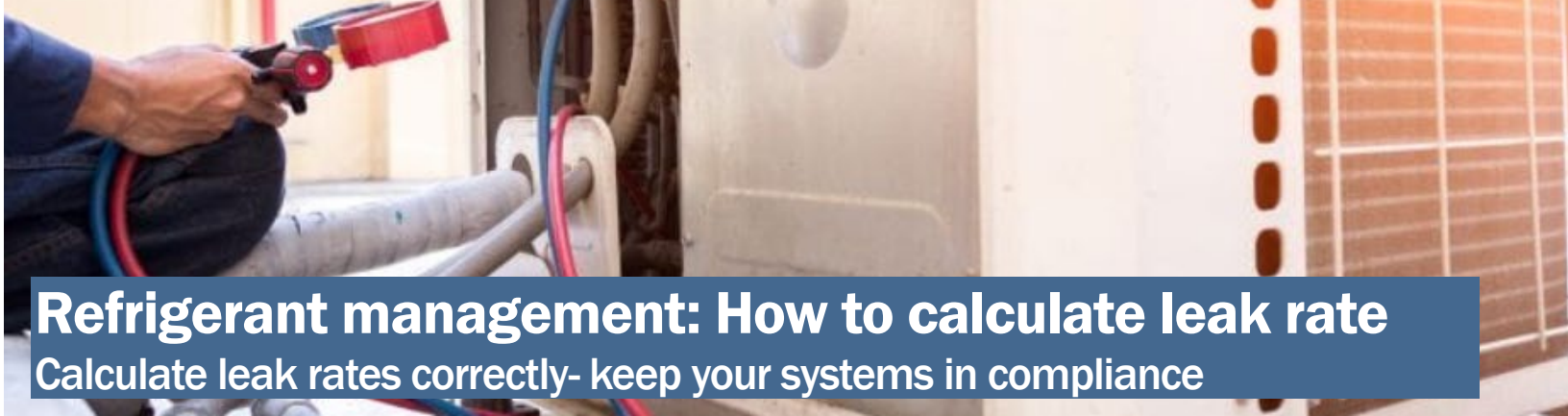




Refrigerant management: How to calculate leak rate

Calculate leak rates correctly- keep your systems in compliance

Understanding the leak rate requirement

[Washington’s HFC emission reduction rule](#) supports the transition away from harmful greenhouse gases known as hydrofluorocarbons (HFCs) in products and equipment. Part of the rule requires owners and operators of refrigeration and air-conditioning equipment with 50 or more pounds of high Global Warming Potential (GWP) refrigerant to calculate a leak rate:

- When refrigerant is added
- During leak inspections

What’s the problem with a leak?

Leaks cost you money, reduce operating efficiency, and release harmful climate pollutants to the atmosphere.

- Refrigerants are expensive. This takes away from your profits.
- Leaking equipment is less efficient and may lead to higher electricity bills or more frequent repairs.
- Refrigerants are potent greenhouse gases, thousands of times more impactful than carbon dioxide (CO2), that contribute to climate change.
- Preventing and stopping leaks quickly is good for your bottom line and for the environment.

12- month rolling average method

To calculate the leak rate, use the 12-month rolling average method. This is the method you must use when reporting to Ecology. Your leak rate will be compared to each end uses’ leak rate (Figure 1).

$$\text{Leak rate (\% per year)} = \frac{\text{pounds of refrigerant added over past 365}}{\text{pounds of refrigerant in full charge}} \times 100\%$$

Understand the leak rate exceedance

Owners or operators are required to report leak rates annually and anytime the leak rate exceeds the limit. If a leak rate is higher than the leak rate listed below, it’s an exceedance.

Sector/Subsector	Leak Rate
Air Conditioning	8%
Commercial Refrigeration	16%
Industrial Process Refrigeration	24%

Table 1: Lists the leak rate exceedance for each sector/subsector. Any calculated leak rate that is above the leak rate listed is an exceedance and needs to be reported.

Other calculation methods

Owners/operators can use another method to calculate the leak rate and monitor their system. However, these methods are for your own records and when reporting to Ecology, the 12-month rolling average method must be used. The other methods to calculate leak rates include:

- Annualizing method
- Leak rate snapshot

Annualizing Method

You can use the annualizing method as a forward-looking tool to “predict” leakage rates if the system keeps operating without repair.

$$\text{Leak rate (\% per year)} = \frac{\text{lbs of refrigerant added}}{\text{lbs of refrigerant in full charge}} \times \frac{365 \text{ days}}{\# \text{ days since refrigerant last added}} \times 100\%$$

Leak Rate Snapshot

You can calculate the leak rate since the last time refrigerant was added. This calculation can let you know if your repairs are effective and your leak rate is headed in the right direction based on a marked decrease from the required 12-month rolling average method.

$$\text{Leak rate (\% snapshot)} = \frac{\text{lbs of refrigerant added}}{\text{lbs of refrigerant in full charge}} \times 100\%$$

Leak repair and test

Owners and operators are responsible for making sure that all leaks are repaired and tested even if the system is over its leak rate. When the leak rate exceeds the limit, Ecology will use all the methods to check compliance. We will also use this information to determine if a system has a chronic leak.

Repair leaks and save money

Repairing your leaks on time not only keeps you compliant with state law, it also saves you money and protects our environment. So, leak less, save more and keep our climate clean!



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To request an ADA accommodation, contact Ecology by phone at 360-407-6800 or email at leah.baird@ecy.wa.gov, or visit <https://ecology.wa.gov/accessibility>. For Relay Service or TTY call 711 or 877-833-6341