Hydrocarbon blends of Propane (R-290) and n-Butane (R-600a) being commercialized as R-436A, and R-436B for automotive applications in Australia and South-East Asia. There are now a great number of Ultra-Low GWP and non ODS solutions available for commercial implementation.

- George Kurowski CMS, Chair MOPIA, Instructor RRC

