SLOVENSKI STANDARD
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Koncentrati za hemodializo in podobne terapije

Concentrates for haemodialysis and related therapies

Konzentrate für die Hämodialyse und verwandte Therapien

Concentrés pour hémodialyse et thérapies associées

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Concentrates for haemodialysis and related therapies

Concentrés pour hémodialyse et thérapies associées

Konzentrate für die Hämodialyse und verwandte Therapien

This European Standard was approved by CEN on 30 December 2001.

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Foreword

This document (EN 13867:2002) has been prepared by Technical Committee CEN /TC 205, "Non-active medical devices", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

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

For A-deviations, see annex ZB.

This document 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).

Annexes A, ZA and ZB are for information only.

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

Introduction

Dialysing fluids contain electrolytes in concentrations approaching that of the composition of normal extra-cellular body fluid. They can also contain non-electrolytes such as dextrose. Dialysing fluid quality plays a key role in the safety and biocompatibility of the dialysis treatment. Because of the large volumes employed, dialysing fluids are generally prepared by diluting concentrates with water of suitable quality.

The manufacturer of concentrates should utilize raw materials and techniques to minimize microbial contamination (a low bioburden). The concentrates should be stored in conditions that assure the maintenance of this low level.

During the dilution and use of these concentrates it is essential to take precautions to minimize any microbial contamination.

The dialysing fluid is prepared from concentrates manufactured, packaged and labelled according to this standard, mixed with defined large proportions of water meeting national requirements on water for dialysis. Operation of water treatment equipment, selection and handling of concentrates after delivery to the hospital or clinic, and operation of the dialysis equipment are the responsibility of the dialysis facility.

The properties of the final mixed dialysing fluids are not within the control of concentrate manufacturers. This standard does not address the important clinical and technical processes connected with the selection of concentrates and preparation of dialysing fluids. Dialysis professionals make choices about the various applications (e.g. haemodialysis, haemodiafiltration, haemofiltration) and it is essential they understand the corresponding risks and the requirements for safety of fluids used for each therapy.

1 Scope

This European Standard specifies requirements for dry and liquid concentrates to be diluted for use as dialysing fluids in haemodialysis or related therapies. It addresses chemical and microbiological quality and purity, handling and labelling of concentrates, the requirements for containers and the tests to monitor chemical and microbiological contents and quality of such concentrates.
This European standard does not address the final mixing and use of these concentrates or the treated water used in connection with haemodialysis and related therapies.
This European standard does not apply to dialysing fluid regeneration systems.

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 556 Sterilization of medical devices - Requirements for medical devices to be labelled “Sterile”

EN 980 Graphical symbols for use in the labelling of medical devices

EN 1174-1 Sterilization of medical devices - Estimation of the population of micro-organisms on product – Part 1: Requirements

EN 1174-2 Sterilization of medical devices - Estimation of the population of micro-organisms on product – Part 2: Guidance

EN 1174-3 Sterilization of medical devices - Estimation of the population of micro-organisms on product – Part 3: Guide to the methods for validation of microbiological techniques

European Pharmacopoeia 3rd edition: 1999 (including supplements 2000 and 2001)

3 Terms and definitions

For the purpose of this European standard, the following terms and definitions apply:

3.1
acetate dialysing fluid
dialysing fluid without bicarbonate, using acetate as a buffer

NOTE Acetate dialysing fluid is generally produced from a single concentrate.

3.2
batch system
system in which water and concentrate(s) are mixed in one tank and the resulting fluid used for haemodialysis or related therapies

3.3
bicarbonate dialysing fluid
dialysing fluid containing physiological or higher concentrations of bicarbonate as buffer

NOTE Bicarbonate dialysing fluid is produced by mixing two or more concentrates.

3.4
dialysing fluid
dialysis fluid
dialysate
fluid which is intended to exchange solutes with blood during haemodialysis or haemodiafiltration

3.5
dialysing fluid without buffer
dialysis fluid without basic agents using the buffer in the substitution fluid

3.6
proportioning system
system for continuous mixing of water and concentrate in order to obtain dialysing fluid and/or substitution fluid

4 Requirements

4.1 Concentration limits

All components identified in the labelling shall be present within ± 5% of the stated concentration, with the exception of sodium which shall be present within ± 2.5% of the stated concentration for the duration of any specified shelf-life. A list of examples of analytical techniques is given in annex A.

4.2 Water quality

When tested as described in 6.1, the quality of water used in the manufacture of liquid concentrates shall be in accordance with the requirements of the Monograph 1167 of the European Pharmacopoeia: 1999.

4.3 pH range

When the concentrate is diluted in accordance with the manufacturer's instructions and tested as described in 6.2, the ready-to-use dialysing fluid shall have a pH in the range of 6,0 to 8,0 or, in the case of dialysing fluid without buffer, in the range of 5,0 to 8,0.

4.4 Chemical quality

Raw materials used for the manufacture of concentrates shall meet the technical requirements of the relevant Monographs of the European Pharmacopoeia 1999.
The aluminium content of the concentrate shall not exceed 100 µg/l.

4.5 Manufacturing process (filtration)

During the manufacturing process for dialysis concentrates, liquid acid or acetate concentrates shall be filtered through a filter of pore size 1,2 µm or finer, that does not release fibres and that does not contain material of known potential for human injury. Liquid bicarbonate concentrates shall be filtered through a similar filter of pore size 0,22 µm or finer if purified water according to the European Pharmacopoeia: 1999 is used, or 0,45 µm or finer if water for injection is used. The test for compliance is given in 6.3.

4.6 Containers

When tested as described in 6.4, containers, including the closures, shall not interact chemically, physically or otherwise with the concentrate, and the container and closure shall maintain the microbiological quality and the volume of the contents.

4.7 Microbiological quality

When tested as described in 6.5.1, the bacterial count of the concentrate shall not exceed 10^2 CFU/ml.
When diluted with water for dialysis according to the relevant monograph of the European Pharmacopoeia: 1999 to the ready-to-use concentration in accordance with the manufacturer's instructions and tested as described in 6.5.2, the endotoxin level of the concentrate shall not exceed 0,5 IU/ml.

5 Labelling and documentation requirements

5.1General

If symbols are used, they shall comply with EN 980 or be explained in the labelling.

5.2Information to be given on the concentrate container

The following information shall be given on the container:

a) the manufacturer's name and address;

b) description of contents;

c) the trade name of the product.

d) the fill volume/weight of the container.

e) a prominent statement that close inspection of containers and equipment shall be practised along with monitoring of the dialysis fluid to ensure that the appropriate concentrate(s) is(are) being used.

NOTE Currently no equipment exists that adequately protects the patient from inappropriate dialysis fluid resulting from the misuse of concentrates. Careful attention to labels, connections and procedures by professionals in attendance is essential for safety. The policies establishing this monitoring and the practices which assure it are the responsibility of the user.

f) for concentrates which can support microbial growth (e.g. bicarbonate), a statement drawing the user's attention to the fact that the opening of the container can initiate bacterial growth.

g) the composition, including additives, and the mass or concentration of each specified component .

h) for concentrates for batch systems, the volumes or weights of concentrate and water that shall be mixed.

i) for concentrates for proportioning systems, the proportion of each concentrate and water that shall be mixed. Proportioning ratios shall be prominently displayed on the label

NOTE As an example, the information can be given as '1 + 34'.

j) the concentration of each electrolyte in the dialysing and/or substitution fluids in mmol/l and the concentration of non-electrolytes in the dialysing fluid in g/l, when diluted in accordance with the proportioning rate specified.

NOTE The concentrations of solutes can vary depending on the selection of combination of concentrates or any profiling setting on the dialysis machine.

k) a statement on non-pyrogenicity and, as applicable, sterility;

l) the expiry date, expressed as yyyy/mm;

m) the lot or batch number;

n) a statement to read the instructions for use;

o) instructions on special handling or storage, as applicable;

5.3Information to be given on the shipping container, if any

The following information shall be given on the shipping container:

p) the manufacturer's name and address;

q) description of contents, including number of containers or types of concentrates;

r) the trade name of the product.