

EPA'S PROGRAM FOR HALON REPLACEMENT

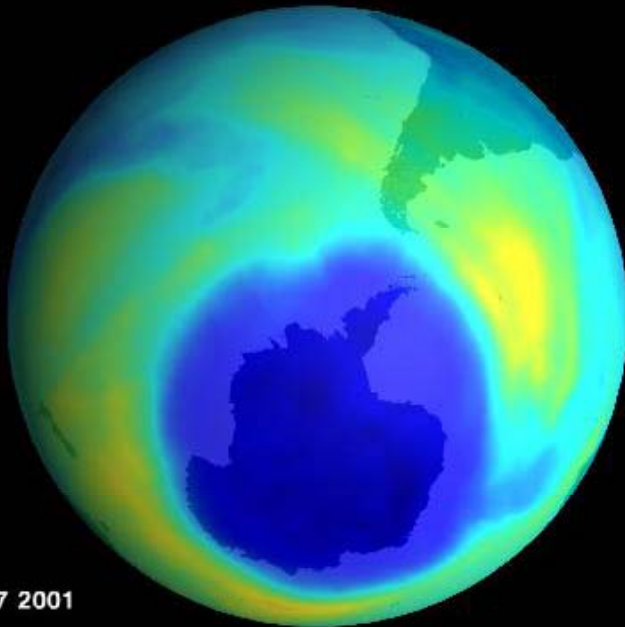
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Protecting the Ozone Layer

- 2001 Antarctic ozone hole spread over 10 million sq. miles
- Predictions for recovery in 50 years
- Depends on continued reductions in ozone depleting substances



Sep 17 2001

EPA's Program for Halon Replacement: Overview

- EPA authority and halon regulations
- SNAP program on alternatives
- EPA/Industry partnerships
- Other cooperative activities

EPA Authority

- *Montreal Protocol on Substances that Deplete the Ozone Layer (1987)*
 - US is a party
 - approx. 170 nations have ratified
- Title VI of the 1990 Clean Air Act (CAA)
 - establishes controls on chemicals contributing to ozone depletion including CFCs and halons

Halon Regulations

- 1994 phaseout of production and import
- Labelling rule
- SNAP program
 - Updates to SNAP listing of alternatives
 - *New rule adopting NFPA 2001 standard for clean agents*
- Halon emissions reduction rule
- *Upcoming ban on Halon 1011 production and import*

SNAP Background

- CAA Section 612 directs EPA to evaluate and list substitutes for ozone depleting substances (ODSs) that reduce overall risk to human health and the environment
- Alternatives include:
 - Chemical replacements
 - Product substitutes
 - Alternative technologies

SNAP Background (continued)

- SNAP considers:
 - Ozone depletion potential (ODP)
 - Global warming potential (GWP)
 - Toxicity
 - Flammability
 - Other environmental impacts
- ~270 substitutes reviewed across 8 industrial sectors

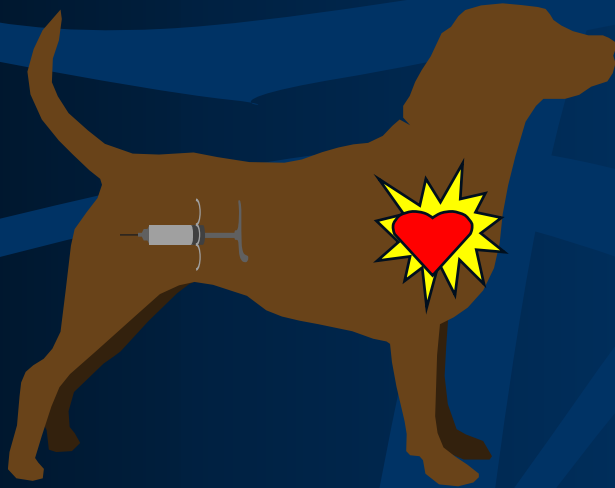
Achievements of SNAP Program

- Health/safety and environmental benefits
 - Controlled workplace exposures to new chemicals
 - Improved health risk assessment models (PBPK model, aerosols risk screen)
 - Responsible use of global warming gases
 - Control over flammability risks
 - Alternative technologies reduce aggregate chemical use

Types of Decisions under the SNAP Program

- Acceptable
- Acceptable subject to use conditions
 - ex. Must meet egress times if halocarbon fire suppressants are discharged
- Acceptable subject to narrowed use limits
 - ex. Use perfluorocarbons only if reasonable efforts determine no other alternatives feasible
- Unacceptable

Safety Guidelines: Based on Cardiac Sensitization



Where is there a health effect?
No effect?

How does this relate to humans?

NFPA 2001 Standard Exposure Guidelines

- NFPA standard 2001 was developed since original SNAP rule, and has recently been updated:
 - For halocarbons, includes the use of data from a PBPK model to establish exposure limits
 - For inert gases, includes the findings of an expert panel on health effects of low oxygen atmospheres

Significance of New SNAP Rule

- Uses a new scientific tool, the physiologically-based pharmacokinetic (PBPK) model to determine safety guidelines
 - More precise than current approach
 - Makes alternatives easier to use
- Coordinates with industry standard
- Simplifies SNAP listings
- Adds new alternatives

New SNAP Rule

- EPA will replace the SNAP conditions for exposure limits and times for halocarbon and inert gas substitutes
- SNAP listings will refer to NFPA 2001
- EPA will continue to review and list halon substitutes, and to evaluate them based on overall risks to:
 - Human health
 - Environment

Upcoming Listings

- Acceptability listing for Halotron II in total flooding
 - Only for normally unoccupied areas
- Acceptability listing for Envirogel in total flooding in occupied areas
 - For ammonium polyphosphate additive
 - Previously listed for areas that are normally unoccupied only
- Delisting HBFC-22B1

Tentative Timeline for New Rule

- OMB began review of direct final rule package this summer
 - Rescind rule
 - New listings
- Publication in Nov/Dec
- If no adverse comment - final in 60 days

Pending Submissions for Halon Replacements

- Total Flooding Agents
 - Novec 1230
 - H Galden HFPEs
 - Goodrich 244
 - FM-200 + NaHCO₃
- Streaming Agents
 - Novec 1230
 - H Galden HFPEs

EPA/Industry Partnerships

- Voluntary Programs to minimize emissions of high global warming gases
 - Responsible use principles for HFCs and PFCs
 - Innovative technologies
 - New alternatives
- EPA partners:
 - Semiconductors
 - Aluminum
 - Magnesium
 - Electric power systems
 - Refrigerant manufacturers

EPA/Industry Partnerships (continued)

- Halon Alternatives Research Corporation (HARC) and EPA working to develop Voluntary Code of Practice for halon substitutes

Coordinating within the Federal Government

- Federal Aviation Administration
 - Testing of alternatives
 - Safety in airplane cargo holds
- Department of Defense
 - Finding and testing alternative agents
- US Coast Guard
 - Standards on safety for sea vessels

Coordinating with Other Organizations

- Industry associations
 - Fire Suppression Systems Association
 - HARC and the Halon Recycling Corporation (HRC)
- Codes and Standards
 - National Fire Protection Association
 - International Maritime Organization
 - International Standards Organization

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For More Information

- EPA Ozone Depletion Web Site
<http://www.epa.gov/ozone/>
- Stratospheric Ozone Hotline
1- 800-296-1996
(301) 694-3396 in D.C. area
- EPA Air Docket A-91-42
(202) 260-7548