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English version

**Scheme for carrying out a risk assessment for flammable
refrigerants in case of household refrigerators and freezers**

Schéma pour la réalisation d'une estimation des risques
engendrés par les fluides frigorigènes inflammables dans
les réfrigérateurs et congélateurs ménagers

Schema für die Durchführung einer Risikobewertung für
brennbare Kältemittel bei Haushalt-Kühl- und
Gefriergeräten

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (CEN/TR 14739:2004) has been prepared by Technical Committee CEN/TC 182 "Refrigerating systems; safety and environmental requirements", the secretariat of which is held by DIN.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this CEN Technical Report: 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.

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Introduction

The use of CFC and HCFC is restricted by Council Regulation 2037/2000 of the European Parliament.

Both HCs and HFCs can be used as refrigerants as well as blowing agents for insulation foams. HFC 134a is commonly used as refrigerant but can also be used as a blowing agent for insulation foam.

The environmental advantages of HCs are obvious as the Global Warming Potential (GWP) is lower compared to the GWP of HFC 134a. Therefore, a majority of household appliance manufacturers are phasing out HFCs in favour of HCs.

Table 1 — Values for GWP — Global Warming Potentials

| Emissions with impact on the global warming | GWP 100 years |
|---|---------------|
| CFC-12 | 8 500 |
| 141b, HCFC | 630 |
| 134a, HFC | 1 300 |
| 245 fa, HFC | 820 |
| Cyclopentane, Isobutane | 3 |
| CO ₂ | 1 |
| Others (CH ₄ , N ₂ O) | (24,5, 320) |

With regard to the global warming impact see as well Annex B of EN 378-1:2000 (TEWI).

1 Scope

The document gives a scheme for carrying out a risk assessment for flammable refrigerants in case of household refrigerators and freezers with refrigerants of group A3 according to EN 378-1, taking into consideration a sealed system and a refrigerant charge of not more than 150 g. Sealed systems are refrigerating systems in which all refrigerant containing parts are made tight by welding, brazing or similar permanent connection.

NOTE For risk assessment the method with flow diagrams is selected, because these are helpful for checking the possible ignition of the whole appliances and to estimate the probability of ignition. It takes EN ISO 12100, EN 1050, EN 1127, EN 60335-2-24/A53, E DIN 7003 into consideration.

At least the probability of deflagration is the product of multiplication of the probability of defects of different components and the probability for the presence of explosive atmosphere and the probability for the ignition sources.