



EPA's Motor Vehicle Air Conditioning Program

AB32 Workshop on Reducing
HFC-134a Emissions from MVACs

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Agenda

- New standards for Refrigerant/Recovery equipment
- HFC-134a emissions from DIY servicing
 - EPA vs industry studies
- Emerging refrigerants



U.S. Clean Air Act

- Stratospheric ozone protection under Title VI
- Section 609 authorizes EPA to set standards for servicing of MVACs
 - Refrigerant recycling equipment
 - Professional service by certified technicians only
- Bans the sale of small containers of class I or class II ozone depleting substances to non-Section 609 certified technicians



New Standard for Recovery/Recycling Equipment

- New machines increase refrigerant recovery by up to 30%
- Society of Automotive Engineers (SAE) updated their R/R machine standard (effective 1/1/2008)
 - Updates EPA's standard; grandfathers in previously certified machines



MACAPSEP Formed May 2004

Mobile Air Conditioning Aftermarket Parts and Service Equipment Partnership

- *U.S. EPA*
- *CARB*
- *AAIA*
- *Cap and Seal Company*
- *Sexton Can Co*
- *National Refrigerants*
- *Technical Chemical Co*
- *Ashland*
- *Arkema*
- *Ineos Fluor*
- *DuPont*
- *EF Products*
- *Honeywell*
- *Interdynamics*
- *Weitron*

Can manufacturers, can fillers, component manufacturers, chemical producers, and government.



Partnership Agreement

- Concerned with unnecessary emissions and proper use of HFC-134a during professional and do-it-yourself (DIY) servicing of MVACs
 - 2002 US MVACS sector HFC-134a emissions = 22,000 metric tons (8 MMTCE)
 - Includes professional and DIY maintenance and normal use
 - MVAC emissions are 64% of total US HFC-134a refrigeration emissions*
- Public education on proper MVAC servicing procedures can reduce emissions & may protect small can jobs and enterprises and allow continued economical MVAC service
- Cooperate on data collection and analyses, manuals of best practice, and public-access websites.

*US EPA Vintaging Model



Disposable Containers Study

- Available at <http://epa.gov/ozone/title6/609/index.html#reports>
 - 30 lb cylinder heel = 1.85%
 - Small can heel = 1.4% to 74.7%
 - Depends on technique and conditions
- Identified best practices to reduce emissions
- Peer reviewed by MVAC system manufacturer, OEM service engineer, small can manufacturer, DIY and prof. service experts & 30lb cylinder manufacturer
- ARPI membership agreement



Disposable Cans – Best Practices

- Small cans
 - Mixture of liquid & gas phase charging
 - Charge at least 15 minutes
 - Charge evacuated systems
- 30 lb cylinders
 - Certified technician use of J2788 equipment



Key Differences Between EPA Study and ARPI study

- Study objectives
 - ARPI: measure the demand for retail packaged R-134a, quantify financial impact of can ban, and examine possible product usage improvements
 - EPA: quantify small can & 30lb cylinder heels and identify heel reduction best practices
- ARPI study provided 2006 can sales data that were previously not available to EPA



Key Differences Between EPA Study and ARPI study (contd)

- ARPI study determined a DIYer needs (on average) 15oz
 - Presumes a DIYer can purchase 15 oz
 - DIYers must purchase refrigerant in 12oz increments
- ARPI study assumed some professionals used small cans



SNAP Review of MVAC Refrigerant Alternatives

- R-744 (CO₂) and R-152a
 - GWP of 1 and 140, respectively
 - Zero ODP (Ozone Depletion Potential)
 - Proposed acceptability with use conditions to mitigate elevated concentrations in passenger compartment
 - Final rule under development
- New “low GWP” refrigerants have been developed for global markets
 - completed SNAP submission anticipated in 2008