



MATERIALS MANAGEMENT - REFRIGERANTS

ENVIRONMENTAL GUIDELINE



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PURPOSE

The purpose of the guideline is to provide guidance on what DEN's expectations are for the management of refrigerants in stationary and mobile equipment. The guideline aims to limit environmental risks associated with the use of refrigerants in HVAC systems, coolers, chillers, and vehicles. Risks include release of refrigerants which are ozone depleting substances (ODS) and greenhouse gases (GHGs). Adherence to the guideline will ensure compliance with federal, state, local, and DEN air quality rules and regulations.

ACTIVITY DEFINITION

The Department of Aviation operates a large heating, ventilation, and air conditioning (HVAC) system from the airport's Central Plant, located at 26920 E. 86th Avenue and several satellite refrigeration and air conditioning systems across airport operations. It also operates and performs maintenance on a fleet of vehicles which require individual heating and cooling systems. Activities may include storage, use, release, and disposal of refrigerants.

The DEN HVAC system, in total:

- Provides all terminal buildings with hot and cold water
- Provides all terminal buildings with heated and air-conditioned air
- Utilizes an HCFC-based chilled water system
- Utilizes an evaporative cooling tower
- Includes DEN tenant operations whose HVAC systems may be federally, or state regulated

DEN Fleet:

- Operates year round, in variable temperatures
- Performs maintenance on motor vehicle air conditioning (MVAC) equipment and MVAC-like systems

EXPECTATIONS

Best Practices:

Stationary-Specific:

- Registration with CDPHE if over 100 compressor horsepower or 300 pounds of ODS in food appliances
- Leak rate calculations and maintenance records must be kept for units with more than 50 pounds of ODS refrigerant capacity.



- There are no specific emergency response requirements associated with the release of refrigerants. However, there is a requirement to repair systems with more than 50 pounds of CFC and HCFC refrigerant capacity and that are determined to have lost a significant percentage of their charge (15% for comfort cooling and 35% for industrial applications) over a prorated annual rate since the last refrigerant addition or one year, whichever is shorter. Leaking equipment should be shut down for repairs or maintenance as soon as possible to reduce the leakage rate below the applicable threshold level. If the leak cannot be repaired within 30 days of discovery, the equipment should be permanently taken out of service until it can be either repaired or replaced.
- There is the possibility that the release of refrigerant materials in a closed area can reduce oxygen levels. This is a safety issue and should be reported to the DEN Communications Center.
- An R-12 (CAS No. 75-71-8) release at or above certain thresholds (RQ \geq 5,000 pounds) is reportable pursuant to the EPA List of Lists. There are no reportable quantities for R-22, R-414, or R-134a.

Stationary and Mobile:

- Each airport tenant, contractor, and operator that owns, maintains, services, or repairs HVAC or MVAC systems is responsible for understanding the applicable regulations and managing their activities; accordingly, this Environmental Guideline is meant as guidance and does not supersede any regulations.
- Technicians that maintain or repair HVAC or MVAC systems must have the proper training certification from an EPA-approved training provider.
- Records must be kept for regulated maintenance activities
- Records must be kept on site at the facility for a minimum of 3 years.
- Technicians who repair or service HVAC or MVACs must be trained and certified by an EPA-approved organization. Training programs must include information on the proper use of equipment, the regulatory requirements, the importance of refrigerant recovery, and the effects of ozone depletion.
- HVAC or MVAC system service owners and operators should evaluate their activities for regulation under the federal and state regulations.
- Refrigerant should be stored to prevent releases and emissions.
- Operators should manage new and used refrigerant in accordance with federal and state ODC regulations.
- Properly select equipment and systems that will utilize lower impact HCFCs and that will reduce leakage by design. Equipment and systems should allow addition and removal of refrigerant while minimizing loss.
- Emphasize the recovery, recycling, and reuse of refrigerants. The operator should institute management systems that will emphasize recovery of refrigeration fluids that become contaminated. This includes using agents who in turn use self-certified equipment for refrigerant recovery that complies with USEPA standards pursuant to 40 CFR Part 82.



- Provide capability to measure refrigerant weights as added and removed from refrigeration systems, these weights need to be documented.
- Perform leak rate calculations as required and perform repairs as necessary.
- Record EPA certificates for each technician and institute measures to ensure that these are the only personnel who work on applicable systems (i.e., stationary HVAC, MVAC and MVAC-like systems).
- A recordkeeping system should be instituted to organize and maintain applicable records.
- Demonstrate compliance with technician certification requirements prior to conducting maintenance or repair activities on HVAC or MVAC systems.
- Demonstrate compliance with pre-disposal refrigerant removal/recovery and related documentation requirements prior to disposal of regulated refrigerant.
- Store refrigeration fluid containers in such a manner to prevent or minimize the possibility of leaks (e.g., cylinders should have plugs in their outlets to back up valves).
- Call DEN Communications Center immediately at 303-342-4200 for all spills.

Shall Not:

- Operate stationary equipment without applicable permits
- Intentional venting of refrigerant to the atmosphere

REFERENCES

Contacts

- DEN Environmental Services (Main Line): 303-342-2730; DENEnvironmental@flydenver.com

Additional Resources

- Federal air quality regulations for boilers (40 CFR Part 60, Subpart Dc)
- Federal air quality regulations for refrigerants. Sections 608 and 609 of the Clean Air Act (40 CFR Part 82)
- State air quality regulations (5 CCR 1001-2, -3, -5, -8, -9, -19, and -22)
- State air quality Operating and Maintenance (O&M) Plan as applicable
- Local air quality ordinances (D.R.M.C. Title II, Chapter 4, Article III)
- CDPHE Air Quality Control Regulation Number 15 "Regulation to Control Emissions of Ozone Depleting Chemicals"
- Federal used oil regulations (40 CFR Part 279, Subpart C)
- State used oil regulations (6 CCR 1007-3, Part 279, Subpart C)