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Matches - Performance requirements, safety and classification

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ICS 71.100.30

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Postadress: SIS, Box 6455, 113 82 STOCKHOLM
Telefon: 08 - 610 30 00. Telefax: 08 - 30 77 57

Upplysningar om **sakinnehållet** i standarden lämnas av STG.
Telefon: 08 - 13 62 50. Telefax: 08 - 618 61 28

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English version

Matches - Performance requirements, safety and classification

Allumettes - Exigences de performance, sécurité et classification

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This European Standard was approved by CEN on 1997-01-05. 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.

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CEN

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

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

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Foreword

This European Standard has been prepared by CEN/CS.

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of an identical text or by endorsement, at the latest by August 1997, and conflicting national standards shall be withdrawn at the latest by August 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, 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 safety, performance, classification and marking of matches, together with their match containers, available to the general public free of charge or in return for payment.

It gives

- the necessary tests to establish compliance with these requirements;
- a sampling procedure to enable the selection of individual matches and match containers for test;
- an acceptable quality level for matches and match containers within a sample.

It relates the acceptable quality level to the category of hazard considered to result from failure to comply with the requirements.

The standard is applicable to all matches where requirements and tests are followed according to the classification and definition of the matches under examination.

The requirements of this standard also apply to dedicated matches. However those clauses which, when complied with, clearly render the match ineffective for its specific purpose are not applicable in this case.

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.

- ISO 2859-1 Sampling procedures for inspection by attributes - Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection
- ISO 2859-3 Sampling procedures for inspection by attributes - Part 3: Skip-lot procedures
- ISO 6341:1989 Water quality - Determination of the inhibition of the mobility of *Daphnia magna* Straus (Cladocera, Crustacea)

3 Definitions

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

3.1 match: Stem tipped in combustible material that provides support during ignition and the fuel for its continued burning.

3.1.1 conventional match (hereafter referred to as "match"): Match which is not a special purpose product such as a windproof or a water resistant match.

3.1.2 dedicated match: Match intended and identified for a specific purpose (windproof or waterproof)

3.2 striking surface: Surface against which matches are struck to light them.

3.3 match container: unit for retaining the matches and incorporating the means for igniting these in the form of a striking surface.

NOTE 1: Matches are available in containers the most typical of which are boxes and books.

NOTE 2: Typical features of matches and match containers referred to in this standard are exemplified for box matches in figure A.1. Similar features exist in other types of matches.

3.4 safety match: Match that can be ignited only by being struck against a complementary composition to that of the head coated on part of the match container.

3.5 strike anywhere match: Match that can be ignited by being struck against a surface which is not necessarily of a complementary composition to that of the head.

3.6 wood match: Match with a stem made from wood.

3.7 wax match: Match with a stem constructed from paper and impregnated with wax.

3.8 cardboard match: Match with a stem cut from cardboard.

3.9 book match: A presentation of matches in the manner of one or more combs fixed inside a folding cover which constitutes its container.

3.10 doubles: Match heads joined together by a bridge of composition which is regarded as one match for the purposes of this standard.

3.11 fractured heads: Match heads with broken or cracked surfaces.

3.12 fractured stem: Match stem that breaks with no separation.

3.13 afterglow: Residual glow after the flame has been extinguished.

3.14 head composition: Combustible material forming the match tip.

3.15 AQL: Acceptable quality level in accordance with ISO 2859.

3.16 normal corrected vision: The naked eye corrected to normal vision if necessary.

NOTE: This is usually by the wearing of spectacles.

3.17 marking: required information specified in clause 8.

4 Sampling, conditioning, acceptance and rejection

4.1 Sampling and AQLs

Select samples of matches and match containers for testing in accordance with ISO 2859-1 and ISO 2859-3. The inspection levels shall be S3 for matches and S2 for the containers.

The AQL for each performance requirement is specified in tables 2, 4, 5, 6, 7 and 8 and relevant clauses.

NOTE: AQLs have been chosen by category of hazard as described in table 1.

Table 1: Categories of hazard and AQLs

Category	AQL
Critical	0,1
Serious	0,65
Major A	1,5
Major B	4

4.2 Conditioning

Prior to testing for performance, samples shall be maintained at $(23 \pm 5)^{\circ}\text{C}$ and $(50 \pm 20) \% \text{ rh}$ for not less than 24 h. Testing shall commence within 30 s of transferring samples from the conditioning to the testing areas.

4.3 Acceptance and rejection

Take the AQL from the relevant table 2, 4, 5, 6, 7 or 8, or from the relevant clause, refer to the relevant sampling table (see 4.1) and accept or reject the sample by referring to the acceptance or rejection figures in that table.

In the event of product being rejected on a first test it is permitted to test a further quantity of product such that the **total** sample conforms to the next highest permitted sample size code letter. Acceptance or rejection is then based on the criteria pertaining to the larger sample size.

5 Visual inspection

5.1 General

All visual inspections shall be carried out from a distance of (300 ± 50) mm with the-unaided eye, or using normal corrected vision only, at an ambient light level sufficient to provide not less than 250 lx at the surface under inspection.

The testing for striking performance, **6.1.1** shall be carried out at an ambient light level not exceeding 100 lx.

Matches failing the visual inspection requirements of **5.2** and **5.3** shall be replaced by satisfactory samples before assessing performance according to clause 6.

5.2 Complete product

5.2.1 Contents

The number of matches in a match container shall correspond with the declared contents (see clause 8) to within $\pm 12,5$ % for individual containers. The mean value of all the contents shall be between 98 % and 110% of the declared contents.

If $\pm 12,5$ % of the declared count is a fractional number this should be rounded up to the nearest whole number.

5.2.2 Envelopment

All matches shall be inside the match container.

5.2.3 Ease of opening

When each match container is opened and closed once, it shall not tear or acquire any additional creases resulting from excessive force having to be applied.

5.2.4 Retention of contents

After the operation in **5.2.3** the contents shall be retained when the closed container is oriented in all directions.

5.2.5 AQLs for the requirements in **5.2** shall be as given in table 2.

Table 2: AQLs for visual inspection of complete product

Type of inspection	AQL
Contents of match containers	1,5
Envelopment	1,5
Ease of opening	1,5
Retention of contents	1,5

5.3 Individual matches

5.3.1 Match stems shall be of consistent dimensions, to within $\pm 15\%$ of the mean values and shall be not less than 27 mm in length, excluding the head.

5.3.2 All matches shall have a head which shall be consistent in dimensions. The length, measured down the stem, from tip to skirt of the head shall conform to the requirements in table 3.

Table 3: Length of head

	Max. head length (mm)	Min. head length (mm)
Wood match where x = edge length of cross section of the stem	3x	1,5x
Wax match where y = diameter of the stem	4y	2y
Book match	8	3

Note: This requirement does not apply to dedicated matches, such as windproof and waterproof matches, whose length and flame height should be commensurate with their intended and stated function.

5.3.3 Head shape shall be consistent with no peaks or rough edges and shall be complete. Match heads shall not be joined together by a bridge of the composition to form doubles.

5.3.4 Heads shall exhibit no broken or cracked surface areas (see table 4).

5.3.5 AQLs for these requirements in 5.3 shall be as given in table 4.