

Technology and Economic Assessment Panel



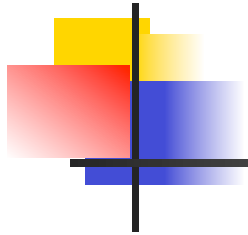
TEAP Assessment 2014

- TOCs are making preparations for the 2014 assessment
- About 150 TEAP and TOC experts will be involved
- The expertise required to complete the assessment reports is being considered in the composition of the TOCs
- The TEAP 2014 assessment report will include the TOC executive summaries as well as the key messages



2012 TEAP Members

- Stephen O. Andersen, USA
- Paul Ashford, UK
- Mohamed Besri, Morocco
- Biao Jiang, PRC
- David V. Catchpole, UK
- Sergey Kopylov, Russia
- Lambert Kuijpers, Netherlands
- Bella Maranion, USA
- Michelle Marcotte, Canada
- Alistair McGlone, UK
- Keiichi Ohnishi, Japan
- Roberto de A. Peixoto, Brazil
- Marta Pizano, Colombia
- Jose Pons-Pons, Venezuela
- Ian Porter, Australia
- Miguel Quintero, Colombia
- Ian D. Rae, Australia
- Helen Tope, Australia
- Daniel P. Verdonik, USA
- Ashley Woodcock, UK
- Masaaki Yamabe, Japan
- Shiqiu Zhang, PRC



FTOC

Essential Elements in the Foam Sector



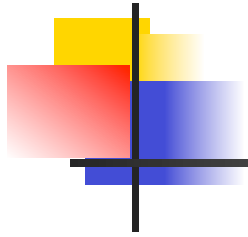
Essential elements in the foam sector

- The vast majority of HCFC Phase-out Management Plans (HPMPs) are now complete and approved by the Executive Committee of the MLF
- The first phase of many HPMPs features foam transitions because of the prioritisation of the HCFC-141b phase-out on a 'worst first' basis (as per Decision XIX/6)
- There is no single technology solution for all uses of HCFC-141b and other HCFCs, but sufficient choices are now available in most sectors and regions



Essential elements in the foam sector

- Conversion at small and medium sized enterprises will present the major challenge in view of the technical and economic constraints involved
- The emergence of unsaturated (low GWP) HFCs and HCFCs has created additional options with improved thermal performance
- A full-scale commercial plant to produce the first of these new chemicals has now been announced for 2014



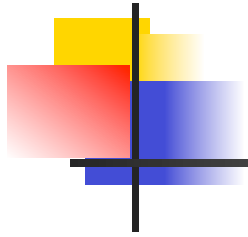
MBTOC

Progress issues



Methyl Bromide

- Less than 1% of the aggregate baseline for methyl bromide in Non-Article 5 Parties (56,083 t) is now being requested for Critical Uses
- 80% of the MB use in Article 5 Parties has been phased out from the aggregate baseline (15,866 t) in advance of the 2015 deadline
- Article 5 Parties may submit CUNs the beginning of 2013 (two years ahead). Sectors where alternatives to MB are proving difficult are similar to those of Non-Article 5 Parties
- Parties have been invited to provide more detailed information under Decision XXIII/5 by March 2013 to help identify further more detailed information on QPS uses



RTOC

Progress issues



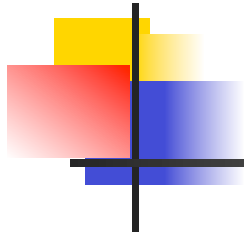
Progress in R/AC -2-

- Blends (GWP<600) consisting of very low-GWP HFCs (HFOs) with saturated HFCs are being proposed for certain refrigeration and AC equipment
- Manufacturing of HFC-32 (AC) equipment has started in one Non-Article 5 Party and is predicted to start in certain Article 5 Parties in 2013
- Daimler-Volkswagen-Mazda rejection of HFC-1234yf due to flammability concerns may result in the application of other low GWP alternatives in future MAC equipment
- The EC F-regulation, proposed early November 2012, includes a ban on HFCs with GWP>2500 by 2020; this may impact the application of these high GWP refrigerants globally



Progress in R/AC

- New refrigerants obtained standard designations since the end of 2010, for example R-407F, R-442A, R-511A, R-512A and R-1234ze
- Efforts to replace HFC-134a by HFC-1234yf are continuing in certain R/AC sectors and sub-sectors
- The number of supermarkets using trans-critical CO₂ systems is steadily increasing, particularly in Europe
- CO₂ cascade systems are also being developed in Article 5 countries; there are now 31 installations in Brazil
- Cogeneration systems driven by natural gas for Single Buildings or District Cooling (using absorptions systems) are being evaluated in several countries



HTOC

Update on Cooperation with the International Civil Aviation Organization (ICAO)



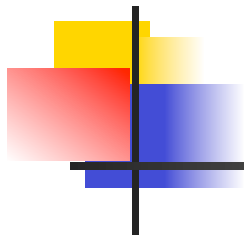
ICAO Survey - Results

ICAO issued a Letter to each of its member States requesting a response to two questions given the Montreal Protocol phase-out of halon production:

Q1. Do you anticipate that there will be enough halon to meet the civil aviation needs of your State?

Q2. Do you know the quantity of halon reserves accessible to the civil aviation industry in your State in order to support its future operations? If “Yes”, please provide quantities in ‘metric tonnes’

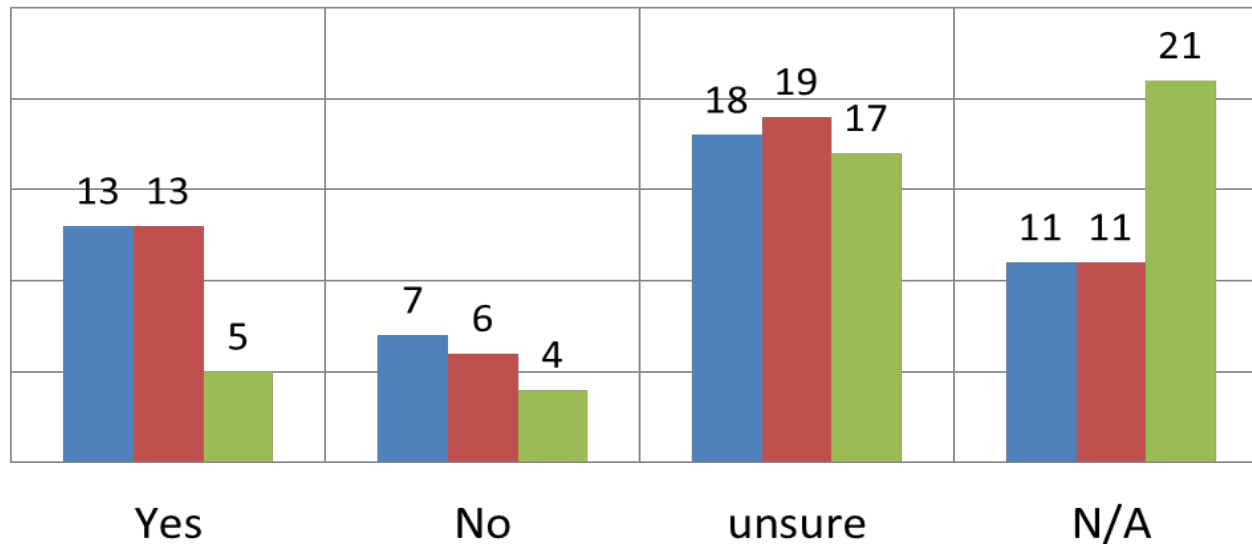
55 out of 191 ICAO member States responded; the survey identified substantial uncertainty

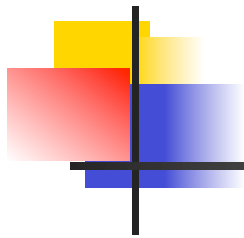


ICAO Survey – Results (2)

Q1. Do you anticipate that there will be enough halon to meet the civil aviation needs of your State?

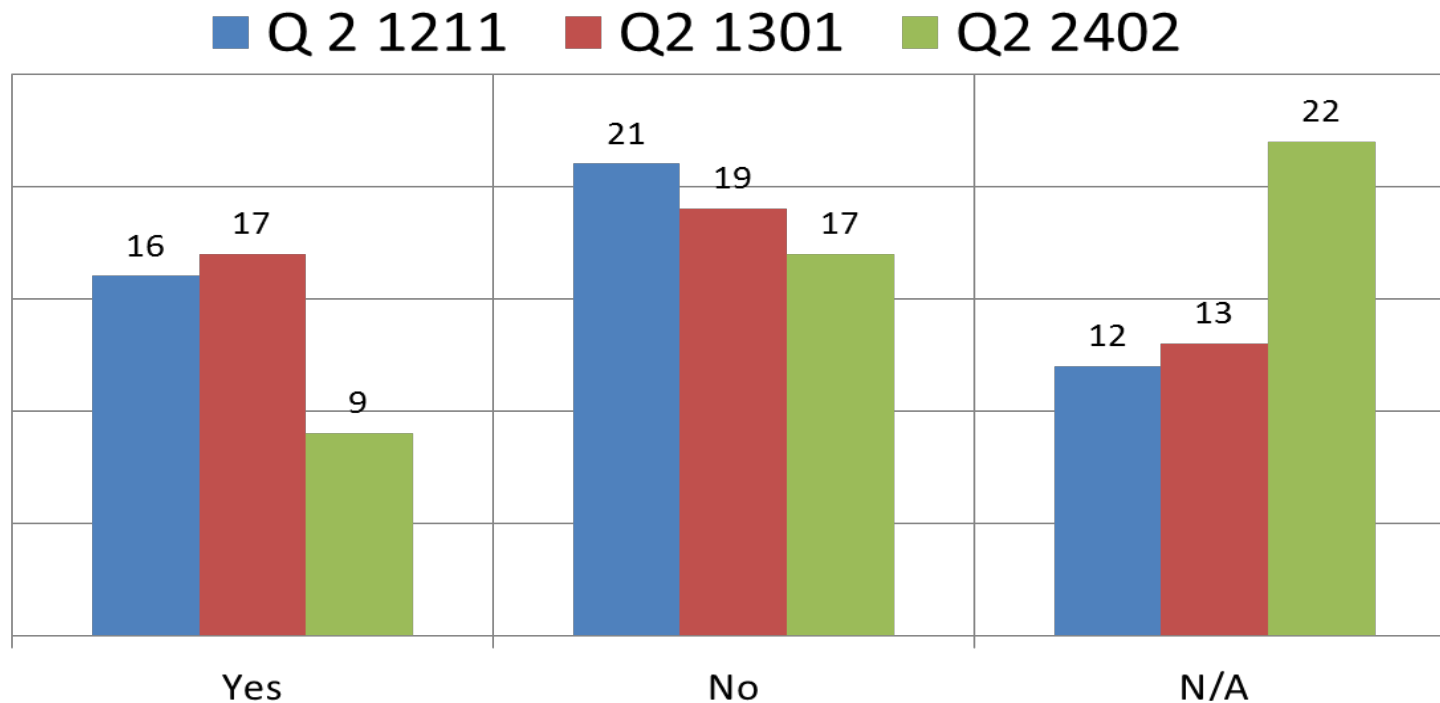
■ Q 1 1211 ■ Q1 1301 ■ Q1 2402





ICAO Survey – Results (3)

Q2. Do you know the quantity of halon reserves accessible to the civil aviation industry in your State in order to support its future operations? If "Yes", please provide quantities in 'metric tonnes'.





Observations

- There is little evidence that States Civil Aviation and Ozone Offices worked together
 - However, some replies were from Ozone Focal Points
- There is a notable lack of response from States where a lot of halon bottles are filled
- Some States have determined their supplies
- Some States believe that there is enough halon
 - Some did not report how much they had



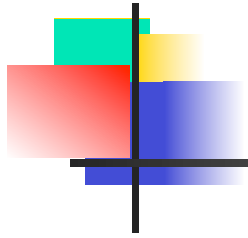
Sums It All Up.....

- The following is fairly typical of survey comments from those that responded:
- Some States indicated that their airlines, who service both domestic and international markets, say that foreign suppliers provide the halon to fill the fire extinguishers in their fleets
- Some States were unaware of any company that recycles halon for aviation fire extinguishers within their country
- It is likely that many States depend on the availability of halon in the few countries that supply the aviation industry as a whole, and not on stocks within their own States



ICAO Next Steps

- ICAO is considering setting Cargo Bay timeframes to mandate the implementation of halon alternatives
 - Cargo Bays are the largest use of halon in aviation
 - Until timeframes are set, one cannot estimate total halon needs
- Civil Aviation still needs to determine....
 - The long-term needs for halons
 - Where its halon will come from
 - How to report results to Parties to the Montreal Protocol
- State Letter will be resent to include the Ozone Focal Points in each State



Thank you !