

Fact Sheet: 2019 Leak Rate Calculations for Appliances that Contain Non-Exempt Substitute Refrigerants

In 2016, EPA issued a rule updating and revising the refrigerant management requirements under 40 CFR part 82 subpart F. See “Protection of Stratospheric Ozone: Update to the Refrigerant Management Requirements Under the Clean Air Act,” 81 Fed. Reg. 82,272 (Nov. 18, 2016). Among other things, the rule extended refrigerant management requirements to appliances using non-exempt substitute refrigerants. Beginning January 1, 2019, owners/operators of appliances that contain 50 or more pounds of non-exempt substitute refrigerant must calculate the leak rate when refrigerant is added to the appliance. 40 CFR 82.157(a)-(b). The two available methods for calculating the leak rate, the annualizing method and the rolling average method, are set forth in the definition of “leak rate” in 40 CFR 82.152.

Beginning January 1, 2019, persons adding or removing non-exempt substitute refrigerants from such appliances must provide certain documentation to the owner/operator of the appliance, and the owner/operator must keep certain records for at least three years. 40 CFR 82.157(b), 82.157(l)(2). Some of this information is used to support and document the leak rate calculations. Prior to January 1, 2019, owners/operators of appliances that contain substitute refrigerants are not required to keep such records. Because no records are required for additions of substitute refrigerant prior to January 1, 2019, owners/operators may calculate leak rates for appliances containing substitute refrigerants as though there were no additions prior to that date. The following details those calculations under the two different methods.

Annualizing method

EPA defines the annualizing leak rate calculation method as follows:

$$\text{Leak Rate (\% per year)} = \frac{\text{pounds of refrigerant added in full charge}}{\text{pounds of refrigerant in full charge}} \times \frac{365 \text{ days/year}}{\text{shorter of \#days since refrigerant last added or 365 days}} \times 100\%$$

If the owner/operator chooses to use the annualizing method, for the first refrigerant addition in calendar year 2019 the second term would be 365/365 (or “1”). For subsequent additions the second term would be 365 divided by the shorter of the number of days since refrigerant was last added or 365.

Rolling Average method

EPA defines the annualizing leak rate calculation method as follows:

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

† Or since the last successful follow-up verification test showing all identified leaks were repaired, if that period is less than one year.

If the owner/operator chooses to use the rolling average method, for refrigerant additions in calendar year 2019 the numerator would be the pounds of refrigerant added since the shorter of January 1, 2019 or the last successful follow-up verification test, if one was conducted in 2019. For additions in 2020 and beyond the numerator would be the pounds of refrigerant added since the shorter of 365 days or the last successful follow-up verification test.