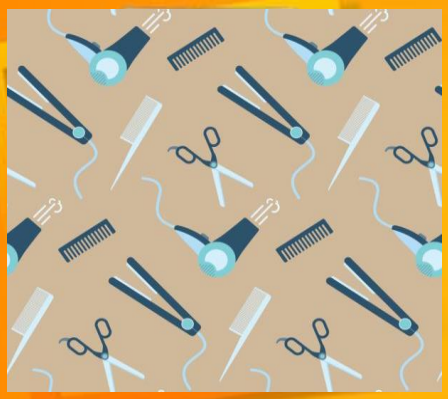
JOINT MARKET SURVEILLANCE ACTIONS 2016 ON PRODUCT SAFETY

GPSD 2001/95/EC



FINAL REPORT ELECTRICAL APPLIANCES II (EA2): HAIRDRYERS, CURLING IRONS & HAIR STRAIGHTENERS

Joint Market Surveillance Action on Consumer Products (JA2016)
Action Grant No: 739851 – JA2016

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PROSAFE Joint Actions Best Practice

Co-funded by the European Union

Author: PROSAFE
www.prosafe.org

Avenue des Arts/Kunstlaan 41
1040 Brussels, Belgium

Contacts: Ioana Sandu, PROSAFE Executive Director

info@prosafe.org / +32 (2) 808 09 96/97

@PROSAFE_ORG
#JA2016

NB

Please note that the project and all related written production is exclusively in English. Dissemination at national level is carried out by each participating Member State.

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LIST OF ABBREVIATIONS

ANEC	The European Consumer Voice in Standardisation
APPLiA	Home Appliance Europe
CENELEC	European Committee for Electrotechnical Standardization
LVD	EU Low Voltage Directive 2014/35/EU
DoC	Declaration of Conformity
EEA	European Economic Area
EFTA	European Free Trade Association
EU	European Union
GPSD	General Product Safety Directive 2001/95/EC
HEA	Household Electrical Appliance
ICSMS	Information & Communication System for Market Surveillance
LVD ADCO	Low Voltage Directive Administrative Co-operation Working Group
LVD WP	Low Voltage Directive Working Party
JA2016	Joint Market Surveillance Action on Consumer Products 2016 Grant Agreement number 739851 with an implementation from September 2017 up to October 2019
MSA	Market Surveillance Authority
PROSAFE	Product Safety Forum of Europe
RAG	European Commission's Risk Assessment Guidelines tool
RAPEX	Rapid Exchange of Information System – 'Safety Gate'

Executive Summary

This report presents the activities undertaken and the results achieved in the Product Activity Electrical Appliances II (EA2) of "Joint Market Surveillance Action on GPSD Products 2016 – JA2016" co-funded by the European Union (EU) under the Grant Agreement (GA) Nº 739851.

The activity was carried out by **12** Market Surveillance Authorities (MSAs) from 12 EU Member States: Bulgaria, Croatia, Cyprus, the Czech Republic, Finland, France, Latvia, Lithuania, Malta, Poland, Sweden and Slovakia. The project was coordinated by PROSAFE – The Product Safety Forum of Europe.

This Activity focussed on household hairdryers, curling irons and hair straighteners, and its primary goals were to:

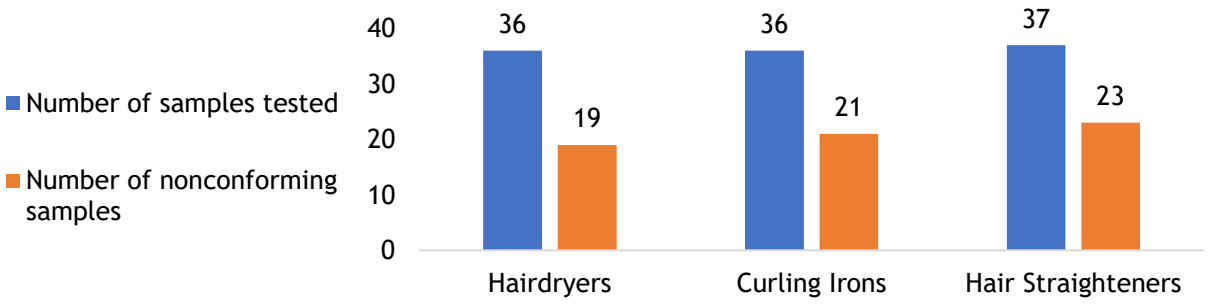
- Build on the work undertaken within previous Joint Actions and increase the safety of products;
- Ensure that these household electrical appliances are safe in use;
- Ensure that instructions for use satisfy the requirement in harmonised standards;
- Ensure technical files and declarations of conformity satisfy legislative requirements in the EU Low Voltage Directive;
- Continue to support the harmonisation of market surveillance across the EEA within this product sector.

The approach was typical in that the participating MSAs undertook to:

- Study their national markets and use these data for determining sampling criteria;
- Sample from online retailers as well as shops with intelligence or assistance from customs where possible;
- Submit products for testing at an accredited testing laboratory in the European Union;
- Carry out risk assessments using the European Commission's RAG tool;
- Undertake follow-up actions including administrative activities on non-conforming products;
- Report on the follow-up actions taken to improve safety for consumers.

In total, **109** products were sampled and tested: 36 hairdryers, 36 curling irons and 37 hair straighteners. **Only 46 of the 109 products examined** were fully compliant with the test programme, which comprised of limited testing to the latest valid edition of EN 60335-2-23. Overall, **53% of hairdryers**, **58% of curling irons** and **62% of hair straighteners** tested were non-compliant as per Figure 1 below.

Figure 1 Summary test results JA2016 Electrical Appliances



	Hairdryers	Curling Irons	Hair Straighteners
Samples tested	36	36	37
Failure rate	53%	58%	62%

Caution!

The above results are based on products that were sampled from the markets in the participating countries by experienced market surveillance inspectors looking for non-compliant and potentially unsafe products. As in any market surveillance activity, the results represent the targeted efforts that authorities undertake to identify unsafe products and should not be taken as giving a statistically valid picture of the state of the market.

The main hazards/issues identified were:

- Electric shocks 
- Burns 
- Poor User Instructions 

The test results for products failing the testing requirements were subject to risk assessments using the European Commission's Risk Assessment Guidelines (RAG) tool[1]. Risk assessment templates were provided to the risk assessment group and the participating MSAs took enforcement actions on many of the models tested.

Overall risk levels revealed **44%** of samples with low risks, **5%** of samples with medium risks, **2%** with high risks, **7%** with serious risks, and a total of **9** recorded RAPEX notifications.

Declaration of Conformity (DoC) documents and test reports were requested from economic operators to determine how the products are judged on EU Low Voltage Directive 2014/35/EU (LVD) compliance by the manufacturer. A high proportion of Declaration of Conformity (DoC) documents were received from economic operators and an average of 90% were compliant with the LVD. But approximately 25% of DoC's were not received.

Test reports were also requested. Approximately 30% of economic operators did not provide a test report upon request, and 56% of those that were provided did not comply with the evaluation criteria, which was a series of questions relating to the administrative and technical content of the reports. The main issues with test reports were lack of traceability between the manufacturer or applicant details and those listed in the DoC, and product rating labels not matching those affixed to the corresponding products for laboratory testing.

Overall, each stage of the activity was completed as per the Grant Agreement. Sampling provided a representative range of hair care appliances including online sellers. A limited testing programme using one sample of each product type and targeted towards tests that are most likely to identify potential hazards proved satisfactory. While a large proportion of the testing nonconformities concerned the absence of safety information and warnings from user instructions, there were significant safety concerns around insufficient protection against access to live parts, hot touchable surfaces, overheating and poor electrical insulation. Harmonisation of market surveillance across the EEA has been enhanced by the experience and shared knowledge in sampling, testing and risk assessment gained from this activity.

[1] https://ec.europa.eu/consumers/consumer-safety/rag/#/screen/home

1. Introduction

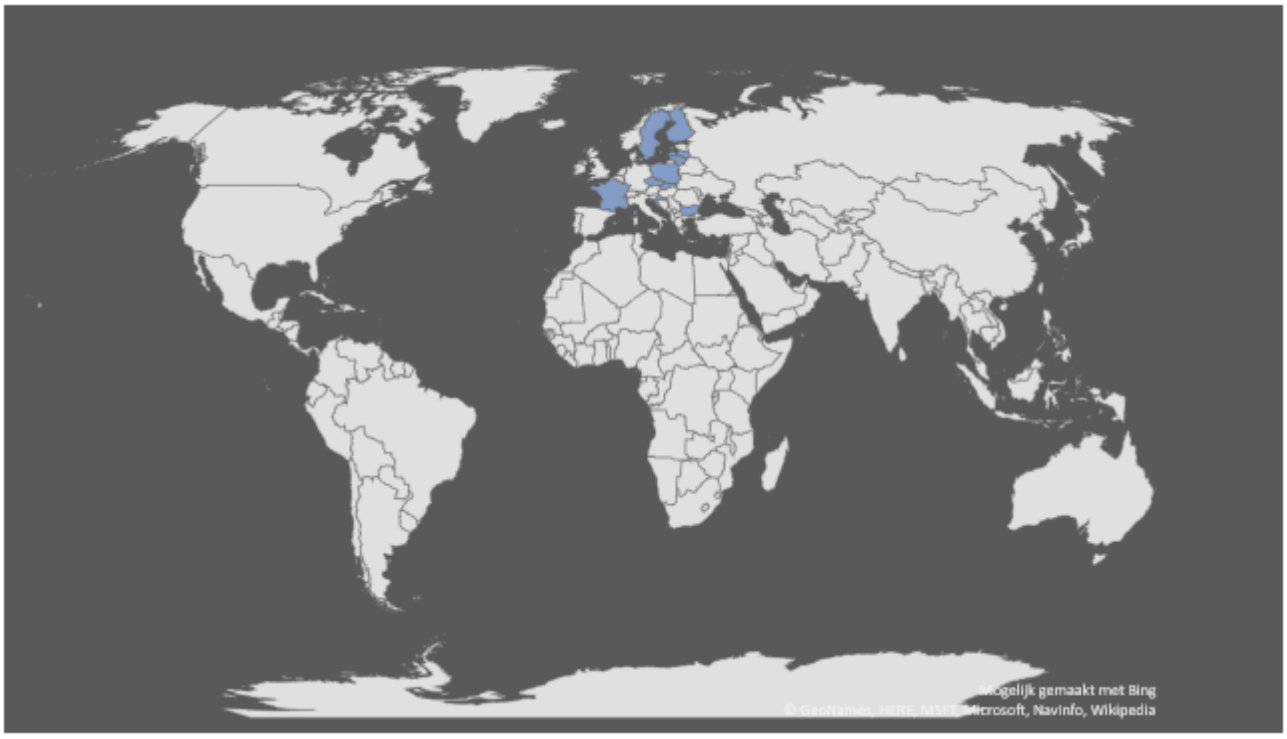
This is the final technical report prepared for the Household Electrical Appliances Activity of the Joint Market Surveillance Action on GPSD Products 2016 – JA2016.

The main objectives of the JA2016 were to continue to create conditions whereby MSAs can cooperate successfully on market surveillance activities, and to co-ordinate a number of product activities exposing the results of the activities to the largest number of MSAs possible.

Household electrical appliances (HEA) are being addressed as a product group for the second time in a joint action that checks their safety in use. Hairdryers, curling irons and hair straighteners are increasingly commonly used products in European households. There have been **more than 30 RAPEX notifications since 2012** with safety concerns such as poor user instructions, accessible live parts, severe overheating and burns from hot surfaces. For these reasons, MSAs from the twelve participating European Economic Area (EEA) countries agreed to cooperate in this project on household electrical appliances where funding for the examination and testing of the products was granted.

1.1. Participating authorities

The Activity was undertaken by **12** MSAs from **12** Member States of the European Union: Bulgaria, Croatia, Cyprus, the Czech Republic, Finland, France, Latvia, Lithuania, Malta, Poland, Slovakia and Sweden. Romania withdrew from the activity in October 2018.



- BG - State Agency for Metrological and Technical Surveillance (SAMTS)
- HR - Sector of Market Surveillance for the Ministry of Economics (MINGO)
- CY – Department of Electrical and Mechanical Services (EMS)
- CZ – Czech Trade Inspection Authority (CTI)
- FI – Finnish Safety and Chemicals Agency (TUKES)
- FR – Directorate General for Competition Policy, Consumer Affairs and Fraud Control (DGCCRF)

- LV – Consumer Rights Protection Centre (CRPC);
- LT - Lithuanian State Consumer Rights Protection Authority (SCRPA)
- MT – Malta Competition Consumer Affairs Authority (MCCAA)
- PL – Office of Competition and Consumer Protection (UOKIK)
- SK – Slovak Trade Inspection Central Inspectorate (STI)
- SE – The Swedish National Electrical Safety Board (SNESB)

The applicant body that also took overall responsibility for the coordination of the Joint Action was PROSAFE.

1.2. Overview of Key Staff in the Activity

The Activity Leader was Katarzyna Bednarz of UOKIK, Poland. The Activity Leader was supported by the PROSAFE Activity Coordinator, Andrew Gordon.

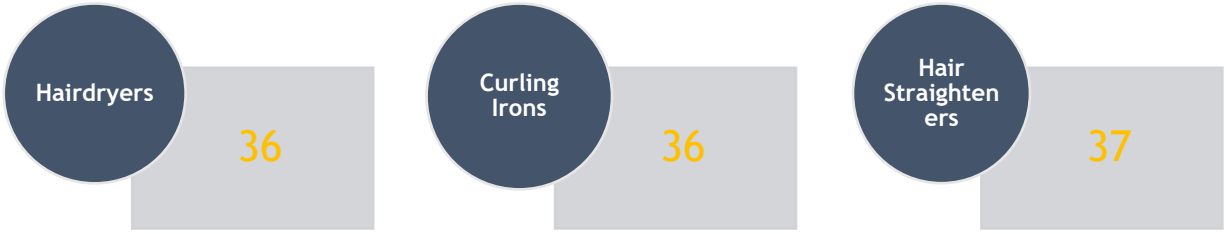
1.3. Objectives

The objectives of the Activity were to ensure that hairdryers, curling irons and hair straighteners on the EU market were safe and carried the appropriate warnings and instructions. The project focussed mainly on:

- Continuing to support harmonisation of market surveillance across the EEA within this product sector;
- Taking corrective actions if and where necessary;
- Removing unsafe products from the market;
- Undertaking market surveillance with involvement from Customs Authorities where possible;
- Coordinating with stakeholders such as ANEC, APPLiA (formerly CECED), LVD ADCO and CENELEC/TC61.

1.4. Budgeted Activities

The total testing budget for the Activity allowed for the testing of 109 samples, in particular 36 hairdryers, 36 curling irons and 37 hair straighteners.



1.5. The Phases of the Activity

The Activity was a market surveillance campaign organised in the following five phases:

1. Deciding on sampling criteria

Each of the 12 MSAs presented information on their market surveillance activities for hairdryers, curling irons and hair straighteners. This included product testing, consumer complaints, relationships with customs, incident data, sales bans and RAPEX notifications etc. This provided a basis for deciding upon the sampling criteria. The MSAs decided to sample traditional hairdryers, curling irons and hair straighteners. Further details are given in Table 3.

2. Sample products

Using the initial data gathered above, the Activity determined how many samples would be purchased by each MSA. It was agreed to sample 3 of each product type, i.e. 3 hairdryers, 3 curling irons and 3 hair straighteners, although one MSA sampled 4 hair straighteners. This implied that the MSAs would visit importers, wholesalers, retailers and use the internet to collect products. This phase was coordinated and reported back to the Activity. The sampling was staggered to avoid the possibility of duplicating samples.

3. Test products at a laboratory

The Activity issued a public call for tender and selected an appropriate testing laboratory. MSAs were responsible for submitting products to the testing laboratory. All samples were tested by one laboratory. The laboratory provided a test report for each product upon completion of all the testing.

4. Risk assessment

The MSAs agreed upon a common approach to the application of the RAPEX risk assessment guidelines for each product to ensure that the resulting assessments were harmonised to the greatest extent possible. An initial risk assessment seminar was held at the beginning of the project where risk assessment templates were prepared for use after receiving the testing laboratory's results for all tested samples. In each case, risk assessments were prepared using the European Commission's Risk Assessment Guidelines (RAG) tool.

5. Follow-up on non-compliant products and exchange of information on follow-up activities

The MSAs consulted the economic operators on the results from the risk assessment, agreed on appropriate measures and ensured that agreed measures were properly implemented. The resulting measures were reported to the entire Joint Action and shared with all participants and key

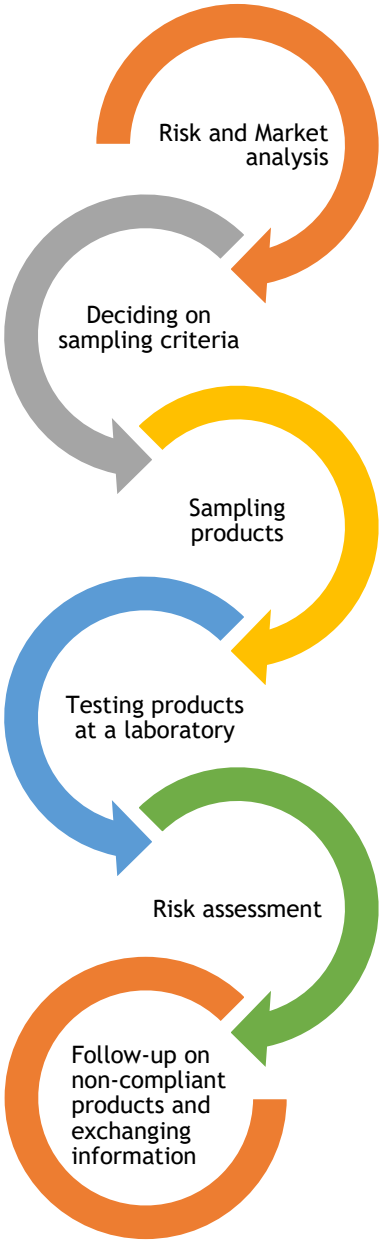


Figure 2 Phases of the Activity

stakeholders.

1.6. Timeline and Project Meetings for Activity

The activity began in September 2017. The timeline details are shown in Table 1. The activity held 5 project meetings and an initial risk assessment seminar, as shown below.

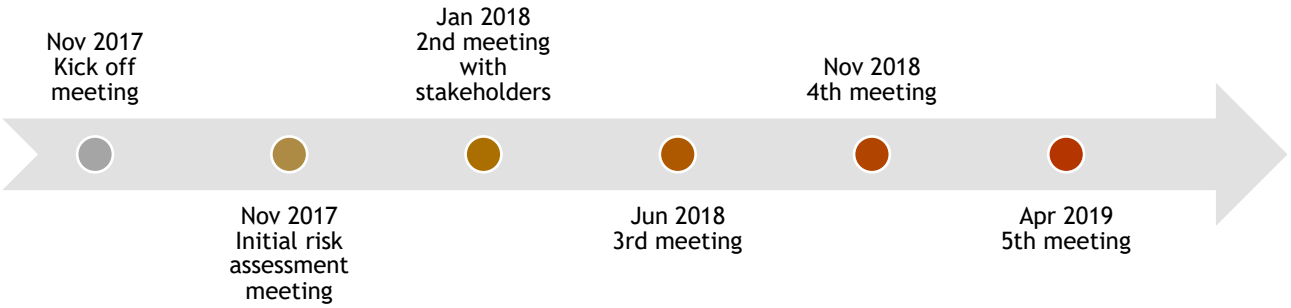


Table 1 Timeline of EA2 Activity

Period	Activity
September 2017	JA2016 start date
October 2017	JA2016 launch
November 2017	Kick Off Meeting
November 2017	JA2016 risk assessment seminar - initial risk assessment templates prepared with the aim of reducing the time required to prepare risk assessments after receiving the product testing results
January 2018	2nd Physical Meeting with stakeholder participation and planning of activities
June 2018	3rd Physical Meeting - tender document finalised, sampling form completed, testing plan finalised, sampling process begins
November 2018	Testing of samples completed by testing laboratory
November 2018	4th Physical Meeting (at testing laboratory) - day one was spent discussing test results and day two included the preparation of risk assessments
December 2018	Activity results presented to LVD ADCO
January 2019	First JA2016 Workshop
April 2019	5th Physical Meeting, follow up actions and draft final report discussed
April 2019	Activity results presented to UK Electrical Safety First's Electrical Safety of Products committee
September 2019	JA2016 Final Conference
September 2019	Delivery of final Technical Report

2. Setting up the Product Activity

2.1. Tendering Process for Testing Laboratories

Fifteen testing laboratories were invited to tender. These were a combination of testing laboratories from the former Nando list of Notified Bodies under the Low Voltage Directive, and laboratories either known to or identified by the MSAs and the Activity Coordinator.

The Activity Coordinator prepared a call for tender detailing all the required testing methods. This was prepared under PROSAFE's standard tendering procedures, and the tender was sent to 15 testing laboratories via email and published on the PROSAFE website[2]. The European Commission was also informed about the open call.

Only nine of the 15 laboratories replied by the deadline. A shortlist of three laboratories was selected from the remaining laboratories. A scoring and weighting procedure was used to select the preferred testing laboratory, as per the PROSAFE procedure for tendering and subcontracting testing laboratories. The scoring criteria included experience of testing the relevant products, previous experience of working with market surveillance authorities, cost, and ability to meet the delivery terms. One laboratory attained 26 of the maximum available 30 points and was promptly chosen for the activity.

2.2. Selecting Products, Sampling

The Activity budget allowed for 120 samples. Owing to the departure of one MSA, the Activity agreed to sample **109** products, in particular **36 hairdryers**, **36 curling irons** and **37 hair straighteners**.

The participating MSAs were tasked with sampling approximately nine products each — with the exception of Sweden— i.e., three hairdryers, three curling irons and three hair straighteners. Sweden sampled four hair straightener products rather than three. The working group decided to keep the fourth product in the activity, as the maximum product allocation by grant agreement was 120 with Romania, but Romania withdrew from the activity thereby giving group more flexibility in the sampling process. The testing laboratory confirmed that the testing programme can be achieved with only one sample of each product type, although the sequence of testing was structured such that potentially destructive tests were done at or near the end of the test program. The total number of samples supplied by the participating MSAs is presented below:

Table 2 Number of samples of each product type supplied by each MSA

	BG	CY	CZ	FI	FR	HR	LT	LV	MT	PL	SE	SK	TOTAL
Hairdryers	3	3	3	3	3	3	3	3	3	3	3	3	**36**
Curling Irons	3	3	3	3	3	3	3	3	3	3	3	3	**36**
Hair Straighteners	3	3	3	3	3	3	3	3	3	3	4	3	**37**
TOTAL	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**10**	**9**	**109**

The Activity agreed to sample hairdryers (not travel types), curling irons (traditional designs with no special features) and hair straighteners (traditional designs including those having interchangeable hot

[2] www.prosafe.org

plates). These sample types are consistent with those appearing on RAPEX and those chosen by MSAs in their market surveillance activities. A sampling memo was prepared by the Activity Coordinator giving examples of which product types to sample, and these are shown in Table 3.

Table 3 Product types targeted by the joint action

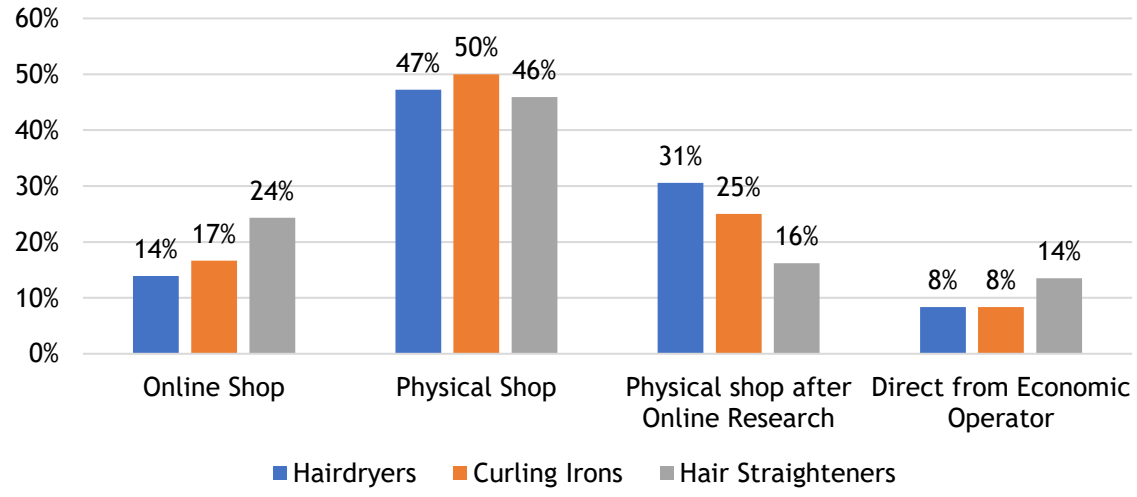
HAIRDRYERS	CURLING IRONS	HAIR STRAIGHTENERS
		
Traditional type and no travel variants	Traditional designs with no special features	Traditional designs including option of interchangeable hotplates

Input from stakeholders at the beginning of the activity suggested the need to sample from online sellers, as such samples tend to be from less established brand names and are often sold at a low price point. The MSAs confirmed that in their experience non-compliant products are typically lower priced, with higher priced products from established brands tending to be safer. The MSAs therefore agreed to target products mostly from the lower end of the market.

The Activity aimed to sample an adequate number of products from online sellers. The MSAs tried to target exclusive online sellers and not only the hybrid type that have a high street shop and an online presence. Sampling was either direct from an online shop, purchased from a physical shop, purchased from a physical shop after conducting online research or sampled direct from the economic operator. No products were obtained directly from customs.

Figure 3 gives a breakdown of the 109 products sampled by seller or other means and expressed in percentage terms.

Figure 3 Breakdown of sampling by seller or other means



The MSAs also recorded the Country of Origin for each product type. These are presented below in Figures 4, 5 and 6:

Figure 4 Country of origin for 36 hairdryer samples

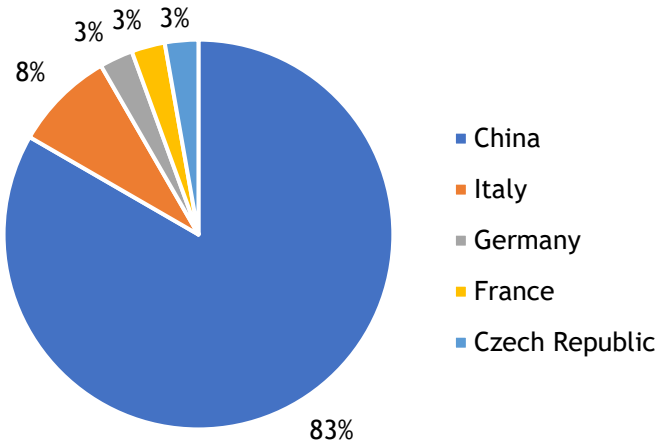


Figure 5 Country of origin for 36 curling iron samples

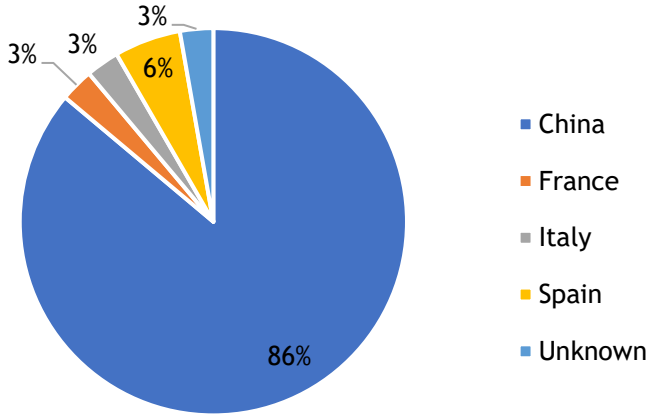
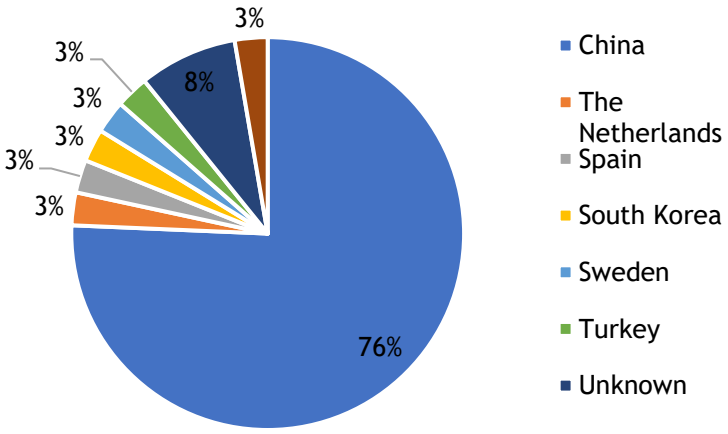


Figure 6 Country of origin for 37 hair straightener samples



3. Testing

3.1. The Testing Program

The testing laboratory was advised that the purpose of testing in this Joint Action is to identify dangerous products thereby allowing the MSA to decide whether a specific hairdryer, curling iron or hair straightener poses a risk to consumers.

The laboratory was requested to test each sample under a predefined test program using the appropriate harmonised standards. The laboratories were asked to structure the testing so that potentially destructive testing was done at or near the end of the test programme.

The three product types are within the scope of the EN 60335 standard series, which cover the safety of household and similar electrical appliances. The Part 1 standard EN 60335-1 contains general requirements and is therefore common to all products within the EN 60335 standard series. The Part 2 standards contain particular requirements for a corresponding household and similar electrical appliance. As the Part 2 standards supplement or modify the corresponding clauses in the Part 1 standard, both Part 1 and Part 2 standards must be used together to ensure coverage of essential electrical safety tests.

With the standards having over 30 clauses with numerous sub-clauses, there are over 200 tests available. Therefore, testing was based on a limited test programme targeted towards tests that are most likely to identify potential hazards. Table 5 shows the clauses and testing criteria that were applied to the products. Full details of the test programme for each product type are given in Appendix I.

Hairdryers, curling irons and hair straighteners were tested to:

- EN 60335-1:2012 + A11:2014 + A13:2017 — Household and similar electrical appliances – Safety – Part 1: General requirements;
- EN 60335-2-23:2003 + A1:2008 + A11:2010 + A2:2015 — Household and similar electrical appliances – Safety – Part 2-23: Particular requirements for appliances for skin or hair care.

Table 4 Standard clauses and testing criteria selected for all products

Clause	Title/Criteria	Hairdryer	Curling Iron	Hair Straightener
7	Marking and instructions	✓	✓	✓
8	Protection against access to live parts	✓	✓	✓
10	Power input and current	✓	✓	✓
11	Heating	✓	✓	✓
13	Leakage current and electric strength at operating temperature	✓	✓	✓
15	Moisture resistance	✓	✓	✓
16	Leakage current and electric strength	✓	✓	✓
19	Abnormal operation	✓	✓	✓
21	Mechanical strength	✓	✓	✓
22	Construction	✓	✓	✓
23	Internal wiring	✓	✓	✓
24	Components	✓	✓	✓
25	Supply connection and external flexible cords	✓	✓	✓
29	Clearances, creepage distances and solid insulation	✓	✓	✓

30	Resistance to heat and fire	✓	✓	✓

Upon completion of testing, the laboratories prepared a test report for each sample. The reports included the testing results obtained, highlighting all nonconformities to the particular standard clauses, supporting photographs, and other relevant technical explanations.

3.2. Overview of Test Results

Table 6 gives an overview of the non-conformities found for the 109 samples that were tested, including the percentage of samples having multiple non-conformities.

Table 5 Overview of testing results for hairdryers, curling irons and hair straighteners

Product Type	Nº of samples tested	Nº of non-conforming samples	Failure rate	Percentage of samples with multiple nonconformities
Hairdryers	36	19	53%	16%
Curling irons	36	21	58%	10%
Hair straighteners	37	23	62%	30%

Table 7 provides an overview of the percentage of non-conforming samples against the standard clauses applied and their test criteria.

Table 6 Percentage non-conformities against standard clauses per product type

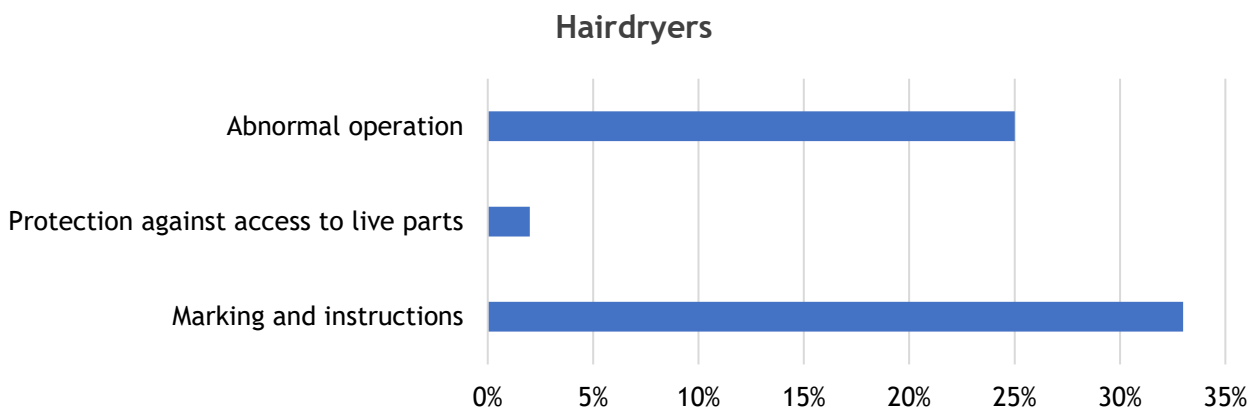
Clause	Title/Criteria	Hairdryers	Curling Irons	Hair Straighteners
7	Marking and instructions	33%	56%	59%
8	Protection against access to live parts	2%	0%	0%
10	Power input and current	0%	0%	2%
11	Heating	0%	5%	11%
13	Leakage current and electric strength at operating temperature	0%	0%	2%
15	Moisture resistance	0%	0%	0%
16	Leakage current and electric strength	0%	0%	8%
19	Abnormal operation	25%	0%	8%
21	Mechanical strength	0%	0%	0%
22	Construction	0%	0%	0%
23	Internal wiring	0%	0%	0%
24	Components	0%	0%	0%
25	Supply connection and external flexible cords	0%	2%	0%
29	Clearances, creepage distances and solid insulation	0%	0%	11%
30	Resistance to heat and fire	0%	0%	0%

The results of testing for each product type are now considered in more detail. Non-conformities are explained where necessary in an attempt to identify how nonconformity to the standards leads to an actual risk. In each case the risk was assessed using the risk assessment method set out in Appendix 5 to the RAPEX Guidelines.[3]

3.3. Results of testing 36 hairdryers to EN 60335-2-23

Overall, 17 of the 36 samples passed the testing programme. Figure 7 shows the percentage of non-compliant hairdryer samples against the standard clauses applied during testing.

Figure 7 Percentage of non-compliant hairdryer samples against standard clauses



Of the 19 samples that failed, 16% had multiple nonconformities against clauses in the applied standard, as shown in Table 8.

Table 7 Total number of hairdryer samples with multiple non-conformities

	2 clauses
Nº of hairdryer samples with multiple nonconformities	3

The non-conformities are explained in more detail below. Overall, the problems identified included:

- Absence of safety-standard requirements in user instructions concerning use of the product by children, warnings against use near bathtubs, showers, basins etc., and the additional protection that may be provided by installing a residual current device (RCD);
- Accessible live parts;
- Overheating of hairdryer enclosures during abnormal operation testing;
- Absence of motor protection in the event of a locked rotor.

The majority of the user instructions were missing several essential elements from the markings and instructions section of the safety standard EN 60335-2-23, clause 7. Information concerning use by children and other vulnerable users was missing **from 5 of the 12** non-conforming user instructions. This is information whereby *"(…) appliances can be used by children aged from 8 years and above and persons*

[3] COMMISSION DECISION 2010/15/EU laying down guidelines for the management of the Community Rapid Information System 'RAPEX' established under Article 12 of the notification procedure established under Article 11 of Directive 2001/95/EC (the General Product Safety Directive).

with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance and cleaning and user maintenance shall not be made by children without supervision".

Furthermore, the standard states, *"(…) for additional protection, the installation of a residual current device (RCD) having a rated residual current not exceeding 30 mA is advisable in the electrical circuit supplying the bathroom"*. This information was missing from 4 of the 12 non-conforming user instructions.

The height of characters for warnings in user instructions should be a least 3.0 mm. In 9 of the 12 non-conforming user instructions the height was below this limit. In two cases the character height was less than 2.0 mm.

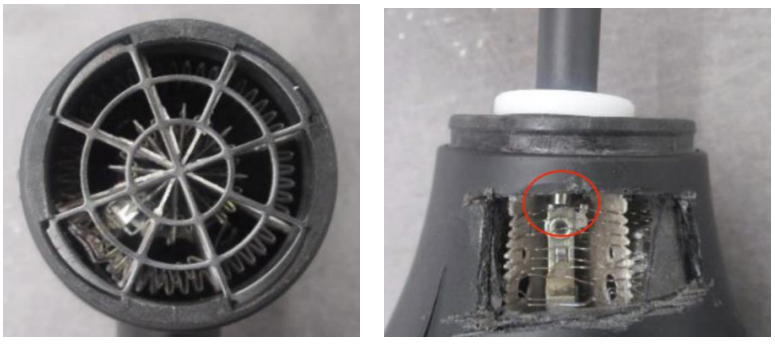
Hairdryers conforming to EN 60335-2-23 must be marked with a symbol warning against use of the appliance near water, as shown to the right in Figure 8. The diameter of the circle superimposed on the symbol must have a minimum diameter of 10 mm. In one case the diameter measured 6.89 mm, as shown to the left in Figure 8.

Figure 8 Undersized warning symbol

The absence of important safety information and warnings may not necessarily be considered as safety critical, but in certain circumstances it might give rise to a hazard. In each case, these markings and instructions non-conformities were deemed a low risk.

It was possible to access live parts through the air outlet grille of one sample using the standard test probe, and this was deemed a high risk. The image shown left in Figure 9 shows the live part visible through the air outlet grille. The image shown right in Figure 9 shows the test probe in contact with the live part, with a section of the hairdryer's enclosure removed for illustration purposes.

Figure 9 Test probe access through air outlet grille in hairdryer enclosures

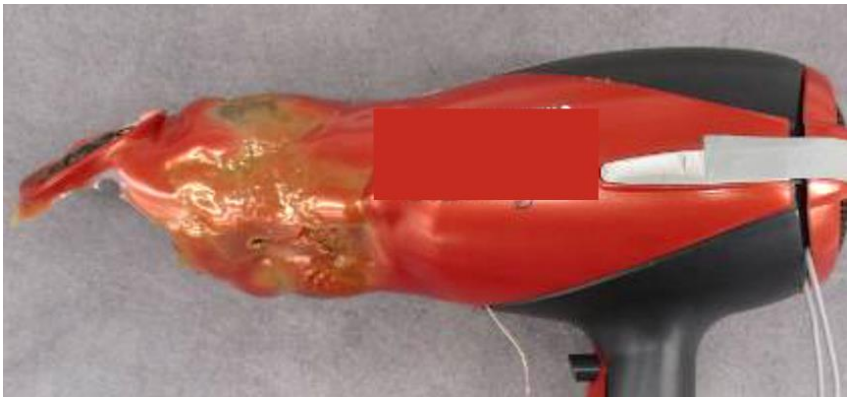


Clause 19 of the standard deals with abnormal operation where *"(…) appliances shall be constructed so that as a result of abnormal or careless operation, the risk of fire, mechanical damage impairing safety or protection against electric shock is obviated as far as is practicable"*.

Compliance is checked by applying a sequence of tests, which include operating the appliance with restricted heat dissipation, operating at a reduced running speed of the motor just sufficient to prevent the thermal cut-out[4] from operating, blocking the air inlet and stalling the motor.

Abnormal operation failures were recorded **for 9 of the 36** hairdryer samples. An example of typical enclosure deformation after the restricted heat dissipation is shown in Figure 10.

Figure 10 Enclosure deformation after restricted heat dissipation test



The motor windings ignited **in 5 of the 9** non-conforming samples. The extent of the overheating damage can be seen in Figure 11. Live parts were accessible after abnormal operation testing **in 7 of the 9** non-conforming samples.

The image shown right in Figure 11 shows the extent of damage after the stalled motor test where live parts are accessible. Overall these non-conformities were deemed a serious risk.

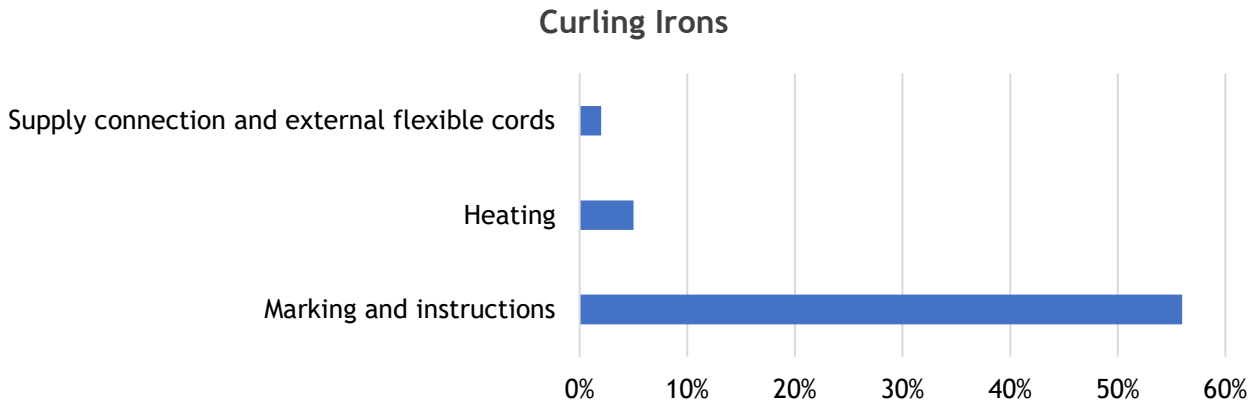
Figure 11 Motor winding overheating and no protection against stalled motor

[4] Device which during abnormal operation limits the temperature of the controlled part by automatically opening the circuit, or by reducing the current, and is constructed so that its setting cannot be altered by the user (EN 60335-1, clause 3.7.3).

3.4. Results of testing 36 curling irons to EN 60335-2-23

Overall, **15 of the 36** samples passed the testing programme. Figure 12 shows the percentage of non-compliant curling iron samples against standard clauses applied during testing.

Figure 12 Percentage of non-compliant curling iron samples against standard clauses



Of the 21 samples that failed, 10% had multiple non-conformities against clauses in the applied standard, as shown in Table 9.

Table 8 Total number of curling iron samples with multiple non-conformities

	2 clauses
Nº of curling iron samples with multiple non-conformities	2

The non-conformities are explained in more detail below and overall the problems identified included:

- Absence of safety-standard requirements in user instructions including the use of the product by children and other vulnerable users, and warnings against use near bathtubs, showers, basins etc.;
- Insufficient height of characters for warnings in user instructions;
- Temperature rise of top handle exceeding allowable harmonised safety-standard requirements;
- Incorrect cross-sectional area of fitted supply cord conductors.

The majority of the user instructions were missing several essential elements from the markings and instructions section of the safety standard EN 60335-2-23, clause 7. Information concerning use by children and other vulnerable users was missing **from 11 of the 20** non-conforming user instructions.

This is information whereby *"(…) appliances can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance and cleaning and user maintenance shall not be made by children without supervision".*

The height of characters for warnings in user instructions should be a least 3.0 mm. In 15 of the 20 non-conforming user instructions the height was below this limit. In 11 cases the character height was less than 2.0 mm or less.

Curling irons conforming to EN 60335-2-23 must be marked with a symbol warning against use of the appliance near water. The diameter of the circle superimposed on the symbol must have a minimum diameter of 10 mm. In one case the diameter measured 5.30 mm, and two samples were not marked with

the symbol. User instructions must also explain the meaning of the symbol, and this explanation was missing in 2 cases. The standard also requires markings to be clearly legible and durable. Compliance is checked by rubbing the marking by hand for 15 s with a piece of cloth soaked with water and again for 15 s with a piece of cloth soaked with petroleum spirit. One sample failed this rub test.

The absence of important safety information and warnings may not necessarily be considered as safety critical, but in certain circumstances it might give rise to a hazard. In each case, these markings and instructions nonconformities were deemed a low risk.

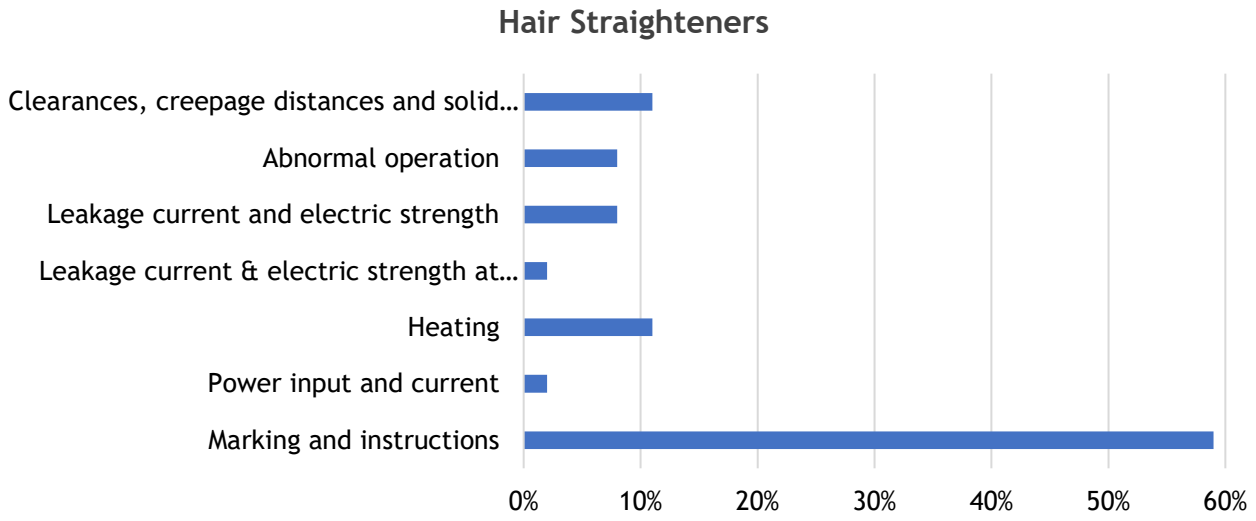
During the heating test the curling irons are run at an elevated power input and temperatures of touchable surfaces are monitored and recorded. Two samples failed the heating test, as their handle temperatures exceeded the allowable temperature rise limit by 7ºC and 14ºC respectively. These were however deemed a low risk when assessed under the RAPEX risk assessment methodology in conjunction with CENELEC Guide 29[5] for assessing the burn threshold when skin is in contact with a hot smooth surface made of plastic.

The power supply cord in one sample had an insufficient cross-sectional area of 0.5 mm^2. Supply cords of this cross-sectional area are allowed when the length of the cord does not exceed 2 m. But this case the length was almost 2.5 m, and therefore the current carrying capacity of the cable is reduced. The sample was deemed an overall low risk.

3.5. Results of testing 37 hair straighteners to EN 60335-2-23

Overall, **only 14 of the 37** samples passed the testing programme. Figure 13 shows the percentage of non-compliant hair straightener samples against standard clauses applied during testing.

Figure 13 % of non-compliant hair straightener samples against standard clauses



Out of the 23 samples that failed, 30% had multiple non-conformities against clauses in the applied standard, as shown in Table 10.

[5] Temperatures of hot surfaces likely to be touched – Guidance document for Technical Committees and manufacturers.

Table 9 Total number of hair straightener samples with multiple non-conformities

	2 clauses	3 clauses	5 clauses
Nº of hair straightener samples with multiple non-conformities	4	1	2

The non-conformities are explained in more detail below and overall the problems identified included:

- Absence of safety-standard requirements in user instructions including the use of the product by children and other vulnerable users, and warnings against use near bathtubs, showers, basins etc.;
- Insufficient height of characters for warnings in user instructions;
- Power input significantly below the 10% allowable deviation;
- Excessive surfaces temperatures in normal use;
- Inadequate electrical insulation;
- Creepage distances below allowable limits.

The majority of the user instructions were missing several essential elements from the markings and instructions section of the safety standard EN 60335-2-23, clause 7. Information concerning use by children and other vulnerable users was missing **from 15 of the 22** non-conforming user instruction. This is information whereby *"(…) appliances can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance and cleaning and user maintenance shall not be made by children without supervision"*.

The height of characters for warnings in user instructions should be a least 3.0 mm. **In 17 of the 22** non-conforming user instructions the height was below this limit. In 11 cases the character height was less than 2.0 mm or less.

Hair straighteners conforming to EN 60335-2-23 must be marked with a symbol warning against use of the appliance near water. The diameter of the circle superimposed on the symbol must have a minimum diameter of 10 mm. In one case the diameter measured 6.44 mm, and two samples were not marked with the symbol. User instructions must also explain the meaning of the symbol, and this explanation was missing in 3 cases.

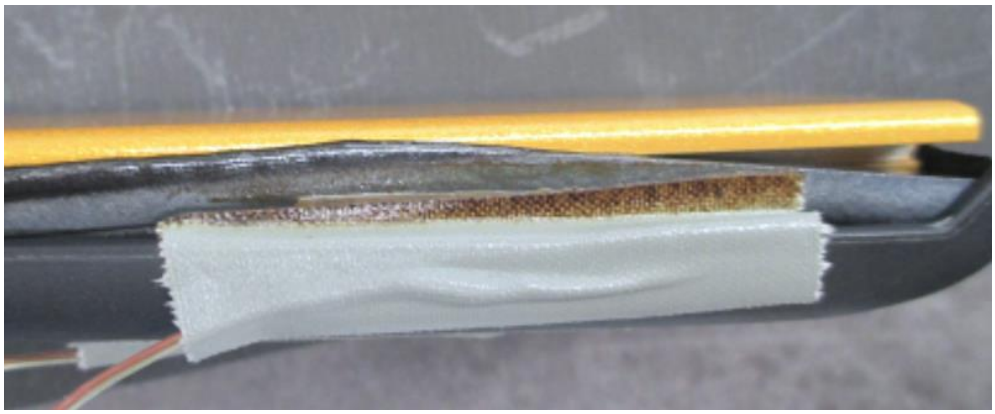
The absence of important safety information and warnings may not necessarily be considered as safety critical, but in certain circumstances it might give rise to a hazard. In all but one case, these markings and instructions nonconformities were deemed a low risk.

The measured power input for one sample was 36.6 W, yet the sample is marked with a rated power input of 200 W. This represents an 88% power input deviation against an allowable deviation of 10%. This was however deemed a low risk.

During the heating test the hair straighteners are placed in a test corner to determine whether the products attain excessive temperatures in normal use. **Four samples** failed the heating test, with temperatures in the test corner exceeding the allowable temperature rise by 8ºC to 52ºC. The two samples with the highest recorded temperature rise of 26ºC and 52ºC respectively were deemed a high risk.

Abnormal operation failures were recorded **for 3 of the 23** non-conforming hair straightener samples. In one sample, the plastic enclosure melted before the operation of the thermal cut-out, which is intended to prevent such overheating damage. In another sample the temperature control device was subjected to a short-circuit (which is an allowable fault condition). The sample reached temperatures of almost 300ºC, and the extent of the enclosure deformation can be seen in Figure 14.

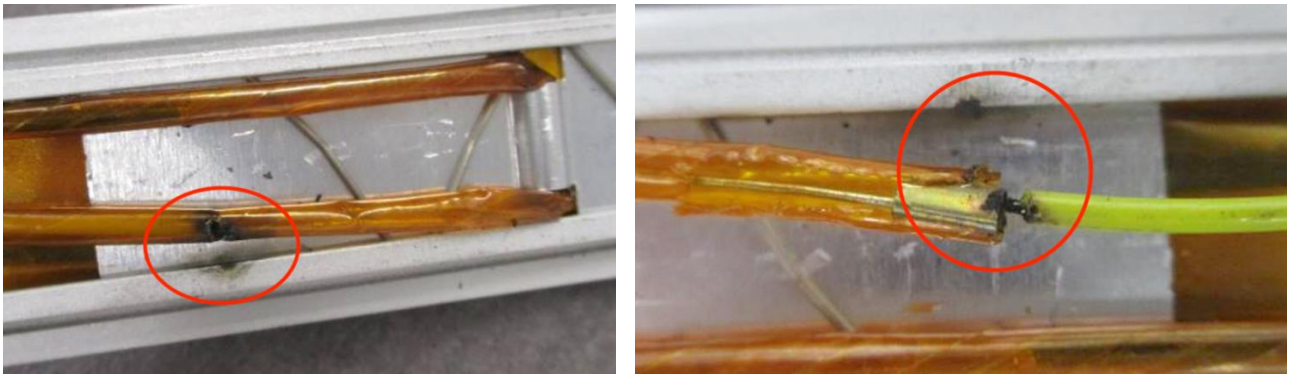
Figure 14 Enclosure deformation after abnormal operation test



The hair straighteners, as tested, are class II appliances where protection against electric shock does not rely on basic insulation[6] alone. Additional safety precautions are necessary, such as double or reinforced insulation. During these abnormal operation tests the electrical insulation is subjected to a high voltage to determine its overall electric strength. **All three samples failed the electric strength test**.

An internal inspection of the samples revealed the witness marks of insulation breakdown, which are shown in Figure 15. These nonconformities were deemed a high risk in one case and a serious risk for the other two samples.

Figure 15 Insulation breakdown with witness marks at point of insulation failure

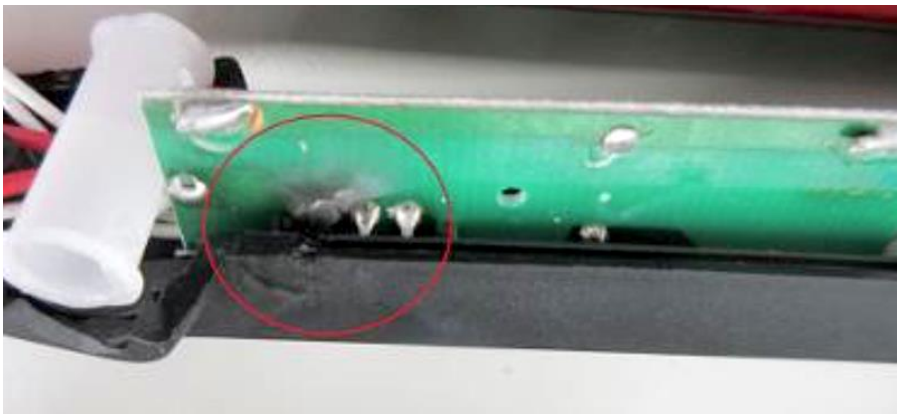


Clause 29 of the standard deals with abnormal operation where *"(…) appliances shall be constructed so that the clearance[7], creepage[8] distances and solid insulation are adequate to withstand the electrical stresses to which the appliance is liable to be subjected"*. Internal clearance or creepage distances were below allowable limits in four samples. In one case, there was only basic insulation between the live parts and the accessible metal part. This sample was deemed a serious risk, with the other samples deemed a high or medium risk.

It should be noted that further reductions in clearance and creepage distances, and therefore protection against access to live parts, can be expected over time, particularly the possibility of moisture ingress when using the hair straightener. An example of a reduced clearance distance between the internal switch connection and the accessible plastic enclosure is shown in Figure 16 where evidence of electric strength breakdown is also apparent.

[6] Insulation applied to live parts to provide basic protection against electric shock (EN 60335-1, clause 3.3.1).
[7] Shortest distance in air between two conductive parts or between a conductive part and the accessible surface (EN 60335-1, clause 3.3.14).
[8] Shortest distance along the surface of insulation between two conductive parts or between a conductive part and the accessible surface (EN 60335-1, clause 3.3.15).

Figure 16 Reduced clearance distance and breakdown



3.6. Conclusions of testing

Overall, **46 of the 109 products** examined were fully compliant. A large proportion of the nonconformities concerned the absence of safety information and warnings in user instructions, which were deemed overall to be a low risk. There were however significant safety concerns around insufficient protection against access to live parts, hot touchable surfaces, overheating during abnormal operation and poor electrical insulation. The results show that the sampling process was effective, with the MSAs using their extensive knowledge and experience in identifying noncompliant and unsafe products. We highlight once again that these results do not represent the actual safety level of the European market.

4. Technical Documentation

4.1. Introduction

The JA2016 Grant Agreement stated that it is important to know how the electrical products are judged on EU Low Voltage Directive compliance by the manufacturer. The Joint Action was therefore tasked with verifying the EC DoC and the relevant parts of the Technical File.

The obligations of economic operators set out in Article 6 of the LVD refer to the drawing up of technical documentation, as set out in Annex III[9], point 2 to the LVD. The documentation shall make it possible to assess the electrical equipment's conformity to the relevant requirements. It shall include details on the design and production of the electrical equipment and it must include details of any harmonised standards applied including test reports for demonstrating the conformity of the product to the principal elements of the safety objectives for electrical equipment set out in Annex I to the LVD.

For the purposes of this Joint Action, the participating MSAs requested from economic operators of all samples a copy of the test report demonstrating conformity with the applicable standards, and a copy of the DoC. The DoC was assessed against the requirements in Annex IV of the LVD. The test reports were evaluated against a number of questions, as shown in Figure 20.

[9] Conformity Assessment MODULE A – Internal Production Control

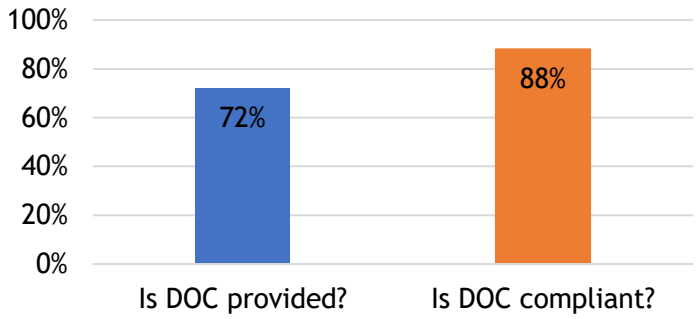
4.2. Declaration of Conformity

The MSAs asked the economic operators for all samples to provide a copy of the DoC. Figures 17 to 19 show the percentage of DoC's received for each product type, and the percentage of corresponding compliant DoC's.

Hairdryers

Economic operators provided 72% of DoC's requested by MSAs, and 88% of those were compliant with the Low Voltage Directive requirements.

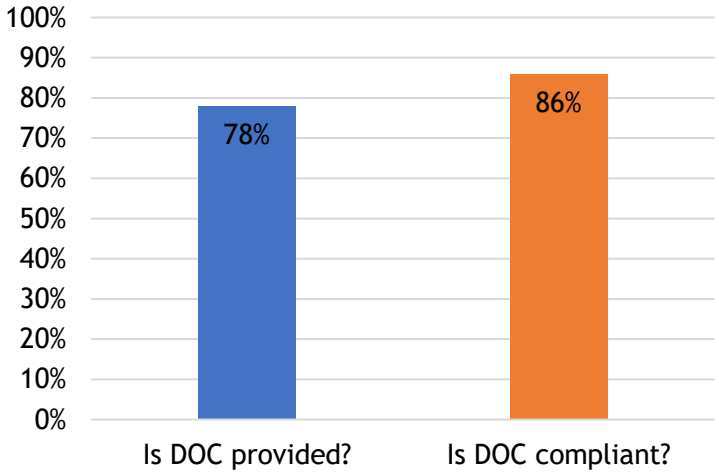
Figure 17 DoC results for hairdryers



Curling irons

Economic operators provided 78% of DoC's requested by MSAs, and 86% of those were compliant with the LVD, as shown in Figure 18.

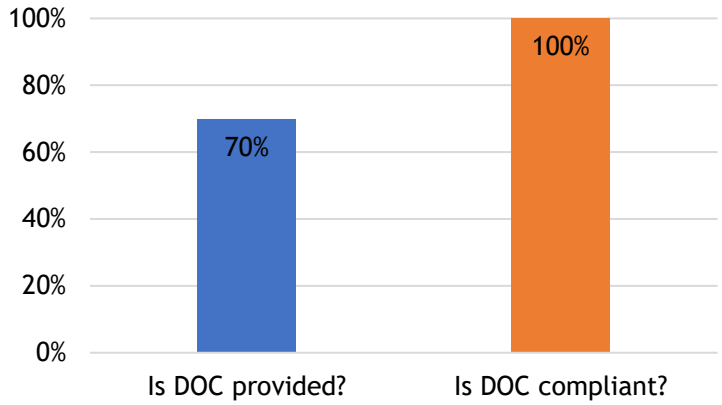
Figure 18 DoC results for curling irons



Hair straighteners

Economic operators provided 70% of DoC's requested by MSAs, and 100% of those were compliant with the LVD, as shown in Figure 19.

Figure 19 DoC results for hair straighteners



Test Reports

Economic operators for all samples were asked by each MSA to provide a copy of the test report demonstrating conformity with the applicable standards. Those reports were assessed against a number of questions, as shown in Figure 20.

Figure 20 Questions for evaluation of test reports

Questions for the evaluation of test reports for hairdryers, curling irons and hair straighteners
Are the applicant/manufacturer details provided in full?
Do the applicant/manufacturer details match those shown in the declaration of conformity (DoC)?
Are all product model number/type details present and correct?
Do the product model number/type details match those shown in the DoC?
Is the test report authorised for issue with the name, function and signature of the authorised signatory?
Does the product rating label image/technical specifications match that of the sampled product?
Do references to harmonised standards match those shown on the DoC?

Figure 21 shows the percentage of test reports provided by economic operators for each product type:

Figure 21 Test reports provided per product type

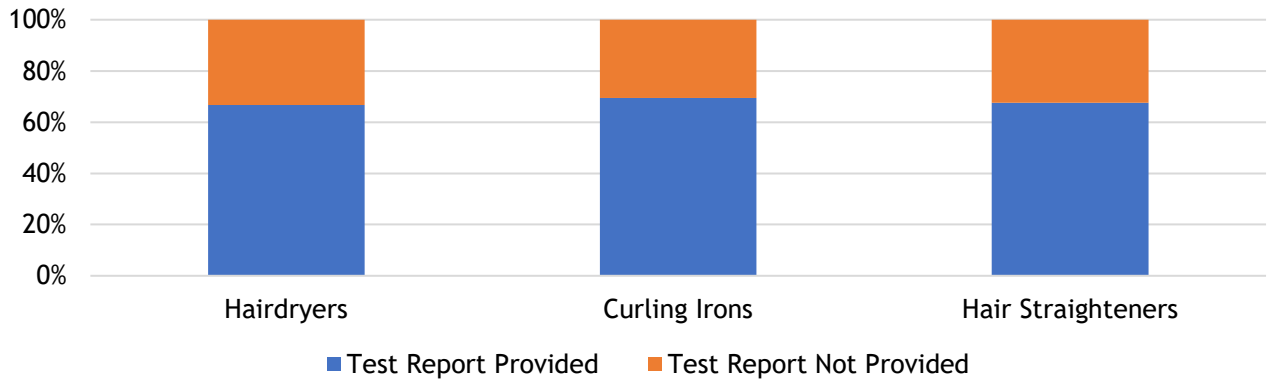
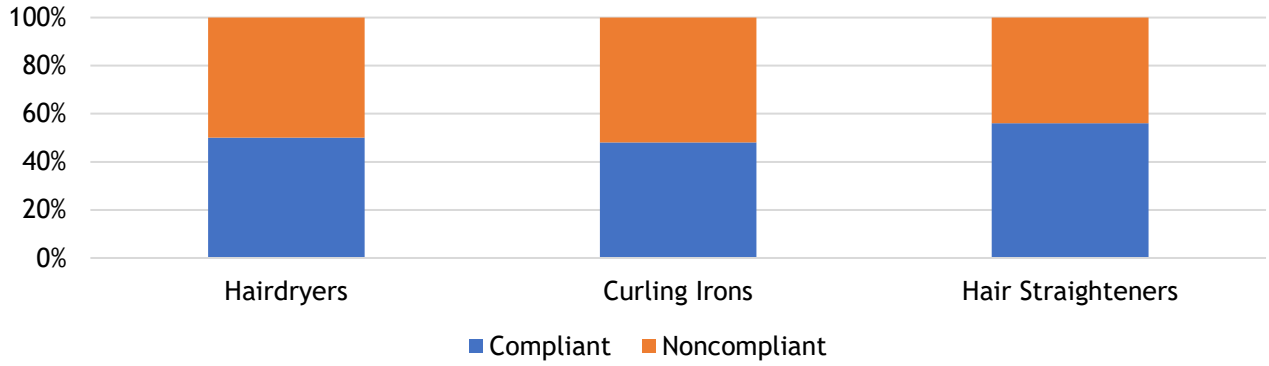


Figure 22 shows the percentage of those test reports received that were compliant and noncompliant with the evaluation questions. The two main elements missing from the test reports for each product type were the lack of traceability between the applicant/manufacturer details in the test report and those

listed in the corresponding declaration of conformity, and product rating labels not matching those affixed to the samples, as received.

In a fewer number of cases the sample model numbers shown in the test reports did not match those shown on the corresponding sample rating label. Further analysis of the evaluation process is provided in Appendix II.

Figure 22 Compliant and noncompliant test reports, as received



5. Risk Assessment & Actions Taken

5.1. The Risk Assessment Method

Initial Risk Assessment (RA) templates were prepared during the PROSAFE JA2016 risk assessment seminar, held at the PROSAFE offices on 9 November 2017 — all templates are accessible from PROSAFE's RA Web Hub. Four injury scenarios involving burns, fatal poisoning, electric shock/electrocution and property damage were considered. These were based on the MSA's market surveillance activities, existing RAPEX notifications and market research.

The risk assessment included the application of European Commission document 2015-IMP-MSG-15, as there is a potential risk of property damage. This document contains risk assessment methodology that builds upon the RAPEX Guidelines [10].

Preparing the templates at this early stage of the activity was intended to reduce the time required to prepare risk assessments after receiving the product testing results. In each case the risk assessments were prepared using the European Commission's Risk Assessment Guidelines (RAG) tool[11]. The templates included probability of injury steps and the overall risk ratings, and they were shared with the risk assessment working group for the Joint Action.

Representatives from the MSAs and PROSAFE met with the expert staff from the testing laboratory that tested hairdryers, curling irons and hair straighteners to review and evaluate the testing results. The

[10] The initial risk assessment templates were prepared in November 2017, before the European Commission had revised the RAPEX Guidelines and were published in the Official Journal of the European Union; i.e., in March 2019. The risk assessments were further revised in November 2018 in preparation for the follow-up activity. The Commission's RAG tool was used in each case. The risk assessment method used in this activity is essentially identical, therefore, we give reference to the revised tool, though in the project the old tool was used. Commission Implementing Decision (EU) 2019/417 of 8 November 2018 laying down guidelines for the management of the European Union Rapid Information System 'RAPEX' established under Article 12 of Directive 2001/95/EC on general product safety and its notification system (notified under document C(2018) 7334) retrieved from here: https://eur-lex.europa.eu/eli/dec/2019/417/oj.

[11] Via the on-line risk assessment application https://ec.europa.eu/consumers/consumer-safety/rag/#/screen/home

representatives then revised the initial risk assessment templates to develop the scenarios revealed by the testing results and technical discussions with the testing laboratory.

Sensitivity analysis was also applied. This is possible using the RAG tool by repeating the injury scenario(s) with different probability of injury steps and then arriving at a plausible overall risk rating, not too pessimistic on every factor but certainly not too optimistic. Moreover, this work was finalised by the participants for each of the samples that they supplied after they had an opportunity to discuss the overall risk ratings within their respective authorities.

5.2. The Risk Assessment Results

The participating MSAs assessed the risk posed by all the identified non-conformities using the methodology outlined in section 5.1 above. The results can be seen in Table 11.

Table 10 Risk level associated with the identified non-conformities (all 109 samples)

Risk level	Number of samples	Percentage
Compliant with test programme	46	42%
Low risk	48	44%
Medium risk	5	5%
High risk	1	1%
Serious risk	9[12]	8%

5.3. Actions and Measures taken

Overall, **there was no action required by MSAs for 53 of the 109 products tested**. The scale of enforcement actions and measures taken for the hairdryer, curling iron and hair straightener products are shown in Table 12.

Table 11 Overview of measures taken against non-compliant products

[12] The risk level for one sample from Latvia had been revisited and increased to serious risk. Both RAPEX and ICSMS have been updated accordingly.

Actions taken	Number of samples
Still under evaluation	0
Later accepted as compliant by the MSAs (following counter expertise)	0
No action required	53
Minor measures/remark or advising the economic operator	41
Sales ban	13
Withdrawal from the market	18
Recall from consumers	3
Measures notified in RAPEX for products posing less than serious risk	0
Measures notified in RAPEX concerning posing serious risk	9
Cases recorded in ICSMS	89

The actions mentioned in the table above have the following meaning:

- No action. No action was necessary because no safety issues were identified with the product, or the risk is so low that no action is required.
- **Minor measures/remark or advising the economic operator.** The economic operator takes measures against (future deliveries of) the product in line with directions from the market surveillance authority. The measures could be minor changes in production or quality control, or minor revisions of marking or instructions, etc.
- **Sales ban.** The product is prohibited from sale permanently or until certain conditions are met, including where applicable a safeguard clause notification.
- **Withdrawal.** This measure is defined in the General Product Safety Directive 2001/95/EC (GPSD). The distribution, display and the offer of a product which is dangerous to consumers is stopped.
- **Recall.** This measure is defined in the GPSD. Any means aimed at achieving a return of a product that has already been supplied or made available to consumers, which may include where applicable a safeguard clause notification.
- **RAPEX.** The product has been placed on the EU's Rapid Alert System for non-food dangerous products under Article 12 of the GPSD as the product represents a serious risk, or under Article 11 of the GPSD for products posing a risk classified as less than serious.
- **ICSMS.** Product details uploaded to the ICSMS (Information and Communication System on Market Surveillance) platform to facilitate communication between market surveillance bodies in the EU and in EFTA countries, as per Article 23 of Regulation 765/2008.

5.4. RAPEX

As shown in Table 12, MSAs have made **9** RAPEX notifications concerning measures taken against products posing serious risk in this activity.

5.5. Conclusions of the Joint Action and associated impacts made

The results of the laboratory testing for this Joint Action showed that only 46 of the 109 products examined passed the entire testing programme. Despite the majority of nonconformities relating to the absence of safety information and warnings from user instructions, there were significant safety concerns with medium, high and serious risks identified. These were across several safety-critical clauses such as

protection against access to live parts, heating, abnormal operation, and creepage and clearance distances.

The absence of safety information and warnings from user instructions has been deemed a low risk. But these requirements are in the harmonised standard EN 60335-2-23 that manufacturers are showing on their declaration of conformity documents as evidence of conformity under the LVD.

Such a large number of omissions from user instructions does suggest that manufacturers may not be paying close attention to the test reports that they are relying on to demonstrate conformity under the harmonised standards. This is perhaps supported by the fact that **over 30% of economic operators** did not provide test reports upon request from the MSAs. And of those that were provided, **56% did not satisfy** the evaluation with concerns over lack of sample traceability and inconsistencies in declaration of conformity documents. In most cases the rating label shown in the test report did not match that affixed to the corresponding product. There is no guarantee therefore that the product tested in the report is electrically identical to the sample obtained during sampling.

Overall, the product risks revealed by the activity are consistent with the risks identified at the beginning of the activity from market research and from the experience of market surveillance activities within the participating MSAs.

These results, combined with the risk analysis undertaken raise the following points:

- The inspectors were able to identify potentially non-conforming products in their sampling activities.
- The limited sampling size has revealed a relatively small number of unsafe hairdryers, curling irons and hair straighteners available on the EU market;
- The latest valid edition of the harmonised standard EN 60335-2-23 is considered adequate for the purposes of supporting a presumption of conformity with the safety objectives of the LVD;
- **Approximately 25% of DoC's** were not provided by economic operators for each product category tested;
- **An average of 90% of DoC's** received were considered compliant with the requirements of the LVD;
- **Over 30% of test reports** were not provided by economic operators for each product category tested;
- **An average of 56% of test reports** received did not comply with the evaluation criteria with issues such as lack of traceability between the manufacturer/applicant and those listed in the corresponding DoC and product rating labels not matching those affixed to the corresponding products.

As a consequence, the participants have undertaken the following actions:

- **9** RAPEX notifications made;
- **3** products recalled;
- **18** products withdrawn from the market;
- **13** products subject to sales bans;
- **89** ICSMS notifications recorded;
- Regular, if indirect, liaison maintained with the LVD ADCO and DG JUST.

The results of the Joint Action have also been shared with ANEC (European Consumer Voice in Standardisation), APPLiA, UK's Electrical Safety First, CLC/TC 61, and the LVD ADCO.

Furthermore:

- A checklist developed for JA2015 (Electrical Appliances 1) has been further refined for Market Surveillance Inspectors and to assist Customs Authorities;
- The Joint Action results were presented to the LVD ADCO meeting in December 2018;
- Overview of the activity presented to the UK's Electrical Safety-First committee dealing with the electrical safety of products in April 2019;
- The investigation results concerning many products have been updated within ICSMS.

6. Liaisons

The participating MSAs wanted to involve as many stakeholders as possible. Open sessions for external stakeholders were organised during the first meeting to discuss the aims and objectives of the activity and any known issues with hairdryers, curling irons and hair straighteners. Some of those stakeholders were also present during the final workshop to share the findings from this joint action.

Furthermore, there were close links throughout the activity with the risk assessment working group, DG JUST and the LVD ADCO.

The following stakeholders participated in the activity:

- **ANEC, the European Consumer Voice in Standardisation:** Their membership is open to representatives of national consumer organisations from 33 countries (EU, EFTA and accession countries).
- **CENELEC/TC 61 – Technical Committee dealing with Household Electrical Appliances.**
- **APPLiA – Home Appliance Europe:** Formerly CECED, and APPLiA represents the home appliance sector in Europe.
- **UK's Electrical Safety First:** A UK registered charity specialising in electrical product safety.

6.1. Involvement of Customs

The liaison between Customs Authorities and the Activity was well intentioned. MSAs in some cases have a good working relationship with Customs Authorities. One MSA, in particular, has a list identifying potentially problematic importers and this list is constantly evolving as a result of the close working relationship.

The activity has also decided to share the product and documentation review checklist with Customs Authorities to assist with future targeting and intelligence led sampling. The checklist is shown in Appendix III.

7. Evaluation, Lessons Learned

Drawing upon the first household electrical appliances JA2015 was a big advantage both in the exchange of knowledge and experience and overall efficiency in delivering the project on time and within budget. The MSAs agreed that harmonisation of market surveillance across the EEA has been enhanced by this second project.

The overall percentage of non-conforming products was high at 58%. While the majority of nonconformities concerned poor user instructions there were some significant safety-critical

nonconformities, which is reflected in the **9 RAPEX notifications**, **18 withdrawn products** and **13 sales bans**. The failure of economic operators to provide DoC's upon request and the lack of traceability between the products shown in test reports and those products under test is concerning and suggests the need to maintain or indeed increase the level of technical documentation reviews in future joint actions.

Other points include:

- The sampling process was successful in avoiding any sample duplication, but there is perhaps scope for using an online tool giving live updates rather than relying on each MSA providing a table via email;
- Drawing up draft risk assessment templates at the beginning of the activity greatly assisted the risk assessment process after receiving the product testing results;
- The MSAs welcomed the discussions at the beginning of the activity about available standards and guidelines for manufacturers to fulfil their obligations in assessing risk before marketing electrical goods, such as EN 61010-1, ISO 12100, IEC Guide 116 and CENELEC Guide 32;
- Input from stakeholders is increasingly important to the success of these joint actions as household electrical appliances become more complex with many products expected to have embedded radio modules and other electronics in relation to the internet of things and other new and emerging technologies;
- Many of the participants involved in this joint action are members of the LVD ADCO and LVD Working Party. This was hugely beneficial and ensured that stakeholders were given timely progress updates;
- There were further efficiency gains from refining and enhancing the sampling and tendering processes, checklists and templates developed during the previous Joint Action on household electrical appliances JA2015;
- The joint action made preparations for the use of virtual meetings lasting up to one hour, as per the previous joint action. But the progress, efficiency gains and cooperation throughout the project avoided the need for a virtual meeting on this occasion;
- The majority of MSAs prefer the product-testing approach for market surveillance, but there was general agreement on the importance of technical documentation reviews. The evidence from this activity suggests that manufacturers are not fully aware of their obligations under the LVD, as many DoC's and test reports were not provided and over half of the test reports provided had no traceability to the product under test;
- Requesting and reviewing technical documentation is an essential element of joint actions and a cost-effective means of performing market surveillance. There is perhaps a need to increase this activity in future joint actions involving household electrical appliances given the conformity assessment requirements in the LVD where such technical documentation *"shall include an adequate analysis and assessment of the risk(s)"*;
- The project demonstrates that household electrical appliances remain an important category for future joint actions, particularly with the expected increased complexity with the development of the Internet of Things and wearable technologies

Appendix I Full Details of Test Programmes

Full test programme details for hairdryers, curling irons and hair straighteners:

HAIRDRYERS according to EN 60335-2-23

Clause	Test requirements and comments
7	Marking and instructions - In particular clauses 7.1, 7.6, 7.8, 7.9, 7.11, 7.12, 7.12.Z1, 7.12.5, 7.14, 7.15 and 7.16
8	Protection against access to live parts - Apply standard probes, in particular clauses 8.1 and 8.3
10	Power input and current
11	Heating - In particular, clauses 11.7 and 11.8 with consideration to Table 3 and Table Z101. Note that 11.101 is also required for appliances incorporating a swivel connection. NB: The laboratory is asked to include a comment in the test report concerning the recorded temperatures of non-functional surfaces that are likely to be touched by vulnerable users
13.1	Leakage current and electric strength at operating temperature
15	Moisture resistance
16	Leakage current and electric strength
19	Abnormal operation - In particular clauses 19.101 and 19.102
21	Mechanical strength - Including clause 21.101
22	Construction - In particular, clause 22.3 appliances provided with pins: no undue strain on socket outlets, and clauses 22.12, 22.13, 22.24, 22.31, 22.32
23	Internal wiring - In particular clauses 23.8 and 23.9
24	Components - Check for the presence of components conforming to the safety requirements in the relevant standards as far as they reasonably apply, as supporting data sheets will not be provided with the products
25	Supply connection and external flexible cords - In particular, clauses: 25.8 nominal cross-sectional area: conductors of supply cords 25.14 flexing test for appliances provided with a swivel connection 25.15 supply cord pull test 25.19 type x attachment and glands 25.25 compatible plug pin dimensions
29	Clearances, creepage distances and solid insulation - Inspection with measurement in cases of doubt
30	Resistance to heat and fire: Subject external parts of non-metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary or reinforced insulation to the appropriate testing such as glow wire, needle flame etc.

CURLING IRONS according to EN 60335-2-23

Clause	Test requirements and comments
7	Marking and instructions – In particular clauses 7.1, 7.6, 7.8, 7.9, 7.11, 7.12, 7.12.Z1, 7.12.5, 7.14, 7.15 and 7.16
8	Protection against access to live parts – Apply standard probes, in particular clauses 8.1 and 8.3
10	Power input and current
11	Heating - In particular, clauses 11.7 and 11.8 with consideration to Table 3 and Table Z101. Note that 11.101 is also required for appliances incorporating a swivel connection. NB: The laboratory is asked to include a comment in the test report concerning the recorded temperatures of non-functional surfaces that are likely to be touched by vulnerable users
13.1	Leakage current and electric strength at operating temperature
15	Moisture resistance
16	Leakage current and electric strength
19	Abnormal operation
21	Mechanical strength – Including clause 21.101
22	Construction – In particular, clause 22.3 appliances provided with pins: no undue strain on socket outlets 22.32 class II curling irons and resistance to aging 22.12, 22.13, 22.36
23	Internal wiring – In particular clauses 23.8 and 23.9
24	Components – Check for the presence of components conforming to the safety requirements in the relevant standards as far as they reasonably apply, as supporting data sheets will not be provided with the products
25	Supply connection and external flexible cords – In particular, clauses: 25.8 nominal cross-sectional area: conductors of supply cords 25.14 flexing test for appliances provided with a swivel connection 25.15 supply cord pull test 25.19 type x attachment and glands 25.25 compatible plug pin dimensions
29	Clearances, creepage distances and solid insulation - Inspection with measurement in cases of doubt
30	Resistance to heat and fire: Subject external parts of non-metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary or reinforced insulation to the appropriate testing such as glow wire, needle flame etc.

HAIR STRAIGHTENERS according to EN 60335-2-23

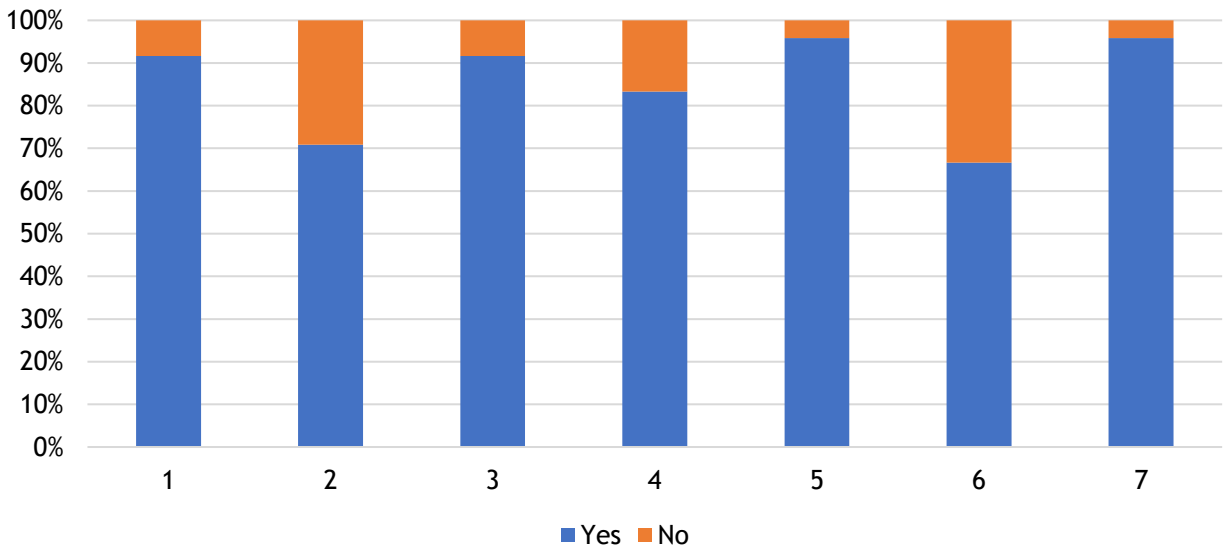
Clause	Test requirements and comments
7	Marking and instructions – In particular clauses 7.1, 7.6, 7.8, 7.9, 7.11, 7.12, 7.12.Z1, 7.12.5, 7.14, 7.15 and 7.16
8	Protection against access to live parts – Apply standard probes, in particular clauses 8.1 and 8.3
10	Power input and current – Products having PTC heating elements are operated for 30 min.
11	Heating - In particular, clauses 11.7 and 11.8 with consideration to Table 3 and Table Z101. Note that 11.101 is also required for appliances incorporating a swivel connection. NB: The laboratory is asked to include a comment in the test report concerning the recorded temperatures of non-functional surfaces that are likely to be touched by vulnerable users
13.1	Leakage current and electric strength at operating temperature
15	Moisture resistance
16	Leakage current and electric strength
19	Abnormal operation – with consideration to appliances incorporating PTC heating elements
21	Mechanical strength – Including clause 21.101
22	Construction – In particular, clauses 22.3 appliances provided with pins: no undue strain on socket outlets, 22.32 for hair straighteners where insulating material in which heating conductors are embedded is considered to be basic insulation only (except for heating conductors in PTC heating elements) 22.12, 22.13, 22.36
23	Internal wiring – In particular clauses 23.8 and 23.9
24	Components – Check for the presence of components conforming to the safety requirements in the relevant standards as far as they reasonably apply, as supporting data sheets will not be provided with the products
25	Supply connection and external flexible cords – In particular, clauses: 25.8 nominal cross-sectional area: conductors of supply cords 25.14 flexing test for appliances provided with a swivel connection 25.15 supply cord pull test 25.19 type x attachment and glands 25.25 compatible plug pin dimensions
29	Clearances, creepage distances and solid insulation - Inspection with measurement in cases of doubt
30	Resistance to heat and fire: Subject external parts of non-metallic material, parts of insulating material supporting live parts including connections, and parts of thermoplastic material providing supplementary or reinforced insulation to the appropriate testing such as glow wire, needle flame etc.

Appendix II Test Report Evaluation Results

Hairdryers

The table below shows the questions that formed the evaluation of the test reports received from economic operators for hairdryers. The chart below the table matches the questions and provides an overview of the responses in percentage terms.

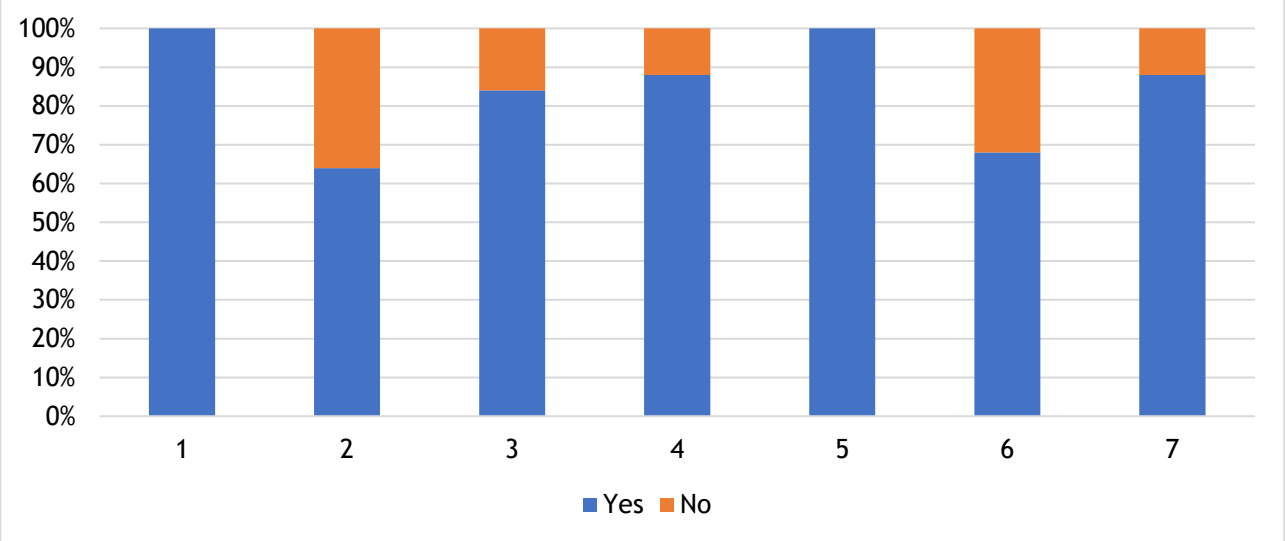
Questions for Test Report Evaluation - Hairdryers							
	1	2	3	4	5	6	7
	Are the applicant/manufacturer details provided in full?	Do the applicant/manufacturer details match those shown in the declaration of conformity?	Are all product model number/type details present and correct?	Do the product model number/type details match those shown in the declaration of conformity?	Is the test report formally authorised for issue with the name, function and signature of the authorised signatory?	Does the product rating label image/technical specifications in the test report match that of the sampled product?	Do references to harmonised standards match those shown on the declaration of conformity?
Yes	22	17	22	20	23	16	23
No	2	7	2	4	1	8	1



Curling Irons

The table below shows the questions that formed the evaluation of the test reports received from economic operators for curling irons. The chart below the table matches the questions and provides an overview of the responses in percentage terms.

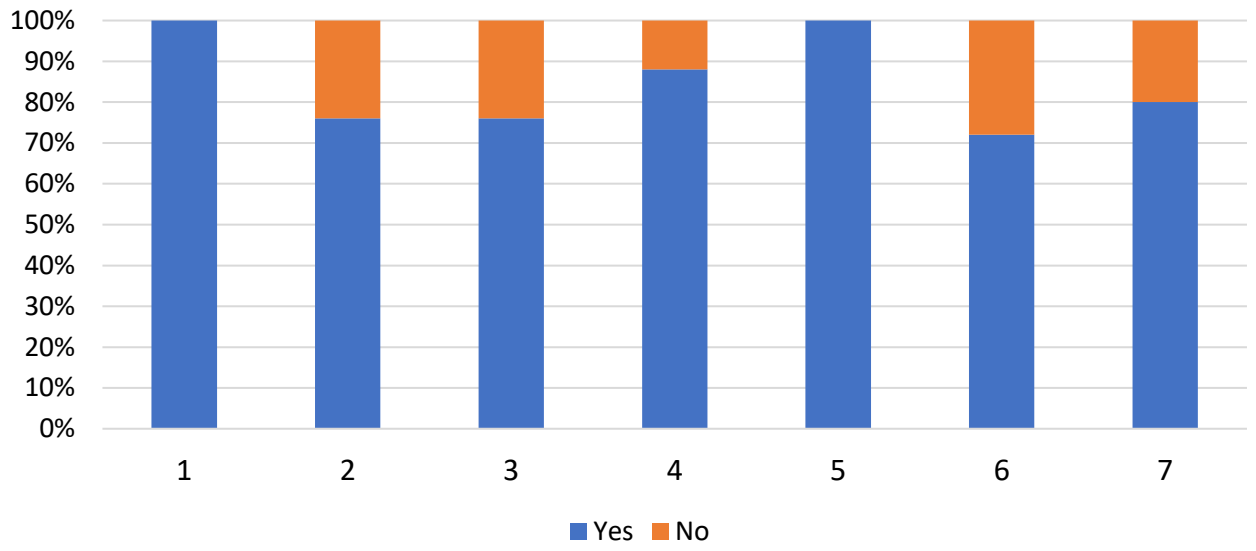
Questions for Test Report Evaluation - Curling Irons							
	1	2	3	4	5	6	7
	Are the applicant/manufacturer details provided in full?	Do the applicant/manufacturer details match those shown in the declaration of conformity?	Are all product model number/type details present and correct?	Do the product model number/type details match those shown in the declaration of conformity?	Is the test report formally authorised for issue with the name, function and signature of the authorised signatory?	Does the product rating label image/technical specifications in the test report match that of the sampled product?	Do references to harmonised standards match those shown on the declaration of conformity?
Yes	25	16	21	22	25	17	22
No	0	9	4	3	0	8	3



Hair Straighteners

The table below shows the questions that formed the evaluation of the test reports received from economic operators for hair straighteners. The chart below the table matches the questions and provides an overview of the responses in percentage terms.

Questions for Test Report Evaluation - Hair Straighteners							
	1	2	3	4	5	6	7
	Are the applicant/manufacturer details provided in full?	Do the applicant/manufacturer details match those shown in the declaration of conformity?	Are all product model number/type details present and correct?	Do the product model number/type details match those shown in the declaration of conformity?	Is the test report formally authorised for issue with the name, function and signature of the authorised signatory?	Does the product rating label image/technical specifications in the test report match that of the sampled product?	Do references to harmonised standards match those shown on the declaration of conformity?
Yes	25	19	19	22	25	18	20
No	0	6	6	3	0	7	5



Appendix III Checklist for MSAs or Customs



1. Product identification
1.1. Name of manufacturer/trademark:
1.2. Name of product and model/type (identification):

2. Marking on the product	Yes	No
2.1. The CE-marking on appliance Is CE-marking as set out in Regulation (EC) No 765/2008?	☐	☐
2.2. Is name of manufacturer/trademark/address of the manufacturer and the importer included?	☐	☐
2.2.1. Is it the same as that shown in the Declaration of Conformity (DoC)?	☐	☐
2.3. Identification of product (for example, model, type, article)	☐	☐
2.3.1. Identical to one shown in DoC?	☐	☐
2.4. Rated voltage or voltage range (V)	☐	☐
2.5. Rated current (A)	☐	☐
2.6. Power (W)	☐	☐
2.7. The symbol  WARNING against use near water marked on the product?	☐	☐

3. Documentation	Yes	No
3.1. DoC made by manufacturer or authorised representative (are they authorised to issue DoC) and does it have an authorised signatory?	☐	☐
3.2. References to EU Directives and standard(s)	☐	☐
3.2.1. Low Voltage Directive 2014/35/EU	☐	☐
3.2.2. EMC Directive 2014/30/EU	☐	☐
3.2.3. RoHS 2011/65/EU	☐	☐
3.3. Is there a user manual in the correct language for the destination country?	☐	☐

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