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Refrigerants — Designation and safety classification

Fluides frigorigènes — Désignation et classification de sécurité

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 8, *Refrigerants and refrigeration lubricants*.

This third edition cancels and replaces the second edition (ISO 817:2005), which has been technically revised.

Introduction

This third edition has been technically revised by the addition of new refrigerant designations and a safety classification system based on toxicity and flammability data.

The safety classifications in this International Standard do not consider decomposition products or by-products of combustion. Product and system safety standards (e.g. ISO 5149, IEC 60335-2-24, IEC 60335-2-34, IEC 60335-2-40 and IEC 60335-2-89) address the prevention of ignition of refrigerant based on the characteristics provided in this International Standard.

Refrigerants — Designation and safety classification

1 Scope

This International Standard provides an unambiguous system for assigning designations to refrigerants. It also establishes a system for assigning a safety classification to refrigerants based on toxicity and flammability data, and provides a means of determining the refrigerant concentration limit. Tables listing the refrigerant designations, safety classifications and the refrigerant concentration limits are included based on data made available.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable to its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ANSI/ASHRAE Standard 34, *Designation and Safety Classification of Refrigerants*

ASTM E681, *Standard Test Method for Concentration Limits of Flammability of Chemicals (Vapours and Gases)*

3 Terms, definitions, abbreviated terms and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
acute toxicity
adverse health effect(s) from a single, short-term exposure

3.1.2
acute-toxicity exposure limit
ATEL
maximum recommended refrigerant concentration determined in accordance with the established systems and intended to reduce the risks of acute toxicity hazards to humans in the event of a refrigerant release

Note 1 to entry: The systems are specified in this International Standard.

3.1.3
anaesthetic effect
impairment of the ability to perceive pain and other sensory stimulation

3.1.4
approximate lethal concentration
ALC
concentration of a refrigerant that is lethal to even a single test animal but to less than 50 % of the animals in that group when tested by the same conditions as for an LC_{50} test

3.1.5
azeotrope
blend composed of two or more refrigerants whose equilibrium vapour and liquid phase compositions are the same at a specific pressure, but may be different at other conditions