

# JOINT MARKET SURVEILLANCE ACTIONS 2016 ON **PRODUCT SAFETY** GPSD 2001/95/EC



## FINAL REPORT - ELECTRIC TOYS

Joint Market Surveillance Action on Consumer  
Products (JA2016)

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#JA2016



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## Abbreviations & Acronyms

ANEC	The European consumer voice in standardisation
ADCOs	Administrative Cooperation Groups of Market Surveillance Authorities
DG-ENV	Directorate-General for Environment
DG-GROW	Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
DG-JUST	Directorate-General for Justice and Consumers
DC	Declaration of Conformity
ECHA	European Chemicals Agency
EPBA	European Portal Battery Association
GPSD	General Product Safety Directive 2001/95/EC
JA2016	Joint Market Surveillance Action 2016, GA no. 739851, coordinated by PROSAFE with an implementation timeframe of September 2017 up to November 2019
MS	Member States
MSA(s)	Market surveillance authority(ies)
PROSAFE	Product Safety Forum of Europe
RAPEX	The EU Rapid Alert System for dangerous non-food products
RCR	Risk Characterisation Ratio
ROHS2	Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast).
TIE	Toys Industries for Europe
Toys Directive	Directive 2009/48/EC of the European Parliament and of the Council of 18 June 2009 on the safety of toys

## Executive Summary

A joint market surveillance activity has been organised across 15 European Economic Area (EEA) countries, focusing on risks to health and environment associated with electric toys. This activity was part of the “Joint Market Surveillance Action on Consumer Products - JA2016 GPSD” (JA2016), co-funded by the European Commission and coordinated by PROSAFE

Market Surveillance Authorities (MSAs) have sampled and tested **255 different electric toys** ranging from small toys such as **toys using button cell batteries, to electric ride-on toys (such as electric toy cars and motorbikes)**. The focus for sampling and testing was bifold amongst the participating MSAs:

- ▶ **14 authorities** from Belgium, Bulgaria, the Czech Republic, Cyprus, Estonia, France, Greece, Iceland, Latvia, Lithuania, Malta, Poland, Slovakia and Spain tested **238 samples out of the total 255 (93%) for electrical safety**, and
- ▶ **7 authorities** from the Czech Republic, Iceland, Latvia, Lithuania, Malta, Poland & Sweden tested **119 samples out of 255 samples in total (47%) for environmental risks**.

The main reason why not all samples were tested for both electrical and environmental risks was because some authorities were responsible for either electrical or environmental risks, and some had a political interest to target electrical safety only within this particular project.

All types of economic operators were inspected:

- **149 samples were collected from distributors;**
- **91 samples from importers; and**
- **15 samples from local manufacturers.**

Additionally, **out of the 255 samples, 186 samples (73%)** were collected via traditional on-site market surveillance whereas **64 samples (25%)** were extracted via online sales. **5 samples (2%)** were also extracted with assistance from Customs authorities.

The sampling was not performed in a random manner. Where possible, the target was to focus on low-cost toys and on toys which lacked proper markings and warnings since from previous experience these have been found to possibly present a higher level of risk. However, it was left up to each individual participating authority to ultimately decide on the actual samples extracted from their market. The governing legislation of the testing programme for electrical safety of toys was the Toys Directive 2009/48/EC.

### Safety risks

**238 samples out of the 255 were tested for electrical safety. 135 out of the 238 samples (around 58%) had some form of non-compliance.** The 135 non-compliant samples were determined by the MSAs to have the following risks:

- **13 samples were classified as having a ‘serious risk’;**
- **3 samples were classified as having a ‘high risk’;**
- **5 samples were classified as having a ‘medium risk’;**
- **36 samples were classified as having a ‘low risk’;**
- **78 samples were classified as having a ‘no particular safety issue’.**

The MSAs issued rapid alert notifications on all 13 samples with a ‘serious risk’, via the EU Safety Gate - Rapid Alert System for dangerous non-food products (RAPEX).

Additionally, 2 out of the 3 samples with ‘high risk’ have led to rapid alert notifications from the respective MSAs.



A particular e-brochure included in Annex 2 targeting consumers and in particular parents and caregivers has been developed by the participating authorities in conjunction with external stakeholders: ANEC, EUROCOMMERCE, EPBA and TIE. The e-brochure highlights the risks associated with button-cell batteries if left with young children. If ingested the battery will in most cases pass through the body naturally without causing any harm. However, immediate action is needed by the parents/caregivers since there is a risk that if it gets stuck in the food pipe, it can possibly be fatal in as little as 2 hours.

### Environmental risks

The Directive 2011/65/EU ROHS2 has been used to determine compliance with environmental risks. Up to a maximum of 4 solder points from each of the **119 out of 255 samples** were tested for their content of lead and cadmium.

**73 out of 119 samples (around 61%)** were non-compliant, most of which had extremely high levels of lead and/or cadmium. These 73 non-compliant samples were determined by the MSAs to have the following levels of risk:

- **66 samples were classified as having a ‘serious risk’;**
- **6 samples were classified as having a ‘high risk’;**
- **Only 1 was classified as having a ‘medium risk’.**

72 out of the 73 non-compliant samples have been notified by the MSAs through the rapid alert system for dangerous non-food products. As indicated further above, all information can be found within the European Commission’s “Safety Gate”.

The most important outcomes of the tests concerning environmental risks are included in an e-brochure (see Annex 1).

Similar to previous market surveillance activities funded by the European Union, this product activity has provided added value in various ways by helping improve the consumer protection in Europe and reducing risks related to environment. With so many authorities working together, the activity provided a platform for sharing best practices, experiences and expertise amongst MSAs. The European Union’s funding ensured that the number of samples tested exceeded the number that individual authorities could otherwise afford to test. Authorities also discussed their risk assessment and enforcement methodologies, thus promoting a more consistent approach on the enforcement actions taken.

### Caution!

The above results are based on products that were sampled from the markets in the participating authorities by experienced market surveillance inspectors that were looking for non-compliant and potentially unsafe products. As in any routine market surveillance activity, the results represent the targeted efforts that authorities undertake to identify unsafe products. They do not give a statistically valid picture of the market situation.

The samples were tested at an accredited laboratory. The test focussed on those safety requirements that have the largest impact on consumer safety and environmental risks.

# 1 Introduction

This chapter presents a short extract of the project description. The full description can be found in the JA2016 Grant Agreement (GA) No. 739851.

The report contains the following sections:

- Chapter 1 of this final technical report gives an overview of the main activities of this project. The main phases of the activity and the timeline are described in this section;
- Chapter 2 explains how a test laboratory was chosen for this activity and indicates how sampling was carried out by the MSAs participating in the activity;
- Chapter 3 summarises the test results and focuses on the non-compliances found within the tested samples. Additionally, some information is given on the checks performed by MSAs in relation to the respective declarations of conformities and markings of the samples tested;
- Chapter 4 presents the way the participating authorities assessed the risks associated with the non-conformities detected and describes the follow-up action and measures taken by the MSAs;
- Chapter 5 describes the number of liaisons maintained during this activity;
- Chapter 6 highlights the main lessons learnt at technical and administrative levels as well as suggestions for the way forward.

## 1.1 Project consortium

The activity was undertaken by 15 MSAs from the following countries within the European Economic Area (EEA): Belgium, Bulgaria, Czech Republic, Cyprus, Estonia, France, Greece, Iceland, Latvia, Lithuania, Malta, Poland, Slovakia, Spain and Sweden. The applicant body that also took overall responsibility for the Joint Action was PROSAFE. The Activity Leader was Savvas Savva from the Consumer Protection Service of the Ministry of Energy, Commerce, Industry and Tourism of the Republic of Cyprus. He was supported by the PROSAFE Consultant, Noel Toledo, acting as Activity Coordinator.

## 1.2 Main Objectives

The general objectives of the activity were to continue to create conditions whereby participating authorities could cooperate successfully on market surveillance activities and to co-ordinate a number of product activities sharing the results of the activities with as many participating authorities as possible.

The main objectives of this activity were:

- ▶ To develop best practices and exchange experience with carrying out market surveillance activities for toys;
- ▶ To detect dangerous electric toys on the marketplace and take action accordingly, in particular with regards to electrical safety as well as environmental risks.

## 1.3 The volume of the Activity

255 different electric toys have been tested, ranging from small toys such as toys using button cell batteries, to electric ride-on toys (such as electric toy cars and motorbikes).

Belgium, Bulgaria, the Czech Republic, Cyprus, Estonia, France, Greece, Iceland, Latvia, Lithuania, Malta, Poland, Slovakia & Spain chose to test 238 samples out of the 255 in total for electrical safety. With regards to environmental risks, only 7 authorities from the Czech Republic, Iceland, Latvia, Lithuania, Malta, Poland & Sweden were interested in the programme and tested 119 out of 255 samples.



## 1.4 The Phases of the Activity

The Activity was a market surveillance action that followed 5 phases:

- **Deciding on sampling criteria**

The Activity decided on how the participating authorities should carry out sampling, i.e. how many samples would be taken by each authority; when would the sampling take place; what criteria would be applied when selecting the specific samples; and how many items should be taken of each product.

- **Sampling products**

The participating authorities collected products according to the sampling criteria. This meant that the MSAs visited manufacturers, importers, wholesalers and retailers to collect these electric toys. Customs authorities were also involved to a lesser degree. The whole sampling procedure was fully coordinated, and information was collected about all the toy samples sent for testing.

- **Testing products at a laboratory**

The activity issued a call for tender that was published on the PROSAFE website. The participating authorities selected a laboratory via a tendering process, upon which their samples were sent for testing. In turn the laboratory submitted test reports after the testing had taken place. Eventually, each participant received the test reports for their respective toy samples.

- **Risk assessment**

Risk assessment was discussed during the 4<sup>th</sup> meeting which was held by this working group at the premises of the laboratory where all tests have been carried out. All non-compliant samples were discussed and a coordinated approach to risk assessment in relation to both electrical safety as well as environmental risks was agreed upon.

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

The authorities took the necessary action and measures in their countries, in liaison with the respective economic operators. Appropriate measures and follow-up action were taken to ensure that any unsafe toys were removed from the market. Additionally, action was taken by the MSAs whenever the DoC was missing or did not comply with the requirements. A number of dangerous products have been notified by the MSAs through the rapid alert system for dangerous non-food products.

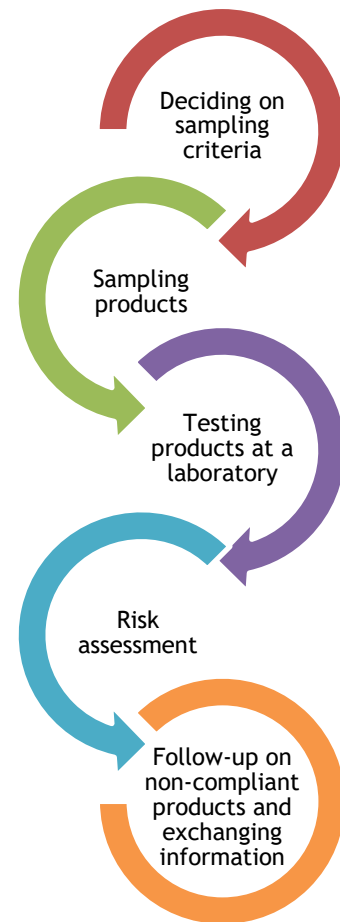


Figure 1 Activity Phases

## 1.5 Timeline for the Activity

PROSAFE organised six physical meetings throughout the lifetime of this project as presented in table 1. The final meeting, which took place in June 2019, had as a main purpose to inform everyone about the results of this project and to further fine-tune this final technical report with the latest information. Stakeholders were invited and discussions took place to better explain these results and also get any final input from MSAs and external stakeholders. The recommendations were included in this final version of this report.

### Workshops & Final Conference

In addition to the six main meetings, PROSAFE organised periodic workshops and seminars as part of the events surrounding all the activities within JA2016, including the JA2016 Launch Event, the Interim Workshop and Final Conference (to be organised in Sep 2019). The Task Leader and/or Task Coordinator (consultant) of this working group took part in these workshops in order to update the participants and also to encourage the sharing of best practices between various other product-specific activities organised within JA2016.

Calendar Month	Phase	Main activities	Meeting	Deliverables / Milestones	
					Project
				ID	Month
Sep '17	Phase 1 - Starting Phase & preliminary work for the activity	Participation in JA2016 Launch Event by Task Leader (TL) & Task Coordinator (TC) & preliminary work related to the activity.			1
Oct '17					2
Nov '17		<b>Meeting No.1</b> - Kick-off meeting - Initial Discussions on activity plan for the project and identifying the best way forward.	Toys Meeting No.1 Kick-off	MS20	3
Dec '17		Work on Activity Plan, preliminary research, tools for market surveillance, lab testing			4
Jan '18					5
Feb '18		<b>DELIVERABLE</b> - Finalisation of Detailed Activity Plan		D8.1	6
Feb '18		<b>Meeting No.2</b> - Work on tools for market surveillance, toys priority list, lab testing	Toys Meeting No.2		6
Mar '18		<b>DELIVERABLE</b> - Finalisation of Tools for market surveillance - Exchange of Information guideline on toys, Sampling Scheme, Checklists.		D8.3	7
Apr '18				9	
May '18	PHASE 2 - Implementation Phase	<b>Meeting No.3</b> - Finalisation of work on Lab testing & sampling strategy.	Toys Meeting No.3		10
Jun '18		Contract for testing of samples finalised with laboratory.			11
Jul '18		<b>DELIVERABLE - Organisation of Lab Testing</b>		D8.4	12
Sep '18		Start of testing of samples sent to the laboratory & collection of statistics on inspections and test results.			13
Oct '18					14
Nov '18		<b>Meeting No.4</b> - On-site meeting at the Laboratory to inspect samples and discuss final test reports / risk assessment & measures to be taken. <b>Milestone</b> - Completion of sampling and testing.	Toys Meeting 4	MS21	15
Dec '18	PHASE 3 - Final Results & Follow-up	Additional market surveillance statistics collected regarding non-compliant samples. Follow-up action by MSAs initiated after risk assessment finalised.			16
Jan '19		Participation of TL & TC in JA2016 Interim Workshop			17
Feb '19		<b>Meeting No.5</b> - Further discussions on risk assessment & measures taken / to be taken - further ensuring a coordinated approach by all MSAs.	Toys Meeting 5		18
Mar '19		Start of development of Final Technical Report, including aggregate statistics on non-compliances, risk and measures taken.			19
Apr '19		Further coordination work on follow-ups, Rapid Alert (RAPEX) notifications, ensuring that measures have been taken as per agreed deadlines			20
May '19					21
Jun '19		<b>Meeting No.6 - Final Workshop</b> - Presentation of all final results and conclusions / recommendations to all participants & external stakeholders. Further fine-tuning of Final Technical Report.	Toys Meeting 6		22
Jul '19		Follow-up work arising from the final project meeting.			23
Aug '19		<b>DELIVERABLE</b> - Delivery of minutes of all 6 project meetings to the Commission		D8.2	24
		<b>DELIVERABLE</b> - Market Surveillance Toys - Statistics & Follow-up Report		D8.5	
		<b>DELIVERABLE</b> - Final Technical Report on Toys (publicly available), including any e-brochures / infographics that may need to be developed.		D8.6	
Sep '19		Participation of TL & TC in the Final Conference for JA2016			25
Oct '19		Closure of the project activity on electric toys.			26

**LEGEND:** 'MSXX' denotes the specific ID number of the respective milestone within the project. 'DX.X' denotes the specific ID number of the respective deliverable within the project.

Table 1 - Timeline for the project activity - Electric Toys

## 2 Setting up the Product Activity

### 2.1 Tendering Process for Test Laboratories

The call for tenders was published on the PROSAFE website on 26 March 2018. Ten laboratories were also directly informed, including the Secretariat of the Toys Notified Body Group. Specific criteria were included within the tender to ensure that the respective laboratories had the necessary accreditation, competence and experience in the type of tests that needed to be done as part of this activity. All the participating authorities were also asked to inform any laboratories in their own countries who might be interested to participate in this call for tender.

Only one tender was received before the stipulated deadline and it also met all the criteria as stipulated by the call for tender. The main reason for this low response was that a number of laboratories were not accredited for both EN 62115 and testing according to the ROHS2 Directive<sup>1</sup>. Two other laboratories sent an email to PROSAFE explaining that they were unable to apply for this particular tender since they did not meet the required criteria. The laboratory which sent the only tender was chosen for testing of electric toys.

A total of 255 electric toy samples had to be tested by the laboratory. A Skype meeting was held during the third meeting of this activity between the laboratory manager and the respective experts as well as the participants from the MSAs. The scope of this meeting was to ensure that the laboratory knew exactly what needed to be done in terms of testing. A contract was finalised between PROSAFE and this laboratory in order to perform the required tests.

In view of their experience, the laboratory experts also gave some final suggestions and advice as to how to best perform the type of tests needed in line with the proposed test criteria. They also gave advice to MSAs as to which parts of the toy sample possibly had a higher chance of containing lead and/or cadmium content in the solders within the respective toys that needed to be tested for environmental risks.

### 2.2 Selecting Products & Risks to be focused upon

This generic risk and toy product group, 'electric toys', was identified through a priority-setting exercise coordinated by PROSAFE that was held by a previous working group of MSAs and finalised by the end of 2016. During the first two meetings of this activity, (held in 2017 and 2018), discussions were held between the participating authorities, to identify which particular toy product categories needed to be focused upon.

An internal guidance document, together with checklists for inspectors, were also developed to help the participating authorities collect the same type of samples and also extract the information needed from each of the samples sent for testing.

Various types of electric toys exist today, and the working group initially had to decide on the type of electric toys that they wished to focus. An analysis took place on all the serious risk notifications issued by MSAs in the **Rapid Alert System**<sup>2</sup> of the European Commission related to electric toys that over the last

<sup>1</sup> European Commission, Directive 2011/65/EU (ROHS 2) of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment: [https://ec.europa.eu/environment/waste/rohs\\_eee/index\\_en.htm](https://ec.europa.eu/environment/waste/rohs_eee/index_en.htm)

<sup>2</sup> Commission Decision 2010/15/EU of 16 December 2009 laying down guidelines for the management of the Community Rapid Information System "RAPEX" established under Article 12 and of the notification procedure established under Article 11 of Directive 2001/95/EC (the General Product Safety Directive)" Published in the Official Journal of the European Union L22/1: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:022:0001:0064:EN:PDF>

years were considered as posing a serious risk. For this reason, in the case of electrical safety, the following risks were given priority:

1. Chemical burns (ingestion of small batteries);
2. Suffocation from putting small batteries in the mouth;
3. Electric shock / fire / burns;
4. Damage to eyesight.

Other particular risks have been taken into account such as the lack of safety warnings & instructions.

Additionally, certain toys have been tested for compliance to ROHS2 (Restriction of Hazardous Substances in Electrical and Electronic Equipment). Particular attention was given to the amount of lead and cadmium present in certain solders of the respective sampled toys.

The 255 samples have been categorised into the following main product groups presented in Figure 2 below.

Battery toys constituted the largest number of samples collected through this project, with button cell battery toys accounting for 81 samples (32% of all samples) and another 104 samples (41% of all samples) accounting for other type of battery toys. Additionally, 28 electric toys had laser and/or LED lights. 18 electric ride-on toys were also collected. The remaining electric toys, mainly electric toys with transformers and also any other toys not classified in the other toy categories, were classified as 'other toys'.

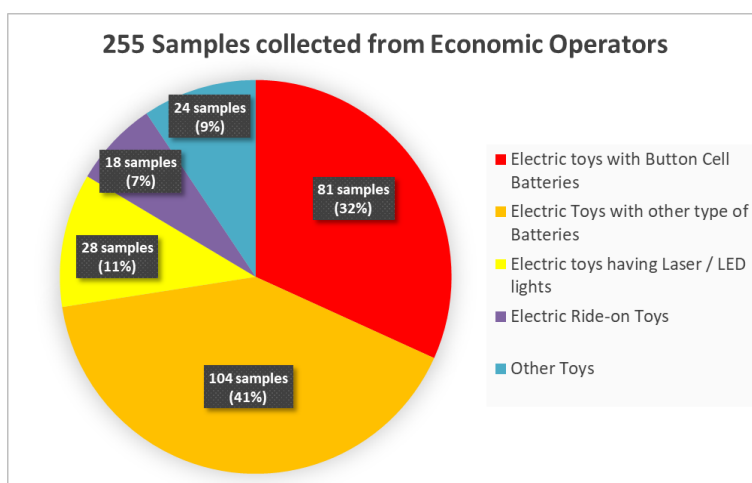


Figure 2 - The type of electric toy samples collected from each category

Further information regarding the type of tests carried out and the test method used is given in chapter 3 (testing).

### 2.2.1 Economic operators inspected

All types of economic operators were focused upon, that is, manufacturers, importers and all kinds of distributors. It was up to the MSA to decide exactly which and how many economic operators were focused upon within this project.

The sampling was not performed in a random manner. Where possible, the target was to focus on low-cost toys and toys which lacked proper markings and warnings since from previous experience these have been found to possibly present a higher level of risk. However, it was left up to each individual participating authority to ultimately decide on the actual samples extracted from their market.

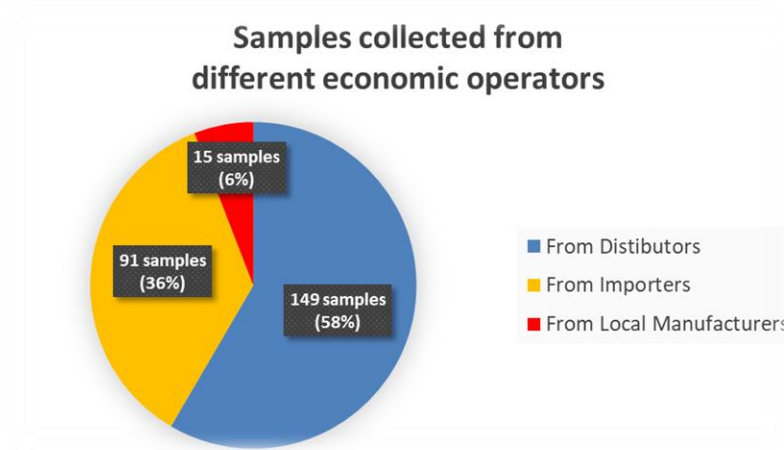


Figure 3 - Total Samples collected from different economic operators

Figure 3 indicates that the inspectors collected 15 samples directly from local manufacturers, 91 samples from importers and 149 samples from distributors.

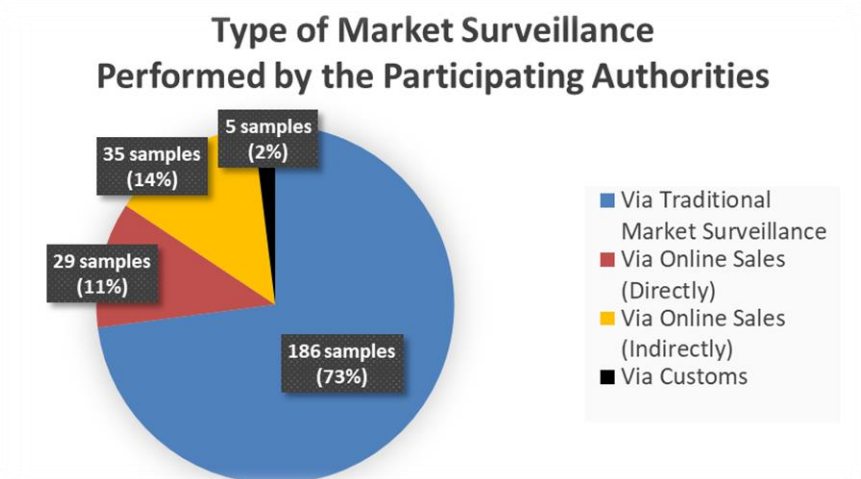


Figure 4 - Proportion of Samples collected

Figure 4 shows that 186 samples (73%) were collected via traditional market surveillance activities, another 64 samples (25%) were collected via online sale. In the case of online sales, 29 samples (11%) were directly bought via online sales.

An additional 35 samples (14%) were collected from the economic operators after the MSAs selected the samples to be collected from the respective websites of the economic operators. 5 samples (2%) were collected with assistance from Customs – 3 of these 5 samples were extracted from importers and 2 samples from distributors.

### 2.2.2 Breakdown of Electric Toy Categories, including the type of tests performed

Table 2 shows a further breakdown of information in relation to the actual samples collected by each participating authority and the respective tests performed by each of them. 14 authorities tested 238 samples for electrical safety out of the 255 in total.

The Swedish Chemicals Agency was the only one which did not perform tests related to electrical safety. This is because their authority is only responsible and specialised in environmental and chemicals risks. On the other hand, 7 authorities tested 119 out of 255 samples for environmental risks. Overall, 6 of the participating authorities performed testing for both electrical and environmental risks.

Electric Toy Categories	Electric toys with Button Cell Batteries		Electric toys with other type of Batteries		Laser / LED lights	Electric Ride-on Toys	Other Electric Toys	Number of Samples Tested		
	< 3 years	≥ 3 years	< 3 years	≥ 3 years						
PROSAFE Category Code	A1	B1	A2	B2	C	D	E	TOTAL SAMPLES	EN 62115 Testing	ROHS Testing
Belgium	4	4	2	3	2		2	17	17	
Bulgaria	4	3	1	3	3	2	1	17	17	
Cyprus	2	3	3	3	1	2	3	17	17	
Czech Rep.	5	2	2	4	2		2	17	17	17
Estonia	2	1	6	6	2			17	17	
France	3	3	2	2	2	3	2	17	17	
Greece		2	2	6	3	2	2	17	17	
Iceland	6	7	2	1			1	17	17	17
Latvia	3	5	3	2	2	1	1	17	17	17
Lithuania		1	5	5	1	2	3	17	17	17
Malta	1	3	4	3	2	2	2	17	17	17
Poland	1	1	4	6	2	2	1	17	17	17
Slovakia	2	3	2	6	2		2	17	17	
Spain	4	3	3	3	2	2		17	17	
Sweden	0	3	6	4	2		2	17		17
Sub-totals	37	44	47	57	28	18	24	255	238	119
Totals	81		104		70					

Table 2 - Detailed breakdown of proportion of samples collected & tested

Table 2 also provides a breakdown of the electric toys with button-cell batteries intended for children under 3 years of age and those intended for 3 years of age and over. The same sub-classification has been performed in the case of electric toys with other type of batteries.



### 3 Testing

In total, 255 samples were sent for testing. However, as Table 2 indicates, some samples have been tested for electrical safety (238 samples from 14 participating authorities), whereas some other samples have been tested for environmental risks (119 samples from 7 participating authorities).

Figure 5 below tries to also give an overview of the type of tests performed by the respective authorities.

Overall:

- **102 samples** from 6 participating authorities have been tested for **both electrical safety and environmental risks**;
- **136 samples** from 8 participating authorities have been tested for **electrical safety only**;
- **17 samples** from 1 participating authority have been tested for **environmental risks only**.

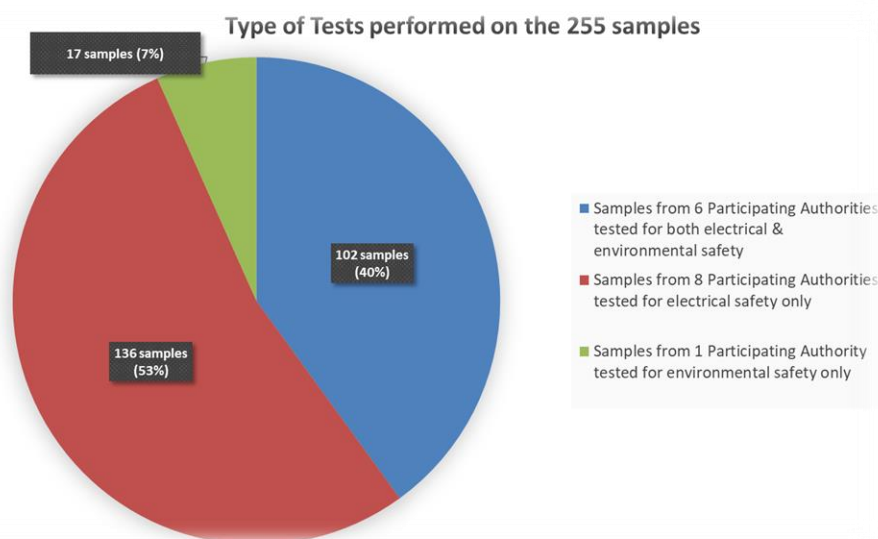


Figure 5 - Type of Tests performed on the 255 samples

This chapter gives a detailed overview of all the type of tests carried out, including the test results achieved. It has been divided into two main areas: those samples which have been tested for electrical safety and those tested for environmental risks. Finally, a special section is dedicated to an analysis of the declaration of conformities associated with these samples.

#### 3.1 The Test Program for Electrical Safety

The Toy Safety Directive 2009/48/EC<sup>3</sup> of the European Parliament and of the Council of 18 June 2009 on the safety of toys, lays down the safety criteria that toys must meet before they can be marketed in the European Union (EU).

The harmonised standard EN 62115:2005 +A2:2011 +A11:2012 +A12:2015 was utilised to test for **electrical safety** of these toy samples. The standard provides electrical safety specifications for toys that have at least one function dependent on electricity, toys being any product designed or clearly intended, whether or not exclusively, for use in play by children of less than 14 years of age.

<sup>3</sup> Directive 2001/95/EC of the European Parliament and of the Council of 3 December 2001 on general product safety (Text with EEA relevance) OJ L 11, 15.1.2002, p. 4-17, retrieved from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32001L0095>

In order to reduce testing costs, the working group first assessed which tests within the harmonised standard EN 62115:2005 +A2:2011 +A11:2012 +A12:2015 were utilised to test for electrical safety of these toy samples were of particular importance and to which particular electric toy category. The resulting testing protocol for electrical safety was developed as shown in Table 3 below.

This shows that all 238 electric toy samples tested for electrical safety were tested in line with clauses: 5.13, 6, 7, 13, 14, 17 and 19 of EN 62115. In other cases, specific additional tests were carried out according to the type of electric toy samples as indicated in Table 3. This ensured a more focused approach in the way tests were carried out. Additionally, it ensured that the testing budget was not exceeded.

Testing Protocol for Electrical Safety (EN 62115)		Electric toys with Button Cell Batteries		Electric toys with other type of Batteries		Laser / LED lights	Electric Ride-on Toys	Other Electric Toys
		< 3 years	≥ 3 years	< 3 years	≥ 3 years			
Clause	Description	A1	B1	A2	B2	C	D	E
5.13	Test of battery toys with the polarity reversed	*	*	*	*	*	*	*
6	Criteria for reduced testing	*	*	*	*	*	*	*
7	Marking & Instructions (7.4, 7.5, 7.6 checked by MSA - the rest checked by laboratory)	*	*	*	*	*	*	*
8	Power Input							*
9	Heating and abnormal operation						*	
10	Electric strenght at operating temperature					*	*	
11	Moisture resistance					*	*	
12	Electric strenght at room temperature					*	*	*
13	Mechanical strenght	*	*	*	*	*	*	*
14	Construction	*	*	*	*	*	*	*
15	Protection of cords & wires						*	*
16	Components							
17	Screws & connections	*	*	*	*	*	*	*
18	Clearances and creepage distances							*
19	Resistance to heat and fire	*	*	*	*	*	*	*
20	Radiation, toxicity & similar hazards					*		

*Table 3 - Testing Protocol for Electrical Safety*  
[An Asterisk (\*) denotes that testing needed to be performed]

In the case of clause 7 of EN 62115, it was agreed that the MSAs themselves had to check subclauses:

- 7.4 (related to the provision of instructions);
- 7.5 (related to the importance of retaining the packaging when markings or instructions are on the packaging);
- 7.6 (related to the importance of instructions and other text to be written in the official language of that particular country).

The rest of the subclauses within clause 7 were directly checked by the laboratory.

### 3.1.1 Test Results for Electrical Safety

238 samples out of the 255 were tested for electrical safety. 135 samples (57%) out of the 238 tested, did not comply to one or more clauses of EN 62115. These include any minor non-compliances associated with clause 7 of EN 62115.

Figure 7 shows the percentage non-compliance found in samples within each participating authority from their respective countries. One needs to again stress that this shows the total level of non-compliances found within the samples, including minor non-compliances mainly associated with clause 7 of EN 62115.

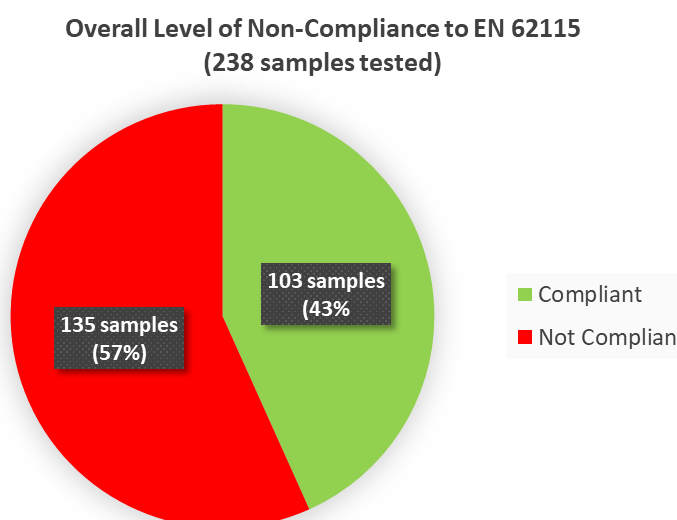


Figure 6 - Overall Level of non-compliance to EN 62115

(These include the total non-compliances related to clause 7 of EN 62115 as well)

As previously explained, each participating authority extracted 17 samples for testing. In the case of Poland, there were no non-compliances within any of the 17 samples.

On the other hand, in the case of the participating authorities from Cyprus, Greece and Iceland, the percentage level of non-compliance was found to be 88% (that is, 15 non-compliant samples out of the 17 tested from each of these 3 participating authorities). This shows a huge disparity between the 14 participating authorities that took part in this market surveillance activity.

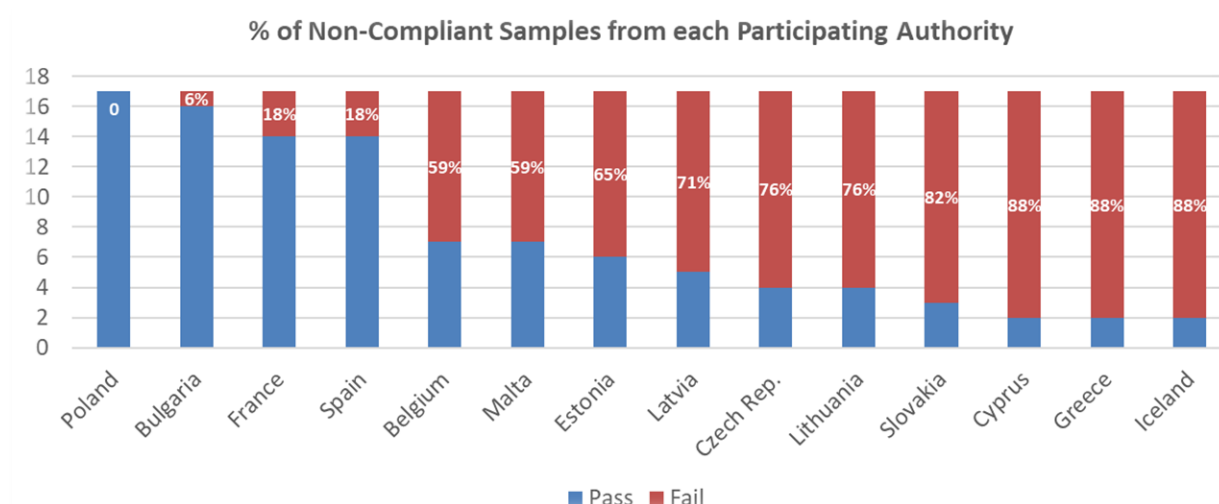


Figure 7 - Level of non-compliance of samples tested by each participating authority (EN 62115)

(These include the non-compliances related to clause 7 of EN 62115 as well)

However, zooming into the 135 non-compliant samples as indicated in Figure 5, one finds that 110 samples (82% of the 135 samples) had a non-compliance related to clause 7 (Marking & Instructions) only. This is graphically represented in Figure 8.

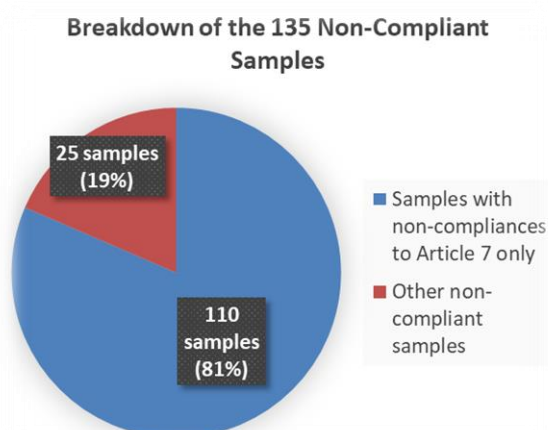


Figure 8 - General breakdown of the 135 non-compliant samples

In view of the rather large number of non-compliances associated with clause 7 (Marking and Instructions), Table 4 below tries to give a breakdown of non-compliances in the various subclauses from within all the 238 samples tested for EN 62115. One needs to remember that not all the subclauses may be relevant to each sample and therefore this is the reason why the 'number of samples checked' on the left-hand side of Table 4 is sometimes shown as less than 238 samples.

Nevertheless, it immediately becomes apparent that the main non-compliances are associated with subclauses 7.4, 7.5 and 7.6 of EN 62115. The respective MSAs performed the assessment themselves on these samples for these three particular subclauses. The other subclauses were assessed directly by the laboratory.

The samples which only had non-compliances to clause 7 only, were mainly classified by the MSAs as either having a low risk or not having any particular safety issue, depending on the respective type of non-compliance.

Number of samples checked	Sub-clauses of clause 7 of EN 62115	Compliant Samples	Non-Compliant Samples	% Non-Compliance for each sub-article
238	7.1 - Markings on toys or their packaging	214	24	10%
10	7.3 - Symbols	10	0	0%
238	7.4 - Instructions	167	71	30%
209	7.5 - To retain packaging when markings or instructions are required	144	65	31%
238	7.6 - Language of instructions	171	67	28%
215	7.7 - Legibility & durability of the markings	213	2	1%

Table 4 - Level of non-compliance related to subclauses of clause 7 of EN 62115

For this reason, it was felt more important to analyse the remaining 25 non-compliant samples shown in Figure 9, which constitute just over 10,5% of all the 238 samples tested for EN 62115. These are by far the ones which need to be further assessed since they are the ones having the highest risk factors. Further assessment is therefore merited in these particular 25 non-compliant samples.

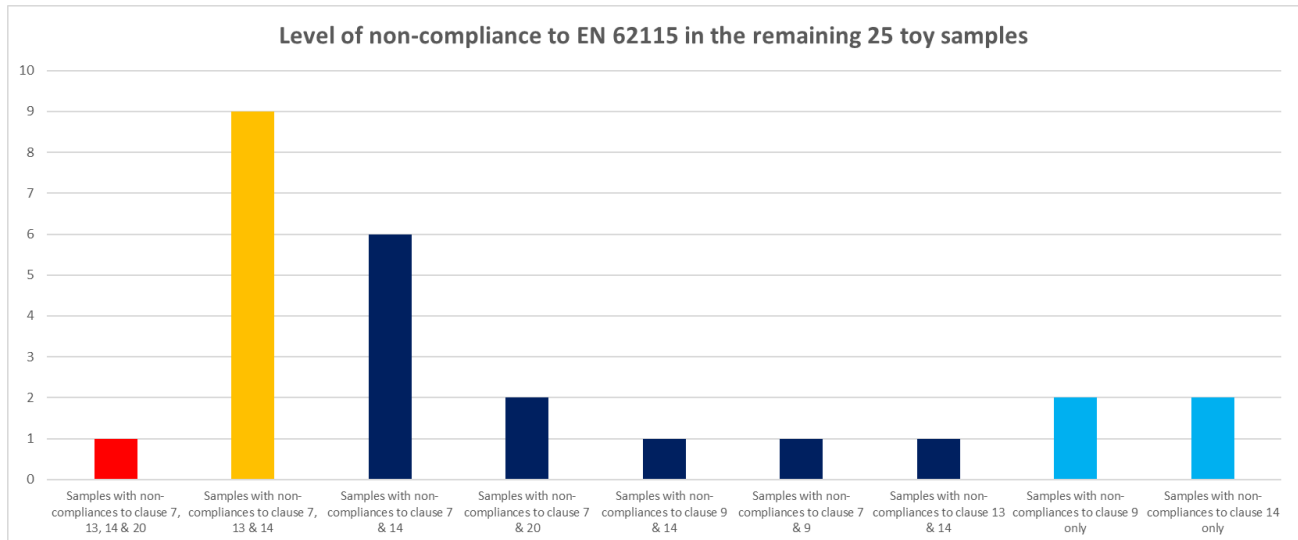


Figure 9 - Level of non-compliance in the remaining 25 non-compliant samples

Looking further at Figure 9 above, we conclude that:

- **Only 1 sample** had non-compliances related to 4 different clauses of EN 62115. The non-compliances were related to clause 7, 13, 14 and 20;
- **9 other samples** had non-compliances related to 3 different clauses of EN 62115. The non-compliances were all related to clause 7, 13 and 14;
- **11 samples** had non-compliances related to 2 different clauses of EN 62115. Out of the 11 samples, 6 of them had non-compliances related to clause 7 and 14. 2 other samples had non-compliances related to clause 7 & 20 whilst 3 other individual samples had non-compliances related to clause 7 & 9, to clause 9 & 14 and to clause 13 & 14 respectively;
- **2 other samples** had a non-compliance to clause 9 only whilst another 2 samples had non-compliance to clause 14 only.

However, at this stage it is worth better understanding what are the non-compliances associated with clauses 9, 13, 14 and 20 of EN 62115.

### Clause 9 of EN 62115 - Heating and Abnormal Operation

As indicated earlier on in Table 3, only ride-on electric toys (Toy category D) were tested according to this clause. The reason why not all samples were tested for clause 9 was mainly to minimise on testing costs and focus only on those clauses which could likely fail in particular toy categories.

This clause states that toys shall not attain excessive temperatures in use. They shall be constructed so that the risk of fire, mechanical damage impairing safety or other hazards, as a result of careless use or failure of a component, is removed as far as is practicable. Toys are subjected to various tests within this particular clause under particular specific conditions.

9. Heating and abnormal operation		Tested	Compliant	Not Compliant
§ 9.3	Normal operation	18	16	2
§ 9.4	Operation with insulation being short circuited	0	0	0
§ 9.5	Operation with any control which limits the temperature being short circuited.	1	1	0
§ 9.6	Accessible moving parts locked.	18	18	0
§ 9.7	Transformer toys and toys with battery box	0	0	0
§ 9.8	Compliance for electronic circuits	13	11	2
§ 9.2B	Compliance for toys with protective electronic circuit	0	0	0
§ 9.9	Temperature raise of accessible parts	18	14	4

Table 5 - Non-compliances associated with Clause 9 of EN 62115

**4 samples** (22,2%) out of 18 ride-on electric toys have failed during the tests carried out under clause 9 of EN 62115:

- 2 of these samples had failures in clause 9.3 (normal operation) and clause 9.9 (temperature raise of accessible parts);
- The other 2 samples had failures in clause 9.8 (compliance for electronic circuits) and clause 9.9 (temperature raise of accessible parts);
- In all 4 samples, the temperature values were 20°K higher than the limit temperature value of 45°K stated in § 9.9 for toys intended for children 3 years to < 8 years.

Details of the tests carried out and the respective failures can be found in Table 5 above

### Clause 13 of EN 62115 - Mechanical Strength

All the 238 samples out of 255 were tested according to this clause. The clause states that enclosures shall have adequate mechanical strength.

The toy is rigidly supported and six blows are applied to every point of the enclosure that is likely to be weak with an impact energy of 0,7 J. The toy shall not be damaged to such an extent that compliance with this standard is impaired.

Table 6 shows the level of compliance associated with Clause 13 of EN 62115, whereby 11 samples (4,6%) out of a total of 238 samples tested, did not comply to this particular clause.

Toys tested	Compliant	Not compliant
238	227	11

Table 6 - Non-compliances associated with Clause 13 of EN 62115

### Clause 14 of EN 62115 - Construction

This clause is made up of various subclauses. A brief explanation of these subclauses is needed to better understand Table 7 further below.

**Construction - High voltage (clause 14.1)** - This subclause is intended to address the hazards associated with toys being supplied with a source of electricity that could cause electric shock, burns, fire or other hazardous conditions.



**Construction - Transformer toys (clauses 14.2, 14.3 & 14.4)** - These requirements are intended to address the hazards associated with children playing with, and using, parts carrying mains voltage such as transformers for toys, supply cord sets and mains sockets.

**Construction - Thermal cut-outs (clause 14.5)** - This requirement is intended to address the hazards associated with children resetting or replacing “cut-out” components, before toys have sufficiently cooled.

**Construction - Batteries and button cells (clauses 14.6 & 14.7)** - This requirement is intended to reduce the risks associated with children swallowing button cells and batteries. The risk is minimized by requiring that the battery cover can only be removed with the aid of a tool or by carrying out two, independent movements, applied simultaneously.

**Construction - Electrolyte leakage, rechargeable batteries (clause 14.8)** - This requirement is intended to address the hazards associated with electrolyte leakage.

**Construction - Battery connection (clause 14.9)** - This subclause is intended to address the hazards associated with cells providing a “reverse charge” to other cells which may cause overheating, leakage or eruption.

**Construction - Interchangeability of connectors (clause 14.10)** - This requirement is intended to address the hazard associated with children inserting plugs, connectors and wires into mains sockets.

**Construction - Protection of moving parts and hot surfaces (clause 14.11)** - This subclause is intended to reduce the risks associated with children gaining access to moving parts, hot surfaces or locations where explosion or fire can be initiated.

**Construction - Recharging of batteries (clause 14.12)** - This subclause is intended to address the hazards associated with children charging rechargeable batteries inside the toy.

**Construction - Series motors (clause 14.13)** - This subclause is intended to address the hazards associated with the use of series motors.

**Construction - Asbestos (clause 14.14)** - This subclause forbids the use of asbestos in toys as it is restricted by various legislation.

**Construction - Internal voltages (clause 14.15)** - This subclause is intended to address the risks associated with toys that have internal voltages exceeding 24 V.

**Construction - Electrolyte leakage of batteries (clause 14.16)** - This subclause is intended to address the risks associated with electrolyte leakage which could cause burns.

**Construction - Computer toys (clause 14.Z1)** - Toys which are intended for connecting to a computer, console, monitor screen or other of audio-video equipment, need to have adequate protection in the event of a fault occurring in the connected equipment

Toy tested	Compliant	Not compliant
238	218	20

*Table 7 - Non-compliances associated with Clause 14 of EN 62115 - electrical safety*

Table 7 shows that 20 samples out of a total of 238 samples tested, had failures associated with clause 14 of EN 62115. However, in order to better understand the type of non-compliances associated with this particular clause, one needs to refer to Table 8.

Table 8 below gives a breakdown of the non-compliances according to the subclauses within clause 14 of EN 62115.

- Subclause 14.6 states that button cells, and batteries designated R1, shall not be accessible without the aid of a tool unless the cover of their compartment can only be opened after at least two independent movements have been applied simultaneously. 11 samples (13,6%) out of a total of 81 samples were found to be non-compliant.
- Subclause 14.7 states that batteries of toys intended for children under 3 years old shall not be removable without the aid of a tool unless the security of the battery compartment cover is adequate. 5 samples (5,6%) out of 88 samples were not compliant.

14. Construction		Tested	Compliant	Not Compliant
§ 14.1	General	238	238	0
§ 14.2	Transformer & battery charger in transformer toys	3	3	0
§ 14.3	Transformer & dual supply toys (use in water)	8	8	0
§ 14.4	Transformer & dual supply toys - intended for children < 3 years old	8	6	2
§ 14.5	Resetting of non-self-resetting thermal cut-outs.	0	0	0
§ 14.6	Button cells and type r1 batteries	81	70	11
§ 14.7	Batteries of toys intended for children < 3 years old	88	83	5
§ 14.8	Rechargeable batteries in toys	27	27	0
§ 14.9	Toys supplied by batteries connected in parallel	217	217	0
§ 14.10	Plugs and socket outlets	37	37	0
§ 14.11	Non-detachable parts preventing contact or preventing access	25	25	0
§ 14.12	Rechargeability of rechargeable batteries when they are in the toy	28	25	3
§ 14.13	Series motors having a power input exceeding 20w	103	103	0
§ 14.14	Presence of asbestos	238	238	0
§ 14.15	Internal parts of a toy having a voltage exceeding 24 v	0	0	0
§ 14.16	Electrolyte leakage test	2	2	0
§ 14.21	Computer toys	1	1	0

Table 8 - Non-compliances within the respective subclauses of Clause 14

Unfortunately, a number of accidents are occurring every year throughout the world related to the ingestion of button cell batteries. Button cell batteries with a diameter of 16 mm and larger, and in particular lithium batteries, are the most dangerous. The risk is higher with lithium batteries due to their higher voltage of 3 V. If a child swallows one of these batteries, there is a possibility that it can cause severe tissue burns that can be possibly fatal in as little as 2 hours. Therefore, this increases the level of importance of any non-compliances associated with subclause 14.6 of EN 62115 and therefore urgent action is needed in such cases so that MSAs are able to stop such non-compliances.

Other non-compliances were related to subclauses 14.4 and 14.12 which are presented in Table 8. No other non-compliances were found with regards to the rest of the subclauses.

### **Clause 20 of EN 62115 - Radiation, toxicity and similar hazards**

It is worth noting that the tests carried out according to clause 20 of EN 62115 were related to electric toys that had either a laser and/or LED lights (toy category C).

This clause states that toys shall not emit harmful radiation or present a toxic or similar hazard due to their operation in normal use.

Conformity is verified applying the following tests:

EN 60825-1	If the toy contains LED or LASER
EN 62233	If the toy contains EMF sources and absorbs over 3A.

There were 28 samples that were classified in this category. 3 of the samples (10,7%) were non-compliant when tested according to this clause (refer to Table 9 below).

Toy tested	Compliant	Not compliant
28	25	3

Table 9 - Non-compliance with Clause 20 of EN 62115

Two of the samples had a red laser. According to the classification of laser products of EN 60825-1, the red lasers under test were not classifiable as Class 1. The measured emissions were 0.720mW and 1,398mW. The maximum limit according to the respective standard is 0.390mW.

The other remaining sample had a blue LED light. According to the classification of Laser products of EN60825-1, the blue LED under test was also not classifiable as Class 1. The measured emissions were 4.6mJ. The maximum limit according to the respective standard is 3.9mJ.

### 3.1.2 Results by type of toy

This section will try to further assess the non-compliances of those 25 non-compliant samples in relation to the type of toy categories.

One still needs to remember that there was a substantial amount of non-compliances related to clause 7 only. However, this section will only focus on those particular 25 non-compliant samples.

#### A1 - Electric Toys with button cell batteries (intended for children under 3 years of age)

As indicated earlier on in Table 2, 37 samples are within this category. However, it is interesting to note that only 1 sample from the 25 non-compliant samples is found within this toy category. This means that the **percentage non-compliance** for this product category is of **2,4%** (1 out of 37 samples).

The non-compliances from the respective sample were related to clause 7, 13 and 14 of EN 62115.

#### B1 - Electric Toys with button cell batteries (intended for children over 3 years of age)

This category is made up of 41 samples. In this case, 8 samples from the 25 non-compliant samples were found to be within this toy category. This means that the **percentage non-compliance** for this product category is of **19,5%** (8 out of 41 samples). 7 out of the 8 non-compliant samples had non-compliances in clauses 7, 13 and 14. One sample had non-compliance in clauses 13 and 14 only.

If one were to take into account all the electric toys with button-cell batteries, (categories A1 + B1), one would find that the overall percentage non-compliance is of 11,1% (9 non-compliant samples from a total of 78 samples).

TOY CATEGORY - B1 (Toys with Button batteries for children > 3yrs)	TOTAL NON-COMPLIANT SAMPLES	Non-compliances related to particular clauses of EN 62115		
		Clause 7	Clause 13	Clause 14
Samples with failures in 3 main clauses of EN 62115	7	7	7	7
Samples with failures in 2 main clauses of EN 62115	1		1	1
<b>TOTAL NON-COMPLIANT SAMPLES</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>8</b>

Table 10 - Breakdown of major non-compliances related to toy category B1

## A2 - Electric Toys with other type of batteries (intended for children under 3 years of age)

There are 41 samples classified within this toy category. 4 samples from the 25 non-compliant samples are found within this toy category. This means that the percentage non-compliance for this product category is of 9,8% (4 out of 41 samples).

Two of the samples had non-compliances to clauses 7 and 14 of EN 62115 whereas two other samples had non-compliances to just clause 14 of EN 62115.

## B2 - Electric Toys with other type of batteries (intended for children of 3 years of age and over)

This category is made up of 53 samples. However, it is interesting to note that there were no samples from the 25 non-compliant samples which were classified within this toy category. Thus, there were no major non-compliances associated with this toy category.

If one were to take into account all the electric toys with other type of batteries, that is, categories A2 + B2, one would find that the overall percentage non-compliance is of 4,3% (4 non-compliant samples out of a total of 94 samples).

## C - Electric Toys with lasers and/or LED lights

26 samples have been classified as falling within this toy category. 4 samples from the 25 non-compliant samples fall within this toy category. Therefore, the percentage non-compliances for this product category is of 15,4% (4 out of a total of 26 samples).

One of the samples had non-compliances in 4 main clauses of EN 62115. Another sample had non-compliances in clause 7, 13 and 14. The other two samples had non-compliances to clause 7 and clause 20 of EN 62115.

TOY CATEGORY - C (Electric Toys with laser and/or LED lights)	TOTAL NON-COMPLIANT SAMPLES	Non-compliances related to particular clauses of EN 62115			
		Clause 7	Clause 13	Clause 14	Clause 20
Samples with failures in 4 main clauses of EN 62115	1	1	1	1	1
Samples with failures in 3 main clauses of EN 62115	1	1	1	1	
Samples with failures in 2 main clauses of EN 62115	2	2			2
<b>TOTAL NON-COMPLIANT SAMPLES</b>	<b>4</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>3</b>

Table 11 - Breakdown of major non-compliances related to toy category C

## D - Electric Ride-on Toys

There are 18 samples within this toy category. 5 samples from the 25 non-compliant samples fall within this toy category. Therefore, the percentage non-compliances for this product category is of 27,8% (5 out of a total of 18 samples). Table 12 shows a breakdown of these main non-compliances.

TOY CATEGORY - D (Electric Ride-on Toys)	TOTAL NON-COMPLIANT SAMPLES	Non-compliances related to particular clauses of EN 62115		
		Clause 7	Clause 9	Clause 14
Samples with failures in just 1 main clauses of EN 62115	2		2	
Samples with failures in 2 main clauses of EN 62115	3	2	2	2
<b>TOTAL NON-COMPLIANT SAMPLES</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>2</b>

Table 12 - Breakdown of major non-compliances related to toy category D

The main non-compliances are related to clause 9 of EN 62115. Two samples had non-compliances in just clause 9. One other sample had non-compliances to both clause 9 and 7. Another sample had non-compliance to clause 9 and 14. The remaining fifth sample had non-compliance to both clause 7 and 14.

Overall, this toy category has the highest rate of non-compliance (27,8%) and this tallies with the suspicion from a number of MSAs who wished to perform tests on this type of electric toys.

### E - Other Electric Toys (including transformer toys)

There are 22 samples within this toy category which included transformer toys but also any other toys that were not classified under the other categories. 3 samples from the 25 non-compliant samples fall within this toy category. Therefore, the percentage non-compliances for this product category is of **13,6%** (3 out of a total of 22 samples).

All 3 samples had non-compliances to clause 7 and clause 14.

### Summary of Test Results according to Toy Category

Finally, table 13 below gives a summary of all these results just discussed within this section. As explained earlier on, this data does not take into account the other 110 non-compliant samples that had only non-compliances related to just clause 7.

Additionally, those 110 samples were mainly classified by MSAs as having either a low risk or no safety issue at all. For this reason, it was felt that the main non-compliances are found within the other 25 samples and therefore the analysis has been mainly based on just these 25 non-compliant samples.

It is worth noting that when considering just these 25 samples, the overall percentage non-compliance out of the total 238 samples is 10.5% (25 out of 238 samples). Additionally, the rate of non-compliance is much higher in **electric ride-on toys** (27.8%) and therefore merits the consideration of MSAs to possibly perform further future market surveillance activities in this particular category.

The next toy category which merits attention is **electric toys with lasers and/or LED lights**. The level of non-compliance in this category is 15.4%.

One needs to also note that in the case of **electric toys with button cell batteries** (intended only for children over 3 years of age), the level of non-compliance (19.5%) is also rather high and therefore it is also worth noting by MSAs.

Toy Categories	Total Samples tested	Non-compliant Samples	% Non-Compliance
<i>Electric toys with Button Cell Batteries - &lt; 3yrs (A1)</i>	37	1	2,7%
<i>Electric toys with Button Cell Batteries - ≥ 3yrs (B1)</i>	41	8	19,5%
<b>Electric toys with Button Cell Batteries (A1 + B1)</b>	<b>78</b>	<b>9</b>	<b>11,5%</b>
<i>Electric Toys with other type of Batteries - &lt; 3yrs (A2)</i>	41	4	9,8%
<i>Electric Toys with other type of Batteries - ≥ 3yrs (B2)</i>	53	0	0,0%
<b>Electric Toys with other type of Batteries (A2 + B2)</b>	<b>94</b>	<b>4</b>	<b>4,3%</b>
<b>Electric toys with Laser and/or LED lights (C)</b>	<b>26</b>	<b>4</b>	<b>15,4%</b>
<b>Electric Ride-on Toys (D)</b>	<b>18</b>	<b>5</b>	<b>27,8%</b>
<b>Other Electric Toys (transformer toys) (E)</b>	<b>22</b>	<b>3</b>	<b>13,6%</b>
<b>TOTAL</b>	<b>238</b>	<b>25</b>	<b>10,5%</b>

Table 13 - Summary of non-compliances to EN 62115 in each toy category

More information about the risks associated with these non-compliant samples can be found in chapter 4.

### 3.2 The Test Program for Environmental Risks

119 out of 255 samples have been tested for environmental risks. The participating authorities from the following countries were involved in this activity: the Czech Republic, Iceland, Latvia, Lithuania, Malta, Poland and Sweden.

RoHS 2, or the Recast RoHS 2 Directive 2011/65/EU, was published in July 2011 by the European Commission. The scope of the original RoHS was expanded to cover all electrical/electronic equipment, cables, and spare parts with compliance required by July 22, 2019 or sooner depending on product category.

The substances restricted under RoHS 2 are: Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (CrVI), Polybrominated biphenyls (PBB), polybrominated diphenyl ethers (PBDE) and Phthalates DEHP, BBP, DBP, and DIBP. It is worth noting that Annex III of Directive 2011/65/EU exempts certain applications from the restrictions laid down in Article 4(1) of the Directive.

The uses of these substances in electrical and electronic equipment are for example:

- **Cadmium:** in the contacts of switches, in springs, in connectors, in printed circuit boards;
- **Lead:** in the solder of printed circuits, in the glass of cathode ray tubes and light bulbs;
- **Mercury:** in thermostats, sensors, relays, switches and gas discharge devices;
- **Hexavalent Chrome:** in metal coatings for corrosion protection;
- **Polybrominated biphenyls (PBB) and polybrominated diphenyl ether (PBDE), flame retardants:** in printed circuit boards, connectors and plastic covers;
- **Phthalates:** soft plastics, cable covers.

From experience gathered from the Swedish Chemicals Agency, the major non-compliances were usually in cadmium and lead content from within the solder of a number of products. For this reason and in order to reduce testing costs, it was decided to test for just cadmium and lead content in homogeneous materials such as solders selected within the toy under consideration. A homogeneous material is a unit which cannot be mechanically disaggregated into several separate materials.



The respective limits for cadmium and lead are shown below:

- Cadmium (Cd) = 0,01% (100 mg/kg)
- Lead (Pb) = 0,1% (1000 mg/kg).

The CPSC analytical method (CPSC-CH-E1001-08.3) was used by the laboratory for the determination of lead and cadmium. The general approach is to grind any accessible component part of a sample to a powder; digest the powder completely in a combination of hot, concentrated nitric and hydrochloric acids; and then analyse the digested metal by Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES).

It was agreed to test up to a maximum of 4 separate solders within each of the electric toy samples tested for lead and cadmium – the results are presented in the next section.

### 3.2.1 Test Results for Environmental Risks

73 samples (61%) out of the 119 tested, did not comply to the tests carried out.

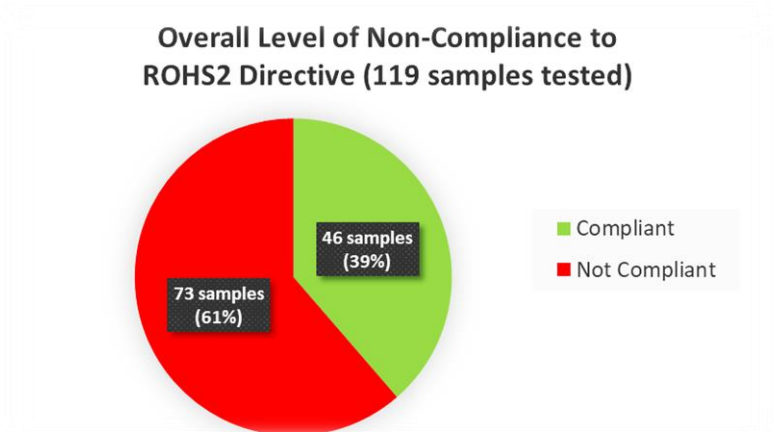


Figure 10 - Overall Level of non-compliance to ROHS2 Directive

However, when one breaks down these figures into the 7 participating authorities that took part in this activity you will find some interesting results. Figure 11 below shows the rather high discrepancy in non-compliance between the participating authorities themselves, ranging from 35% non-compliance up to 88% non-compliance.

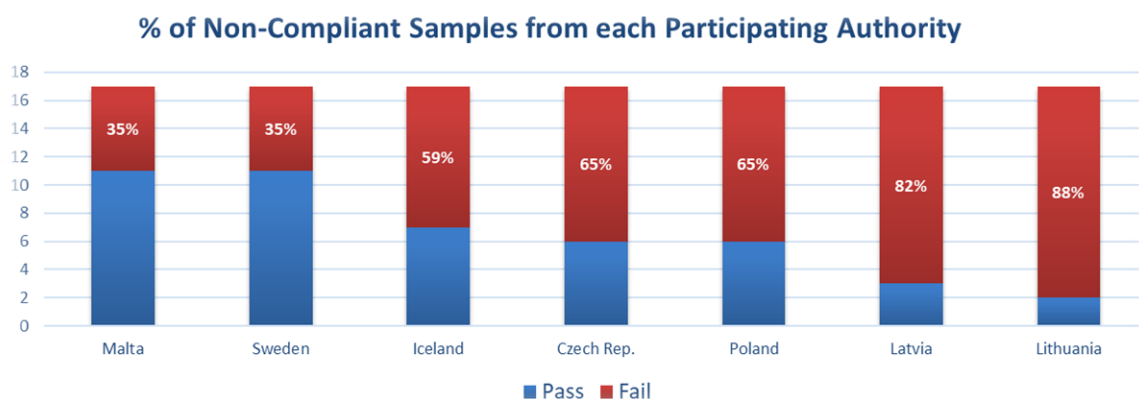


Figure 11 - Level of non-compliance of samples tested by each participating authority (ROHS2)

There may be two factors attributing to these varying results. The total amount of samples gathered from each of the participating authorities (17 samples) was rather small and therefore one could not attribute the level of non-compliance to the whole market of that particular country. Additionally, it seems that a number of participating authorities have just started to take enforcement action in the area of environmental risks within consumer products and therefore this could be the reason why the level of non-compliance was quite high in some of the samples tested by the respective participating authorities.

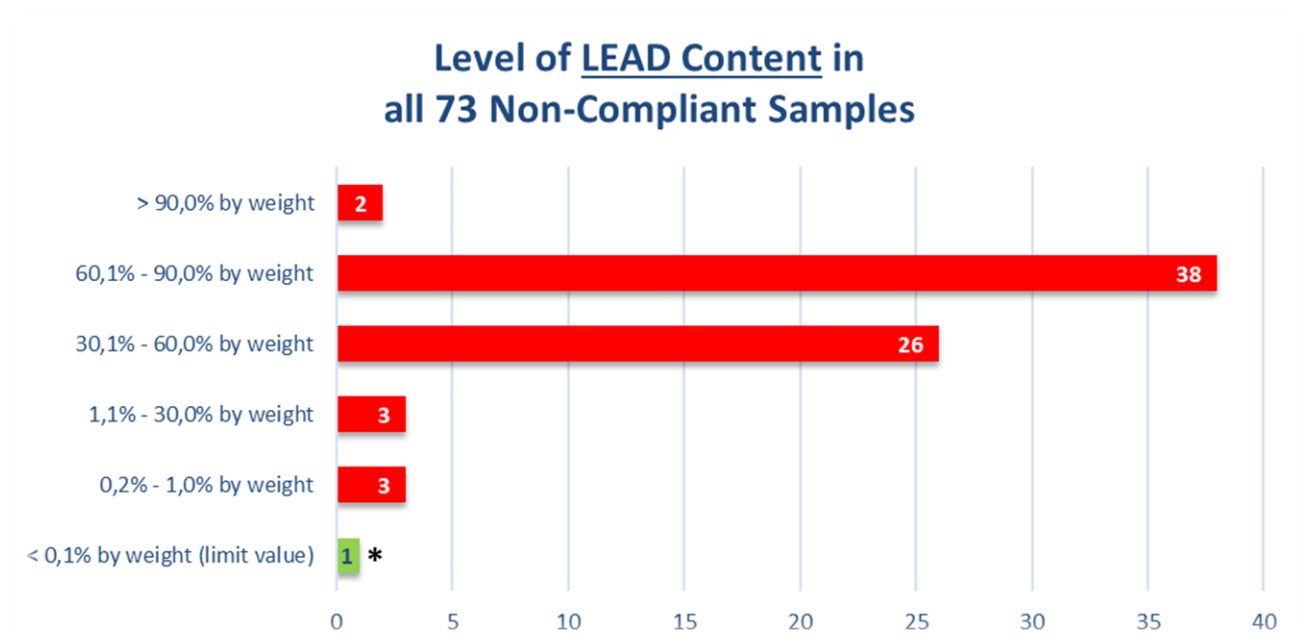


Figure 12 - Level of Lead Content in all 73 non-compliant samples

\* This sample, although compliant to the level of lead content, was not compliant to cadmium content.

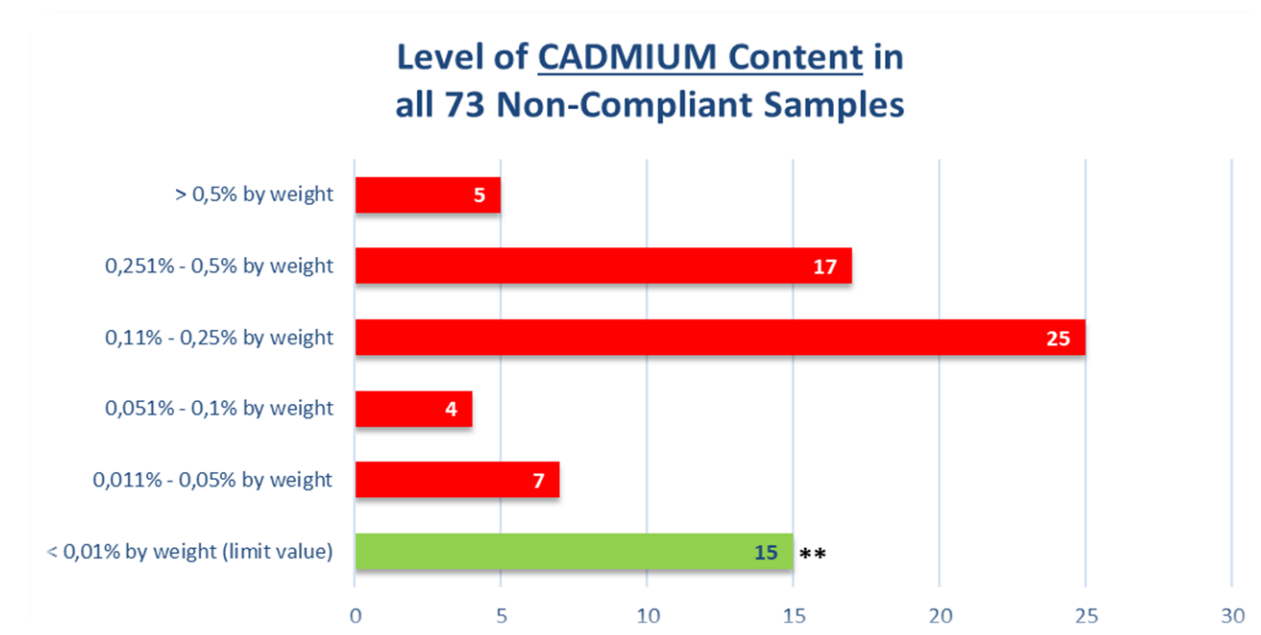


Figure 13 - Level of Cadmium Content in all 73 non-compliant samples

\*\* These 15 samples, although compliant to the level of cadmium content, were not compliant to lead content.

The levels of content found in the 73 non-compliant samples is quite high. In all the other 72 samples, the lead content was found to be very high, with 66 samples showing lead content even higher than 30% by weight (300.000 mg/Kg)!

Out of the 73 non-compliant samples (having either non-compliances related to lead and/or cadmium), only one sample had lead content less than the limit of 0,1% by weight (1.000 mg/Kg) - refer to the one sample shown in green within Figure 11. This means that in this particular sample the non-compliance was related to cadmium and not lead. The same thing can be seen in Figure 12 whereby 15 samples had levels of cadmium below the limit value. Therefore, those particular 15 samples actually had non-compliances related to lead content.

In the case of cadmium content, there were 15 samples which had cadmium content less than the limit of 0,01% by weight (100 mg/Kg). However, again, 47 samples had cadmium content over 0,1% by weight (1.000 mg/Kg)!

This possibly shows that the economic operators may not be, as yet, aware of the ROHS legislation or there is a blatant disregard to abide with legislation possibly due to lack of adequate enforcement in this sector up till now.

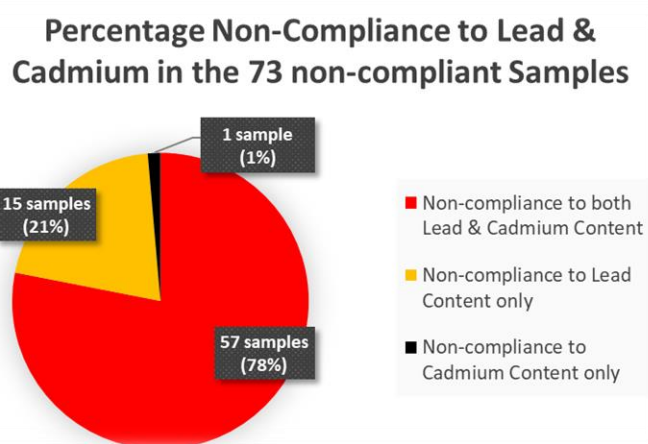


Figure 14 - % Non-Compliance to Lead & Cadmium in all 73 non-compliant samples

Looking at Figure 14, one can also immediately note that 57 samples (78% of all the non-compliant samples) actually had higher amounts of both lead and cadmium content as required by the legislation.

Another 15 samples (21%) only had lead content above the limit whereas one sample was found to have only cadmium content above the limit. This means that 72 out of the 73 non-compliant samples all had non-compliances associated with lead content. On the other hand, the level of non-compliances associated with cadmium, although not as high as lead, are still worth noting.

### 3.2.2 Results by type of toy

This section will try to further assess the non-compliances of these 73 non-compliant samples shown in Figure 13, in relation to the type of toy categories. Again, non-compliances to clause 7 (Marking and Instructions), are not discussed in this section since the scope here is to mainly further assess the non-compliances found in lead and cadmium only.

#### A1 - Electric Toys with button cell batteries (intended for children under 3 years of age)

16 samples are within this category. 8 of them have been found to be non-compliant to ROHS2. This means that the **percentage non-compliance** for this product category is of **50,0%** (8 out of 16 samples).

It is worth noting that 6 out of the 8 non-compliant samples had failures associated with both lead and cadmium content whereas the other 2 samples only had failures associated with just lead content.

**B1 - Electric Toys with button cell batteries (intended for children over 3 years of age)**

22 samples are within this category. 15 of them have been found to be non-compliant to ROHS2. This means that the percentage non-compliance for this product category is of 68,2% (15 out of 22 samples).

It is worth noting that 9 out of the 15 non-compliant samples had failures associated with both lead and cadmium content whereas only one sample had failures associated with just cadmium content. The remaining 5 non-compliant samples had failures associated with lead content only.

If one were to take into account all the electric toys with button-cell batteries, (categories A1 + B1), one would find that the overall percentage non-compliance is of 60,5% (23 non-compliant samples out of a total of 38 samples).

**A2 - Electric Toys with other type of batteries (intended for children under 3 years of age)**

26 samples are within this category. 12 of them have been found to be non-compliant to ROHS2. This means that the percentage non-compliance for this product category is of 46,2% (12 out of 26 samples).

It is worth noting that 11 out of the 12 non-compliant samples had failures associated with both lead and cadmium content whereas only one sample had failures associated with just lead content.

**B2 - Electric Toys with other type of batteries (intended for children over 3 years of age)**

25 samples are within this category. 20 of them have been found to be non-compliant to ROHS2. This means that the percentage non-compliance for this product category is of 80,0% (20 out of 25 samples).

It is worth noting that 17 out of the 20 non-compliant samples had failures associated with both lead and cadmium content whereas only 3 samples had failures associated with just lead content.

If one were to take into account all the electric toys with other type of batteries, (categories A2 + B2), one would find that the overall percentage non-compliance is of 62,7% (32 non-compliant samples out of a total of 51 samples).

**C - Electric Toys with lasers and/or LED lights**

11 samples are within this category. 5 of them have been found to be non-compliant to ROHS2. This means that the percentage non-compliance for this product category is of 45,5% (5 out of 11 samples).

It is worth noting that all the 5 non-compliant samples had failures associated with both lead and cadmium content.

**D - Electric Ride-on Toys**

7 samples are within this category. 4 of them have been found to be non-compliant to ROHS2. This means that the percentage non-compliance for this product category is of 45,5% (4 out of 7 samples).

It is worth noting that only 1 out of the 4 non-compliant samples had failures associated with both lead and cadmium content. 3 of the non-compliant samples had only failures associated with cadmium content.

**E - Other Electric Toys (including transformer toys)**

12 samples are within this category. 9 of them have been found to be non-compliant to ROHS2. This means that the percentage non-compliance for this product category is of 75,0% (9 out of 12 samples).

It is worth noting that 8 out of the 9 non-compliant samples had failures associated with both lead and cadmium content whereas only one sample had failures associated with just lead content.

### Summary of Test Results according to Toy Category

Table 14 gives a good overview of the results associated with all toy categories, showing both the level of non-compliance in each category as well as the respective number of samples not compliant to either lead or cadmium or both.

Toy Categories	Total Samples tested	Non-compliant Samples	% Non-Compliance	Non-Compliance to both Lead & Cadmium	Non-Compliance to Lead content only	Non-Compliance to Cadmium content only
<i>Electric toys with Button Cell Batteries - &lt; 3yrs (A1)</i>	16	8	50,0%	6	2	
<i>Electric toys with Button Cell Batteries - ≥ 3yrs (B1)</i>	22	15	68,2%	9	5	1
<b>Electric toys with Button Cell Batteries (A1 + B1)</b>	<b>38</b>	<b>23</b>	<b>60,5%</b>	<b>15</b>	<b>7</b>	<b>1</b>
<i>Electric Toys with other type of Batteries - &lt; 3yrs (A2)</i>	26	12	46,2%	11	1	
<i>Electric Toys with other type of Batteries - ≥ 3yrs (B2)</i>	25	20	80,0%	17	3	
<b>Electric Toys with other type of Batteries (A2 + B2)</b>	<b>51</b>	<b>32</b>	<b>62,7%</b>	<b>28</b>	<b>4</b>	<b>0</b>
<b>Electric toys with Laser and/or LED lights (C)</b>	<b>11</b>	<b>5</b>	<b>45,5%</b>	<b>5</b>	<b>0</b>	
<b>Electric Ride-on Toys (D)</b>	<b>7</b>	<b>4</b>	<b>57,1%</b>	<b>1</b>	<b>3</b>	
<b>Other Electric Toys (transformer toys) (E)</b>	<b>12</b>	<b>9</b>	<b>75,0%</b>	<b>8</b>	<b>1</b>	
<b>TOTAL</b>	<b>119</b>	<b>73</b>	<b>61,3%</b>	<b>57</b>	<b>15</b>	<b>1</b>

Table 14 - Summary of ROHS2 Non-Compliances in each toy category

One needs to particularly note toy category B2 (Electric Toys with other type of Batteries - intended for children over 3 years of age) since the non-compliance in this category is the highest - 80%.

The category E (Other electric toys that included transformer toys but also any other toys which were not classified in any of the other categories) also has quite a high level of non-compliance - 75%.

Further information about the risks associated with these non-compliant samples can be found in chapter 4.

### 3.3 Additional Analysis on the Declaration of Conformity (DoC)

Similar to what was done in previous joint action on toys (JA2014) and (JA2015), it was agreed from the beginning of the project that the MSAs would also perform checks on the DoC.

The manufacturer or the authorised representative established within the Union must draw up and sign an EC declaration of conformity as part of the conformity assessment procedure provided for in the Union harmonisation legislation. The EC declaration of conformity must contain all relevant information to identify the Union harmonisation legislation according to which it is issued, as well as the manufacturer, the authorised representative, the notified body if applicable, the product, and references to the relevant harmonised standards or other technical specifications used.

#### Declaration of Conformity (DoC)

Each MSA was asked to collect the respective declaration of conformity for each of the samples tested. The scope of this exercise was ultimately to make the economic operators aware of the importance of having DoCs available to MSAs.

The analysis in Figure 15 is based on all the 255 samples sent for testing. The MSAs asked the respective economic operators for the DoC, whereby the MSAs managed to collect 72% of the DoCs asked for – in the previous joint actions JA2014 and JA2015, 63% and 78% respectively were collected from all the samples sent for testing.

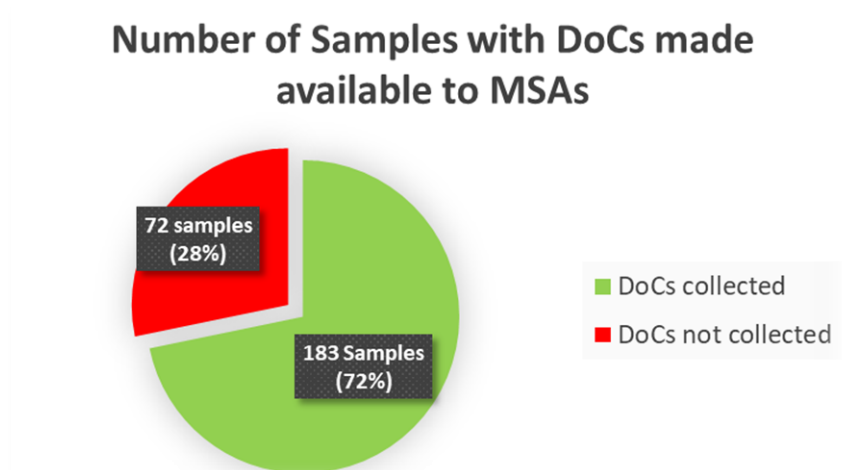


Figure 15 - Number of Samples with DoCs made available to MSAs

In the case of local manufacturers, the number of DoCs collected was the highest, with only 2 out of 15 (13,3%) not made available to the MSA – see Table 15 below.

With regards to DoCs collected from importers, 28 out of 91 (30,8%) were not made available to the MSAs. This percentage is even higher than that related to distributors.

In the case of DoCs collected from distributors, the percentage collected is slightly lower than that pertaining to importers – 28,2%.

DoC Analysis	TOTAL Samples	DoCs Not Collected	DoCs Collected	% DoCs Not Collected
Samples extracted from DISTRIBUTORS	149	42	107	28,2%
Samples extracted from IMPORTERS	91	28	63	30,8%
Samples extracted from MANUFACTURERS	15	2	13	13,3%
<b>TOTAL</b>	<b>255</b>	<b>72</b>	<b>183</b>	<b>28,2%</b>

Table 15 - DoC Analysis - According to Type of Economic Operators

Table 16 shows the quality of the information found within the DoCs collected. Similar to the previous joint actions, the overall response is reasonably good. However, only 54% of the DoCs collected had references to the ROHS2 Directive. Additionally, the exact version of the standard EN 62115 was only correct in 73% of the DoCs collected. The other information all had a percentage higher than 80%.



	Does the DoC contain a unique identification of the toy(s)? YES/NO	Does the DoC include the "name & address of the MFG or his authorized representative?" YES/NO	Is the Directive 2009/48/EC (TSD) mentioned in the DoC? YES/NO	Is the Directive 2011/65/EC (ROHS) mentioned in the DoC? YES/NO	Is the correct EN 62115 mentioned in the DOC? YES/NO	Does it include an image of the respective toy? YES/NO	Is it clear? YES/NO	Is it in colour? YES/NO	Is the DoC signed? YES/NO	Is there the name of the signatory and his/her function (designation)? YES/NO	Is there a place and date of issue? YES/NO
<b>YES</b>	94%	95%	92%	54%	73%	87%	83%	81%	93%	84%	83%
<b>NO</b>	6%	5%	8%	46%	27%	13%	17%	19%	7%	16%	17%

Table 16 - Further breakdown of information pertaining to DoCs collected

The scope of this exercise to collect DoCs was not only just for the sake of collecting the DoCs and taking respective action by MSAs but also to be able to better educate economic operators about the importance of the DoC.

### 3.4 Conclusions

As part of this market surveillance activity, 255 samples have been tested by the respective authorities within the 15 EEA countries.

With regard to electrical safety, 238 samples out of 255 in total have been tested by 14 participating authorities. Out of the 135 samples that did not comply with EN 62115, 110 of them only had a non-compliance associated with clause 7 (marking and instructions). The remaining 25 non-compliant samples (constituting around 10,5% of the 238 samples) had more serious non-compliances.

When analysing the various toy categories, it is worth noting that:

- ▶ the rate of non-compliance in electric ride-on toys is 27,8%;
- ▶ the rate of non-compliance in electric toys with lasers and/or LED lights is 15,4%;
- ▶ the rate of non-compliance in electric toys with button cell batteries (intended only for children over 3 years of age), is 19,5%.

Additionally, when analysing the non-compliances related to particular clauses, the following points can be deduced:

- ▶ 129 samples (54,2%) out of 238 electric toy samples did not comply with clause 7 (Marking & Instructions) of EN 62115. Subclauses 7.4, 7.5, 7.6 were found to have the highest level of non-compliances;
- ▶ 4 samples (22,2%) out of 18 ride-on electric toys did not comply with clause 9 of EN 62115. In all 4 samples, the temperature values were 20°K higher than the limit temperature value of 45°K stated in § 9.9;
- ▶ 11 samples (4,6%) out of a total of 238 samples did not comply with Clause 13 of EN 62115. Additionally, 11 samples (13,6%) out of a total of 81 samples were found to be non-compliant to subclause 14.6 (accessibility of button cells and batteries designated R1). In view of the number of accidents associated with button cell batteries and after risk assessment was performed, all were identified to have a 'serious risk' and MSAs took immediate action to remove these non-compliant samples from the market.

All the information above may be of particular interest to MSAs responsible for electrical safety and it may be worth considering having future market surveillance activities targeting specifically the above-mentioned toy categories.

In the case of environmental risks, 119 out of 255 samples have been tested by authorities within 7 participating authorities. Tests were carried out in line with the ROHS2 Directive, to determine the level of lead and cadmium content in various solders of each sample tested.

73 samples (61%) have been found to not comply to the ROHS2 Directive. However, certain participating authorities had a much higher level of non-compliance in the samples tested. Additionally, 57 of these 73 samples had non-compliances to both lead and cadmium. Almost all the non-compliant samples (except one) had non-compliances associated with lead content. Even more important is the fact that the majority of these non-compliant samples had extremely high levels of lead and cadmium.

In view of all this, it is suggested that all MSAs responsible for environmental issues should take note of the results of this project. Further cooperation in this area could contribute to better educate economic operators about environmental risks whilst also increasing enforcement action in this area.

## 4 Risk Assessment & Action Taken

### 4.1 Introduction

The 4<sup>th</sup> meeting of this activity was held at the premises of the laboratory itself once all the test reports were finalised. Experts from the laboratory took part in most of the discussions in order to assist the participants in any technical difficulties. A representative from the Product Safety and Rapid Alert System Unit within DG-JUST, European Commission also participated in this meeting. All the non-compliant samples were discussed and a common strategic approach to risk assessing the non-compliant products was agreed upon.

However, despite the coordination from PROSAFE to ensure a synergised approach to risk assessment and measures taken, JA2016 cannot ensure that ALL the authorities will act exactly in the same manner. Ultimately, it's the decision of the market surveillance authority and therefore some variances may be expected, especially since each authority would need to perform risk assessment on a case-by-case basis.

### 4.2 Risk Assessment Methodology

In the case of electrical safety, although a number of non-compliant samples with just non-compliance to clause 7 (Marking and Instructions) of EN 62115 were discussed, particular attention was given to those 25 non-compliant electric toys (refer to Figures 7 & 8) which had more serious non-compliances. All the participating authorities utilised the online risk assessment tool when performing these risk assessments.<sup>4</sup>

Various injury scenarios for each non-compliant product were discussed during the 4<sup>th</sup> meeting, including determination of the severity of injury as well as the steps needed to properly develop the probability of the injury scenario occurring in each product. This ensured that all the participating authorities agreed on a common approach in determining the particular risk in these non-compliant products.

In the case of environmental risks, a discussion took place with particular support from the representative of the European Commission. It was agreed to adopt a similar approach as to what was done in the case of chemical non-compliances in toys during the previous joint action:

- The general rules and methodology of risk assessment still apply to environmental risks;

<sup>4</sup> <https://ec.europa.eu/consumers/consumer-safety/rag>

- In general, notifications should be accompanied by a risk assessment. However, where scientific evidence shows that presence of a chemical in a product poses a serious risk, submission of an individual risk assessment is not required when submitting a Rapid Alert Notification (RAPEX Alert);
- For this reason and in line with the EU general risk assessment methodology (Action 5 of Multi-Annual Action Plan for the surveillance of products in the EU (COM(2013)76), it was agreed that in the case where it was determined that the content of lead or cadmium, from within the solders of electric toys, exceeded the limit as stipulated in the ROHS2 Directive, (0,1% by weight for lead and 0,01% by weight for cadmium), the participating authorities were urged to conclude that the product posed a serious risk and a Rapid Alert Notification submitted accordingly.

### 4.3 Risk Assessment results

This section gives an overview of the results related to risk assessment. Section 4.3.1 concentrates on risks pertaining to electrical safety whereas section 4.3.2 concentrates on risks pertaining to the environment.

#### 4.3.1 Risk Assessment pertaining to Electrical Safety

Figure 16 shows the level of risk associated with electrical safety, as determined by the participating authorities, for all the 135 non-compliant samples.

13 samples were determined to have a serious risk, 3 samples had a high risk and 5 samples had a medium risk. There were also 36 samples which determined to have a low risk and another 78 samples were determined to have no safety issue.

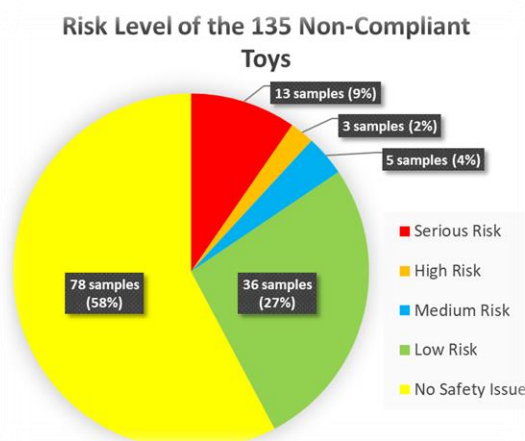


Figure 16 - Risk Level within the 135 Non-Compliant Samples (Electrical Safety)

Figure 17 below shows the level of risk associated with just those 110 electric toys which only had a non-compliance to clause 7 of EN 62115 (refer also to Figure 7). It immediately becomes apparent that all 80 samples with no safety issue are related to those samples that only have a non-compliance to clause 7 of EN 62115.

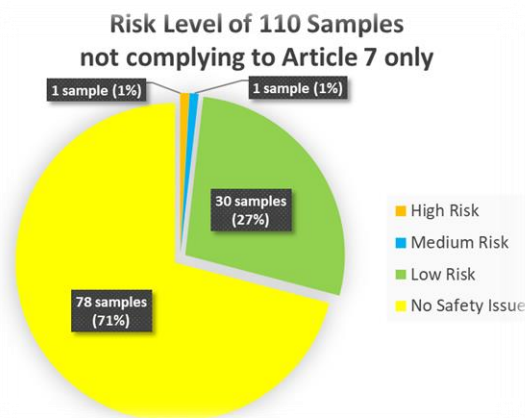


Figure 17 - Risk Level of 110 Samples not complying with clause 7 of EN 62115

Referring again to Figure 16, one finds that the majority of the samples with low risk are also related to those samples which only had non-compliance to clause 7 of EN 62115. However, there are two samples, both extracted from Greece, that have been determined by the respective market surveillance authority to have a medium risk and a high risk respectively.

In the case of the sample with **medium risk**, this was a toy aeroplane and the non-compliance were related to clause 7.1.0 of EN 62115, whereby the name, trademark and identification mark and model was not present on the toy or its packaging. Additionally, the DoC was never made available to the market surveillance authority.

In the case of the sample with **high risk**, this was a toy train and the non-compliance were related to clause 7.1.1 of EN 62115, whereby the design of the shape of the batteries was completely omitted by the manufacturer and therefore there was no mark in or on the battery compartment. Additionally, although the DoC was made available to the market surveillance authority, there were some particular aspects within the DoC which were not correct.

### Non-compliances related to the remaining 25 samples

In the case of the remaining 25 non-compliant sample (refer also to Figure 8), the risks associated with these samples has been found to be relatively higher, as expected, since these samples had more serious technical non-compliances in most of the cases.

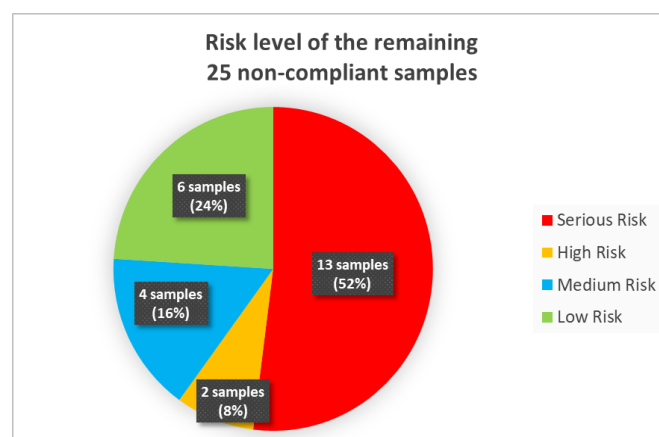


Figure 18 - Risk Level within the remaining 25 Non-Compliant Toy Samples

Figure 18 shows the level of risk within these remaining 25 samples, whereby 13 samples were determined to have a serious risk, 2 samples had a high risk, 4 samples had a medium risk and 6 samples had a low risk.

As a final overview, Table 17 tries to give an overview of all the non-compliant 135 samples together with the respective risk levels. There was one sample which had failures in 4 main clauses of EN 62115 (clauses 7, 13, 14 & 20) and this was determined by the respective market surveillance authority to have a serious risk. Additionally, all 9 samples which had failures in 3 main clauses of EN 62115 (clauses 7, 9 & 14) all were determined by the respective authorities to also have a serious risk. In the case of those samples which had failures in 2 main clauses, 3 of them were determined to have serious risk, 2 of them had a high risk, another 2 samples had medium risk whilst the 4 other remaining samples had low risk.

EN 62115 Compliance	TOTAL NON-COMPLIANT SAMPLES	Samples that failed in the following Main Articles of EN 62115					RISK level			
		Clause 7	Clause 9	Clause 13	Clause 14	Clause 20	Serious Risk	High Risk	Medium Risk	Low Risk
Samples with failures in 4 main articles of EN 62115	1	1		1	1	1	1			
Samples with failures in 3 main articles of EN 62115	9	9		9	9		9			
Samples with failures in 2 main articles of EN 62115	11	9	2	1	8	2	3	2	2	4
Samples with failures in just 1 main article of EN 62115	114	110	2		2			1	3	2
<b>TOTAL FAILED SAMPLES</b>	<b>135</b>	<b>129</b>	<b>4</b>	<b>11</b>	<b>20</b>	<b>3</b>	<b>13</b>	<b>3</b>	<b>5</b>	<b>6</b>

Table 17 - Non-Compliances / Risk Assessment Results within the 135 non-compliant samples

### To note

One needs to be careful when interpreting Table 17. It is important NOT to conclude that the risk level should be higher if more than one clause is non-compliant. The two are not related to each other and a failure in just one particular clause could still result in, for example, a serious risk.

Taking the example of electric toys with non-compliances to subclause 14.6, these are considered to be critical non-compliances and in view of what has already been said regarding the hazards associated with button cell batteries, the outcome of the risk assessment will most probably lead to a serious risk in most of the cases. However, again, each electric toy would still need to be risk assessed on a case-by-case basis.

### Risk associated with button cell batteries

The issue of hazards associated with button cell batteries has been raised during almost all the project meetings in view of the number of accidents being encountered across Europe and the whole world. The risk associated with the 12 samples having easy access to button cell batteries is that they can be accidentally swallowed by children. If a child swallows a battery, button cells (especially lithium based) this can cause severe tissue burns that can be, in worst case, fatal in as little as 2 hours.

The EPBA has also issued an information campaign on this subject during December 2018. In view of this particular risk, special attention was given by MSAs when risk assessing the non-compliances related to clauses 13 and 14 of EN 62115.

Indeed, the risk is even more widespread since it is also important for parents with young children to make sure that:

- They are aware of these risks, especially if such batteries are running left around at home with easy access to young children;

- They know what needs to be done in case there is a possibility that their child has just swallowed a button cell battery.

Because of all this, the participating authorities, in conjunction with ANEC, EUROCOMMERCE, EPBA and TIE, developed an e-brochure on the hazards associated with such button cell batteries (refer to Annex 2).

#### 4.3.2 Risk Assessment pertaining to Environmental Risks

Lead is an important environmental contaminant because of its known toxicity to humans and other living organisms. Lead is one of a limited class of elements that can be described as purely toxic.

Lead is a major environmental threat because of its severe human health effects, and because of its global prevalence in air, water, dust and soil, and various manmade products. As an atmospheric pollutant, lead can travel long distances before settling to the ground and sticking to soil particles. It can then be re-suspended into the air, seep into the groundwater, or be absorbed by vegetation.

In the environment, cadmium is toxic to plants, animals and micro-organisms. Being a simple chemical element, cadmium is persistent - it cannot be broken down into less toxic substances in the environment.

In the case of the 73 non-compliant samples pertaining to environmental risks, 66 of the samples were determined to have serious risk (91%), with another 6 have high risk and just one sample determined to have medium risk – see Figure 19 below.

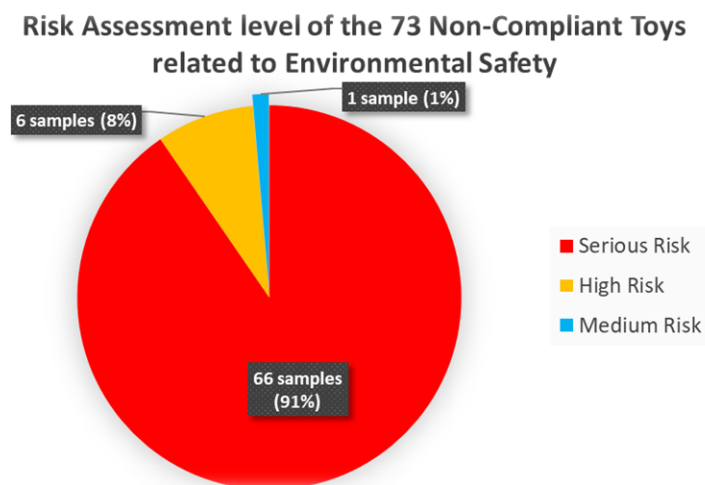


Figure 19 - Risk Level within the 73 Non-Compliant Samples (Environmental Risks)

As indicated in section 4.2 of this report, thanks to the support and guidance from the Product Safety and Rapid Alert System Unit within DG-JUST, European Commission, a clear strategy was adopted by the MSAs when it came to failures associated to lead and cadmium. It was agreed that anything over and above the limit specified within ROHS2 in relation to lead and cadmium, had to be considered as having a serious risk. Additionally, one needs to note that the majority of the samples had extremely high levels of lead and/or cadmium above the limits as determined by ROHS2 Directive.

Indeed, those which had a classification of less than a serious risk was mostly due to the fact that the respective levels might not have been that high and ultimately, each authority was free to take a final decision on a case-by-case basis.

Overall, the high level of non-compliances as described in chapter 3 of this report, together with the final risk assessment as shown in this section, clearly shows that something needs to be done in the area of environmental risks. Most probably, as indicated earlier on, more controls and enforcement may be

needed in this particular area since most of the MSAs within this project stated that it was their first time that they have actually taken samples to test specifically for environmental risks.

#### 4.4 Action & Measures taken

With regards to electrical safety, 135 samples were found to be non-compliant for some reason or another. Figure 20 shows the measures taken by the MSAs with regards to the non-compliant samples.

Recalls were done in the case of 8 particular toy samples (representing 6% of all 135 non-compliant samples). Sales-bans and/or withdrawals were taken in 50 other samples (representing 37%). Minor administrative measures were taken in the case of 33 other samples (representing 24%).

In the case of 40 other samples (representing 29%), no particular enforcement action was taken. Finally, there are 4 samples where the enforcement action is still ongoing and therefore not yet completely finalised.

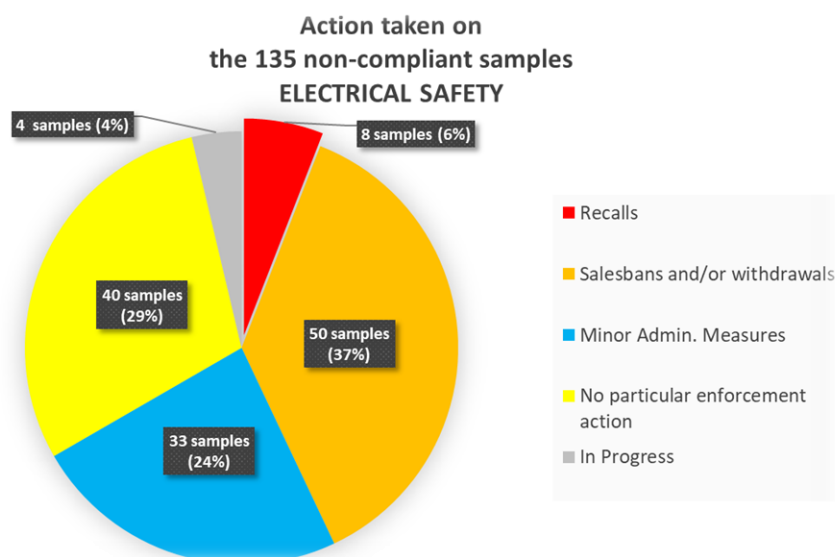


Figure 20 - Action taken on the 135 Non-Compliant Samples (Electrical Safety)



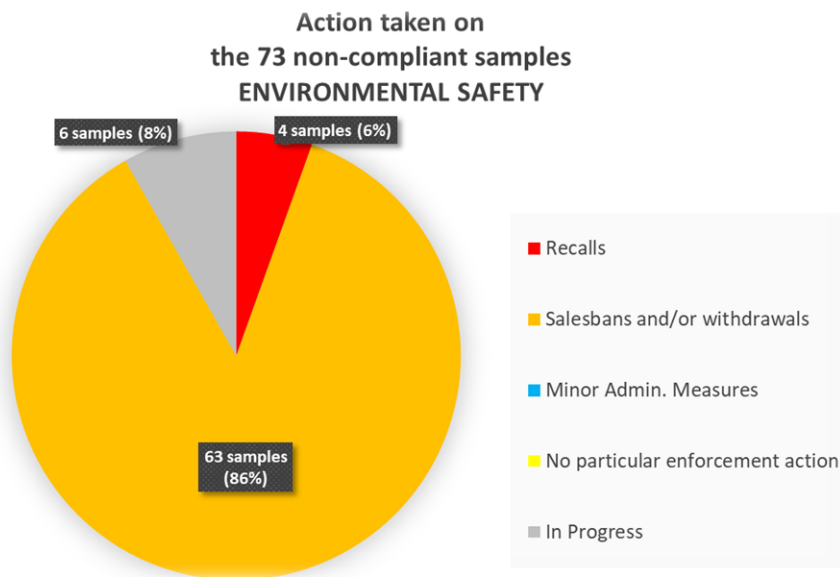


Figure 21 - Action taken on the 73 Non-Compliant Samples (Environmental Risks)

With regards to environmental risks, 73 samples were found to be non-compliant for reasons specified earlier on within this report. Looking at Figure 21, the number of sales-bans and/or withdrawals issued in the case of environmental risks (63 samples in all) is much higher than in the case of electrical safety. This is understandable since one needs to remember that the majority of non-compliant samples pertaining to environmental risks, were determined to have a serious risk.

In the case of recalls, there were 4 particular toy samples (representing 4% of all 73 non-compliant samples). Finally, there are 6 samples where the enforcement action is still ongoing and therefore not yet completely finalised due to some reason or another.

#### 4.5 Rapid Alert Notifications Issued by MSAs in the EU Safety Gate

Out of all the 255 samples tested, the MSAs decided to issue 84 rapid alert notifications. Figure 22 gives a breakdown of these notifications according to the failures associated either with EN 62115 failures, with ROHS2 failures or with both.

42 samples (representing 50% of all Rapid Alert Notifications) failed in both EN 62115 and ROHS2 Directive. An additional 30 notifications (36% of all notifications) were related to failures associated only to ROHS2 whereas another 12 samples (14% of all notifications) were related to failures associated only to EN 62115.

In other words, with regards to environmental risks alone, 72 rapid alert notifications have been issued by the respective MSAs. When only considering the samples related to electrical safety, a total of 42 samples have been notified by the MSAs.

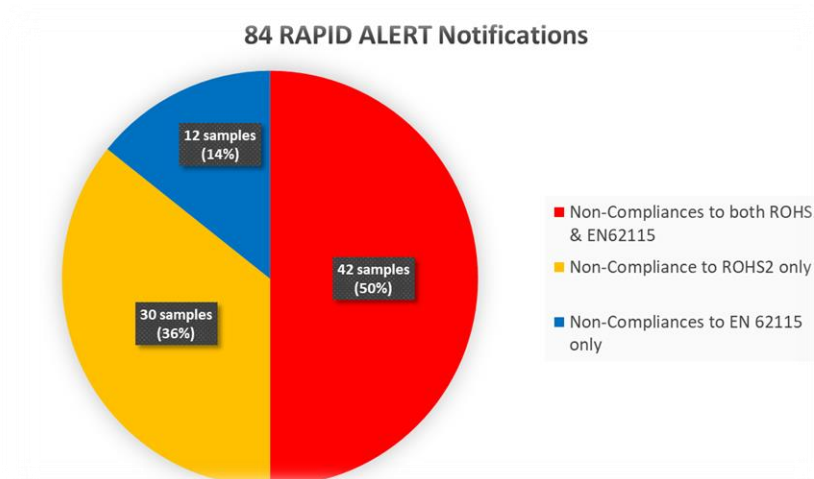


Figure 22 - Total Rapid Alert Notifications Issued by MSAs

Table 18, below, shows the percentage of rapid alert notifications issued as a percentage of all the non-compliant samples in that particular area. It is clear from this table that 72 out of 73 non-compliant samples pertaining to environmental risks had a rapid alert notification, meaning that 98,6% of all the non-compliant samples were notified within the Rapid Alert System.

RAPID ALERT NOTIFICATIONS	Total Non-Compliant Samples	RAPID ALERTS Issued	% of RAPID ALERTS Issued
119 Samples tested against Environmental Safety	73	72	98,6%
238 Samples tested against Electrical Safety	138	54	39,1%

Table 18 - % Rapid Alert Notifications issued pertaining to Environmental & Electrical Safety

In the case of electrical safety, the percentage was lower and only 39,1% of all the non-compliant samples pertaining to electrical safety have been issued with a rapid alert notification.

## 4.6 Additional Action

As indicated earlier on in this report, the authorities also tried to collect information about the DoCs of all the samples sent for testing. Action was taken by the participating authorities whenever the DoC was not made available in a reasonable period of time.

The final measures taken on each sample by each participating authority depended on the availability of these DoCs, the test results, the labelling on the product and risk assessment results. Measures were still taken by the MSAs to ensure that not only the respective DoC is made available but also to ensure that the information within these documents is also correct.

It was emphasized and agreed by all the MSAs that the checking of the DoC was meant to continue to raise a certain level of awareness amongst economic operators about the importance of being able to provide these documents to the respective MSAs.

## 5 Liaisons

### 5.1 Involvement of Customs

There were no particular Customs Taric codes related to specific electric toys and therefore it would have been difficult for Customs to be involved directly in the sampling process for this project. With no particular Taric code, Customs would have to stop and search a huge number of toys before particular electric toys are extracted for sampling. For this reason, most of the MSAs decided not to directly involve Customs in this particular project.

However, the MSA from Spain still managed to directly involve Customs and 5 samples (3 from importers and 2 from distributors) were actually sampled with assistance from the Spanish Customs Authority.

### 5.2 External Stakeholders

Similar to previous joint market surveillance activities on toys coordinated by PROSAFE, the participating authorities within this joint surveillance activity wished to involve as many stakeholders as possible.

The following stakeholders actively participated in these meetings:

— **ANEC, the European Consumer Voice in Standardisation**

ANEC is the European consumer voice in standardisation. Their membership is open to representatives of national consumer organisations from 33 countries (EU, EFTA and accession countries). ANEC representatives always participated in all open session meetings organised by the joint action.

— **EPBA, the European Portable Battery Association**

The European Portable Battery Association (EPBA) is the leading organisation representing the interests of primary and rechargeable portable battery manufacturers, those industries using portable batteries in their products and distributors of portable batteries active within the European Union, and beyond. Representatives from EPBA were also quite active and also participated in most of the open session meetings organised by this joint action. They have also been instrumental in launching an information campaign last December 2018 regarding the hazards associated with button cell batteries.

— **EUROCOMMERCE**

EuroCommerce is the voice for around six million retail, wholesale, and other trading companies. Their members include national commerce federations in 31 countries, Europe's 27 leading retail and wholesale companies, and federations representing specific sectors of commerce. Unfortunately, this time round, they were unable to participate as much as they used to participate in previous joint actions.

— **TIE - Toy Industries for Europe**

TIE is the trade association for the European toy industry. Members of TIE include corporate companies as well as national associations from Bulgaria, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK, Denmark and Sweden. They have always been very active and supportive throughout all the toys joint actions organised throughout these last years.

— **Toys Notified Body Group**

Member States, EFTA countries (EEA members) and other countries with which the European Commission has concluded Mutual Recognition Agreements (MRAs) and Protocols to the Europe Agreements on Conformity Assessment and Acceptance of Industrial Products (PECAs) have designated Notified Bodies, established per directive. The Notified bodies' assessment of products' conformity with the EU directives is extremely important not only for manufacturers but also for market-surveillance activities. The Chairman of the Toys Notified Body Group also participated in some of the meetings of this joint action.

### 5.3 Other Liaisons

At the European Commission level, both DG-JUST and DG-GROW continued to be involved from the beginning of this activity. Additionally, DG-ENV has also been kept up to date regarding the findings of this project, in particular the information related to environmental risks. This ensured that the European Commission was kept fully up to date with all the respective activities. Representatives from all the three DGs have been invited for the last two meetings, to ensure that the important findings and conclusions emanating from this project may not only be further analysed within the European Commission itself but also the respective DGs would be able to further disseminate any particular interesting information to a larger number of MSAs.

This activity was mainly carried out through the direct participation of fifteen participating authorities from the European Economic Area. Similar to previous joint actions, this working group continued to closely liaise with all the TOY-ADCO members so that the information is cross-shared with a much wider network of MSAs. For this reason, updates and short presentations were given during each TOY-ADCO meeting.

In addition to all the above, similar to other market surveillance projects on toys coordinated by PROSAFE, the autumn and spring market surveillance workshops coordinated directly by PROSAFE were used as a basis for further discussion with all the participants of the whole Joint Action - JA2016. Although this activity involved the direct participation of 15 authorities, the whole joint action involved various other authorities from various different countries within the European Economic Area. This ensured that the good practices and experiences, including challenges related to this activity, were all discussed and shared with a much wider group across Europe.

## 6 Evaluation, Lessons Learned

### 6.1 Lessons learnt

Looking back at this two-year activity, there are some lessons which could be derived from this project.

**At a technical level:**

- ▶ One needs to be careful how to interpret data and statistics. MSAs, in order to be more efficient, will continue to focus on those products which are possibly non-compliant. Therefore, any statistics need to be evaluated with certain caution. Where possible, the target was to focus on low-cost toys and to toys which lacked proper markings and warnings since from previous experience these have been found to possibly present a higher level of risk. However, it was left up to each individual participating authority to ultimately decide on the actual samples extracted from their market. Thus, the sampling was not random and the test results cannot be used to represent the level of non-compliance in the market.
- ▶ The level of non-compliance of the samples tested by the respective participating authorities was quite different from one authority to another for both electrical safety (refer to Figure 6) and environmental risks (refer to Figure 10). It is not easy to determine the reason for this. However, it would be of interest to the respective individual MSAs to assess and determine why this was the case.

#### ▶ Environmental Risks

PROSAFE has coordinated several joint actions on toys over the last years. However, it was the first time that environmental risk aspects have been targeted. Special thanks go to the Swedish Chemicals Agency who were instrumental in initiating this joint surveillance activity on

environmental risks of electric toy and also took the lead in assisting the task leader and coordinator of this project in technical matters. The level of non-compliance was quite high, in particular in some of the samples tested by certain participating authorities, where the highest non-compliance was found to be 88%. Additionally, the level of lead and cadmium found in most of the toys tested were extremely high. This gives an indication that:

— Better enforcement and EU cooperation in this area is needed.

A special e-brochure highlighting the main results from this project has been developed (refer to Annex 1) in order to distribute it to other MSAs responsible for environmental risks.

## ► Electrical Safety

In the case of electrical safety, the level of compliance was not as bad as in the case of environmental risks, possibly due to the fact the MSAs have been performing enforcement activities over a number of years in this sector. However, certain points are of particular interest to MSAs:

- 129 samples (54,2%) out of 238 electric toy samples did not comply with clause 7 (marking & instructions) of EN 62115. Subclauses 7.4, 7.5, 7.6 were found to have the highest level of non-compliance;
  - 4 samples (22,2%) out of 18 ride-on electric toys did not comply with clause 9 (heating & abnormal operation) of EN 62115. In all 4 samples, the temperature values were 20° K higher than the limit temperature value of 45° K stated in § 9.9;
  - 11 samples (4,6%) out of a total of 238 samples did not comply with Clause 13 (mechanical strength) of EN 62115. Additionally, 11 samples (13,6%) out of a total of 81 samples were found to be non-compliant to subclause 14.6 (accessibility of button cells and batteries designated R1). In view of the number of accidents associated with button cell batteries and after risk assessment was performed, all were identified to have a 'serious risk' and MSAs took immediate action to remove these non-compliant samples from the market;
  - the rate of non-compliance in electric ride-on toys is 27,8%;
  - the rate of non-compliance in electric toys with lasers and/or LED lights is 15,4%;
  - the rate of non-compliance in electric toys with button cell batteries (intended only for children over 3 years of age), is 19,5%;
  - The information above may be of particular interest to MSAs responsible for electrical safety and it may be worth considering having future market surveillance activities targeting specifically the above-mentioned areas;
  - An e-brochure on particular hazards of button cell batteries has been prepared by the participating authorities in conjunction with ANEC, EUROCOMMERCE, EPBA and TIE (refer to Annex 2). During project meetings, the risk associated with button cell batteries was discussed amongst the participating authorities as well as with the external stakeholders.
- More awareness is needed to ensure the proper availability of the DoCs to MSAs. Although in some participating authorities the level of availability of these DoCs is already quite high, in others more effort may be needed in this area. Additionally, further coordination efforts may be needed in the future as to how MSAs act when a toy lacks a DoC. This will ensure a more consistent and coordinated approach amongst MSAs.

- ▶ As in previous joint actions, input from stakeholders during the meetings, including in particular technical input due to their expertise and experiences, proved to be useful to the whole group, ensuring a more focused and effective approach.
- ▶ The impact of enforcement is stronger when the MSAs work together at European level, sharing experiences and ensuring an effective coordinated approach to remove unsafe products from the Single Market.

#### At an administrative level:

- ▶ Joint testing of samples continued to prove itself advantageous for MSAs, since larger amounts of samples tested meant better test prices for surveillance authorities. This reduction in price due to economies of scale meant that the participating authorities could perform higher numbers of tests and focus on a much larger number of samples.
- ▶ Some participating authorities have been utilising these joint actions to further boost their experience and expertise in the subject being focused upon. Additionally, in particular in the case of the authorities coming from relatively small countries with a possible lack of adequate administrative resources, these joint actions helped them to check their own market by testing a number of products from within their own country.
- ▶ The involvement of the TOY-ADCO group, as in previous years, continued to be found to be a positive and useful way of further disseminating information and results from these joint actions across a much larger group of MSAs.

## 6.2 Looking ahead

The results from this activity should help MSAs give an insight on how to best proceed in the coming months and years with regard to electrical safety and even environmental risks of electric toys.

Particular attention should be given by each participating authority to better understand the reasons why the level of non-compliance of samples tested by each authority was so different in the case of both electrical safety and environmental risks. The lessons learnt and highlighted within section 6.1 of this report should give some insight as to how to best possibly proceed in the near future.

In the case of electrical safety in electric toys, a number of non-compliances were related to clause 7 of EN 62115 (Marking and Instructions) with no particular high risks. However, the remaining 25 non-compliant samples could shed some light as to which areas could be focused upon in the future. These have been addressed in section 4 of this report.

In view of the accidents occurring all across the world in relation to the swallowing of button cell batteries in young children it was felt necessary to develop an e-brochure (refer to Annex 2) to help parents and caregivers better understand the hazards associated with such small batteries and what can be done if a child swallows such batteries.

When it comes to environmental risks, further cooperation is needed in this area. From the information gathered from the seven MSAs that participated in this activity on environmental risks of electric toys and also from the results of this project, it seems that there is a need to follow up on these surveillance activities. Similar joint actions could prove useful in this regard.

The e-brochure, developed by this working group (refer to Annex 1), highlighting the main results from this activity, could be further distributed with assistance from DG-ENV, to all MSAs responsible for environmental risks. This will not only make them more aware of the results and concerns arising from this

activity but also to see what kind of joint surveillance activities are possible in the near future in order to reduce the level of non-compliances in this specific area.



## Annex 1 (e-brochure) - ROHS Results of this project



### Product Activity:

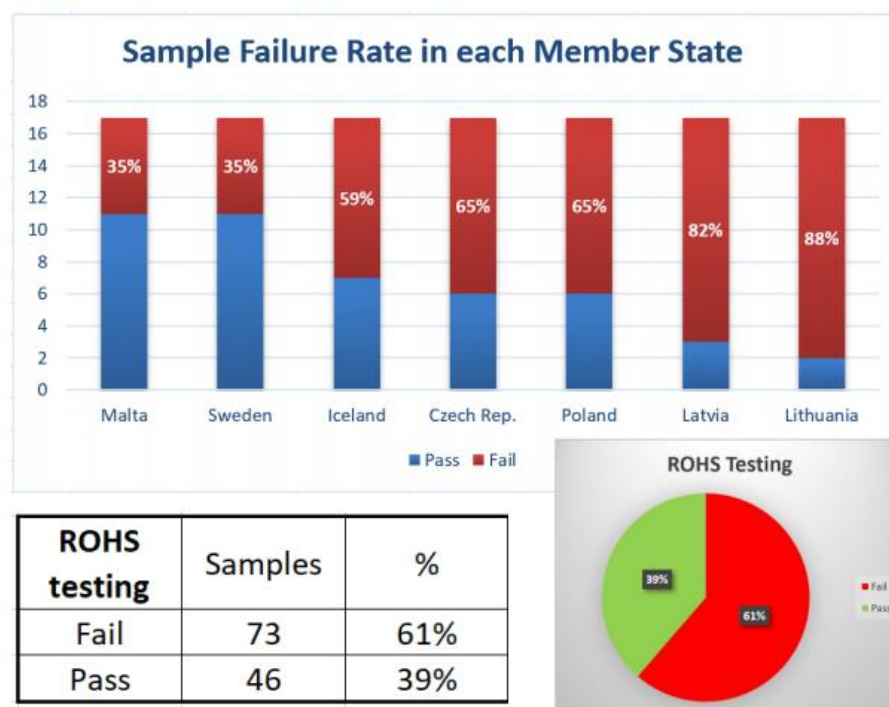
EU-Funded Joint Market Surveillance Action (JA2016) on **ELECTRICAL TOYS** coordinated by PROSAFE

### Member States involved in ROHS Testing:

(Czech Rep., Iceland, Latvia, Lithuania, Malta, Poland & Sweden)

**Samples tested:** 119 samples (17 samples from each Member State)

Prior to this joint action, the Swedish Chemicals Agency had already done various similar ROHS tests on various consumer products and found high levels of non-compliance over these last years. Through their initiative and support, this joint market surveillance action focused on ROHS testing of a number of electrical toys. The number of non-compliances was found to be quite high, especially in some of the Member States, as can be seen below.



**RoHS 2, or the Recast RoHS 2 Directive 2011/65/EU, was published in July 2011 by the European Commission.** The scope of the original RoHS was expanded to cover all electrical/electronic equipment, cables, and spare parts with compliance required by July 22, 2019 or sooner depending on product category. RoHS aims to limit the contents of mercury, cadmium, lead, hexavalent chromium and flame retardants PBB and PBDE.

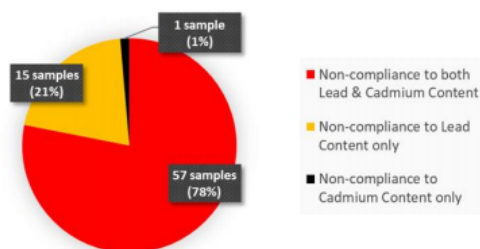
The focus for this project was on the determination of **lead** and **cadmium** in homogeneous materials such as solders randomly selected within the toy under consideration.

Lead and cadmium concentrations were quantified in 4 solders for each sample tested.

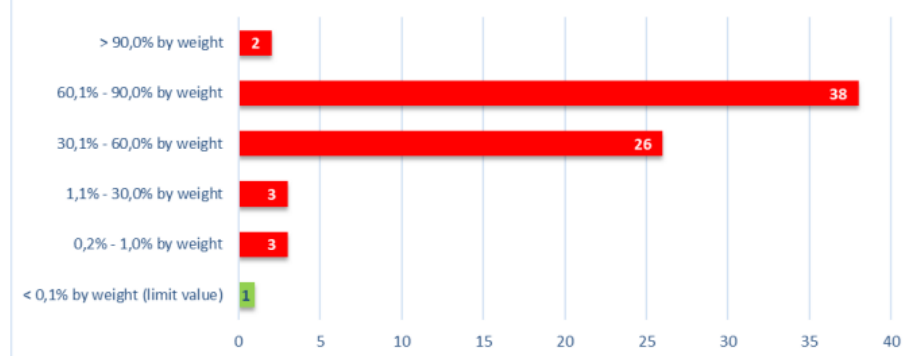


The failures were mainly related to lead, with 78% of the non-compliant samples having failures in both lead and cadmium. The Figure below gives you an idea of the extremely high concentrations of lead found in these toy samples. The limit for lead is 0.1% by weight (1000 mg/Kg). This indicates that economic operators either ignore or are not aware of the obligations according to the respective Directive. It could also mean that more enforcement may be needed in this particular area. There was only one sample which had lead content less than the limit but this same sample had cadmium levels way above the respective limit.

Percentage Non-Compliance to Lead & Cadmium in the 73 non-compliant Samples



Level of LEAD Content in all 73 Non-Compliant Samples



**RAPID ALERT NOTIFICATIONS** – Out of the 73 samples that failed the testing, 72 were considered to have a serious risk and Rapid Alert (RAPEX) Notifications have been issued accordingly by the market surveillance authorities.

A detailed 'Final Technical Report' on this product activity related to electrical toys will soon be published on the PROSAFE website – [www.prosafe.org](http://www.prosafe.org) – showing all the technical details and results from this activity. The activity not only focused on environmental risks (testing according to ROHS2) but also on electrical safety of these toys (EN 62115 testing).



**RECOMMENDED WAY FORWARD:** It is suggested that:

- (i) each Member State should take into account these results and try to increase their effort to determine the level of non-compliance and risks associated with the environment in consumer products by performing further tests based on the latest ROHS Directive.
- (ii) more joint market surveillance actions in the area of environmental risks of consumer products should take place in liaison with DG-ENV and DG-JUST to take further action and reduce the non-compliances and risks associated with the environment in relation to consumer products.

**Disclaimer**

This information arises from the Joint Market Surveillance Action on GPSD Products - JA2016, which received funding from the European Union in the framework of the 'Programme of Community Action in the field of Consumer Policy (2014-2020)'.

The content reflects only the views of the author. The Consumers, Health and Food Executive Agency (Chafea) cannot be held responsible for any use, which may be made of the information contained therein.

## Annex 2 (e-brochure proposal) - Hazards associated with button cell batteries

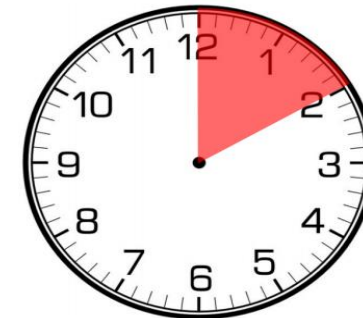
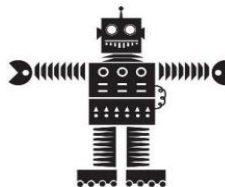
# Button Batteries



Button cells are found in various household electric devices, such as remote controls, bathroom scales, some toys such as fidget spinners and numerous other products.

### HOW TO AVOID ACCIDENTS

- Store button cells out of sight and reach of children.
- Try to opt for products that have a securely fastened battery compartment, especially if you have young children.
- Make sure that you securely refasten the battery compartment every time you change the button cell batteries.
- **DO NOT** keep your waste button cells at home. Take them to a collection point for recycling.
- **DO NOT** store button cells together with medication / tablets or coins.



If a child swallows a battery, **don't delay!** Button cells (especially lithium based) can cause severe tissue burns that can be, in worst case, fatal in as little as **2 hours**.

### IF YOU THINK YOUR CHILD HAS SWALLOWED A BATTERY

- Seek immediate medical attention at a hospital / emergency ward.
- Try to take the appliance containing the battery or the original product package with you to help the doctor.
- **DO NOT** induce vomiting.
- **DO NOT** let your child eat or drink until an x-ray can determine whether a battery is present.





Co-funded by  
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