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# ***Geregistreeerde Belgische norm***

**NBN EN 13485**

1e uitg., februari 2002

**Normklasse : E 18**

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## **Thermometers voor het meten van de lucht- en producttemperatuur voor het vervoer, de opslag en de distributie van gekoelde, bevroren en diepgevroren levensmiddelen en consumptie-ijs - Beproevingen, prestaties en geschiktheid**

Thermomètres pour le mesurage de la température de l'air et des produits pour le transport, l'entreposage et la distribution de denrées alimentaires réfrigérées, congelées, surgelées et des crèmes glacées - Essais, performance, aptitude à l'emploi

Thermometers for measuring the air and product temperature for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream - Tests, performance, suitability

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### **Toelating tot publicatie : 09 januari 2002**

Deze Europese norm EN 13485 : 2001 heeft de status van een Belgische norm.

Deze Europese norm bestaat in drie officiële versies (Duits, Engels, Frans).



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***norme belge  
enregistrée***

**NBN EN 13485**

1e éd., février 2002

**Indice de classement : E 18**

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**Thermomètres pour le mesurage de la température de l'air et des produits pour le transport, l'entreposage et la distribution de denrées alimentaires réfrigérées, congelées, surgelées et des crèmes glacées - Essais, performance, aptitude à l'emploi**

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La présente norme européenne EN 13485 : 2001 a le statut d'une norme belge.

La présente norme européenne existe en trois versions officielles (allemand, anglais, français).



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English version

Thermometers for measuring the air and product temperature for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream - Tests, performance, suitability

Thermomètres pour le mesurage de la température de l'air et des produits pour le transport, l'entreposage et la distribution de denrées alimentaires réfrigérées, congelées, surgelées et des crèmes glacées - Essais, performance, aptitude à l'emploi

Thermometer zur Messung der Luft- und Produkttemperatur für den Transport, die Lagerung und die Verteilung von gekühlten, gefrorenen, tiefgefrorenen Lebensmitteln und Eiskrem - Prüfungen, Leistung, Gebrauchstauglichkeit

This European Standard was approved by CEN on 28 September 2001.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 141 "Pressure gauges - Thermometers - Means of measuring and/or recording temperature in the cold chain", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

This European Standard is a document meeting the objectives of directives :

- 92/1/EEC of January 15, 1992 of the Commission of the monitoring of temperatures in the means of transport, warehousing and storage of quick-frozen foodstuffs intended for human consumption ;
- 92/2/EEC of January 13, 1992 of the Commission laying down the sampling procedure and the community method of analysis for the official control of the temperatures of quick-frozen foods intended for human consumption ;
- 93/43/EEC of June 14, 1993 of the Council of the hygiene of foodstuffs and in particular on "temperature control criteria".

Annex A is informative.

This standard contains a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## **Introduction**

This European Standard specifies the technical and functional characteristics of thermometers. It does not define the location of the thermometer and its sensors with respect to types of usage such as transport, storage and distribution.

## 1 Scope

This European Standard sets the technical and functional characteristics for all types of thermometers (electronic, mechanical, etc.) for equipping the means used for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream and for measuring the internal temperature of the products.

It specifies the test methods which allow the verification of the equipment's conformity to suitability and performance requirements.

It applies to the whole indicator-temperature sensor(s). The temperature sensor(s) may be integrated into the thermometer or remote from it (external temperature sensor(s)).

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 50081-1, *Electromagnetic compatibility - Generic emission standard - Part 1: Residential, commercial and light industry*.

EN 50082-1, *Electromagnetic compatibility - Generic immunity standard - Part 1: Residential, commercial and light industry*.

EN 60068-2-27, *Basic environmental testing procedures - Part 2: Tests - Test Ea and guidance: Shock (IEC 60068-27:1987)*.

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*.

EN 61010-1, *Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements. (CEI 610010-1:1990 + A1:1992, modified)*.

EN 13486, *Temperature recorders and thermometers for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream – Periodic verification*.

## 3 Terms and definitions

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

### 3.1

#### **(measurable) quantity**

attribute of a phenomenon, body or substance that may be distinguished qualitatively and determined quantitatively<sup>1)</sup>

EXAMPLE Temperature

### 3.2

#### **unit (of measurement)**

particular quantity, defined and adopted by convention, with which other quantities of the same kind are compared in order to express their magnitudes relative to that quantity<sup>1)</sup>

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<sup>1)</sup> Definition taken from VIM (see Bibliography).