



CASP2022

Coordinated Activities
on the Safety of Products



Travel
adaptors



Final
Report

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List of abbreviations

ABBREVIATION	DESCRIPTION
CASP	Coordinated Activities on the Safety of Products
DG JUST	Directorate-General for Justice and Consumers of the European Commission
EC	European Commission
EEA	European Economic Area
EU	European Union
GPSD	General Product Safety Directive (2001/95/EC)
IEC	International Electrotechnical Commission
LVD	Low Voltage Directive (2014/35/EU)
MSA	Market surveillance authority
PSA	Product-specific activity
RAG	Risk Assessment Guidelines
RAPEX	The Rapid Exchange of Information System
The RAPEX Guidelines	Decision (EU) 2019/417

Executive summary

Objectives of the activity

The Coordinated Activities on the Safety of Products (CASP) projects enable all the market surveillance authorities (MSAs) from European Union (EU) / European Economic Area (EEA) countries to cooperate in reinforcing the safety of products placed on the European Single Market. This activity focused on travel adaptors. The products were sampled and tested following commonly agreed criteria in a European laboratory selected by the participating MSAs.

Product scope

The products in scope were **simple** and **universal travel adaptors**.

Main testing criteria

The testing plan included a selection of clauses from the IEC standard 60884-2-5:2017 Plugs and socket-outlets for household and similar purposes – Part 2-5: Particular requirements for adaptors (which contains Annex AA Travel adaptors). The standard is used together with IEC 60884-1:2002, Amendment 1:2006 and Amendment 2:2013 Plugs and socket-outlets for household and similar purposes – Part 1: General requirements.

Results

- Out of 73 travel adaptors, 58 did not meet at least one of the requirements of the testing plan.
- All travel adaptors were proven to be resistant to abnormal heat and to fire, indicating a significant improvement compared to previous CASP projects on electrical appliances.
- Examinations of the labelling for warnings, markings and instructions performed by the MSAs showed that 62 out of 73 samples did not meet the requirements outlined in the testing plan. Travel adaptors are designed only for temporary use, and it is important that consumers have all the information they need to understand how to use the products safely.

Key recommendations

For consumers

- Buy only from trustworthy retail channels.
- Carefully read and follow the warnings, markings and instructions.
- Don't overload adaptors.
- Check if the mains supply matches your appliance.
- Travel adaptors are only for temporary travel use.

For economic operators

- Take steps to check if the products have been properly tested.
- Know your supplier.
- Pay attention to the completeness and accuracy of the warnings, markings and instructions.

For MSAs

- Keep travel adaptors under surveillance: electrical appliances have been tested in different CASP projects¹ and results show that a high number of samples did not meet the requirements of the defined testing plans.
- A visual check on warnings, markings and instruction requirements can give an initial indication of the quality of the product.

Conclusions

Test results found that 79% of the samples tested did not meet at least one of the requirements of the electrical and mechanical tests performed and presented at least one non-compliance related to warnings, markings and instructions.

The testing campaign detected a wide range of non-compliances that increase the risk of electric shock, among which were: absent or ineffective shutters; exposure to live plug pins; inadequate earthing arrangements.

The MSAs issued six Safety Gate notifications based on the outcome of this PSA (seven notifications are still pending). Among the main measures taken on the products that did not meet the requirements, 12 products were recalled from the end user, two were withdrawn from the market and for five products the MSAs imposed a stop of sales.

¹ Batteries were tested in CASP 2019: <https://ec.europa.eu/safety-gate/#/screen/pages/caspBatteries>;
Chargers were tested in CASP 2019: <https://ec.europa.eu/safety-gate/#/screen/pages/caspChargers>;
Cables were tested in CASP 2020: <https://ec.europa.eu/safety-gate/#/screen/pages/casp2020Cables>.

1. Overview of the activity

1.1. Participating MSAs

In total 10 MSAs from eight EU Member States participated in the Travel adaptors product-specific activity (PSA).

Table 1 - List of participating MSAs

COUNTRY	MSA
Cyprus	Consumer Protection Service, Ministry of Energy Commerce and Industry Department of Electrical and Mechanical Services, Ministry of Transport, Communications and Works
Finland	Finnish Safety and Chemicals Agency (Tukes)
France	Directorate-General of Customs and Indirect Taxes
Germany	District Government of Cologne District Government of Düsseldorf
Ireland	Competition and Consumer Protection Commission
Malta	Malta Competition and Consumer Affairs Authority
Poland	Office of Competition and Consumer Protection
Sweden	Swedish National electrical safety board

1.2. Product scope and testing criteria

1.2.1. Product scope

The MSAs agreed to restrict the product scope to simple and universal travel adaptors. A simple travel adaptor only covers a specific area and is usually smaller in size.

It consists, by its definition, of only a plug from one national system to a socket-outlet of another national system. The 'multiple', 'complex' or 'universal' travel adaptors, composed

of one or more socket-outlets that can be linked with other plugs through an electromechanical switch, often allows the capability to use the adaptor in multiple, sometimes even all countries in the world. The universal travel adaptor is regularly bulkier than the simple version.



1.2.2. Testing criteria

Considering that there is currently no harmonised standard that specifically covers these products, the MSAs and the technical expert agreed to include in the testing plan the requirements of IEC 60884-2-5:2017 Plugs and socket-outlets for households and similar purposes – Part 2-5: Particular requirements for adaptors (containing Annex AA Travel adaptors). This standard is used together with IEC 60884-1:2002, Amendment 1:2006 and Amendment 2:2013 Plugs and socket-outlets for household

and similar purposes – Part 1: General requirements. The sampled products were tested against the selection of clauses listed in *Table 2*.

In addition to the laboratory tests, the MSAs also checked the accompanying warnings, markings and instructions in their national language(s). A checklist with the main requirements was prepared by the technical expert to provide additional guidance to the MSAs.

Table 2 - Testing plan

CLAUSE	REQUIREMENT
6	Ratings
7	Classification
8	Marking
9	Checking of dimensions
10	Protection against electric shock
11	Earthing
14	Construction of adaptors
17	Insulation resistance and electric strength
18	Operation of earthing contacts
22	Force necessary to withdraw the plug
24	Mechanical strength
25	Resistance to heat
28	Resistance to abnormal heat, to fire and to tracking (tracking tests were not performed for CASP2022)

Standard IEC 60884-2-5:2017 Plugs and socket-outlets for households and similar purposes – Part 2-5: Particular requirements for adaptors

2. Sampling and testing

2.1. Sampling distribution and sampling channels

The sampling was carried out on the basis of a pre-selection by each of the MSAs, in line with the peculiarities of each market. A total of 73 samples were collected by the MSAs and sent to

the laboratory for testing. Sampling was performed both online (16%) and from physical shops (84%).

Table 3 - Number of samples collected by participating MSAs

COUNTRY	MSA	SIMPLE TRAVEL ADAPTOR	UNIVERSAL TRAVEL ADAPTOR
Cyprus	Consumer Protection Service, Ministry of Energy Commerce and Industry	4	3
	Department of Electrical and Mechanical services, Ministry of Transport, Communications and Works	1	7
Finland	Finnish Safety and Chemicals Agency (Tukes)	3	4
France	Directorate-General of Customs and Indirect Taxes	2	0
Germany	District Government of Cologne	3	2
	District Government of Düsseldorf	1	2
Ireland	Competition and Consumer Protection Commission	4	6
Malta	Malta Competition and Consumer Affairs Authority	4	5
Poland	Office of Competition and Consumer Protection	8	4
Sweden	Swedish National Electrical Safety Board	7	3
TOTAL		37	36

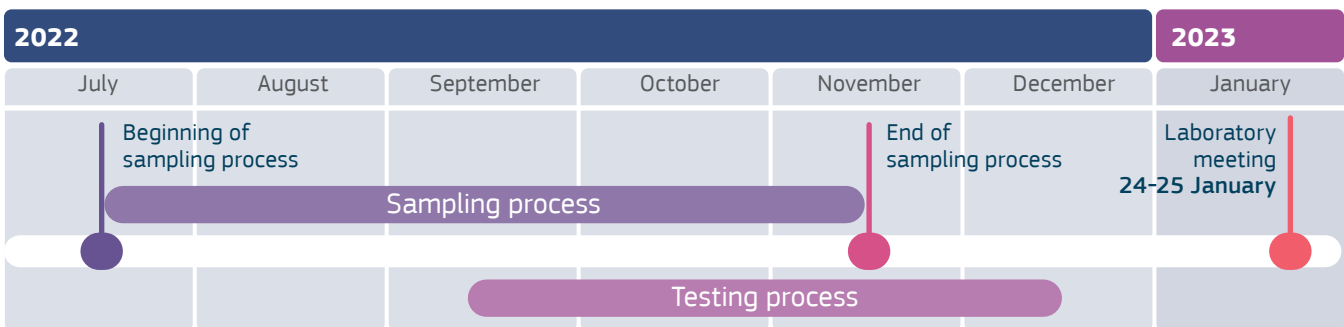
2.2. Testing process

The testing laboratory for this activity was selected through a tender procedure, launched in May 2022. The tender specifications were sent to 54 laboratories in the EU/EEA that had been identified following the project team’s laboratory engagement strategy. Each laboratory was asked to submit an offer including the elements mentioned in the tendering document, such as detailed information on pricing and supporting documents supplying evidence of certification, the relevant experience of experts and test reports. Four laboratories submitted an offer within the given timeframe. Based on the completeness and competitiveness of the offer, three laboratories were pre-selected and invited to an interview to further discuss their offer. During the intermediate meeting

the MSAs were presented with comparative analyses of the technical quality and financial aspects of the offers received from the laboratories. The MSAs selected the laboratory that was awarded the highest number of final points based on the quality and the financial competitiveness of their offer.

Following the selection of the laboratory, the MSAs were given two months to collect samples and send them to the laboratory. The sampling process was extended to allow MSAs to sample additional products. The testing process encountered no delays and was completed on 12 December 2022. The laboratory meeting took place on 24 and 25 January 2023.

Figure 1 - Timeline of the sampling and testing process



3. Test results

3.1. Overview of the test results and main findings

A total of 15 out of 73 samples tested by the laboratory met all the requirements outlined in the final testing plan, as shown in Figure 2.

The majority of the samples (84%) were purchased from physical shops. There was no major difference in the test results based on the retail channel: 83% of the samples collected online and 79% of those collected from physical shops did not meet the requirements of the testing plan.

The MSAs performed checks on warnings, markings and instructions in their national language(s). Out of 73 samples, 62 did not meet the requirements. The most common non-compliance issues were: warnings, markings and instructions not in the official language; no single point of contact provided; missing type, batch or serial number or other misleading markings.

If we consider both the tests performed by the laboratory and the warnings, markings and instruction checks performed by the MSAs, a total of 64 samples did not meet at least one of the requirements.

Figure 2 - Overall test results (excluding warnings, markings and instructions) (N=73)

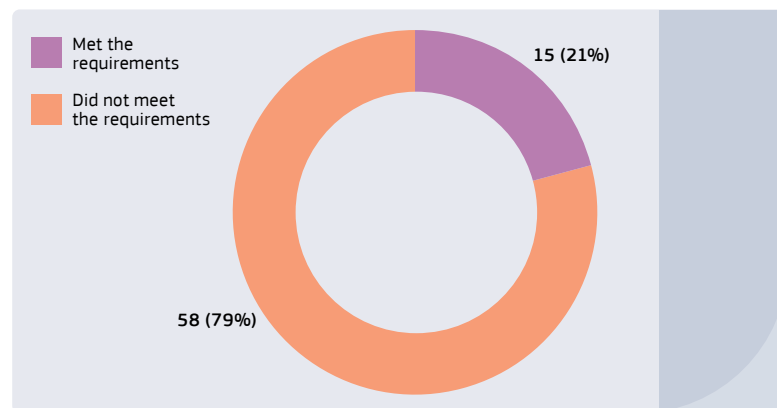
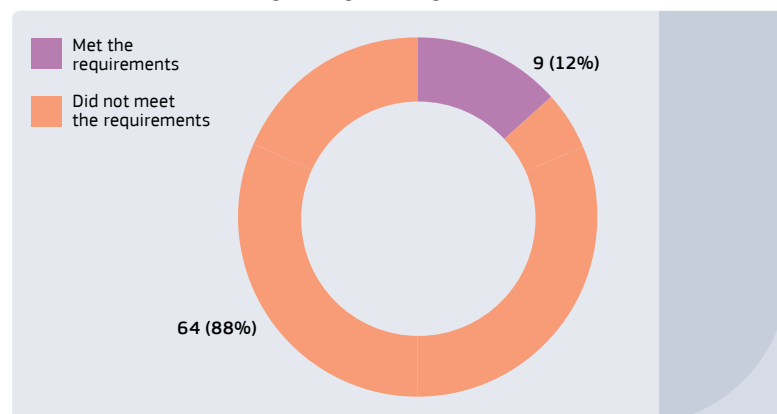


Figure 3 - Overall test results (including warnings, markings and instructions) (N=73)



3.2. Results per clause

Looking at the results per clause of IEC 60884-2-5:2017, clauses that produced a particularly large number of samples that did not meet the requirements included Clause 8 (Marking), as well Clause 9 (Checking of dimensions) and Clause 10 (Protection

against electric shock). In total, 57 out of 73 travel adaptors did not meet the requirements of Annex AA Travel adaptors.

Figure 4 provides a more detailed overview of the test results per clause.

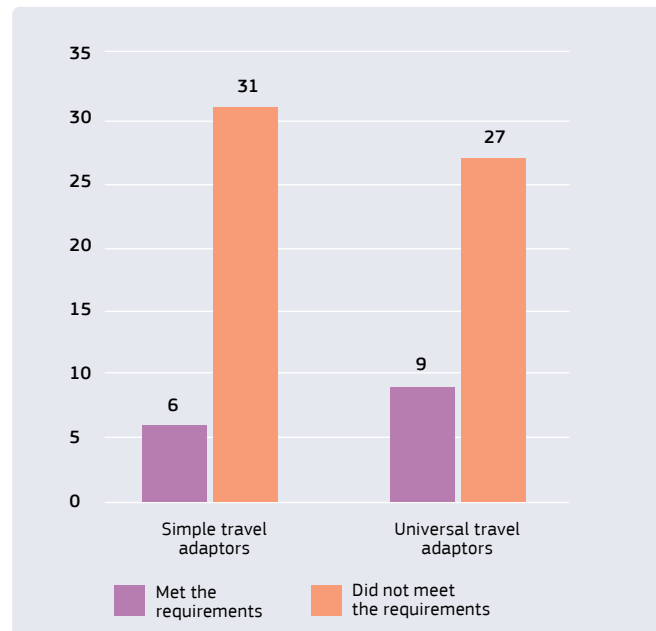
Figure 4 - Test results per clause (N=73)



3.3. Results per product type

The product type with the largest number of samples that did not meet the requirements was simple travel adaptors. In total, 84% of the simple travel adaptors and 75% of the universal travel adaptors did not meet at least one of the requirements of the testing plan.

Figure 5 - Test results per product category (N=73)



3.4. Conclusions on the test results

Electrical and mechanical tests

Test results found that 58 of the 73 samples tested did not meet the requirements of at least one clause of the relevant safety standard. Overall, this is a high failure rate, and many of the non-compliance issues might lead to a serious risk for the consumers.

The vast majority of the samples that did not meet the requirements presented defects related to the way they were constructed. The most serious issues detected include:

- a) **Accessibility of live plug pins.** Touching live plug pins in a travel adaptor means that the user is at risk of receiving an electric shock. The live pins are the part of the plug that carries the electrical current and are usually made of metal. When the travel adaptor is plugged into a power outlet, these pins are connected to the electrical supply. The pins should be fully enclosed within the plug, so that the user cannot touch them while the plug is in use. However, if there is a defect in the design or construction of the travel adaptor, the pins may not be fully enclosed.
- b) **Ineffective or missing shutters.** This means that live socket pins are not adequately protected, so that consumers, particularly children, are able to insert metal objects into the socket contacts, risking touching live parts and receiving an electric shock.
- c) **Overheating inside the adaptor.** Some products had socket contacts that gripped the appliance's plug very loosely, leading to a risk of overheating inside the adaptor. This overheating could melt the surrounding plastic insulation, allowing live electrical parts within to become exposed.
- d) **Inadequate earthing arrangements.** Some samples did not make any earth connection, but allowed plug types that are used exclusively for appliances that require an earth to be plugged in. Earthing is one means of providing extra

protection if the appliance plugged into the adaptor should have an electrical fault. Other samples appeared to provide earthing, but testing found defects in the earthing circuits.

One positive finding was that testing designed to detect flammable materials found that **no plastic parts in any of the samples were likely to catch fire.** This particular aspect is a significant improvement compared to other low-cost products previously tested in CASP projects (such as cables and chargers).

Warnings, markings and instructions

The MSAs performed checks on warnings, markings and instructions in their national language(s). The checks revealed that 85% of the samples did not meet the requirements. The most common non-compliance issues were: warnings, markings and instructions not in the official language; no single point of contact provided; missing type, batch or serial number.

Travel adaptors are designed only for temporary use, and it is important that consumers have all the information they need to understand how to use travel adaptors safely. Consumers should be warned when an adaptor allows for the connection of an appliance designed for one voltage to the electrical system of another country, but does not convert the voltage. None of the travel adaptors tested were designed to convert voltage, but some of them were missing the required warning.

In addition, some products lacked any indication regarding the manufacturer or importer. Missing information of this kind makes it difficult for MSAs to take measures. For instance, if a recall notice is published, consumers should know exactly which product is concerned.



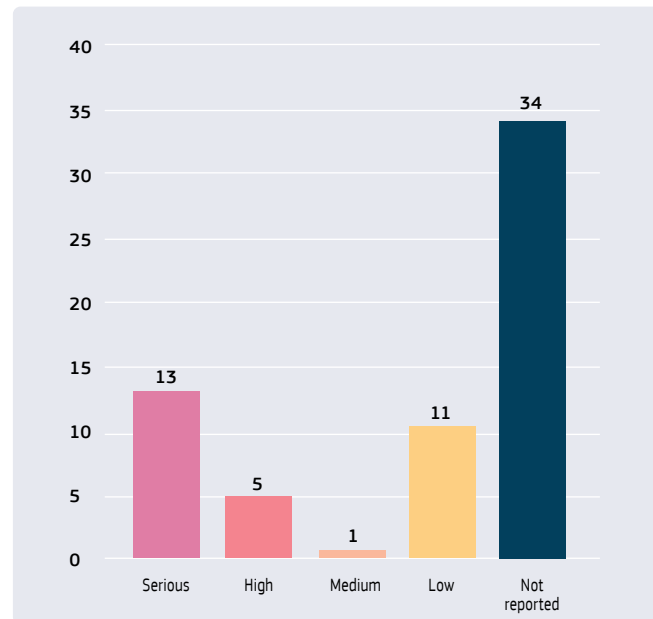
4. Risk assessment and measures

4.1. Risk assessment results

Universal travel adaptors can only be placed on the market if they comply with the safety requirements set out in the Low Voltage Directive (LVD)². Simple adaptors must comply with the requirements of the General Product Safety Directive (GPSD)^{3,4}. When assessing whether a product poses a risk, the approach must be based on Decision (EU) 2019/417 (the RAPEX Guidelines⁵). To develop the risk assessments, the MSAs used the Risk Assessment Guidelines (RAG⁶) tool managed by the European Commission (EC).

Figure 6 shows the risk levels (based on the risk assessment performed by the MSAs) of the samples that did not meet the requirements.

Figure 6 - Overview of risk levels of samples that did not meet the requirements (N=64)



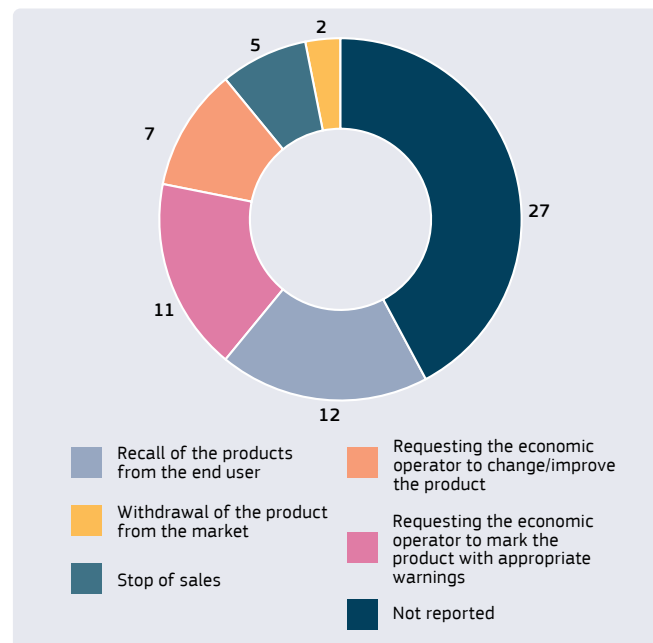
4.2. Corrective measures

Based on the test results and the risk assessments performed, the MSAs decide which corrective measures have to be taken regarding the products that do not comply with EU legislation and/or the applicable standards designed to stop dangerous products from appearing on the Single Market. Figure 7 displays the corrective measures taken in relation to the products that did not meet the testing requirements.

Furthermore, when a serious risk is identified, MSAs are legally obliged to submit a notification in Safety Gate (pursuant to Article 12.1 of the General Product Safety Directive (2001/95/EC)). The RAPEX Guidelines⁷ also recommend submitting notifications on measures taken against products posing less than serious risk.

Following the actions triggered by the joint testing campaign, up to 14 April 2023, six products were subject to Safety Gate notifications and notifications for seven products are pending.

Figure 7 - Measures adopted for samples that did not meet the requirements (N=64)



² EUR-Lex - 32014L0035 - EN - EUR-Lex (europa.eu)

³ EUR-Lex - 32001L0095 - EN - EUR-Lex (europa.eu)

⁴ The Regulation (EU) 2023/988 on general product safety has been published in the Official Journal on 23 May 2023.

⁵ EUR-Lex - 32023R0988 - EN - EUR-Lex (europa.eu). It enters into force on 12 June 2023 and into application on 13 December 2024.

⁶ Commission Implementing Decision (EU) 2019/417 of 8 November... - EUR-Lex (europa.eu)

⁷ RAG ECL V10 (europa.eu)

⁸ EUR-Lex - 4390682 - EN - EUR-Lex (europa.eu)

5. Conclusions and recommendations

5.1. Conclusions

Overall, the activity's outcome showed a high failure rate: 79% of the sampled travel adaptors did not meet at least one of the requirements set down in the testing plan.

The testing campaign detected a wide range of non-compliance issues that increase the risk of electric shock, among which were: absent or ineffective shutters; exposure to live plug pins; inadequate earthing arrangements.

All samples met the requirements of Clause 28 (Resistance to abnormal heat and to fire) as no plastic parts in any of the samples were likely to catch fire. This indicates a positive evolution if we compare the results with those of previous CASP projects focusing on electrical appliances (CASP2019 on chargers⁸ and CASP2020 on cables⁹).

Furthermore, checks performed by the MSAs on warnings, markings and instructions in their national language(s) showed that 85% did not meet the requirements. These are an important part of the risk profile of any product as they provide consumers with crucial information on how to safely use travel adaptors.

All the samples that did not meet the requirements of the electrical and mechanical tests presented at least one issue related to warnings, markings and instructions.

MSAs issued six Safety Gate notifications based on the outcome of this PSA (seven notifications are still pending) and asked the economic operators to withdraw the products from the market, recall them from the end users or stop the sale when the products were assessed as posing serious, high or medium risk.



5.2. Recommendations for stakeholders

The following recommendations are based on the outcome of the testing process and discussions among MSAs during the project.

For consumers

Only purchase travel adaptors from trustworthy retail channels.

Carefully **read and follow the warnings, markings and instructions.**

If purchased in Europe, check that the travel adaptor bears the **name and a physical address of a legal person established in the European Union.** In the event of a safety issue or defect with the travel adaptor, the legal person established in the European Union can be held responsible and can be contacted for any necessary support and assistance.

Make sure that the adaptor is **properly plugged into the wall socket and the appliance is properly plugged into the adaptor.**

Travel adaptors are only for temporary use.

Don't overload adaptors and make sure that **the mains supply matches the appliance.**

Avoid using travel adaptors when damaged.

For European and national authorities

Keep focusing on travel adaptors. This activity and previous CASP projects have shown a history of failures for this type of product. MSAs participating in the CASP project are encouraged to disseminate the results to maximise the impact and outreach of the project and increase the safety of consumers across the EU/EEA.

Be aware of the warnings, markings and instructions requirements and perform initial checks. All travel adaptors must be labelled with the correct name and postal address of a European contact point, and with appropriate traceability information to assist in the recall of unsafe travel adaptors (a website is not sufficient for a contact point address).

Many requirements can be checked by the authorities themselves without involving a laboratory (e.g., markings/instructions, un-sleeved pins, a lack of shutters, single pole insertion).

⁸ <https://ec.europa.eu/safety-gate/#/screen/pages/caspChargers>

⁹ <https://ec.europa.eu/safety-gate/#/screen/pages/casp2020Cables>

For economic operators

Be aware of the applicable legislation and take steps to check if the products have been properly tested. Take all necessary precautions to ensure that the products fully comply with the requirements of the Low Voltage Directive (2014/35/EU), the General Product Safety Directive (2001/95/EU) and the applicable standards. All actors have to understand their role in the supply chain and fulfil their respective obligations for the safety of products they sell on the market.

Know your supplier. Verify and authenticate the identity of suppliers you are dealing with.

Understand the importance of warnings, markings and instructions. There are particular risks associated with poor warnings, markings and instructions as the incorrect use of any electrical product can lead to injury.

For standardisation organisations

Make the requirements for unearthed travel adaptors more consumer friendly. There is no requirement to ensure the inclusion of an indication regarding the fact that an adaptor does not provide earthing when a Class I appliance is plugged into it. Where construction requirements cannot prevent this (e.g. with BS 1363 plugs), there should be a requirement ensuring that a suitable warning is included.

The standards should include a readability requirement. The standards permit moulded markings, but the lack of contrasting colours often makes them difficult to read. Furthermore, these are small products, and the available space is limited, as a consequence some text is very small and difficult to read.

Clarify the coverage and requirements regarding the USB port and earthing in travel adaptors. The adaptor standard prohibits the Class II symbol, but EN 62368 requires it for Class II USB products.



1. What is CASP?

The Coordinated Activities on the Safety of Products (CASP) enable market surveillance authorities from European Union / European Economic Area countries to cooperate and to reinforce the safety of products placed on the Single Market.

CASP 2022 includes six product-specific activities and four horizontal activities.

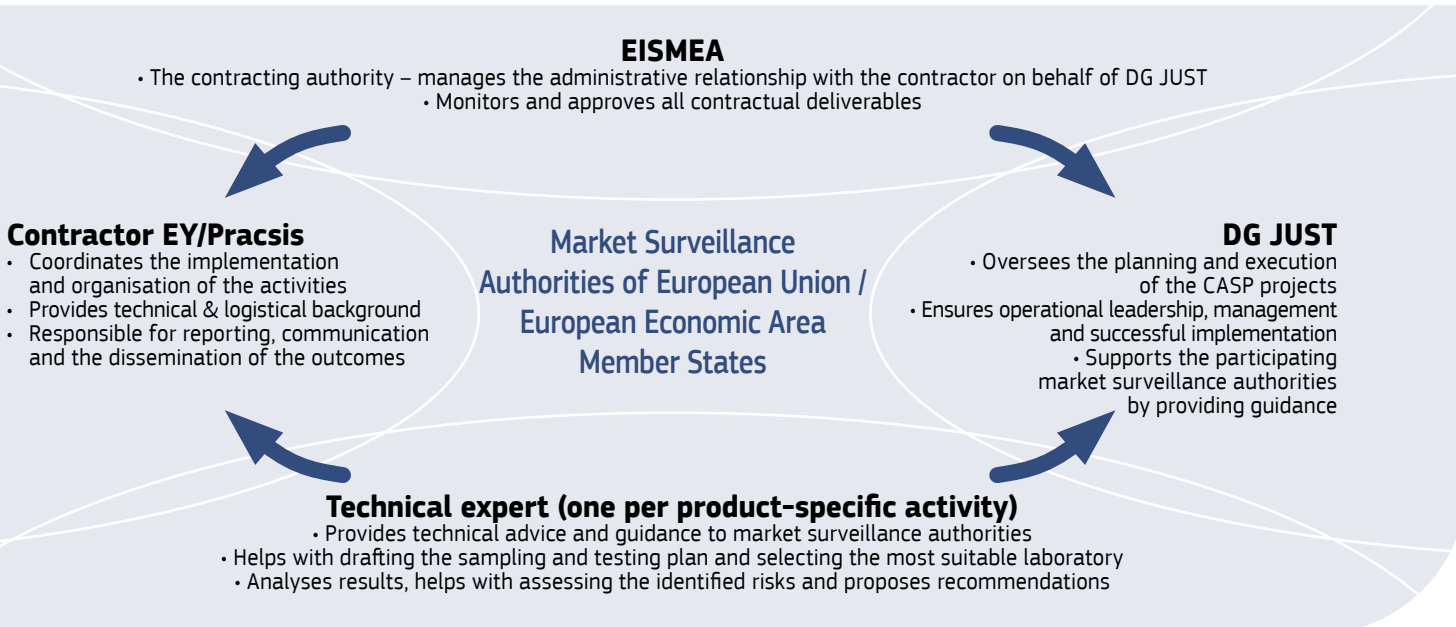
Product-specific activities test different types of products that may pose a risk to consumers. The products are selected and collected by the market surveillance authorities involved and are examined using a commonly agreed testing plan.



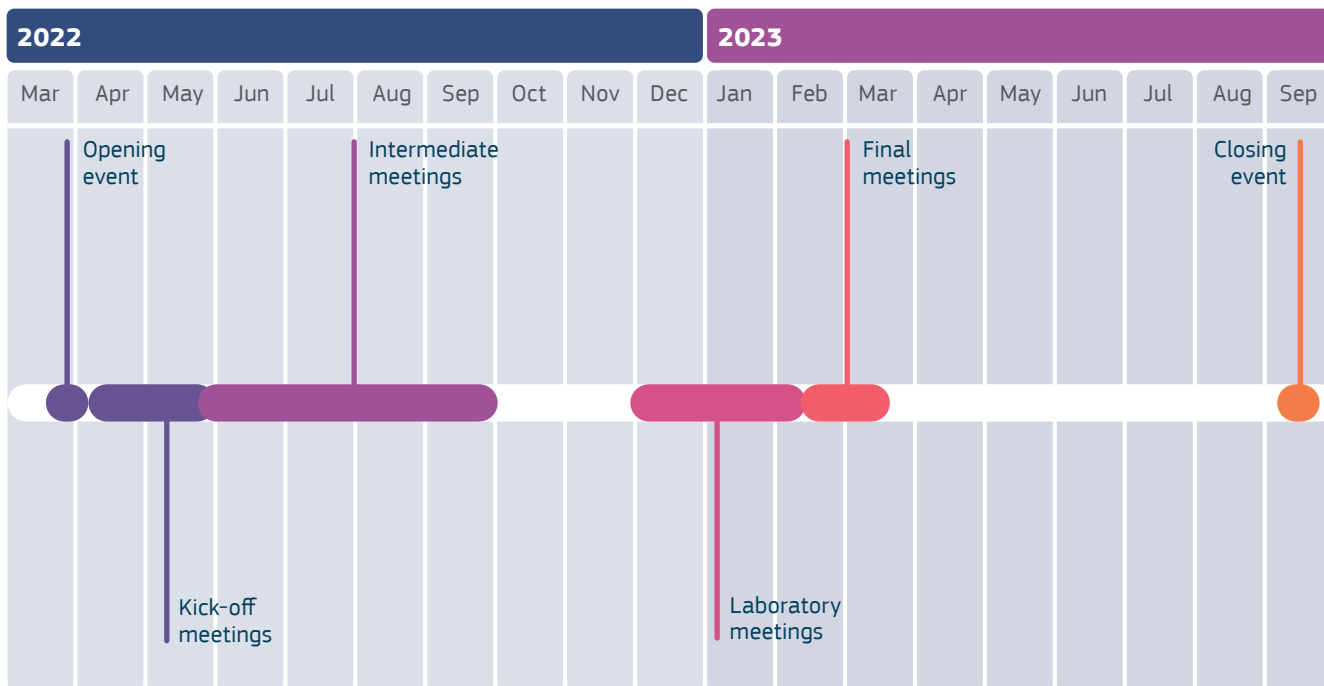
Horizontal activities provide a forum for market surveillance authorities to exchange ideas and best practices. Under the guidance of a technical expert, they develop common approaches, procedures and practical tools for market surveillance.



Roles and responsibilities



2. Product-specific activities work plan

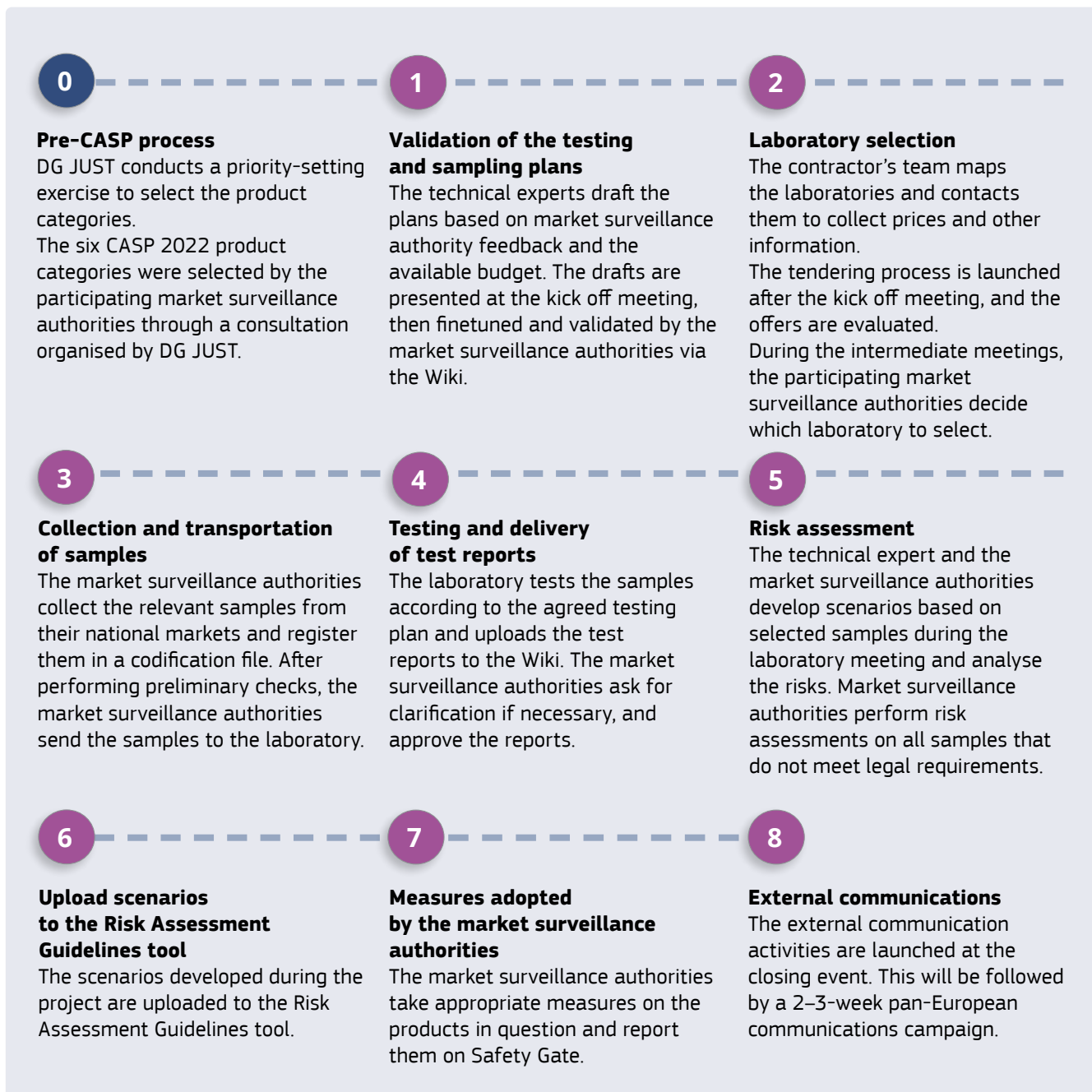


Continuous internal communication via the Wiki Confluence platform

INCEPTION	SAMPLING AND TESTING	REPORTING	EXTERNAL COMMS
Desk research	Laboratory tendering process	Risk assessment	Development of a comms toolkit
Scoping interviews	Laboratory selection and contracting	Coordination of measures adopted by market surveillance authorities	Development of communication messages
Draft testing and sampling plan	Sampling and transportation	Drafting of final reports	Launch of communications campaign
Laboratory mapping	Testing process and test reports	Disposal or return of samples to market surveillance authorities	Assessing the impact



3. Product-specific activities tools & processes



Tools

Audio-visual clips addressed to consumers and a general audience are produced for each product-specific activity and the overall CASP 2022 project.

Infographics addressed to economic operators are developed for the CASP 2022 project, for each product-specific activity.

Final reports are produced for each activity and for the CASP 2022 project. They are translated into all official EU languages plus Norwegian and Icelandic.

Channels

The communication material is disseminated using:

- [The EC CASP website](#)
- Market surveillance authorities national communication channels
- Relevant press and other stakeholders

EUROPEAN COMMISSION

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Publications Office
of the European Union

Luxembourg: Publications Office of the European Union, 2023
PDF ISBN 978-92-68-03763-8 doi:10.2838/836873 DS-03-23-174-EN-N