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## Refrigerants — Designation system

*Fluides frigorigènes — Système de désignation*



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ISO 817:2005(E)

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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 817 was prepared by Technical Committee ISO/TC 86, *Refrigeration and air-conditioning*, Subcommittee SC 8, *Refrigerants and refrigeration lubricants*.

This second edition cancels and replaces the first edition (ISO 817:1974), which has been technically revised.

# Refrigerants — Designation system

## 1 Scope

This International Standard provides an unambiguous system for numbering and assigning composition-designating prefixes to refrigerants. Tables listing the refrigerant designations are included. It is intended to be used with other relevant safety standards such as ISO 5149, IEC 60335-2-24 and IEC 60335-2-40.

## 2 Terms and definitions

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

### 2.1

#### **azeotrope**

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

### 2.2

#### **blends**

mixtures composed of two or more refrigerants

### 2.3

#### **compound**

substance composed of two or more atoms chemically bonded in definite proportions

### 2.4

#### **cyclic compound**

organic compound whose structure is characterized by a closed ring of atoms

### 2.5

#### **isomers**

two or more compounds having the same chemical composition with differing molecular configurations

NOTE Isomers will have different physical properties.

EXAMPLE R-600 ( $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$ ), with a boiling point of 0 °C and R-600a ( $\text{CH}(\text{CH}_3)_2\text{CH}_3$ ) with a boiling point of -12 °C. Both of these compounds contain 4 carbon and 10 hydrogen atoms.

### 2.6

#### **nominal composition**

liquid phase composition of refrigerant blends

NOTE For the refrigerant blends, see Tables 2 and 3.

### 2.7

#### **refrigerant**

fluid used for heat transfer in a mechanical refrigerating system, which absorbs heat at a low temperature and a low pressure of the fluid and rejects it at a higher temperature and a higher pressure of the fluid, usually involving changes of the phase of the fluid