

**INTERPRETATION IC 147-2013-1 OF
ANSI/ASHRAE STANDARD 147-2013**
*Reducing the Release of Halogenated Refrigerants from
Refrigerating and Air-Conditioning Equipment and Systems*

Approval Date: 01/27/2015

Request from: Phillip A. Johnson (phillip.johnson@daikinapplied.com), Daikin Applied, P.O. Box 2510, Staunton, VA 24402.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 147-2013, Section 6.2.1 and Table 6.2.1, regarding leak rate threshold limits.

Background: The leak threshold limits in Table 6.2.1 are expressed with "oz/year" as the units of measure. The values in the table and the supporting text in Section 6.2.1 are ambiguous in regards to whether the requirement is a mass flow or a volumetric flow. See attached page from ASHRAE Fundamentals Handbook 2013 Chapter 38, an "ounce" (abbreviated as "oz") can represent either mass, force, or volume. I can find no other definition in Standard 147 for leak flow rate to define whether it is mass or volume basis. However, Informative Appendix A, Section A4.3.3, contains two examples for leak rate measurement methods that use volumetric flow rate expressed as "atm-cc/s", which might imply to users of the standard that leak rates are expressed on a volume basis and corrected to standard atmospheric temperature and pressure. As a point of reference, the US EPA uses mass for defining refrigerant leak repair requirements under Section 608 of the Clean Air Act*, so I assume the intent is to use a mass basis. (*<http://www.epa.gov/ozone/title6/608/leak.html>)

Interpretation: The leak threshold limits in Table 6.2.1 are expressed on a mass basis as "ounce(mass)/year".

Question: Is this interpretation correct?

Answer: Yes

Comments: We thank Mr. Johnson for his question and interpretation. In discussion of the request it was noted that the example cited from Section A4.3.3 is actually on a mass basis as it is for a specific temperature.