
**Refrigerants — Designation and safety
classification**

AMENDMENT 2

Fluides frigorigènes — Désignation et classification de sécurité
AMENDEMENT 2

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This document was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 8, *Refrigerants and refrigeration lubricants*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Refrigerants — Designation and safety classification

AMENDMENT 2

3.1.36

Replace Note 1 to entry with the following:

Note 1 to entry: Acute toxicity exposure limit, oxygen deprivation limit and flammable concentration limit are refrigerant concentration limits that are determined in accordance with this document.

3.2

Delete the following text:

RCL	refrigerant concentration limit
RCL _M	RCL expressed as grams per cubic metre
RCL _{ppm}	RCL expressed as parts per million by volume

4.1

Replace the text with the following:

An identifying number shall be assigned to each refrigerant. Assigned numbers and safety classifications are shown in Tables 5, 6 and 7. Tables E.4, E.5 and E.6 provide designations for refrigerants for which insufficient data are available for safety classification or determination of refrigerant concentration limits.

4.4.1

Replace the text with the following:

Zeotropes shall be assigned an identifying number in the 400 series. In order to differentiate among the different zeotropes having the same components but in different proportions, an upper-case letter (A, B, C, etc.) is added after the number. The numbers and letters shall be assigned considering harmonization as presented in Clause 9.

4.4.2

Replace the text with the following:

Azeotropes shall be assigned an identifying number in the 500 series. In order to differentiate among the different azeotropes having the same components but in different proportions, an upper-case letter (A, B, C, etc.) is added after the number. The numbers and letters shall be assigned considering harmonization as presented in Clause 9.

5.2

Replace the second paragraph with the following:

The compositional designating prefixes for ethers shall substitute an “E” for “C” (carbon), such that HFE, HCFE, and CFE refer to hydrofluoroether, hydrochlorofluoroether, and chlorofluoroether, respectively. E in the identifying number shall be omitted when composition-designating prefixes are used. The composition designating prefixes for halogenated olefins shall be either:

- CFC, HCFC, or HFC to refer to chlorofluorocarbon, hydrochlorofluorocarbon, or hydrofluorocarbon, respectively; or
- with substitution of an O for the carbon C, as CFO, HCFO, HCO or HFO, to refer to chlorofluoro-olefin, hydrochlorofluoro-olefin, hydrochloro-olefin or hydrofluoro-olefin, respectively.

Clause 8

Replace the title with the following:

8 Refrigerant concentration limits

8.1

Replace the text with the following:

Determination of the refrigerant concentration limits shall assume full vaporization and uniform mixing; no removal by dissolution, reaction or decomposition in the volume to which it is released. Safety factors are included for consideration of temporary local concentrations or uncertainties in the test data.

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Replace the text with the following:

The ATEL shall be the lowest of the toxic concentration factors (TCF) 8.1.1.2 to 8.1.1.5. For blends, where available, the blend toxicity data shall be used for the individual parameter values in 8.1.1.1 to 8.1.1.5 and when toxicity data for the blends are not available, shall be calculated according to the following formula:

$$\frac{1}{C_{\text{blend}}} = \frac{x_1}{C_1} + \frac{x_2}{C_2} + \dots + \frac{x_n}{C_n}$$

where

x_n is the mole fraction of component n of the blend;

C_n is the TCF for component n in accordance with ISO 10298.

NOTE See Annex D for a sample calculation of ATEL and Annex E for a list of values related to calculation of refrigerant concentration limits.