SLOVENSKI STANDARD
SIST EN 1884:2000

01-december-2000

Feather and down - Test methods - Determination of microbiological state

Feather and down - Test methods - Determination of microbiological state

Federn und Daunen - Prüfverfahren - Bestimmung des mikrobiologischen Zustandes

Plumes et duvets - Méthodes d'essais - Détermination de l'état microbiologique

Ta slovenski standard je istoveten z: **EN 1884:1998**

ICS:

59.040 Pomožni materiali za tekstilije Textile auxiliary materials

SIST EN 1884:2000 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1884

September 1998

ICS 59.040

Descriptors: stuffings, feathers, tests, microbiological analysis, bacteria, bacteria count methods, culture media

English version

Feather and down - Test methods - Determination of microbiological state

Plumes et duvets - Méthodes d'essais - Détermination de l'état microbiologique

Federn und Daunen - Prüfverfahren - Bestimmung des mikrobiologischen Zustandes

This European Standard was approved by CEN on 13 August 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.

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.

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

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

Ref. No. EN 1884:1998 E

Contents **Page**

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 222 "Feather and down as filling material for any article, as well as finished articles filled with feather and down", the secretariat of which is held by UNI.

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 March 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

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.

Annex A is informative.

Introduction

Feather materials for filling which come from plucking of waterfowls and/or landfowls are, when raw, contaminated by pathogenic microorganisms of fecal and urinary origin (e.g. salmonellae, fecal streptococci, etc.). These are present in variable quantities, depending on the environment and to the hygienic conditions of breeding, plucking and storage packing.
Fabrication processes always comprise the dusting, washing and sanitization in order to eliminate the pathogenic micro-organisms and to ensure the protection of the consumer health.
This European Standard specifies two methods to evaluate the microbiological state of feather materials for filling: the first one is used only as routine control, while the second one is used when it is necessary to have complete and specific information on the microbiological state.

NOTE: Handling of microorganisms which are potentially hazardous requires a high degree of technical competence. Only personnel trained in microbiological techniques should carry out the test. Code of practice for disinfection, sterilization and personal hygiene are strictly observed.
It is recommended that workers should consult ISO 7218.

1 Scope

1.1 Dip-slide method

1.1.1 This method describes the dip slide procedures, that uses two types of agar to test the presence of commensal bacteria and coliforms (gram negative).This procedure is suitable when a manufacturer requires a simple test to screen finished filling material hygiene.

1.1.2 This method cannot be used to test the presence of sulphito-reducing clostrides (gram positive) and salmonella (gram negative).

1.2 Selective medium and count plate method

This method describes procedures that use different types of medium to verify the presence and quantity of:

- mesophilic aerobic bacteria (see 6.4)
- fecal streptococci (see 6.5)
- sulphite-reducing clostridium (see 6.6)
- salmonella (see 6.7).

This method, used for both raw and finished materials, gives more complete and specific information on the control of the microbiological state of the filling material than the dip slide method.

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 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 1883 Feather and down - Sampling in view of tests

EN 374-1 Protective gloves against chemicals and micro-organisms - Part 1: Terminology and performance requirements

EN 374-2 Protective gloves against chemicals and micro-organisms - Part 2: Determination of resistance to penetration

EN ISO 3696 Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 mesophilic aerobic bacteria content: Quantity of microorganisms, chiefly bacteria, which develop in the presence of oxygen at a temperature of (30±2)°C.

3.2 faecal streptococci: Kind of bacteria belonging to the family of Lactobacillaceae. The members of this kind are cocci (Gram positive).

3.3 sulphite-reducing clostridium: Kind of bacteria (clostridium) belonging to the family Bacillaceae. The members of this kind are rods (gram positive), anaerobic and sporigenic.

3.4 salmonella: Kind of bacteria belonging to the family of Enterobacteriaceae. The members of this kind are rods (Gram negative).

3.5 initial extract: Filtrate obtained from the treatment of the test specimen with the peptonic physiological solution in accordance with the conditions as prescribed.

3.6 decimal dilutions: Series of successive dilutions prepared from the initial extract (3.5)

3.7 colony forming units (CFU): Colony formed by millions of bacteria of the same species grown by multiplication of a single bacterial cell on a specific agar. This is visible to the naked eye and can have different shapes (lenticular, starry, etc.) of variable dimensions according to the species, the type of agar and the culture conditions.

4 Principle

4.1 Dip-slide method

A dip slide (5.1.2) [CLED (Cystine, Lactose, Electrolyte, Deficient) and MacConkey)] is encased in a sterile cylindrical container, and submerged in an initial extract (3.5) and incubated at (37±1)°C overnight. The count of microbial colonies grown on the two different types of agar is indicative of the degree of microbiological state.

NOTE: CLED medium is a selective medium for the cultivation of urinary and fecal pathogens. MacConkey agar preferentially supports the growth of coliforms.

4.2 Selective medium and count plate method

4.2.1 The filtrate, obtained by mixing the initial extracts (3.5) of the two test specimens, is divided into two parts:

4.2.1.1 One part is diluted in a scalar manner using the procedure of decimal dilutions. The filtrate and the various dilutions are seeded, in groups of three, on each of three selective agars for the determination of the mesophilic aerobic bacterial charge, the faecal streptococci and the sulphite-reducing clostridium.

4.2.1.2 The second part is passed through a cellulose acetate membrane which prevents salmonellae from passing through. The membrane is then seeded on an enrichment broth. Finally a part of this broth is seeded on agar specific for salmonellae.

4.2.2 The count of the microbial colonies grown on each type of agar is indicative of the degree of contamination.

5 Dip slide method

5.1 Apparatus

5.1.1 Wide mouth sterile glass jars, of capacity 120 ml

5.1.2 MacConkey agar/CLED medium dip slides, 19 mm x 50 mm

5.1.3 Incubator, capable of maintaining (37 ± 1) °C

5.1.4 Sterile and protective gloves (see EN 374-1 and EN 374-2)

5.1.5 Sterile plastic bags

5.1.6 Balance with a maximum permissible error of 0,01 g

5.2 Reagents

Sterile saline solution, containing (8,5 ± 0,2) g sodium chloride per litre

5.3 Procedure

5.3.1 From a conditioned laboratory bulk sample (see EN 1883),using sterile techniques, take five test specimens of approximately 1,0 g, weighed to a maximum permissible error of 0,05 g

5.3.2 Place a test specimen in a sterile 120 ml wide mouth glass jar (5.1.1) containing 100 ml of sterile saline solution (5.2). Close the jar and shake vigorously by hand for (60±2) s

5.3.3 Remove the dip slide from its sterile container and momentarily submerge it vertically in the shaken saline solution.

5.3.4 Remove the dip slide, allow to drain for a few seconds, replace it in the sterile container and incubate at (37 ± 1) °C for (16 ± 2) h

5.3.5 Repeat the procedure from 5.3.2 to 5.3.4 for the remaining four test specimens.

5.3.6 Carry out a sterility control by submerging a dip slide in sterile saline solution only and incubating as for the test specimens. The test is valid only if no bacterial growth is observed on this dip slide after incubation.

5.3.7 After incubation, remove the dip slide from the container and count, for each test specimen, the number of bacterial colony forming units (CFU) on both agar types. The result should be recorded as "too many to count" (TMTC) if the agar is completely covered by bacteria such that individual colonies cannot be distinguished or, if the colonies merge into one another making accurate counting difficult.
Occasionally, bacteria growing at the edge of the dip slide will not form the normal disc shaped colony seen in the centre of the slide, but will spread along the edge of the slide, sometimes up to a distance of a few centimetres. Such growth forms should be counted as single colonies.

5.4 Expression of results

Express the results as the number of colony forming units (CFU) to one decimal place.

5.5 Test report

Report the mean of the five results and the standard deviation.

6 Selective medium and count plate method

6.1 Apparatus

6.1.1 Autoclave for moist-heat sterilization at approximately (121 ± 1)°C.

6.1.2 Oven for dry sterilization of the glassware operating at a temperature of between 170°C and 175°C.

6.1.3 Test-tube agitator for mixing the decimal solutions.

6.1.4 Thermostats adjustable to the required temperatures, with a maximum permissible error of ± 1°C.