



Leak Repair and Maintenance

40 CFR 82.157

Flexible Packaging Association and
Plastics Industry Association Meeting
October 17th, 2018

Overview



- Overview of the National Refrigerant Management Program
- Proposed Rule Modifications
- Overview of the Leak Repair and Maintenance Provisions
- Other Developments
- Questions

Disclaimer: This presentation provides an overview for discussion purposes only. It does not supersede the Code of Federal Regulations, which should be consulted for a full statement of the existing requirements, or the Notice of Proposed Rulemaking published October 1, 2018 (see 83 FR 49332).

National Refrigerant Management Program



Technician Certification

Refrigerant Sales Restriction

Service Practices

Recovery & Recycling Equipment

Recordkeeping

Repairing Refrigerant Leaks

Appliance Disposal

Refrigerant Reclamation

**Section 608
Regulatory
Requirements**

National Refrigerant Management Program



What refrigerants are affected?

- Ozone-depleting refrigerants (i.e., CFCs and HCFCs)
 - Subject to the Section 608(c) venting prohibition
 - Subject to the regulatory standards and requirements
- Substitute refrigerants (e.g., HFCs, HFOs, and PFCs)
 - Includes any substitute refrigerant not specifically exempted*
 - Subject to the Section 608(c) venting prohibition
 - Subject to the regulatory standards and requirements as of 2017, 2018, or 2019
- Exempt substitute refrigerants (e.g., ammonia and CO₂)
 - Not subject to the venting prohibition in specific end-uses
 - Not subject to the regulatory standards and requirements in those uses
 - May be subject to other requirements (e.g., OSHA)

National Refrigerant Management Program



Exempt Refrigerants	End-Use and Application									
	Household Refrigerators	Retail refrigerator stand-alone	Vending	Very Low Temp Ref	Heat Transfer	Self-contained Commercial Ice Machines	Water Coolers	IPR/processing	Room AC-Self-contained	All uses
CO ₂ , N ₂ , H ₂ O	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia		✓						✓		
Hydrocarbons, Chlorine								✓		
Propane	✓	✓	✓	✓		✓	✓	✓	✓	
Isobutane	✓	✓	✓							
R-441A	✓	✓	✓						✓	
Ethane				✓	✓					

Notice of Proposed Rulemaking



- On October 1, 2018, EPA proposed to rescind the applicability of the leak repair and maintenance provisions (40 CFR 82.157) for appliances that contain solely substitute refrigerants. (83 FR 49332)
 - Requests comment on the other provisions as they relate to substitutes
 - Would not affect the refrigerant management rules as they apply to ODS
 - Public comment period will run until November 15, 2018
 - To comment, visit www.regulations.gov and enter docket ID# HQ-OAR-2017-0629

Leak Repair and Maintenance



Applicability

- The leak repair provisions discussed in this presentation have a compliance date of 1/1/19
- The leak repair provisions only apply to appliances containing ≥ 50 lbs. of refrigerant

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Calculating the Leak Rate

- The leak rate must be calculated every time refrigerant is added to an appliance containing ≥ 50 lbs. of refrigerant unless the addition is immediately following a retrofit, installation of a new appliance, or qualifies as a seasonal variance
 - Choose either the Annualizing Method or Rolling Average Method. The same method must be used for all appliances subject to the leak repair requirements at an operating facility
 - Note that to “close out” a leak event under the “Rolling Average Method,” the owner or operator must repair all identified leaks and verify that the repairs have been successful

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Leak Repair Thresholds

- Leak rate thresholds:
 - 30% for industrial process refrigeration (IPR)
 - 20% for commercial refrigeration
 - 10% for comfort cooling
- If threshold is exceeded, a certified technician must perform a leak inspection to identify the necessary repairs
- The repair must bring the appliance leak rate below the threshold
 - Must be demonstrated when calculating leak rate upon next refrigerant addition

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Verification Tests

- Must demonstrate that leaks were successfully repaired
 - *Initial verification tests*- done before refrigerant is added back into the repaired appliance
 - Performed within 30 days (or 120 days if an industrial process shutdown is required) of leak rate exceedance
 - *Follow-up verification tests*- done after the repaired appliance returns to normal operating characteristics and conditions
 - Performed within 10 days of the successful initial verification test or 10 days of the appliance reaching normal operating characteristics
- If either the initial or follow-up verification test indicates that repairs were not successful, you may conduct as many additional repairs and verification tests as needed within the 30-day (or 120-day) repair period

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Periodic Leak Inspections

- Required for appliances that had a duty to repair because they exceeded the threshold leak rate
- Must be conducted by a certified technician
- All visible and accessible components of an appliance must be inspected
- What is not considered visible or accessible:
 - Where components are insulated, under ice, underground, behind walls, or are otherwise inaccessible;
 - Where personnel must be elevated more than 2 meters above a support surface; or
 - Where components are unsafe to inspect
- Not required on appliances (or portions of appliances) that are continuously monitored by an automatic leak detection system

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Periodic Leak Inspections (continued)

Leak inspection must be performed according to the following schedule:

Equipment	Full Charge	Frequency of Leak Inspections
Commercial Refrigeration and IPR	≥ 500 pounds	Once every three months until owner/operator can demonstrate that the leak rate has not exceeded the threshold for four quarters in a row
	50 to 500 pounds	Once per year until owner/operator can demonstrate that the leak rate has not exceeded the threshold for one year
Comfort Cooling	≥ 50 pounds	Once per year until owner/operator can demonstrate that the leak rate has not exceeded 10% for one year.

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Extensions to 30-Day (or 120-Day) Repair Schedule

- Radiological contamination
 - Requirements of Federal, state, or local regulations make repair within that timeframe impossible
 - Components not available, limited extension for up to 30 days after component delivery date (maximum of 180 days, or 270 days if industrial process shutdown is required)
- Repairs to leaks that the technician has identified as significantly contributing to the exceedance of the leak rate and that do not require additional time must be completed and verified within the initial timeframe

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Retrofit/Retirement Plan

- Create a retrofit or retirement plan within 30 days of:
 - Appliance leaking above the applicable leak rate if the owner or operator intends to retrofit or retire rather than repair the leak
 - Appliance leaking above the applicable leak rate if the owner or operator fails to take any action to identify or repair the leak
 - Appliance continues to leak above the applicable leak rate after having conducted the required repairs and verification

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Retrofit/Retirement Plan Should Contain:

- Identification and location of the appliance
- Type and full charge of the refrigerant
- Type and full charge of the refrigerant to which the appliance will be converted, if retrofitted
- Itemized procedure for converting the appliance to a different refrigerant, including changes required for compatibility with the new substitute, if retrofitted
- Plan for the disposition of recovered refrigerant
- Plan for the disposition of the appliance, if retired
- A schedule, not to exceed one-year, for completion of the appliance retrofit or retirement

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“Off Ramp” for Retrofit/Retirement Plans

The owner or operator may request relief from the obligation to retrofit or retire an appliance if they:

- Establish within 180 days of the plan's date that the appliance no longer exceeds the applicable leak rate
- Agree in writing to repair all identified leaks within one year of the plan's date
- Submit to EPA the retrofit and retirement plan, a description of the repair work and the other information in 40 CFR 82.157(h)(5)(ii)
- Requests will be considered approved unless EPA notifies the owner/operator within 60 days of receipt of the request that it is not approved

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Extensions to 1-Year Retrofit/Retirement Schedule

- 18 months to retire an appliance if the replacement appliance uses an exempt substitute (e.g., CO₂)
- Requirements of applicable Federal, state, or local regulations make a retrofit/retirement within one year impossible (IPR only)
- Custom built equipment (IPR only)
- Extensions for Federally owned equipment:
 - Delivery time of more than 30 weeks
 - Appliance located in an area subject to radiological contamination

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Chronically Leaking Appliances

- Owners/operators must submit reports to the EPA if any appliance leaks $\geq 125\%$ or more of its full charge in one calendar year
- Reports must describe efforts to identify leaks and repair the appliance
- Reports must be submitted no later than March 1 of the following year
- The first reports will be due March 1, 2020, and cover appliances that leaked $\geq 125\%$ or more of their full charge in calendar year 2019

Flammable Refrigerants



- EPA has exempted certain hydrocarbon refrigerants from the venting prohibition when used in specific appliances and, as a consequence, the Section 608 requirements
 - These are new, self-contained, small appliances specifically designed to use hydrocarbon refrigerants
 - EPA does not anticipate that opening up such appliances for servicing or recharging will be common
 - Such appliances are identifiable by red tubing and other markings
- It is illegal to use hydrocarbon or other flammable refrigerants (such as R-22a) in existing HCFC/HFC appliances
 - This is true whether the refrigerant is sold to a certified technician or not
- Some flammable refrigerants are not exempt from the Section 608 requirements (such as HFC-32) and may only be purchased by a certified technician
 - Recovery and/or recycling equipment for use with such flammable refrigerants must be certified to reduce risks for those refrigerants

Other Developments: 2020 HCFC Phaseout Step



- HCFC consumption is Montreal Protocol (MP) limited to 0.5% of baseline starting in 2020 for servicing of refrigeration and air-conditioning (Ref/AC)
 - HCFC production and consumption phased out in 2030 under the Clean Air Act
- Prior regulations phased out most HCFCs, with two exceptions (HCFC-123 and -124)
- HCFC-123 used in Ref/AC applications (e.g., chillers) and fire suppression
- HCFC-124 is used as a refrigerant, primarily in retrofitted CFC equipment
- Proposed rule expected in early 2019

SNAP Program Updates: 2015 Rule



- In July 2015 EPA published a final rule which changed the listings of a number of HFCs in the aerosols, foam blowing, and refrigeration and air conditioning sectors
 - The rule was subsequently challenged and in August 2017, the D.C. Circuit Court of Appeals issued a decision that partially vacated the 2015 Rule
- In response, EPA is developing a notice and comment rulemaking
 - EPA has been seeking input from interested stakeholders
- In response to the partial vacatur of the rule, EPA will not apply the HFC use restrictions or unacceptability listings in the 2015 Rule for any purpose before completing that rulemaking



Thank You Questions?

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