

**SLOVENSKI**  
**STANDARD**

**SIST EN 60335-2-  
24:2003/A11:2004**

oktober 2004

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**Gospodinjski in podobni električni aparati - Varnost - 2-24. del: Posebne zahteve za hladilnike, zamrzovalnike in aparate za pripravo sladoleda in ledu**

Household and similar electrical appliances – Safety – Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers

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ICS 97.040.30; 13.120

Referenčna številka  
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EUROPEAN STANDARD

**EN 60335-2-24/A11**

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2004

ICS 97.040.30

English version

**Household and similar electrical appliances –  
Safety  
Part 2-24: Particular requirements for refrigerating appliances,  
ice-cream appliances and ice-makers**

Appareils électrodomestiques et  
analogues –  
Sécurité  
Partie 2-24: Règles particulières pour  
les appareils de réfrigération,  
les appareils de glaces à la crème et  
les fabriques de glace

Sicherheit elektrischer Geräte für den  
Hausgebrauch und ähnliche Zwecke  
Teil 2-24: Besondere Anforderungen  
für Kühl-/Gefriergeräte, Speiseeis-  
und Eisbereiter

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This amendment A11 modifies the European Standard EN 60335-2-24:2003; it was approved by CENELEC on 2004-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 Central Secretariat or to any CENELEC member.

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

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

A proposal to amend EN 60335-2-24, document CLC/TC 61(SEC)1397, was discussed during the Brussels meeting of CENELEC TC 61 in November 2002, when it was decided to submit a draft for an amendment to the Unique Acceptance Procedure.

The draft was circulated in June 2003 and was approved by CENELEC as amendment A11 to EN 60335-2-24:2003 on 2004-03-01.

The following dates are applicable:

- latest date by which the amendment has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2005-03-01
- date on which national standards  
conflicting with the amendment have to be withdrawn (dow) 2007-08-01

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## Introduction

*Add:*

Products within the scope of this standard may incorporate pressurized components for which the Pressure Equipment Directive, 97/23/EC, applies. Further guidance is given in Annex ZAA.

*Add:*

## Annex ZAA (informative)

### The relevance of the pressure equipment directive

Refrigerating systems having a pressure greater than 0,05 MPa are considered to be assemblies falling within the scope of the Pressure Equipment Directive, 97/23/EC. However, according to Article 1, item 3.6 of the directive, equipment classified no higher than category I and covered by the low voltage directive is excluded from its scope.

According to guideline 1/39 of the directive, this exclusion applies to both components and assemblies (refrigerant circuits). This applies to appliances containing vessels (e.g. compressors, receivers) or piping with limits in accordance with the following:

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#### Vessels

- dangerous refrigerants (Annex II, Table 1):
  - volume not exceeding 1 l, or
  - pressure x volume not exceeding 5 MPa l.
- non-dangerous refrigerants (Annex II, Table 2):
  - volume not exceeding 1 l, or
  - pressure x volume not exceeding 20 MPa l.

#### Piping

- dangerous refrigerants (Annex II, Table 6):
  - numerical designation not exceeding 25, or
  - pressure not exceeding 1 MPa and numerical designation not exceeding 100, or
  - pressure exceeding 1 MPa and pressure x numerical designation not exceeding 100 MPa.
- non-dangerous refrigerants (Annex II, Table 7):
  - numerical designation not exceeding 100, or
  - pressure x numerical designation not exceeding 350 MPa.

For other components, the most onerous limit of the two applies.

The volume is the internal volume of the vessel and includes the volume of pipework up to the first connection. It excludes the volume of fixed internal parts.

The pressure is the maximum pressure the vessel or piping system is exposed to, as specified by the manufacturer of the appliance.

NOTE 1 The pressures may differ throughout the refrigerating system.

NOTE 2 The pressures may be taken from EN 378. However, some applications may exceed the range given in EN 378.

The numerical designation designates the size common to all components in the piping system.

If any component exceeds the limits given above, the appliance has to comply with the directive. The technical requirements are given in Annex I and the conformity assessment tables and procedures in Annexes II and III of the directive.

Commonly used dangerous refrigerants, identified as Group 1 in the directive, are listed in Table ZAA.1.

**Table ZAA.1 - Dangerous refrigerants**

Refrigerant number	Refrigerant name	Refrigerant formula
R-32	difluoromethane	CH <sub>2</sub> F <sub>2</sub>
R-143a	1,1,1-trifluoroethane	CF <sub>3</sub> CH <sub>3</sub>
R-152a	1,1-difluoroethane	CHF <sub>2</sub> CH <sub>3</sub>
R-290	propane	C <sub>3</sub> H <sub>8</sub>
R-600	butane	C <sub>4</sub> H <sub>10</sub>
R-600a	isobutane	CH(CH <sub>3</sub> ) <sub>3</sub>
R-717	ammonia	NH <sub>3</sub>
R-1270	propylene	C <sub>3</sub> H <sub>6</sub>

Commonly used non-dangerous refrigerants, identified as Group 2 in the directive, are listed in Table ZAA.2.

**Table ZAA.2 – Non-dangerous refrigerants**

Refrigerant number	Refrigerant name	Refrigerant formula	Blended refrigerants
R-22	chlorodifluoromethane	CHClF <sub>2</sub>	-
R-125	pentafluoroethane	CF <sub>3</sub> CHF <sub>2</sub>	-
R-134a	1,1,1,2-tetrafluoroethane	CF <sub>3</sub> CH <sub>2</sub> F	-
R-404A	-	-	R-125 (44 %) + R-143a (52 %) + R-134a (4 %)
R-407C	-	-	R-32 (23 %) + R-125 (25 %) + R-134a (52 %)
R-410A	-	-	R-32 (50 %) + R-125 (50 %)
R-507A	-	-	R-125 (50 %) + R-143a (50 %)