



DEAS 461-1: 2023

ICS 71.100.70

DRAFT EAST AFRICAN STANDARD

Hair dye — Specification — Part 1: Aryl diamine based formulated powder

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards. XXXXXX.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 071, *Cosmetics and cosmetic products*.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This third edition cancels and replaces the second edition (EAS 461-1: 2013), which has been technically revised.

EAS 461 consists of the following parts, under the general title *Hair dye — Specification*:

- *Part 1: Aryl diamine based formulated powder*
- *Part 2: Aryl di-amine-based liquid oxidation*

Hair dye — Specification — Part 1: Aryl diamine based formulated powder

1 Scope

This Draft East African Standard specifies the requirements and sampling and test methods for aryl diamine based formulated powder hair dyes.

This standard only covers permanent powder hair dyes based on aryl di-amines which act as primary intermediates in dyes.

It does not apply to vegetable-based hair dyes, metallic-based hair dyes and liquid hair dye.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EAS 346, *Labelling of cosmetics — General requirements*

EAS 377 (All parts), *Cosmetics and cosmetic products*

EAS 846, *Glossary of terms relating to cosmetic industry*

EAS 847-16, *Cosmetics — Analytical methods — Part 16: Determination of lead, mercury and arsenic content*

ISO 24153, *Random sampling and randomization procedures*

3 Terms and definitions

For the purposes of this standard, the terms and definitions given in EAS 846 shall apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Requirements

4.1 General requirements

4.1.1 All ingredients used in the manufacture of powder hair dye shall comply with all parts of EAS 377.

4.1.2 Powder hair dye shall be fine and free flowing.

4.1.3 Powder hair dye shall contain an aryl diamine as the active ingredient and peroxide as the oxidizing agent.

4.1.4 Powder hair dye shall be dermatologically safe, shall not cause irritation of the scalp and shall have no undesirable effect on the hair.

4.1.5 Powder hair dye shall be black or other colours as ready for use or in powder form.

4.2 Specific requirements

4.2.1 Powder hair dye shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for aryl diamine based formulated dye

S/N	Characteristic	Requirement		Test method
		Black	Other colours	
i.	pH of 5 % (m/m) solution in water	7 — 10	7 — 10	Annex A
ii.	Aryl diamine content, %, calculated as free base	10 — 30	5 — 10	Annex B

4.2.2 Ready for use aryl di-amine based hair dye shall comply with requirement given in Table 2 when tested in accordance with the test method specified therein.

Table 2 — Requirements for aryl di-amine based ready for use

Characteristic	Requirement		Test method
	Black	Other colours	
Aryl diamine content, %, calculated as free base	1.5 – 3.0	0.75 — 1.5	Annex C

4.3 Heavy metal contaminants

The product shall comply with the limits for heavy metal contaminants given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Limits for heavy metal contaminants for aryl diamine based formulated powder

S/No.	Characteristic	Maximum limit ^a mg/kg	Test method
i.	Lead	10	EAS 847-16
ii.	Arsenic	2	
iii.	Mercury	2	

^a The total amount of heavy metals as lead, mercury and arsenic, in combination, in the finished product shall not exceed 10 mg/kg.

5 Patch test

5.1 For carrying out a preliminary test by the intended user to avoid skin irritation.

5.2 Para-phenylenediamine containing preparations may cause serious inflammation of the skin in some cases and so a preliminary test should always be carried out to determine whether or not special sensitivity exists. For carrying out the test, cleanse a small area of skin behind the ear or upon the inner surface of the forearm, using either soap and water or alcohol.

5.3 Apply a small quantity of the hair dye as prepared for use to the area and allow it to dry. After 48, h wash the area gently with soap and water. If no irritation or inflammation is apparent, it shall be assumed that no hyper sensitivity to the dye exists. The test shall, however, be carried out before each and every application. This preparation shall on no account be used for dyeing eyebrows or eyelashes as severe inflammation of the eye or even blindness may result'.

6 Packaging

The product shall be packaged in suitable well-sealed containers that shall protect the contents and shall not cause any contamination or react with the product.

7 Labelling

In addition, to the labelling requirements given in EAS 346, each package shall be legibly and indelibly marked with the following information:

- a) product name as "Hair dye";
- b) An indication of the word "powder";
- c) colour of the dye;
- d) precaution/warning:
 - i. The following warnings shall be printed on the label if the package is for general use:
 - 'can cause an allergic reaction'; and
 - 'do not use to dye eyelashes or eyebrows'.
 - ii. The following warnings shall be printed on the label if the package is for professional use:
 - 'for professional use only';
 - 'can cause an allergic reaction'; and
 - 'wear suitable gloves'.
- e) instructions for use.

9 Sampling

Sampling shall be done in accordance with ISO 24153.

Annex A (normative)

Determination of pH

A.1 Apparatus

A.1.1 pH meter, equipped with a glass electrode

A.1.2 Beaker, of 100 mL capacity

A.2 Reagents

A.2.1 pH 7.0 buffer solution

A.2.2 pH 4.0 and pH 9.0 buffer solutions

A.2.3 Deionised water

A.3 Procedure

A.3.1 Dip the pH meter into about 50 mL of pH 7.0 buffer solution. Ensure that the reading is 7.0.

A.3.2 Rinse the meter with deionised water, and dip it into about 50 mL of pH 4.0 buffer solution. Ensure that the reading is 4.0. Repeat using pH 9.0 buffer solution.

A.3.3 Prepare 5 % solution (m/m) of the powder dye in water. Determine its pH at $25\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ using the pH meter. Give the results, correct to an integer.

Annex B (informative)

Determination of dye content

B.1 Principle

This method estimates the para-phenylenediamine as diacetyl derivative of para-phenylenediamine.

B.2 Apparatus

B.2.1 G4 sintered glass crucibles

B.2.2 Continuous extraction apparatus as illustrated in Figure B.1

All dimensions in millimetres

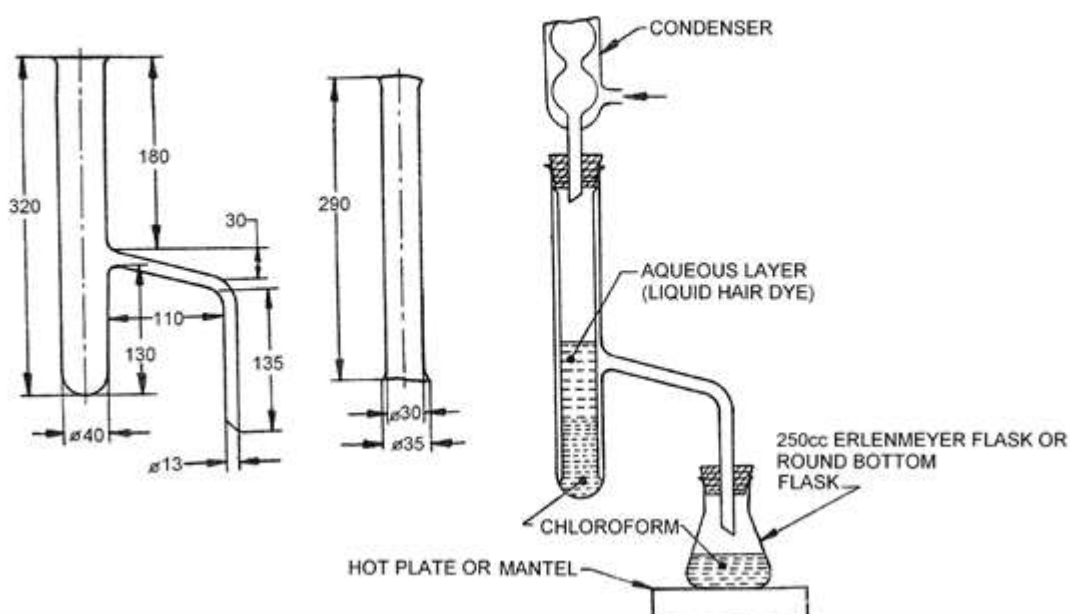


Figure B.1 — Continuous extraction apparatus

B.3 Reagents

B.3.1 Chloroform

B.3.2 Acetic anhydride

B.4 Procedure

B.4.1 Weigh accurately 1 g to 2 g of the sample into the inner tube of the continuous extractor previously charged with chloroform. Add about 60 mL of chloroform, and completely extract the dye. About 5 h of extractions is sufficient (see Figure B.1).

B.4.2 Remove the flask and transfer the filtrate to a 250-mL beaker. Rinse with a few small portions of chloroform.

B.4.3 Evaporate the chloroform to about 25 mL and add 1 mL of acetic anhydride slowly, with stirring. Let it stand for one hour and filter on a weighed G4 sintered glass crucible.

B.4.4 Wash the beaker and the precipitate with three or more 5 mL portions of chloroform. Carefully remove the last traces of the precipitate from the beaker. Dry the crucible to constant mass at 120 °C and weigh the precipitate.

B.5 Calculation

The p-phenylenediamine content, expressed as percent, shall be calculated as follows;

$$\frac{M_1 \times 0.5626 \times 100}{M_2}$$

where,

M_1 is the mass, in grams, of the precipitate, and

M_2 is the mass, in grams, of the sample taken for extraction.

Annex C (normative)

Determination of aryl diamine in ready for use dye

C.1 Procedure

Mix the powder dye with the diluent as recommended by the manufacturer in the leaflet describing instructions for use.

C.2 Calculation

The aryl diamine content in solution after recommended dilution with the diluent, expressed as percent, shall be calculated as follows:

$$\frac{X}{Y + 1}$$

where

X is the aryl diamine content in the powder; and

Y is the number of parts of diluent mixed with 1 part of dye.

Bibliography

EAS 461-1: 2013, *Hair dyes – Part 1: Aryl diamine based formulated powders — Specification*

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