GreenChill Advanced Refrigeration Partnership



EPA & the Supermarket Industry: *Partners in Ozone Layer Protection*



Reasons to Partner with EPA

Supermarket refrigeration

GreenChill Advanced Refrigeration Partnership

EPA Partnership Programs

- More than 80 environmental partnership programs
- Voluntary participation
- No membership fee
- Non-regulatory
- Gives you a friendly face at the EPA
- True partnership attitude bundling?

Partner with EPA for Cost Savings

Reduce waste/leaks & conserve resources

- Utilities: solid waste, water, energy
- Materials: refrigerant, plastic, building materials

Increase efficiency & productivity

- Easier to manage environmental compliance
- Less employee time spent dealing with waste
- Streamlined processes
- Less time reinventing the wheel
- Specialized software to track environmental performance

Partner with EPA for Public Recognition

Awards & positive press coverage

- Press releases on your achievements
- National coverage

Enhanced reputation

- EPA credibility "confirms" your environmental achievements
- Enhanced corporate image with customers, regulators, & media

Brand protection

Logos that help distinguish you from competitors

Partner with EPA to Reduce Business Risk

- Reduce regulatory compliance costs
- Reduce liability
- Prevention of environmental problems
- Voluntary today regulatory tomorrow?

Partner with EPA for Strategic Planning

- Environmental performance benchmarking
- Preparation for regulatory developments

Technical assistance

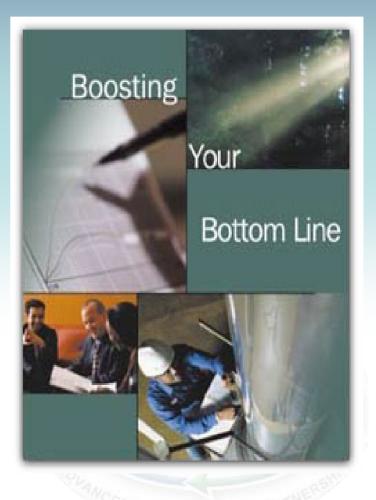
- Access to EPA's nationwide resources and contacts
- Unbiased source of research and technical analysis
- Best practice guidelines, lessons learned, implementation road maps

Networking

- Partner meetings to share best practices, strategies, cost savings opportunities
- Conferences, workshops, seminars

Partners for the Environment

- www.epa.gov/partners
- Achievement Through Partnership: A Progress Report Through 2000
- Boosting Your Bottom Line
- Guide to EPA Climate Partnership Programs



Supermarket Refrigeration

R-22 is primary refrigerant

- Harms the ozone layer (ODP of .055)
- Contributes to climate change (GWP of 1500)
- Phase-out in 2010 of R-22 production for new equipment; Limited production allowed until 2020 to service existing refrigeration equipment

DX systems are the dominant technology

- Lg. refrigerant charges (ave. spmkt. = 4000 lbs.)
- High leak rates (ave. 20-25% = about 1000 lbs. of refrigerant emitted PER SUPERMARKET per year)

GreenChill Advanced Refrigeration Partnership

- An EPA cooperative alliance with the supermarket industry
- Promotes the adoption of advanced refrigeration technologies, strategies, and practices
- Reduce charges & emissions of ozonedepleting substances (potent greenhouse gases)
- Help protect the ozone layer and protect against global warming

GreenChill Priorities

- Shift from DX systems to advanced refrigeration systems
- Shift from HCFC-22 to substitute refrigerants
- Promote reduced refrigerant charges
- Promote equipment leak tightness
 - At production
 - At installation
 - Preventative maintenance

Why advanced refrigeration technology?

- Montreal Protocol's goal is ozone layer recovery – reduces ozone-depleting substances (CFCs & HCFCs)
- Substitute refrigerants (HFCs) are ozonesafe, but they are greenhouse gases
- Leaking 1000 pounds of greenhouse gas instead of 1000 pounds of ozone-depleting gas is substituting one environmental disaster for another

GreenChill Supermarket Partners



GreenChill Supermarket Partners

- Acme Markets
- Albertsons Intermountain West
- Albertsons/Lucky Southern California
- bigg's
- Cub Foods
- Farm Fresh Food & Pharmacy
- Food Lion
- Giant Eagle
- Hannaford

- Harris Teeter
- Hornbacher's
- Jewel/Osco
- Price Chopper
- Publix
- Shaw's/Star Markets
- Shop 'n Save, St. Louis
- Shoppers Food & Pharmacy
- Supervalu Inc.
- Whole Foods

Advanced Refrigeration Systems Manufacturers

HUSSMAnn®



A DOVER COMPANY





Chemical Manufacturing Partners

INEOS Fluor





Honeywell



CED REFRIGERATION PL

Benefits of Joining GreenChill

- Benchmarking to evaluate progress
- Recognition for actions beyond regulatory requirements
- Build brand equity
- Tools to attain corporate environmental stewardship and sustainability goals
- Prepare for HCFC phaseout and other deadlines
- Access to latest information on state-of-the-art refrigeration technologies, alternative refrigerants, and best practices
- Networking & information sharing among partners

Supermarket Partner Responsibilities

- Commit to using only non-ozone-depleting refrigerants in both newly constructed stores and major remodels
- Report a baseline of corporate-wide refrigerant stocks and emissions
- Commit to an annual emissions reduction goal
- Develop a corporate Refrigerant Management Plan and emissions reduction strategy
- Report annual aggregate corporate-wide refrigerant stock and emissions

GreenChill Projects 2008

Best practices

- Retrofit guidelines
- Advanced refrigeration technology guidelines

Reporting/partner goals/benchmarking

- Supermarket emissions data
- Equipment manufacturer leak tightness
- HCFC-22 reclamation

Research

- Energy efficiency theoretical study
- Pilot projects

Marketing/Recruiting

Retrofit Best Practice Guidelines

- Retrofits = most widespread strategy to prepare for HCFC-22 phaseout in existing stores
- Opportunity to reduce leaks
- GreenChill Retrofit Best Practices Guidelines
 - Leak tightness improvements during retrofits
 - Conversion checklists
 - Best practices for handling recovered HCFC-22
 - Case studies

Best Practices Guidelines Advanced Refrigeration Technology

- Describes and explains alternatives to conventional DX systems
- Factors to consider when selecting an advanced refrigeration option
- Best practices to reduce refrigerant charge
- Best practices for leak tightness at production and installation
- Service and maintenance best practices for leak tightness
- Case studies

Supermarket Partner Data Reporting

- Baseline year 2007
 - GreenChill supermarket partners average leak rate about 15% vs. industry average of 25%
 - Wide range even among GreenChill partners 8%-25%
- Goals for 2008
 - Many want to reduce emissions by 5% per year, lack of a benchmark
 - Plans include retrofits to existing stores, new construction with advanced refrigeration technology, leak tightness strategies
- Data reporting for 2008 by March 31, 2009

Benchmarking to Measure Progress

- Compare leak rates to previous years
- Compare leak rates to GreenChill average
- Compare leak rates to nationwide average

Equipment Manufacturing Partner Data Reporting

- Equipment leak tightness at production
- Equipment leak tightness at installation
- Shipments of DX systems vs. advanced refrigeration systems
- Refrigerant used in all refrigeration systems shipped

Chemical Manufacturing Partner Data Reporting

- Baseline year and annual reporting of supermarket HCFC-22 and HFC recovery and reclamation
- Annual goal to increase supermarket HCFC-22 and HFC recovery and reclamation
 - Best practices for recovery and reclamation
 - Chemical manufacturer "Corporate Recovery & Reclamation Plan"
 - HCFC-22 end-of-life guidelines
 - Safety information



HCFC-22 Reclamation

- Increase R-22 and HFC reclamation
- Best practices for recovery
- Best practices for reclamation
- Chemical manufacturer "corporate recovery & reclamation plan"
- R-22 end-of-life guidelines
- Safety information

Energy Efficiency Theoretical Study

- Hurdle: supermarket industry fears advanced refrigeration technology uses more energy
- EPA theoretical study compared energy consumption of advanced refrigeration technologies to baseline DX technology
- Draft to be peer reviewed
- Publication as EPA document later in 2008

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