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AMENDMENT 1
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**Refrigerants — Designation and safety
classification**

AMENDMENT 1

Fluides frigorigènes — Désignation et classification de sécurité
AMENDEMENT 1

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

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Refrigerants — Designation and safety classification

AMENDMENT 1

Page 1, Clause 3

Add definition of auto-ignition temperature to 3.1 and renumber subsequent definitions.

3.1.5

auto-ignition temperature

AIT

lowest temperature of a substance at or above which a chemical can spontaneously ignite in normal atmosphere without an external source of ignition, such as a flame or spark

Page 10, 4.4.3

Modify 4.4.3 as follows:

Blends shall have tolerances specified for individual refrigerants components. Those tolerances shall be specified to the nearest 0,1 % mass fraction. The maximum tolerance above or below the nominal shall not exceed 2,0 % mass fraction. The tolerance above or below the nominal shall not be less than 0,1 % mass fraction. The difference between the highest and the lowest tolerances shall not exceed one-half of the nominal component composition. No refrigerant composing less than 0,6% by mass of the nominal blend will be considered for blend designation or classification.

Page 14, Clause 7

Replace Clause 7 text with the following:

Refrigerants are assigned the classifications indicated in Tables 5, 6 and 7 (found at the following URL or URN: <http://standards.iso.org/iso/817/ed-3/en>).

These tables are regularly updated, therefore the user of this document shall refer to the latest edition made available.

Page 18, 8.4

Replace 8.4 with the following:

When converting from volumetric ratio (ppm by volume) to volumic mass (g/m^3), Formula (3) shall be used. The molecular mass used shall be consistent with the composition used when determining the parameter of interest.

EXAMPLE:

- LFL determined at nominal composition will require nominal mass.
- LFL determined at WCF will require WCF molar mass.
- LFL determined at WCFF will require WCFF molar mass.

For blends the molar mass is calculated as a weighted average of the molar mass of the individual components.

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This formula uses LFL as an example but is also applicable for ODL, and ATEL.

$$\text{LFL}_M = \text{LFL}_{\text{ppm}} \times a \times M \times 10^{-6} \quad (3)$$

where

- LFL_M is the LFL (g/m^3);
 LFL_{ppm} is the LFL (ppm by volume);
 M is the molar mass of the refrigerant (g/mol)
 $a = P/RT$

where

- T is the temperature in Kelvin and equal to 298 in standard calculation;
 P is the pressure, in Pascal (pressures shall be adjusted for altitude when greater than 1 500 m above sea level using the following formula: $P = 1,013\,25 \times 10^5 - 10,001 \times h$, where h is the height, in metres);
 R equals 8,314 J/mol K.

Page 19, Tables 5, 6, and 7

Delete Tables 5, 6 and 7 and replace with the following text:

Tables 5, 6 and 7 can be found at the following URL or URN: <http://standards.iso.org/iso/817/ed-3/en>

The new tables will be added to already existing ones (they will not replace the tables already there) but are considered the most current and valid.

Page 57, Annex E

Delete the following text:

For data used to determine safety classification and RCL values, see Tables E.1 to E.3.

and replace with:

Tables E.1 to E.3 can be found at the following URL or URN: <http://standards.iso.org/iso/817/ed-3/en>.

The new tables will be added to already existing ones (they will not replace the tables already there) but are considered the most current and valid.

Page 58, Tables E.1, E.2 and E.3

Delete Tables E.1, E.2, and E.3. Renumber subsequent tables E.4, E.5, E.6.