SLOVENSKI STANDARD
SIST EN 12021:1999

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Oprema za varovanje dihal – Stisnjen zrak za dihalne aparate

Respiratory protective devices - Compressed air for breathing apparatus

Atemschutzgeräte - Druckluft für Atemschutzgeräte

Appareils de protection respiratoire - Air comprimé pour appareil de protection respiratoire isolant

Ta slovenski standard je istoveten z: **EN 12021:1998**

ICS:

13.340.30	Varovalne dihalne naprave	Respiratory protective devices

SIST EN 12021:1999 **en**

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Descriptors: personal protective equipment, respiratory protective equipment, compressed air, designation, specifications, quality, composition, determination of content, water

English version

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This European Standard was approved by CEN on 4 December 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 79 "Respiratory protective devices", the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by June 1999, and conflicting national standards shall be withdrawn at the latest by June 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

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.

1 Scope

This European Standard specifies requirements for the quality of compressed air supplied for use with the following types of equipment:

a) Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus and open-circuit compressed air underwater breathing apparatus (SCUBA);

b) Respiratory protective devices - Compressed air line breathing apparatus and compressed airline breathing apparatus for use under water;

c) Respiratory protective devices for escape - Self-contained open-circuit compressed air breathing apparatus including full face mask or mouthpiece assembly or hoods.

The standard also applies to synthetic air. Account is taken of the use of air at normal ambient pressures and increased pressures. Maximum allowable concentrations of impurity for compressed air are quoted as values calculated at normal atmospheric pressure.

This European Standard does not apply to compressed air used for medical purposes, for underwater breathing apparatus specially designed to be used for diving in water and other fluids when the hydrostatic pressure exceeds 6 bar absolute or for breathing apparatus designed for use at high altitudes.

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.

EN 132	Respiratory protective devices - Definitions of terms and pictograms
ISO 2533	Standard atmosphere

3 Definitions

For the purposes of this standard the definitions given in EN 132 apply.

4 Designation

Designation of compressed air meeting the requirements of this standard:

Compressed air for breathing apparatus EN 12021

5 General

All data given or required in this European Standard are valid for normal atmospheric pressure (1 bar absolute, 20 °C). All percentage requirements are given in % by volume (dry air). Typical composition of natural air is given in annex A.

6 Requirements

6.1 Oxygen

The oxygen content shall be in the range of (21 ±1) % by volume (dry air).

6.2 Contaminants

6.2.1 General

Compressed air for breathing apparatus shall not contain any contaminants at a concentration which can cause toxic or harmful effects. In any event all contaminants shall be kept to as low a level as possible and shall be far below the national exposure limit. Combination effects of more than one contaminant shall be taken into account.

In the absence of more stringent national requirements the values in 6.2.2 to 6.2.5 shall be applied.

NOTE: The limit of concentration for any contaminant should be derived from national exposure levels taking into account as far as is reasonably practical the effects of pressure and exposure time.

6.2.2 Lubricants

Lubricant content (droplets or mist) shall not exceed 0,5 mg/m^3. Where synthetic lubricants are present 6.2.1 applies.

6.2.3 Odour and taste

The air shall be without significant odour or taste.

6.2.4 Carbon dioxide content

The carbon dioxide content shall not exceed 500 ml/m^3 (500 ppm).

6.2.5 Carbon monoxide content

The carbon monoxide content shall be as low as possible but not exceed 15 ml/m^3 (15 ppm).

6.3 Water content

6.3.1 There shall be no free liquid water.

6.3.2 Air for compressed air line breathing apparatus shall have a dewpoint sufficiently low to prevent condensation and freezing. Where the apparatus is used and stored at a known temperature the pressure dewpoint shall be at least 5 °C below the likely lowest

temperature. Where the conditions of usage and storage of the compressed air supply is not known the pressure dewpoint shall not exceed -11 °C.

6.3.3 The maximum water content of air at atmospheric pressure given in table 1 shall be used.

Table 1

Nominal pressure bar	Maximum water content of air at atmospheric pressure mg/m³
40 to 200	50
> 200	35

NOTE: The water content of the air supplied by the compressor for filling 200 bar or 300 bar cylinders should not exceed 25 mg/m³.

7 Sampling and testing

Any appropriate method may be employed, provided it conforms with the following general requirements:

- for measuring and assessing results the accuracy of the method shall be taken into consideration, and

- the detection limit of the method employed shall be below the required limit value.

Annex A (informative)

Typical composition of natural air (ISO 2533)

Table A.1

Components	Mass in % (dry air)	Volume in % (dry air)
Oxygen (O_2)	23,14	20,947 6
Nitrogen (N_2)	75,52	78,084
Argon (Ar)	1,288	0,934
Carbon dioxide (CO_2)	0,048	0,031 4
Hydrogen (H_2)	0,000 003	0,000 05
Neon (Ne)	0,001 27	0,001 818
Helium (He)	0,000 073	0,000 524
Krypton (Kr)	0,000 330	0,000 114
Xenon (Xe)	0,000 039	0,000 008 7