



TECHNICAL REPORT

No. : 42232

Client	Electrical Safety Council 1.10, Canterbury Court 1-3 Brixton Road London SW9 6DE
Client contact	Stephen Curtler
Scope of report	Safety Screening of Health and Beauty Products - Curling Tongs
Sample/s tested / Condition	3 samples / new, boxed
Reference Standards	EN 60335-2-23:2003 +A1:08 +A11:10 used with EN 60335-1:2002 +A11:04 +A1:04 +A12:06 +A2:06 +A13:08 +A14:10
Date sample received	10 January 2011
Test period	11 January 2011 to 21 January 2011
Date of Issue	27 January 2011
Tests carried out at	20 ± 5°C
Testing Officer	 _____ <i>Paul Artopoulos</i>
Verified by	 _____ <i>Peter Cross</i>

Form No: QF102-2
Issue No: 1
Issue Date: 03.08.07





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THIS REPORT APPLIES ONLY TO THE PARTICULAR SAMPLE UNIT(S) TESTED AND TO THE SPECIFIC TESTS CARRIED OUT AS DETAILED IN THIS REPORT.

Introduction

The Electrical Safety Council established a safety screening testing project for household electrical health and beauty products, (see appendix A), and commissioned Nemko Ltd to carry out electrical safety screening tests on three Curling Tongs, purchased by the Council, under the general safety provisions of the following safety standards:-

EN 60335-1:2002 +A11:04 +A1:04 +A12:06 +A2:06 +A13:08 +A14:10

Household and similar electrical appliances – Safety
Part 1: General requirements

EN 60335-2-23:2003 +A1:08 +A11:10

Household and similar electrical appliances – Safety –
Part 2-23: Particular requirements for appliances for skin or hair care

The Curling Tongs tested are listed below and illustrated on page 3.

The electrical safety screening tests have been carried out under various headings taken from EN 60335-1 with some additions and consist of inspections and measurement with limited testing. Nemko engineers applied their professional judgement in deciding upon the limited tests carried out and it must be stressed that full testing to the above safety standards is outside the scope of this project.

Summary

One of the samples tested stopped working during a heating test and the enclosure on another sample was found to be decorated like a toy. The third sample was considered to pass, although observations concerning high temperatures were recorded. None of the instruction leaflets included text contained in the recently published A11 to EN 60335-2-23. This has not been classed as a non-compliance, as this amendment does not become mandatory until 14-04-2013.

The table below contains the sample details and the assessment results.

<u>Sample Code</u>	<u>Description</u>		<u>Assessment result</u>
07	11 Watt Curling Tong	Basic model	Stopped working
08	25 Watt Curling Tong	Brightly coloured model	Fail
09	45 Watt Curling Tong	High "Salon" Temperature model	*Pass

* denotes generally "PASS" but with observations in report details section



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Project Samples

The following three samples were selected for testing under this project:



Sample code 07



Sample code 08



Sample code 09



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Electrical Safety Screening Tests – Report Details

11 Watt Curling Tong – Basic Model (Sample code 07)



Test summary

Safety Criteria	Results
Plug and fuse	Pass
Classification	Pass
Initial operation	Pass
Marking and instructions	*Pass
Protection against access to live parts	Pass
Power input and current	Pass
Heating	Stopped Working
Leakage current and electric strength	Pass
Abnormal operation	Pass
Mechanical strength	Pass
Construction	Pass
Internal wiring	Pass
Supply connection and external flexible cords	Pass
Provision for earthing	Pass
Clearance, creepage distances and solid insulation	Pass

Additional Heading

Components	*Pass
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Details

- Heating The appliance stopped working after 9 minutes during a heating test at 1.15 x the rated wattage due to the element becoming open circuit. It was therefore not possible to complete the heating test.

Observations (denoted by * in above table)

- It was noted that some of the moulded markings were not easily discernible.
- The substance of most of the EN 60335-1 clause 7.12 requirement is included in the instructions but there is no specific instruction that children should be supervised to ensure that they do not **play** with the appliance.
- The mains switch appeared visually to be fit for purpose, but it had no third party approval marking.
- The pilot light is described as “LED” on the packaging, but is actually a neon indicator.



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25 Watt Curling Tong – Brightly coloured model (Sample code 08)



Handle Detail

Test summary

Safety Criteria	Results
Plug and fuse	Pass
Classification	Pass
Initial operation	Pass
Marking and instructions	*Pass
Protection against access to live parts	Pass
Power input and current	Pass
Heating	Pass
Leakage current and electric strength	Pass
Abnormal operation	Pass
Mechanical strength	Pass
Construction	Fail
Internal wiring	Pass
Supply connection and external flexible cords	Pass
Provision for earthing	Pass
Clearance, creepage distances and solid insulation	Pass

Additional Heading

Components	*Pass
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Details of non-compliance

- Construction The appliance is moulded in bright purple & pink, has a colourful picture of a movie character on the handle and a pink spiral shape around the barrel. It was considered that these aspects of the design would make the appliance an attractive plaything for young children. Enclosures that are “shaped or decorated like a toy” are not permitted by EN 60335-1 clause 22.44.

Observations (denoted by * in above table)

- The substance of most of the EN 60335-1 clause 7.12 requirement is included in the instructions but there is no specific instruction that children should be supervised to ensure that they do not **play** with the appliance.
- The mains switch appeared visually to be fit for purpose, but it had no third party approval marking.

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45 Watt Curling Tong – High “Salon” Temperature model (Sample code 09)



Test summary

Safety Criteria	Results
Plug and fuse	Pass
Classification	Pass
Initial operation	Pass
Marking and instructions	Pass
Protection against access to live parts	Pass
Power input and current	Pass
Heating	*Pass
Leakage current and electric strength	Pass
Abnormal operation	*Pass
Mechanical strength	Pass
Construction	Pass
Internal wiring	Pass
Supply connection and external flexible cords	Pass
Provision for earthing	Pass
Clearance, creepage distances and solid insulation	Pass

Additional Heading

Components	Pass
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Details of non-compliance

none

Observations

- The substance of most of the EN 60335-1 clause 7.12 requirement is included in the instructions, but there is no specific instruction that children should be supervised to ensure that they do not **play** with the appliance.
- The part of the thumb press button closest to the barrel attained a temperature rise of 74°K during a heating test at 1.15 x rated power (Limit 60°K max. for handles held for short periods). Whilst the hot part is outside the knurled area of the button, it might be touched inadvertently during use.
- The barrel of this appliance reaches very high temperatures (~200°C). However, instructions are given not to place on soft or uneven surfaces such as carpets bedding or rugs and the appliance complies with the relevant abnormal test of EN 60335-2-23.

----- **End of Report** -----



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Appendix A

Electrical Safety Council Screening Test for Household Health and Beauty Products

Plug and fuse

Check for fitting of approved plug and fuse link including counterfeit indications. Visual inspection and measurement of essential plug pin and fuse link dimensions.

Classification

Confirm the classification, as defined in the standard.

Initial operation

A functional test is required to establish whether the product operates, as intended by the manufacturer and as described in the user instructions.

Marking and instructions

Confirm the presence of standard markings either on the product or the rating label, or both. User instructions must also be checked for the presence of standard warnings, in particular EN 60335-1, clause 7.12, referring to the use of products by persons (including children) with reduced physical, sensory or mental capabilities etc.

Protection against access to live parts

Inspection for access to live parts particularly after removal of detachable parts.

Power input and current

Measurement required confirming that product is within standard permissible power input and current deviations.

Heating

Limited to the measurement, under steady state conditions, for hotplates of hair straightening irons and curling tongs only.

Leakage current and electric strength

Testing required determining adequate electrical insulation properties.

Abnormal operation

This may consist of very limited testing perhaps ensuring only that the thermal cut-out operates in a hairdryer as an example.

Mechanical strength

Carry out impact testing on parts liable to be weak with emphasis on mould lines. The drop test of EN 60335-2-23, clause 21.101 may also be required.

Construction

Inspection is required confirming the product can be properly assembled and connected with particular comments required in the following areas:

Construction of swivel connections with consideration to the environment in which they may be used.

Amendment A2 modifies EN 60335-1, clause 22.32 and states that *“insulating material in which heating conductors are embedded is considered to be basic insulation and not reinforced insulation”*. Hair straightening irons are to be examined and tested for evidence of adequate supplementary insulation.

Clause 22.44 states that *“appliances shall not have an enclosure that is shaped or decorated like a toy”*. A decision is required against this clause.

Internal wiring

Basic inspection only.

Supply connection and external flexible cords

Inspect for marking of cross sectional area and measure conductors in cases of doubt. For products having a swivel connection, the additional requirements in EN 60335-2-23, clause 25.14 and 25.15 may be required.

Provision for earthing

Check essential earthing requirements, although it is expected that the products will be class II in construction.

Clearance, creepage distances and solid insulation

Inspection with measurement only in cases of doubt.

Particular emphasis is required under EN 60335-1, clause 29.3, which states that *“supplementary insulation and reinforced insulation shall have adequate thickness, or have a sufficient number of layers, to withstand the electrical stresses that can be expected during the use of the appliance”*.