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Subject:	PART 3/3 COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT REPORT Accompanying the document Proposal for a Regulation of the European Parliament and of the Council on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004

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PART 3/3

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT REPORT

Accompanying the document

Proposal for a Regulation of the European Parliament and of the Council

on detergents and surfactants, amending Regulation (EU) 2019/1020 and repealing Regulation (EC) No 648/2004

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Annex 8 ANNEX 8 DIGITAL LABELLING

8.1 8.1 DIGITAL PRINCIPLES

Digital labelling should at least comply with the following general requirements:

1. The obligation for the digital label to include the **full set of labelling information** (i.e. there should not be a split of information between the physical and digital label), to ensure that the information provided is meaningful;

2. The obligation to **provide all digital data in one place**, separately from other commercial information (e.g. the mandatory information shall not be displayed together with other information intended for sales or marketing purposes). Coherence should also be sought with other digital provision of information on products (e.g. under the Digital Products Passport);

3. The **format of the data provided digitally must be appropriate** (e.g. rules on font size, the content of the digital label must be searchable);

4. The **protection of personal data** (e.g. prohibition of collecting and tracking user data or using that information for commercial purposes) in accordance with Regulation (EU) 2016/679;[1]

5. **Accessibility of the data** both in terms of ease of access (e.g. "two-click" maximum rule to access the information), and in terms of accessibility for users (e.g. also for users with disabilities). Access to the digital label must be free and without a need for prior registration or a password, or prior download of applications. Access limitations for certain user groups (e.g. geo-blocking in accordance with Regulation (EU) 2018/302[2]) are not allowed;

6. Instead of prescribing a particular technology, a set of **minimum technical requirements** are to be defined and complied with, in order **to ensure technological neutrality of the IT solutions used**. The IT solution must be easily readable via widely used digital technologies (e.g. a QR code scanner/ reader). It must be ensured that the data can be accessed, navigated and read on, and is compatible with, all major operating systems and browsers. Information must also be available for old browser version and operating systems;

[1] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation): https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02016R0679-20160504

[2] Regulation (EU) 2018/302 of the European Parliament and of the Council of 28 February 2018 on addressing unjustified geo-blocking and other forms of discrimination based on customers' nationality, place of residence or place of establishment within the internal market and amending Regulations (EC) No 2006/2004 and (EU) 2017/2394 and Directive 2009/22/EC: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32018R0302

7. The information must be provided in a **language which is easily understood by end-users,** as determined by the Member State in which the product is marketed. Additional languages are permitted; users must have the possibility to select their language of choice, regardless of their physical location.

8. Economic operators who opt for the digital label shall ensure that appropriate alternative ways of providing information are available to end-users in case of **lack of digital tools or skills, or in the absence of network access**, both before buying the product and after having bought the product.

9. Where the detergent is supplied in a package, **the IT solution (e.g. QR code) must be printed or placed physically on a label** which is affixed to that package. Where the package is too small to contain IT solutions or the product is sold in bulk, the IT solution shall be provided in a separate leaflet accompanying that package/product.

10. The **data contained under the digital label must remain accessible** for 10 years after they sold the last detergent or surfactant. The data present on the digital label must remain available even after an insolvency, a liquidation or a cessation of activity in the Union of the economic operator that created the digital label.

8.2 8.2 CONSULTATION ACTIVITIES – SIMPLIFICATION AND DIGITALISATION OF CHEMICALS LABELS

8.2.1 8.2.1 Introduction & Consultation strategy

Data collection has been performed using the following tools: legal review, desk research, interviews (scoping interviews and stakeholder interviews), online surveys and behavioural experiments. The results of the public consultation run by the European Commission have also been integrated in the analysis.

Stakeholder consultation activities were conducted at different stages of the study:

- Interviews (April-December 2021): to collect information related to the current understanding of chemical labels, the usefulness of information provided to users, the assessment of labelling requirements and needs of users, as well as the existing digital solutions available for e-labelling.
- Behavioural experiment (September-October 2021): to investigate consumers' understanding of chemical and detergents labels, the importance of different label elements as well as their interpretation with respect to safe use.
- Inception Impact Assessment
- Public Consultation (November 2021-February 2022): It must be noted that only the findings of this consultation related to the CLP Regulation (e.g. chemical products in general) are presented in this synopsis report.
- Online surveys (Two online surveys are conducted for the purpose of this study: a survey for industrial and professional users and a survey for the assessment and comparison of policy options.

Regarding the country coverage, the consultation covered the EU-27, except for the behavioural experiment which has been conducted in four EU Member States (Germany, France, Romania and Greece).

8.2.2 8.2.2 Consultation activities and tools

8.2.2.1 8.2.2.1 Interviews

Firstly, the study team conducted 10 scoping interviews with EU and international experts on labelling requirements and the use of digital tools to communicate hazard and safety information and instructions to users. Scoping interviews help to familiarise further with the topic and understand its main challenges. The objectives of the scoping interviews were to:

- Ensure that the study team is aware of all relevant background documentation and latest regulatory developments in the field;
- Collect contact details of relevant stakeholders to be contacted during the data collections exercises (i.e., identifying potential future interviewees);
- Raise awareness among stakeholders of the study and its benefits and enlist their future cooperation.

In a second phase, interviews were conducted with various types of stakeholders involved in labelling requirements of chemicals and the use of digital tools to communicate hazard and safety information and instructions to users.

The objectives of the interviews were to collect stakeholders' feedback on different topics related to the labelling of chemical products and e-labelling. , including:

- Perceived current understanding of chemical labels by different categories of users;
- The usefulness and relevance of information provided currently on chemical labels;
- The assessment of labelling requirements and needs of users;
- The analysis of existing IT solutions available for e-labelling;
- Identification of information that should remain on the physical label and suggestions of information to put on an e-label for chemical products.

In total 41 interviews were conducted with the following categories of stakeholders:

- 5 European and national authorities;
- 11 NGOs, including 8 consumer associations;
- 25 Business representatives (from business associations and companies).

While all categories of stakeholders targeted for this stakeholder consultation have been reached, it must be noted that, among the respondents, a majority of them are representing the interests of the industry. This imbalance and the interests represented by this category of stakeholders have been taken into account in the analysis of the findings of the interviews.

8.2.2.2 8.2.2.2 Behavioural experiment

The aim of the behavioural experiment was to investigate consumers' understanding of chemical and detergents labels, the importance of different label elements as well as their interpretation with respect to safe use. Furthermore, the experiment tested potentials ways to simplify labels and whether the introduction of digital tools could support consumers.

Therefore, a state-of-the-art online experiment was designed that included six treatments, i.e. two different products (laundry detergent and glue) as well as three different labelling options (Status Quo Label in accordance with current regulation, Simplified Label with QR-Code and No Label Baseline). Participants were incentivised for taking part in the study as well as for their decisions in the different tasks. Furthermore, treatment assignment was fully randomised.

Although representative products and labels were used in the experimental design and participants were tracked when consulting the labels presented on screen, it must be noted that the experiment can only mimic reality, i.e. a situation of consulting a label in everyday life. Main data collection was conducted in four Member States, i.e. Germany, France, Romania and Greece, and a total of N=4,003 consumers took a part in the study.

Participants were recruited from an actively managed online panel and quotas to reach representativeness of the country-specific samples were used.

8.2.2.3 8.2.2.3 Public Consultation - Simplification and digitalisation of labels on chemicals

This consultation, run by the European Commission, aims to gather experiences and opinions from various stakeholders (consumers, professional and non-professional product users, industry, civil society organisations, national authorities and any other interested stakeholders) on a possible introduction of digital labelling of many daily used products such as glues, laundry and dishwashing detergents and fertilising products, under the Regulation on Classification, Labelling and Packaging of substances and mixtures (‘ the CLP Regulation’), the Detergents Regulation and the Fertilising Products Regulation.

The findings presented in this synopsis report and integrated in the report represent an analysis of the responses collected on 17 February, with 205 respondents.

These answers have been divided by stakeholder categories: 141 from the private sector (companies, business associations, trade unions), 11 from public authorities, and 53 from consumers’ representatives (48 citizens, 4 consumer associations and 1 NGO). Similarly as the interview analysis, the imbalance of representation among stakeholders groups and their different interests has been taken into account when processing the answers.

8.2.2.4 8.2.2.4 Online survey on policy options

This consultation, run by VVA, aimed at gathering the opinion of the various stakeholders (consumers, professional and non-professional product users, industry, civil society organisations, national authorities and any other interested stakeholders) on the latest version of policy options analysed in this study. This survey allowed stakeholders to provide a punctual opinion on the measures taken into consideration for this analysis.

The answers have been divided by stakeholder category: 1414 member state authorities, 6767 industry representatives (industry associations, businesses).

8.2.2.5 8.2.2.5 Online survey for professionals and industry users

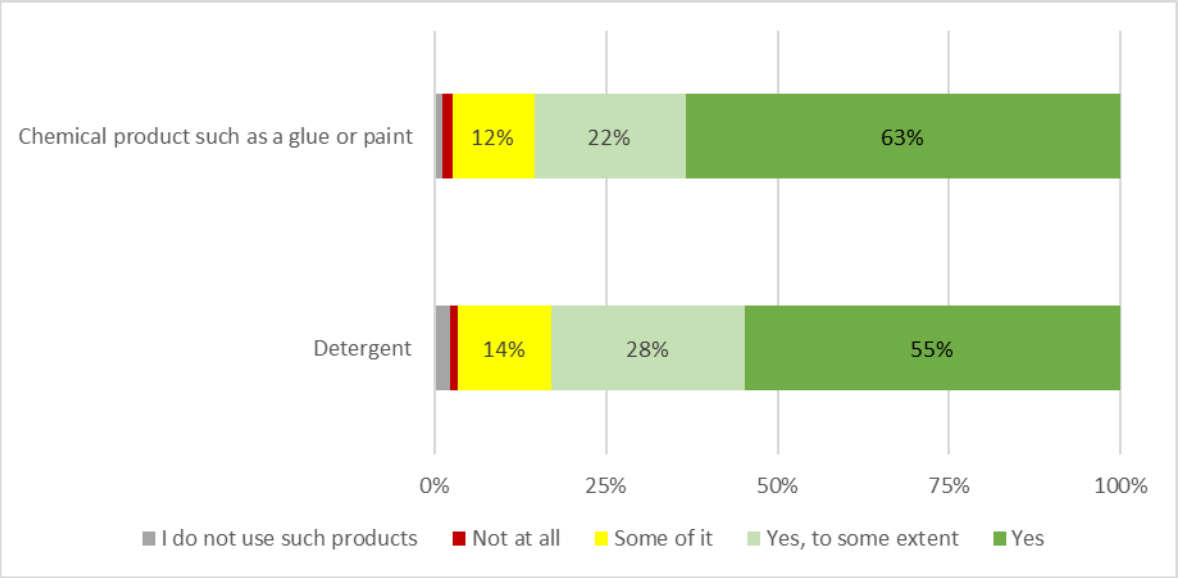
The aim of the survey was to collect information from the stakeholders representing professionals and the industry on the importance of having certain pieces of information[3] on the packaging of the specific chemical products[4] as well as the easiness to understand the information concerning these elements in these products.

In total, 50 stakeholders participated to this survey: 11 Member States authorities, 10 industry associations, 28 enterprises, and 1 consumer organisation.

8.2.3 8.2.3 Detailed findings of the Public Consultation

The analysis of the answers provided to the public consultation show that, when asked if they usually understand the information provided on the label of a chemical product, over two-thirds of stakeholders answered "Yes" or "Yes to some extent" (115/141 of stakeholders representing the private sector, and 38/53 of stakeholders representing consumers), showing a relative good understanding of the current chemical labels. The OPC also focussed on products falling under the Detergents Regulation. To the question regarding the understandability of the labels on detergent products, a large majority of stakeholders replied positively (97/129 of stakeholders representing the private sector and 36/50 stakeholders representing consumers).

Figure 9: Do you usually understand the information provided on the label of a:



[3] Name of the product; Address and telephone number of the supplier; Instructions for use; Dosage recommendations; Marketing information; Quantity; List of ingredients contained in the product, such as allergens, preservatives or enzymes; Weblink to receive full ingredients list; Information relevant in case of intoxication e.g. poison centre telephone number; UFI-code etc.; Hazard pictogram; Signal word, i.e., "Warning" or "Danger"; Statements on the products hazards for human health environment and physical hazards; Statements on the precautions to be taken on the use, storage and disposal of the product; Statements on how to prevent and minimise adverse effects when accidentally exposed.

[4] Laundry detergents; Cleaning detergents; Glues; Paints; Sealants or fillers.

Source: Open public consultation for the Impact Assessment Study on the simplification of the labelling requirements for chemicals and the use of e-labelling

More specifically, the understanding of information on chemical labels can be broken down into different categories of information.

Regarding the chemical products, first of all, the majority of stakeholders from both categories estimate that the information on chemical label properly inform them about:

- the dangers or risks of the product (89/141 stakeholders representing the private sector and 39/53 of stakeholders representing consumers answered "yes" or "yes to some extent");
- safe use of the product (81/141 stakeholders representing the private sector and 34/53 of stakeholders representing consumers answered "yes" or "yes to some extent");
- incentives to take preventive measures (75/141 stakeholders representing the private sector and 29/53 of stakeholders representing consumers).

However, a majority of stakeholders answered either 'not always' or 'not at all' to whether information on chemical labels help them select less hazardous products (70/141 stakeholders representing the private sector and 42/53 stakeholders representing consumers), and to whether it would prevent them from using the product (81/141 stakeholders representing the private sector and 40/53 stakeholders representing consumers), suggesting room for improvements in the communication of these information.

To the question of whether they are currently accessing any product information via IT solutions or digital tools, the majority of stakeholders across all stakeholder groups gave a positive answer (90/141 of stakeholders representing the private sector, and 30/53 of stakeholders representing consumers), showing an apparent readiness and interest of respondents to e-labelling of chemical products.

This conclusion can be moderated by the answers provided to the following question, when ask how they would evaluate if some information was removed from on-pack label and could be obtained via digital tools, views are mixed among stakeholder groups. On one hand, over two-thirds of stakeholders representing the industry (98/141) evaluate it either 'very positively' or 'moderately positively'. On the other hand, views are mixed among stakeholders representing consumers, with 24 consumers answering either 'very positively' or 'moderately positively', 25 consumers answering either 'moderately negatively' or 'very negatively' and 3 consumers answering 'neither positively nor negatively'. These findings can indicate the need to pay specific attention to which information are removed from on-pack label and accessible via digital tools in order to not lower consumer protection.

To this regard, respondents were asked to evaluate to what extent different kind of information could be removed from the on-pack label of a chemical product and be transferred to a digital IT solutions.

On one hand, some categories of information were assessed as necessary to remain on pack, such as:

- pictograms showing the risk of the product (45/69 stakeholders representing the private sector, and 29/40 stakeholders representing consumers);
- hazard statements or signal words (43/69 of stakeholders representing the private sector and 25/42 stakeholders representing consumers);
- identification code for poison centers (43/69 stakeholders representing the private sector and 22/42 of stakeholders representing consumers).

On the other hand, mixed views were given concerning precautionary statements on how to store, dispose, prevent accidents etc., the majority of stakeholders representing the private sector indicated the need to keep basic information on pack and provide more detailed online (35/69), which was agreed by a third of stakeholders representing consumers (17/42), while 13/42 of stakeholders representing consumers expressed the need to keep it on pack, agreed by 18/69 of stakeholders from the private sector.

Finally, the majority of stakeholders from both categories provided that information on the name of chemicals causing the hazard could be moved online, either fully (19/67 stakeholders representing the private sector, and 16/42 stakeholders representing consumers) or with a combination of basic information being kept on pack and more details provided online (31/67 stakeholders representing the private sector, and 11/42 stakeholders representing consumers).

Overall, respondents believe that the most effective method to increase the communication of information on labels of chemicals is by simplifying the text on labels, having less information on the on-pack label and instead of providing full details via digital labels, and by using more pictograms or graphic symbols instead of text. In addition, answers given by consumer representatives show that reducing the number of additional languages on labels would be most effective to improve the communication of information.

The majority of the respondents (124 out of 174) have currently accessed product information via IT solutions or digital tools. More specifically, around 78% of respondents from the industry answered positively to this question , and 62% of respondents representing consumers.

The majority of the respondents look for product information online (for any product) daily or weekly . Only two respondents look for product information online (for any product) once a year or less. This finding can be mitigated when looking specifically at answers given by respondents representing consumers. Indeed, about a third of those look for product information online only a few times a year.

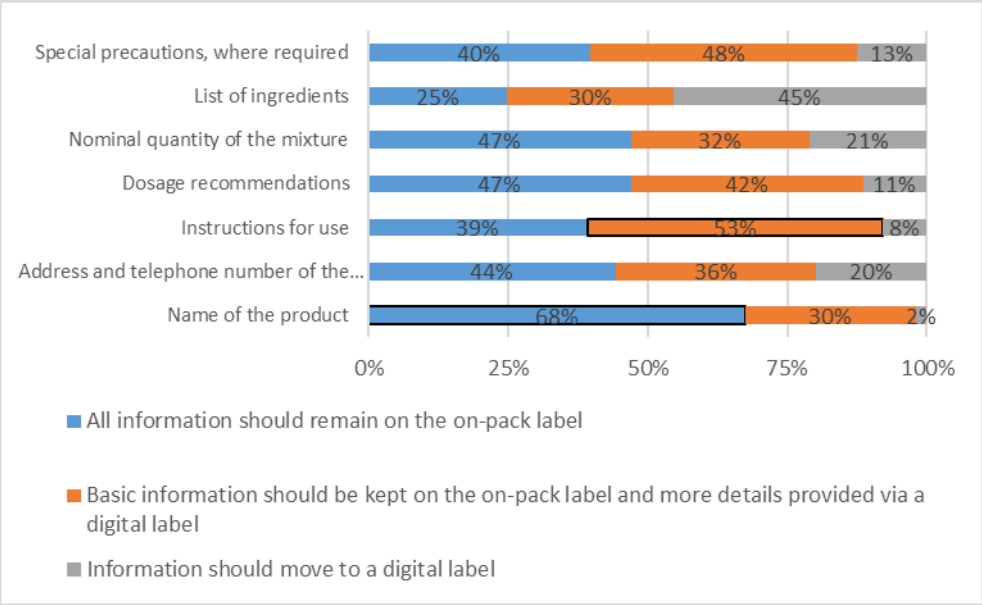
The most popular choices for the products to use to access the labelling information via IT solutions were smartphones, laptops, tablets, and desktop computers . The analysis of answers given by consumer representatives also found the same most popular choices within this stakeholder group. Regarding touch-end technologies, close to two-thirds of the respondents would prefer to use QR codes and website address to access the information online, while around 13% of the respondents do not have a preference for the digital solution as long as it would work with their preferred device. The analysis of answers given by consumer representatives also found the same most popular digital solutions within this stakeholder group.

It must however be noted that the majority of the stakeholders also assessed that the biggest challenges of presenting some label information via digital labels would be the difficulty to access information (e.g. poor internet connection, lack of electricity), the potential differences between the information displayed on the on-pack label and via digital labels (e.g. due to updates, inconsistencies), and, and creating inequalities for certain population groups.

Concerning detergents labels only, the majority of the respondents believe that the name of the product should remain on the on-pack label, while for use instructions, the majority of the respondent indicated that basic information should be kept on the on-pack label and more details could be provided via a digital label. Similarly, the majority of the respondents stated that basic information on special precautions, where required, should be kept on pack while the details should be moved to a digital label.

In regards to the other parts of the information, the respondents had different views on what kind of information should remain on the on-pack label, should be kept on the on-pack label and more details provided via a digital label, or transferred to a digital label completely. For none of the items there was a majority to move all information to a digital label though for the list of ingredients this group was particular large. The full overview of the responses to this question is provided in Figure 10**: To what extent do you think that the following pieces of information could be removed from the on-pack label of a detergent and transferred to a digital label?**

Figure 10: To what extent do you think that the following pieces of information could be removed from the on-pack label of a detergent and transferred to a digital label?



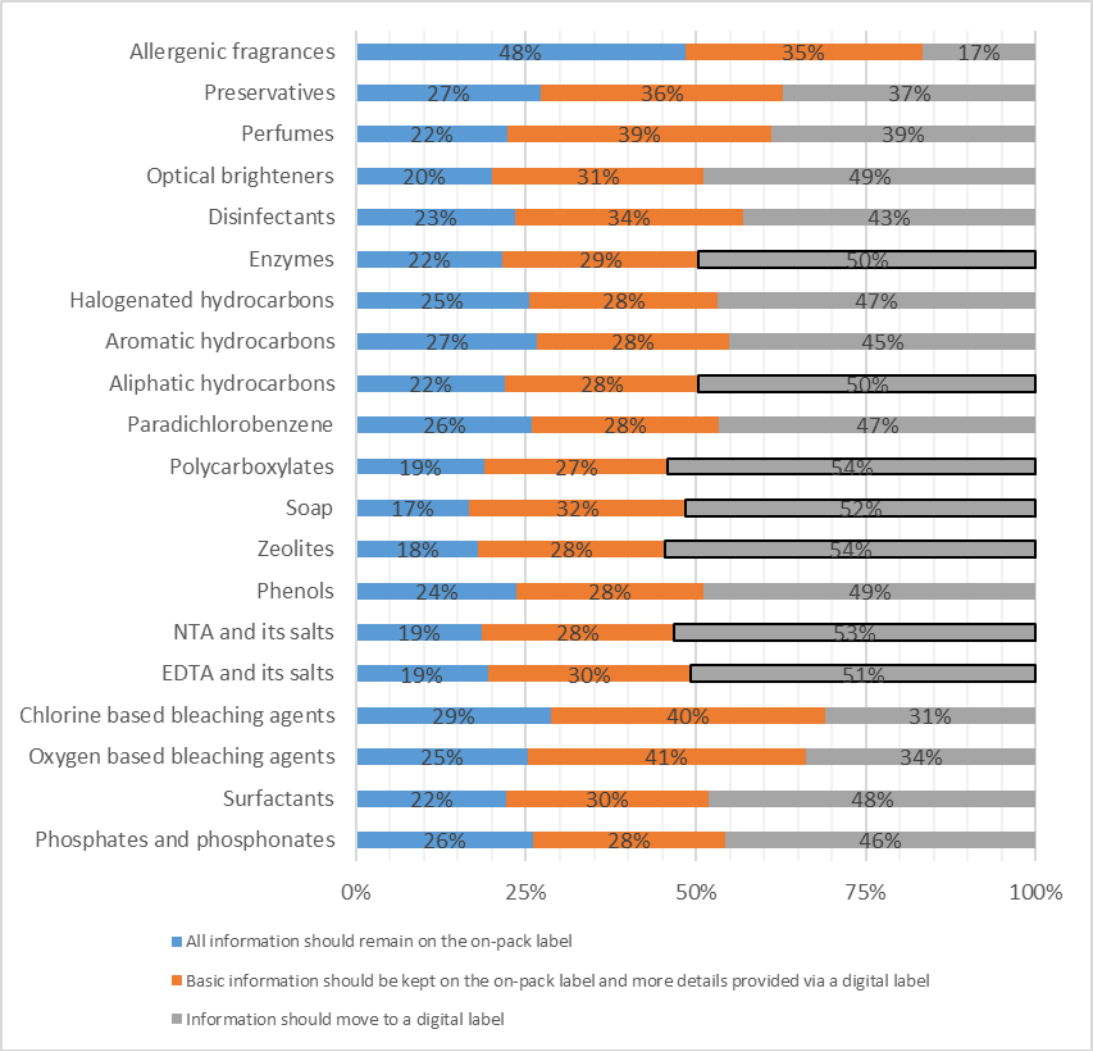
This finding needs to be mitigated by the answers given specifically by consumer representatives only, less inclined to move information online. Indeed, within this stakeholder group, the majority of respondents indicated that all information should remain on pack for the following categories of information: name of the product, instructions for use , dosage recommendations , nominal quantity of mixtures , and special precautions . Finally, consumer representatives had different views on whether to keep on pack, provide basic information on

pack and more details digitally, or completely move to a digital label the following information: address and telephone number of the manufacturer and list of ingredients.

Around half of the stakeholders believe that the information from the on-pack label of a detergent should be moved to the digital label for the following ingredients: enzymes; Aliphatic hydrocarbons; Polycarboxylates; soap; Zeolites ; NTA and its salts; EDTA and its salts .

In regard to the other ingredients, the respondents had different views on what kind of information should remain on the on-pack label, should be kept on the on-pack label and more details provided via a digital label, or transferred to a digital label completely. The full overview of the responses to this question is provided in Figure 11**: To what extent could the following ingredients be removed from the on-pack label of a detergent and transferred to a digital label?**

Figure 11: To what extent could the following ingredients be removed from the on-pack label of a detergent and transferred to a digital label?



However, the analysis of answers given by citizens and consumer organisations indicates less willingness to move information to a digital label. No categories of information received a majority of answers to move information online. The only consensus expressed within this stakeholder category is the need to keep allergenic fragrances on pack.

8.2.4 8.2.4 Online survey for professionals and industry users

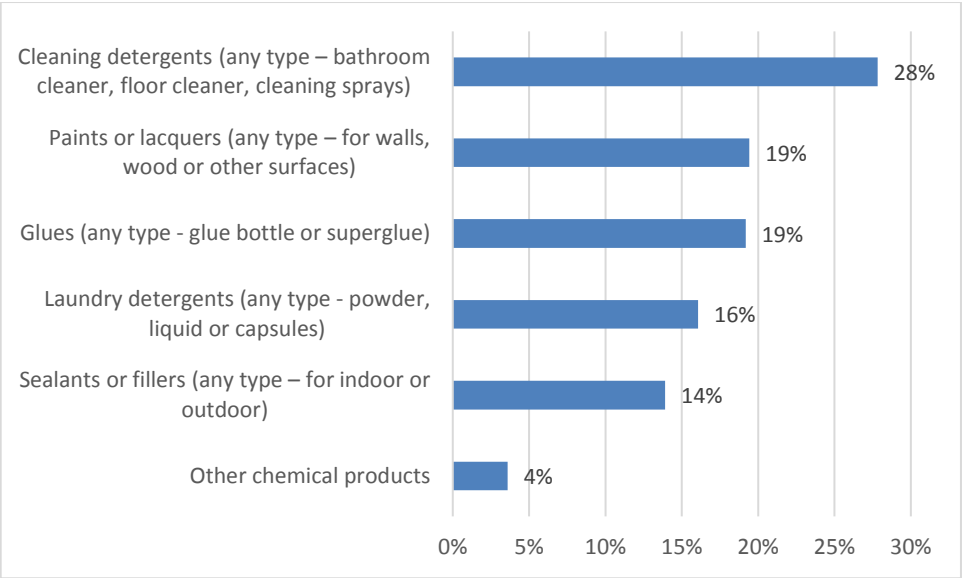
In total, the survey has collected responses from 206 stakeholders from four countries (France, Germany, Greece, and Romania) and three sectors (construction, hotels & restaurants, and manufacturing). More than half of the survey respondents[5] were from micro & small companies (less than 49 employees), around one-quarter[6] were from medium size companies (between 50 and 249 employees), and the remaining respondents[7] represented large companies (more than 250 employees).

80% of the respondents (164 out of 206) have answered that the companies they represent are involved in preparing the definitions of the usage guidelines of chemical products used by workers. In addition, around one third of the respondents (136 out of 204) mentioned that have received training on chemical products or substances, e.g. on hazards or precautions of safely using these products.

When asked to indicate the three most-used products at work, respondents have identified cleaning detergents[8] as the most often used products at work followed by paints or lacquers[9], and glues[10].

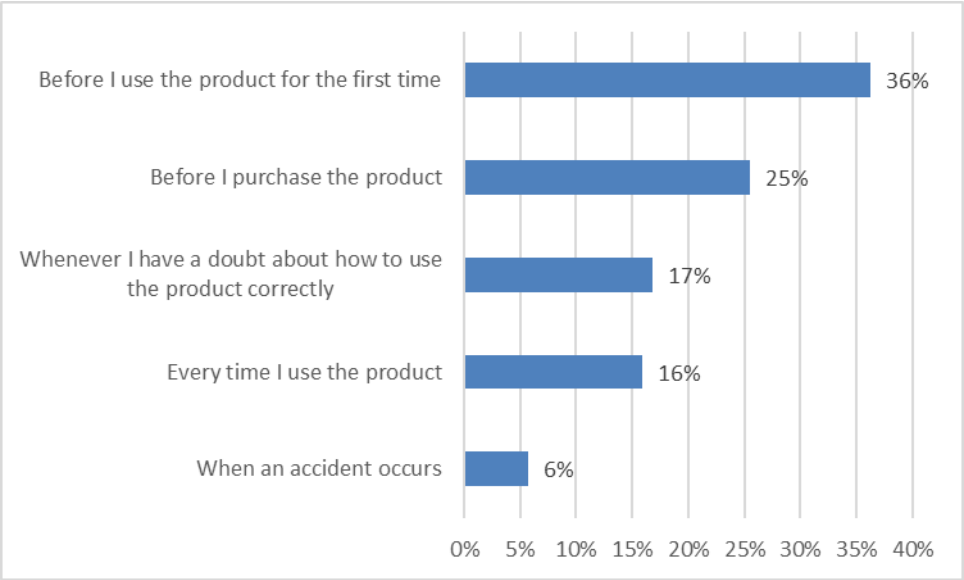
Figure 12: Could you please indicate the 3 mostly used products at work? (multiple choices question)

[5] 114 out of 206.
[6] 54 out of 206.
[7] 36 out of 206.
[8] 116 out of 417 total choices.
[9] 81 out of 417 total choices.
[10] 80 out of 417 total choices.



When asked to identify the time when do they usually read the safety information on a label of a chemical product, the majority of the respondents answered that they typically read the safety information on a label either before they use the product for the first time[11] or before they purchase the product[12].

Figure 13: When do you usually read the safety information on a label of a chemical product? (multiple choices question)



In terms of rating the importance of certain pieces of information concerning the packaging of the afore mentioned products, the respondents have rated the signal words[13] (i.e., "Warning"

[11] 121 out of 334 total choices.
[12] 85 out of 334 total choices.
[13] Across the five products, respondents have rated the importance of this piece of information as "Absolutely Essential" or "Very Important" 350 out of 400 times.

or "Danger") and instructions for use[14] as the most important elements of information on the package of the product, whilst marketing information[15] seems to be of the least importance to the respondents. According to the results from the survey, in general, having all the pieces of information seems to be most essential to laundry detergents[16], while having all of the pieces of information on the package present in the glues[17] seem to be the least essential overall. More detailed results concerning the importance of having certain pieces of information in the different categories of chemical products is available in Table 19: **In general, on the packaging of the chemical products mentioned below how important do you rate having the following pieces of information?** .

Table 19: In general, on the packaging of the chemical products mentioned below how important do you rate having the following pieces of information? [18]

Piece of information	Laundry detergent	Cleaning detergent	Glue	Paint	Sealant or filler	Average
Signal word, i.e., "Warning" or "Danger"	93%	90%	86%	85%	82%	87%
Instructions for use	93%	89%	80%	86%	88%	87%
Dosage recommendations	87%	86%	86%	86%	82%	86%
Hazard pictogram	90%	83%	83%	79%	75%	82%
Statements on the products hazards for human health environment and physical hazards	88%	85%	78%	75%	81%	81%
List of ingredients contained in the product, such as allergens, preservatives or enzymes	90%	82%	78%	75%	81%	81%
Statements on how to prevent and minimise adverse effects	88%	84%	77%	81%	74%	81%

[14] Across the five products, respondents have rated the importance of this piece of information as "Absolutely Essential" or "Very Important" 349 out of 401 times.
[15] Across the five products, respondents have rated the importance of this piece of information as "Absolutely Essential" or "Very Important" 175 out of 397 times.
[16] Across the 14 pieces of information, respondents have rated the importance of the pieces of information to this product as "Absolutely Essential" or "Very Important" 761 out of 934 times.
[17] Across the 14 pieces of information, respondents have rated the importance of the pieces of information to this product as "Absolutely Essential" or "Very Important" 795 out of 1085 times.
[18] % of survey respondents who have rated the following piece of information as "Absolutely Essential" or "Very Important".

Piece of information	Laundry detergent	Cleaning detergent	Glue	Paint	Sealant or filler	Average
when accidentally exposed						
Quantity	79%	78%	76%	83%	81%	79%
Statements on the precautions to be taken on the use, storage and disposal of the product	85%	80%	78%	79%	74%	79%
Name of the product	80%	76%	75%	81%	81%	79%
Information relevant in case of intoxication e.g. poison centre telephone number, UFI-code etc.	84%	80%	76%	77%	75%	78%
Address and telephone number of the supplier	64%	76%	63%	72%	72%	69%
Weblink to receive full ingredients list	75%	74%	62%	55%	70%	67%
Marketing information	47%	41%	37%	44%	56%	45%
Total	81%	79%	74%	76%	77%	77%

Concerning the easiness to read the afore mentioned pieces of information in these products, respondents to the survey think that name of the product[19] is usually the most easy to understand piece of information of the product, while marketing information[20] seems to be the most difficult piece to understand. According to the respondents, the products that are most easy to understand concerning the information on the package are laundry detergents[21], while the most difficult to understand are glues[22]. More detailed results concerning the easiness to understand certain pieces of information in the different categories of chemical products is available in Table 20: **From your experience with labels of the products**

[19] Across the five products, respondents have rated the easiness to understand of this piece of information as "Very easy to understand" or "Rather easy to understand" 361 out of 399 times.
[20] Across the five products, respondents have rated the easiness to understand of this piece of information as "Very easy to understand" or "Rather easy to understand" 233 out of 388 times.
[21] Across the 14 pieces of information, respondents have rated the importance of the pieces of information to this product as Very easy to understand" or "Rather easy to understand" 729 out of 926 times.
[22] Across the 14 pieces of information, respondents have rated the importance of the pieces of information to this product as Very easy to understand" or "Rather easy to understand" 793 out of 1107 times.

mentioned below, how easy to understand do you find each piece of information typically included on the packaging? .

Table 20: From your experience with labels of the products mentioned below, how easy to understand do you find each piece of information typically included on the packaging? [23]

	Laundry detergent	Cleaning detergent	Glues	Paints	Sealants or fillers	Average
Name of the product	94%	90%	92%	89%	88%	91%
Quantity	91%	85%	82%	80%	88%	85%
Instructions for use	87%	81%	83%	83%	86%	84%
Signal word, i.e., "Warning" or "Danger"	87%	82%	81%	80%	79%	82%
Dosage recommendations	85%	78%	75%	78%	75%	78%
Address and telephone number of the supplier	83%	82%	66%	74%	70%	75%
Statements on the products hazards for human health environment and physical hazards	79%	76%	71%	74%	74%	75%
Hazard pictogram	85%	72%	70%	71%	72%	74%
Statements on the precautions to be taken on the use, storage and disposal of the product	75%	70%	73%	79%	67%	73%
Information relevant in case of intoxication e.g. poison centre telephone number, UFI-code etc.	73%	70%	69%	64%	74%	70%
Statements on how to prevent and minimise adverse effects when accidentally exposed	76%	68%	62%	75%	67%	69%

[23] % of survey respondents who have rated the following piece of information as "Very easy to understand" or "Rather easy to understand".

	Laundry detergent	Cleaning detergent	Glues	Paints	Sealants or fillers	Average
Weblink to receive full ingredients list	69%	70%	62%	67%	71%	68%
List of ingredients contained in the product, such as allergens, preservatives or enzymes	60%	64%	61%	73%	72%	66%
Marketing information	59%	64%	56%	59%	61%	60%
Total	79%	75%	72%	75%	74%	74%

Regarding the respondents' opinion on the possibility of use of an online electronic label for chemical products, the majority of the respondents[24] view this possibility positively or very positively.

Moreover, the majority of the respondents think that moving all of the pieces of information currently available on physical labels to the online electronic labels would not impact detriment to workers' safety, with address and telephone number of the supplier[25], and marketing information[26] gaining the highest, and information relevant in case of intoxication e.g. poison centre telephone number, UFI-code etc., and dosage recommendations gaining the lowest support by the respondents[27].

Figure 14: In case of use of an online electronic label of the chemical products that your company uses, in your opinion which piece of information currently on physical labels could be moved without detriment to workers' safety?

[24] 147 out of 206 respondents have selected options "Positively" or "Very positively".
[25] 168 out of 204 respondents have selected option "Yes".
[26] 157 out of 195 respondents have selected option "Yes".
[27] Option "Yes" have been selected 123 out of 199 times for both pieces of information.

8.2.5 8.2.5 Online survey on policy options

In total, the survey has collected responses from 81 stakeholders from 22 countries[28]. Because of the significant differences in the number of responses collected from different type of stakeholders, the answers have been divided by stakeholder category: 14 respondents

[28] Public authorities: 1 respondent each from Austria, Cyprus, Denmark, Finland, Norway, Poland, Portugal, Romania, Slovakia; 2 respondents from Slovakia; 3 respondents from Lithuania.
Industry: 1 participant each from Bulgaria, Croatia, Czech Republic, Finland, Lithuania, Slovakia, Switzerland; 2 participants from the Netherlands, 3 participants each from France and the United Kingdom, 5 participants from United States, 9 participants from Belgium, 10 participants from Spain, and 28 participants from Germany.

belonged to member state authorities, and 67 were industry representatives (industry associations, businesses).

8.2.5.1 8.2.5.1 Overall assessment of the Policy Options

Stakeholders were asked to rate their overall preference for the Policy Options of this study (for the description of the Policy Options, please see chapter 5). A rating of -5 is considered as least favourable, 0 as neutral, and +5 as most favourable. The analysis described in detail in the paragraphs below consists of the median rates given to the Policy Option by stakeholders.

Public authority stakeholders generally preferred Policy Options 1, 2, and 3 with no preference on proposed interventions either on the CLP or Detergents regulations considering Policy Options 1 and 2, and preference towards the proposed interventions on Detergents regarding Policy Option 3. Out of all the Policy Options considered, public authority stakeholders had the most negative opinion about Policy Option 4.

On the other hand, stakeholders from industry expressed their preference towards Policy Option 4 with a preference for proposed interventions on the Detergents Regulation. In addition, Policy Options 3 and 5 also received a positive feedback with a preference for the proposed interventions on the Detergents Regulation under Policy Option 3 and a slight preference for the proposed interventions on the CLP Regulation under Policy Option 5.

Table 21: Stakeholders' opinion on the Policy Options[29]

Type of stakeholder	Policy Option 0	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	Overall: 2.5	Overall: 4 CLP: 4 Detergents 4	Overall: 4 Sub-option 2(a): 4 Sub-option 2(b): 4	Overall: 4 CLP: 3 Detergents 4	Overall: -2 CLP: -1 Detergents 2	Overall: 2 CLP: 1 Detergents 1

[29] Public authorities: 12 respondents for Policy Option 0, 10 respondents for Policy Option 1 overall, and 9 each for CLP and Detergents, 11 respondents for Policy Option 2 overall and Sub-option 2(a), and 12 for Sub-option 2(b), 11 respondents for all the options under Policy Option 3, 11 respondents for Policy Option 4 overall, and 9 for CLP and Detergents, 11 respondents for Policy Option 4 overall, and 10 for CLP and Detergents, 11 respondents for Policy Option 4 overall, and 10 for CLP and Detergents.
Industry: 54 respondents for Policy Option 0, 38 respondents for Policy Option 1 overall, and 33 each for CLP and Detergents, 26 respondents for Policy Option 2 overall, 23 for Sub-option 2(a), and 21 for Sub-option 2(b), 38 respondents for Policy Option 3 overall, and 33 for CLP and Detergence, 31 respondents for Policy Option 4 overall, and 29 for CLP and Detergents, 30 respondents for Policy Option 4 overall, and 28 for CLP and Detergents, 30 respondents for Policy Option 4 overall, and 28 for CLP and Detergents.

Type of stakeholder	Policy Option 0	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Industry	Overall: -1	Overall: -3.5 CLP: -3 Detergents: -3	Overall: 1.5 CLP: 3 Detergents 4	Overall: 3 CLP: 2 Detergents 3	Overall: 5 CLP: 4 Detergents 5	Overall: 3 CLP: 3 Detergents 2.5

8.2.5.2 8.2.5.2 Impact on the awareness of consumers about safe use of products and label readability

Stakeholders were asked to rate the impact of the Policy Options from very negative (-2) to very positive (+2)[30]. The analysis described in detail in the paragraphs below consists of the median rates given to the Policy Option by the stakeholders.

Concerning the impact of the policy options on the awareness of consumers about safe use of products and label readability, public authorities had an overall positive opinion about Policy Options 1, 2, and 3 (besides neutral opinion the impact from the proposed interventions on Detergents Regulation). Public authorities had an overall negative opinion concerning Policy Options 4 and 5.

Industry stakeholders had an overall positive opinion about each Policy Options with the exception of Policy Option 1, which would have no impact on consumer safety. The proposed interventions under Policy Option 3 on the Detergents Regulation received the highest support from industry stakeholders as its impact on consumer safety was estimated as very positive.

Table 22: Impact on consumer safety and label readability[31]

Type of stakeholder	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	Overall: Slightly positive	Overall: Slightly positive	Overall: Slightly positive CLP: Slightly	Overall: Slightly negative	Overall: Slightly negative

[30] -2 =very negative, -1 = slightly negative, 0 = neutral, +1 = slightly positive, +2 = very positive.

[31] Public authorities: 11 respondents for Policy Option 1, 12 respondents for Policy Option, 11 respondents for all the options under Policy Option 3, 11 respondents for Policy Option 4, 11 respondents for Policy Option 5. Industry: 41 respondents for Policy Option 1, 26 respondents for Policy Option 2, 36 respondents for Policy Option 3 overall, and 33 for CLP and Detergence, 29 respondents for Policy Option, 28 respondents for Policy Option 5.

Type of stakeholder	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
			positive Detergents: Neutral		
Industry	Overall: Neutral	Overall: Slightly positive	Overall: Slightly positive CLP: Slightly positive Detergents: Very positive	Overall: Slightly positive	Overall: Slightly positive

8.2.5.3 8.2.5.3 Impact on the well-being of consumers with impairments

In terms of the impact of the Policy Options on the well-being of consumers with the impairments, public authorities considered Policy Option 1 as the most positive for consumers who are impaired. In particular, Policy Option 1 was considered to have a very positive impact on consumer who have cognitive/learning impairments. On the other hand, public authorities estimate an overall neutral or negative impact from the other Policy Options with the exception of Policy Option 4 and its impact on visually impaired consumers.

Industry stakeholders considered Policy Options 3 and 4 as most positive for impaired consumers. In particular, industry stakeholders estimated a very positive impact under Policy Option 4 for visually impaired consumers. On the other hand, industry stakeholders estimate an overall neutral or negative impact from the rest of the Policy Options with an exception of the positive impact on visually impaired consumers under Policy Options 1 and 5. In addition, none of the options were estimated to have an overall positive impact on consumers with mobility or physical impairments.

Table 23: Impact on the well-being of consumers with impairments[32]

[32] Public authorities: **Policy Option 0**, Vision n=3 out of 12; Colour blind – 3 out of 11, Cognitive/Learning – 4 out of 11, Mobility/Physical 2 out of 11. **Policy Option 1**, Vision n=6 out of 11; Colour blind – 8 out of 13, Cognitive/Learning – 7 out of 11, Mobility/Physical 7 out of 11, **Policy Option 3**, Vision n=7 out of 11; Colour blind – 4 out of 11, Cognitive/Learning – 3 out of 11, Mobility/Physical 4 out of 13, **Policy Option 4**, Vision n=5 out of 11; Colour blind – 2 out of 11, Cognitive/Learning – 2 out of 11, Mobility/Physical 3 out of 11, **Policy Option 5**, Vision n=5 out of 11; Colour blind – 3 out of 11, Cognitive/Learning – 3 out of 11, Mobility/Physical 3 out of 11.

Type of stakeholder	Type of impairment	Policy Option 0	Policy Option 1	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	**Vision:**	25%	55%	64%	45%	45%
	Colour blind:	27%	62%	36%	18%	27%
	Cognitive/Learning	36%	70%	27%	18%	27%
	Mobility/Physical	18%	64%	31%	27%	27%
Industry	**Vision:**	13%	53%	65%	77%	61%
	Colour blind:	12%	29%	56%	50%	37%
	Cognitive/Learning	13%	33%	52%	53%	32%
	Mobility/Physical	11%	23%	27%	21%	25%

8.2.5.4 8.2.5.4 Impact on the awareness of consumers about the effects of dispersion of harmful substances in the natural environment

Stakeholders were asked to rate the impact of the Policy Options from very negative (-2) to very positive (+2)[33]. The results described in detail in the paragraphs below consist of the median ratings given to the Policy Option by the stakeholders.

Public authorities consider Policy Options 0, 1, and 2 as having an overall positive impact on consumer awareness about the effects of dispersion of harmful substances in the natural environment. Policy Options 4 and 5 are estimated to have a negative impact and Policy Option 3 is considered to have no impact in this area.

Industry stakeholders consider Policy Options 3 and 4 as having an overall positive impact on consumer awareness about the effects of dispersion of harmful substances in the natural environment, while the remaining Policy Options are estimated to have no impact in this area.

Table 24: Impact on the awareness of consumers on the effects of dispersion of harmful substances in the natural environment[34]

Industry: **Policy Option 0**, Vision n=6 out of 47; Colour blind – 6 out of 49, Cognitive/Learning – 6 out of 48, Mobility/Physical 5 out of 47. **Policy Option 1**, Vision n=21 out of 40; Colour blind – 12 out of 42, Cognitive/Learning – 13 out of 39, Mobility/Physical 9 out of 39, **Policy Option 3**, Vision n=20 out of 31; Colour blind – 18 out of 32, Cognitive/Learning – 16 out of 31, Mobility/Physical 8 out of 30, **Policy Option 4**, Vision n=24 out of 31; Colour blind – 15 out of 30, Cognitive/Learning – 16 out of 30, Mobility/Physical 6 out of 28, **Policy Option 5**, Vision n=17 out of 28; Colour blind – 10 out of 27, Cognitive/Learning – 9 out of 28, Mobility/Physical 7 out of 28.

[33] -2 =very negative, -1 = slightly negative, 0 = neutral, +1 = slightly positive, +2 = very positive.

Type of stakeholder	Policy Option 0	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	Slightly positive	Slightly positive	Slightly positive	Neutral	Slightly negative	Slightly negative
Industry	Neutral	Neutral	Neutral	Slightly positive	Slightly positive	Neutral

8.2.5.5 8.2.5.5 Coherence with the digitalisation trends of the market

Stakeholders were asked to rate each Policy Option in term of its coherence with the digitalisation trends in the market. A rating of 0 is considered as the least coherent, 5 as neutral, and 10 as most coherent. The results described in detail in the paragraphs below consist of the median ratings given to the Policy Option by the stakeholders.

Public authorities considered Policy Option 1 as the most coherent with the digitalisation trends in the market. Policy Options 3, 4 and 5 also received overall positive feedback, while Policy Option 2 was estimated to have no impact on coherence with digitalisation trends in the market.

Industry stakeholders considered Policy Option 4 as most coherent with digitalisation. Policy Options 3 and 5 also received overall positive feedback, while Policy Options 1 and 2 were estimated to have negative impact on the coherence with the digitalisation trend.

Table 25: Coherence with the digitalisation of the market[35]

Type of stakeholder	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	8	5	6.5	7	7.5

[34] Comparison of median results. Stakeholders were asked to rate the coherence from very negative (-2) to very positive (+2)
Public authorities. 12 respondents, in total, under Policy Option 0, 12 respondents, in total, under Policy Option 1, 12 respondents, in total, under Policy Option 2, 13 respondents, in total, under Policy Option 3, 11 respondents, in total, under Policy Option 4, 11 respondents, in total, under Policy Option 5.
Industry. 51 respondents, in total, under Policy Option 0, 41 respondents, in total, under Policy Option 1, 19 respondents, in total, under Policy Option 2, 35 respondents, in total, under Policy Option 3, 28 respondents, in total, under Policy Option 4, 27 respondents, in total, under Policy Option 5.
[35] Public authorities. 12 respondents, in total, under Policy Option 1, 12 respondents, in total, under Policy Option 2, 12 respondents, in total, under Policy Option 3, 11 respondents, in total, under Policy Option 4, 12 respondents, in total, under Policy Option 5.
Industry. 44 respondents, in total, under Policy Option 1, 29 respondents, in total, under Policy Option 2, 35 respondents, in total, under Policy Option 3, 25 respondents, in total, under Policy Option 4, 27 respondents, in total, under Policy Option 5.

Type of stakeholder	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Industry	2	1	7	9	7

8.2.5.6 8.2.5.6 Impact on the competitive position of EU firms with respect to non-EU competitors

Stakeholders were asked to rate the impact of the Policy Options from very negative (-2) to very positive (+2)[36]. The results described in detail in the paragraphs below consist of the median ratings given to the Policy Option by the stakeholders.

Public authorities consider Policy Option 3 as having an overall positive impact with regards to the competitive position of EU firms with respect to non-EU competitors. Policy Option 5 is estimated to have a negative impact and Policy Options 2 and 4 are considered to have no impact in this area.

Industry stakeholders estimate that none of the Policy Options would have any impact on the competitive position of EU firms with respect to non-EU competitors.

Table 26: Impact to competitive position of EU firms with respect to non-EU competitors[37]

Type of stakeholder	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	Neutral	Slightly positive	Neutral	Slightly negative
Industry	Neutral	Neutral	Neutral	Neutral

8.2.5.7 8.2.5.7 Impact on SMEs

Stakeholders were asked to rate the impact of the Policy Options from very negative (-2) to very positive (+2). The results described in detail in the paragraphs below consist of the median ratings given to the Policy Option by the stakeholders.

[36] -2 =very negative, -1 = slightly negative, 0 = neutral, +1 = slightly positive, +2 = very positive.
[37] Public authorities. 3 respondents each under Policy Options 2, 3, and 4, 1 respondents under Policy Option 5. Note: responses "I don't know" were not taken into consideration under the analysis here.
Industry. 26 respondents, in total , under Policy Option 2, 16 respondents, in total, under Policy Option 3, 11 respondents, in total, under Policy Option 4, 18 respondents, in total, under Policy Option 5. Note: responses "I don't know" were not taken into consideration under the analysis here.

Public authorities consider Policy Options 3, 4 and 5 as having an overall positive impact on addressing disproportionate costs for SMEs in comparison to larger enterprises, while Policy Option 2 is considered to have no impact on SMEs in this regard.

Industry stakeholders consider Policy Option 4 as having an overall positive impact on addressing disproportionate costs for SMEs in comparison to larger enterprises, while Policy Options 2, 3 and 5 are considered to have no impact on SMEs in this regard.

Table 27: Impact on SMEs[38]

Type of stakeholder	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	Neutral	Slightly positive	Slightly positive	Slightly positive
Industry	Neutral	Neutral	Slightly positive	Neutral

In terms of the stakeholder perception on the costs-benefits ratio[39] under each Policy Option, public authorities consider Policy Option 2 as the most cost-effective Policy Option, while Policy Option 3 is estimated to be neutral in this regards, and Policy Options 4 and 5 appear to bring considerably more costs than benefits regarding the activities of the market surveillance authorities.

On the other hand, industry stakeholders estimate high benefits and low costs under Policy Options 4 and 5, while for Policy Option 3, industry stakeholders estimate that the costs under this option will slightly outweigh the benefits.

Table 28: Stakeholders' perception on the cost-benefits ratio under the Policy Options[40]

[38] Public authorities: 6 respondents, in total , under Policy Option 2, 4 respondents, in total, under Policy Option 3, 4 respondents, in total, under Policy Option 4, 5 respondents, in total, under Policy Option 5. Note: responses "I don't know" were not taken into consideration under the analysis here.
Industry. 13 respondents, in total , under Policy Option 2, 16 respondents, in total, under Policy Option 3, 11 respondents, in total, under Policy Option 4, 11 respondents, in total, under Policy Option 5. Note: responses "I don't know" were not taken into consideration under the analysis here.
[39] Ratio of stakeholders who've indicated that cost and benefits under the Policy Option are high or very high. If the ratio is negative it means stakeholders estimate higher costs than benefits under the option.
[40] Public authorities: **Under Policy Option 2**, 2 out of 12 stakeholders estimate high or very high costs, 5 out of 12 stakeholders estimate high or very high benefits**. Under Policy Option 3**, 3 out of 10 stakeholders estimate high or very high costs, 3 out of 10 stakeholders estimate high or very high benefits. **Under Policy Option 4**, 3 out of 11 stakeholders estimate high or very high costs, 1 out of 11 stakeholders estimate high or very high benefits. **Under Policy Option 5**, 3 out of 12 stakeholders estimate high or very high costs, 1 out of 12 stakeholders estimate high or very high benefits.
Industry: **Under Policy Option 3**, overall, 17 out of 26 stakeholders estimate high or very high costs, 19 out of 32 stakeholders estimate high or very high benefits. Under CLP, 17 out of 26 stakeholders estimate high or very high costs, 19 out of 32 stakeholders estimate high or very high benefits. Under Detergents Regulation, 8 out of

Type of stakeholder	Policy Option 1	Policy Option 2	Policy Option 3	Policy Option 4	Policy Option 5
Public authorities	Undefined	Overall: 27%	Overall: 0%	Overall: -14%	Overall: -16%
Industry	Undefined	Undefined	Overall: -7% CLP: -7% Detergent: -3%	Overall: 14% CLP: 14% Detergent: 7%	Overall: 34% CLP: 35% Detergent: 11%

8.3 8.3 BEHAVIOURAL EXPERIMENT FOR DIGITAL LABELLING – METHODOLOGY AND RESULTS

The aim of the behavioural experiment was to investigate **consumers' needs with respect to the labelling of chemical substances**. Therefore, a state-of-the-art behavioural experiment was designed and conducted to collect data on consumers' cognition and preferences.

8.3.1 8.3.1 Research Questions

Overall, the experiment answers **five research questions**:

1. What is the level of understanding of chemical and detergents labels?
2. What is the **importance of different elements** contained in labels? Which information is considered essential?
3. How do consumers interpret labels with respect to hazards and safe use?
4. Does label **simplification and the introduction of digital tools** positively or negatively affect consumers' understanding and perceptions?

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23 stakeholders estimate high or very high costs, 8 out of 25 stakeholders estimate high or very high benefits. **Under Policy Option 4**, overall, 16 out of 24 stakeholders estimate high or very high costs, 21 out of 26 stakeholders estimate high or very high benefits. Under CLP,16 out of 24 stakeholders estimate high or very high costs, 21 out of 26 stakeholders estimate high or very high benefits. Under Detergents Regulation, 8 out of 20 stakeholders estimate high or very high costs, 10 out of 21 stakeholders estimate high or very high benefits. **Under Policy Option 5**, overall, 9 out of 20 stakeholders estimate high or very high costs, 18 out of 23 stakeholders estimate high or very high benefits. Under CLP,9 out of 21 stakeholders estimate high or very high costs, 18 out of 23 stakeholders estimate high or very high benefits. Under Detergents Regulation, 5 out of 18 stakeholders estimate high or very high costs, 7 out of 18 stakeholders estimate high or very high benefits.

5. Do consumers prefer information to remain on the physical label or to be communicated via digital tools?

In the subsequent section the methodological approach is presented on how the behavioural experiment design informs the research questions. Hereafter the results from the main data collection are summarized.

8.3.2 8.3.2 Methodology

In the following, the experiment design including products, treatments, main variables as well as further methodological considerations are presented. The **general structure of the experiment** is summarised in Table .

Table 29: General Structure of the Behavioural Experiment

Online behavioural experiment + supporting consumer survey **Duration 15 Minutes**			
Target audience: Consumers; Nationally representative for age and gender (hard quotas) and education and income (soft quotas)	Incentives: Flat-fee payment and additional incentives for questions on objective understanding	Pilot: To test experiment before launch of main fieldwork with n=101 in DE	Sample size main data collection: N=4,003 with n□1,000 collected in each of DE, FR, EL, RO
Test method: Randomised controlled trials using various types of treatments for robust and generalisable results.			

In order to answer the research questions a **randomised controlled trial-design** was implemented that systematically varied types of labelling-treatments (see section 8.3.3.2). In addition, a supporting consumer survey was designed in order to collect further insights on non-behavioural variables. Furthermore, the experiment was **incentivised** (see section 8.3.5).

In preparation of main data collection, a **pilot** was implemented in July 2021. It included n=101 observations from Germany and aimed at investigating the correct functioning of the experimental set-up and programming. Therefore, timing to complete the study as well as randomisation of treatment assignment was thoroughly checked. Furthermore, in the pilot study it was assured that “don’t know”- or “other”-frequencies for questions were not a problem and that participants were able to understand tasks (open question at the end of the pilot). After minor revisions of the experimental design and questionnaire, the main data collection script was programmed and the study was fully translated.

Main data collection was performed in September and October 2021 in four Member States, i.e. Germany, France, Greece and Romania with a total of N=4,003 participants. The target audience was consumers in general, recruiting for representative general population samples

per country. The complete experiment script has been provided to the EC after sign-off in September 2021.

8.3.3 8.3.3 Overview of Modules

The experiment consisted of **five subsequent modules** that are displayed in the table below. Each participant went through the same sequence of modules and completed several tasks on label understanding, interpretation as well as preferences regarding labelling elements and their communication channels.

Table 30: Overview of Modules in Behavioural Experiment

Module 1	**Screening and introduction** • Achieve representative sample • Explanations on study objectives
Module 2	**Label understanding and interpretation** • Objective understanding of labels • Perception of labels • Behaviour given label information
Module 3	**Rating of information contained in labels** • Importance of label elements • Understandability of labels • Ease to find information on labels
Module 4	**Comparative Choice** • Ability to select less harmful product
Module 5	**Label preferences, socio-demographic aspects and attitudes** • Preference for analogue versus digital labelling • Experience with chemicals, chemical worker, training • Digital readiness • Behavioural variables, i.e. trust and risk aversion

8.3.3.1 8.3.3.1 Products

At the heart of the experiment stand **two products** containing chemical substances that fall either exclusively under the CLP Regulation or under both the CLP and the Detergents regulations[41]. The two products were carefully selected so that they cover products consumers are familiar with and frequently handle in their personal life. A further requirement for product selection was that products differ in their degree of potential harmfulness, i.e. with respect to their physical, health-related as well as environmental hazards. Following desk research on representative product types available on consumer markets, the choice fell on a **laundry detergent** and a **glue**.

In order to design the experiment as realistic as possible, further desk research was performed and **representative products** were identified. These representative products were replicated for the purpose of the experiment and can be purchased in supermarkets, drugstores or DIY-stores. Hence, the experimental products are replica of actual laundry detergents and glues consumers handle in their everyday life. Furthermore, desk research was performed to identify substances usually contained in the products, to ensure that the ingredients were realistic. The same applies to the labelling information on hazards as well as precautions on the selected products. To avoid behavioural bias from brand familiarity and personal product preferences, the products were given a fictive name. Similarly, the manufacturer's name and company information were fictive and framed in a neutral way.

8.3.3.2 8.3.3.2 Treatments

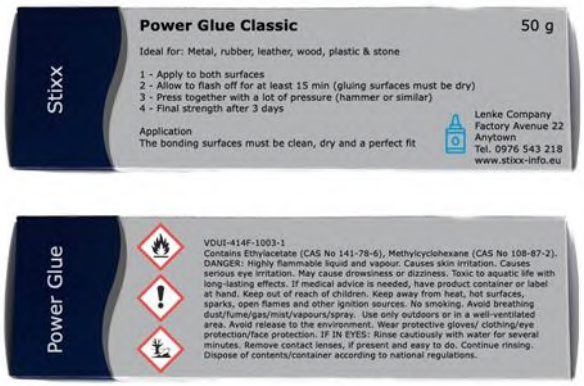
Following product selection, different types of labels were designed for the laundry detergent and glue. Overall, the experiment tested **three different types of labels** which are presented in the following.

8.3.3.2.1 Status Quo Label

The first label was the **Status Quo Label** which comprises labelling requirements from current legislation. It contained all informational elements necessary, i.e. dosage information, ingredients, UFI-code, GHS-pictogram, signal words as well as hazard and precautionary statements. Figure 15 displays the Status Quo Label for the laundry detergent and Figure 16 displays the variant for the glue.

Figure 15: Status Quo Label – Laundry Detergent **Figure 16: Status Quo Label – Glue**

[41] Given that detergents' labelling falls by default under these two pieces of EU chemicals legislation.



8.3.3.2.2 Simplified Label with QR Code

Following the main research questions, an objective of the experiment was to test whether labels of chemical products can be simplified and whether digital tools could support consumers' understanding. Hence, the second treatment included the **Simplified Label with a QR Code**.

In the case of the **laundry detergent,** the simplification consisted of reducing the dosage table, i.e. instead of the full dosage table including separate rows for different degrees of water hardness, the Simplified Label only contained one row for medium water hardness. Furthermore, the list of ingredients was removed from the package label. The reduced / removed information was made available via a website which could be accessed via a QR Code added to the packaging. Hence, the full dosage table for different degrees of water hardness and the list of ingredients was available on the website. Furthermore, the label was amended by further pictograms that were taken from A.I.S.E. (International Association for Soaps, Detergents and Maintenance Products).[42] The GHS-pictogram, signal word and hazard and precautionary statements remained on the label in accordance with current legislation. Figure 17 displays the label for the laundry detergent as well as the website to be opened when scanning the QR code.[43]

Figure 17: Simplified Label with QR Code – Laundry Detergent

[42] A.I.S.E. (2021). Safe Use Icons. Retrieved from: https://www.aise.eu/library/artwork/safe-use-icons.aspx (30.06.2021)

[43] Please note that scanning the QR-code was mimicked in the experimental design by a pop-up to be opened in the browser. More information on this aspect may be found in section 1.2.3.2.

In a similar way, the simplified label of the **glue** was designed. Information on the ingredients was removed from the package and moved to a website to be accessed via a QR code. Additionally, A.I.S.E. icons were added to the packaging while information on hazards and precautions, pictograms and signal word remained in accordance with current regulation (status quo). Figure 18 displays the Simplified Label for the glue as well as the website on ingredients.

Figure 18: Simplified Label with QR Code – Glue

8.3.3.2.3 No Label Baseline

Lastly, one of the tested treatments displayed only the front packaging of the two products. Hence, it is referred to as the **No Label Baseline**. It was introduced as a methodological control in order to robustly test whether labelling information in the other two treatments indeed informs consumers' understanding. Participants in the No Label Baseline answered the same set of questions as in the other treatments but without consulting the labels, i.e. responses were based on the **experience consumers have with the products**. Figure 19 and Figure 20 display the image for the laundry detergent and glue.

Figure 19: No Label Baseline – Laundry Detergent

Figure 20: No Label Baseline – Glue

8.3.4 8.3.4 Randomisation, Variables and Tasks

At the beginning of the experiment participants were **randomly assigned** to one of the two products, i.e. either laundry detergent or glue, and to one of the three treatments, i.e. either Status Quo Label, Simplified Label or No Label Baseline. They remained within their treatment for the whole course of the experiment and underwent several tasks and questions.

The **main variables** elicited in the experiment were:

- Objective understanding of labels
- Ability to identify a less harmful product given label information
- Perception of labels
- Anticipated behaviour given label information
- Rating of importance of label elements as well as understandability and ease to find information

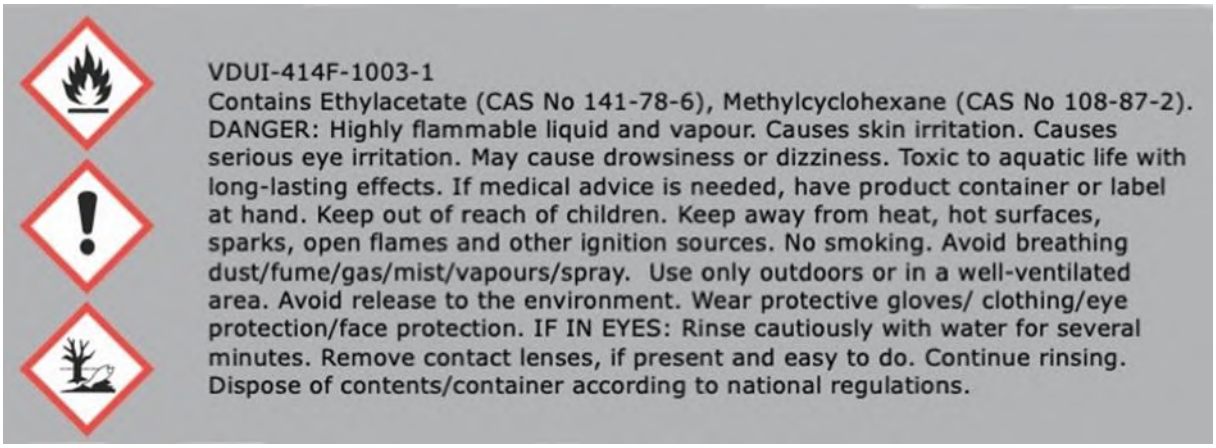
The exact framing of questions and tasks was provided with the scripting document. For all label-related questions participants saw the image of the product on the left side of the screen. The question text was displayed on the right side of the screen. Furthermore, in some of the treatments, participants were able to enlarge labelling information which is described in the subsequent paragraph.

8.3.4.1 8.3.4.1 Behavioural Variables when Consulting Labels

In testing consumers' understanding and appreciation of labels, an important aspect is **whether** they **indeed consult the label**. In reality, consumers have a physical packaging in front of them and whenever they need information contained in the label, they take the packaging and read the relevant labelling section. Ideally, the experiment would allow tracking whether the participant actually looked at the label at display – which for example could be done by implementing eye-tracking during the tasks. As eye-tracking was not in scope of the underlying study, the experiment design included a technical featured that mimicked "zooming" on (looking at) the label. This **zooming-function** allowed participants to hover with their mouse cursor over the label image in order to open a pop-up of the enlarged label. While the whole packaging was by default displayed in small size, i.e. relevant information on hazards and precautions was in very small font, the zoomed-label was of readable size. Figure 21 and Figure 22 display zooming (pop-up) for the Status Quo Label for the laundry detergent as well as the glue.

Figure 21: Zooming on Status Quo Label – Laundry Detergent

Figure 22: Zooming on Status Quo Label – Glue



The experiment set-up allowed recording individual zooming of participants at all points of the survey, i.e. for each question referring to the label elements. Nevertheless, it must be noted that this experimental feature can only serve as an indication of whether participants indeed read the label thoroughly. Furthermore, in reality consumers might have different motives to consult the label, e.g., to minimise adverse effects when an accident occurs. This cannot be mimicked in the underlying design.

As introduced above, one treatment was a simplified label that also introduced a digital element, i.e. a QR code to a website containing further information (see section 8.3.3.2.2). In reality consumers would open a QR code by using their smartphone. As this actual scanning of a QR code was not feasible in the experimental environment, the experiment introduced an **open-website-function**. By hovering over a link displayed at the bottom of the screen a pop-up of the website opened on screen. Again, the opening behaviour was tracked for all relevant questions.

The last behavioural variable that was elicited over the course of the experiment was the **time spent on answering** each question. This variable could serve as a control for reading time, i.e. the longer participants spent on screen, the higher the probability of reading and consulting the labelling information.

8.3.4.2 8.3.4.2 Comparative Choice Task

As indicated above, the aim of the experiment was also to measure consumers' **ability to identify a potentially less harmful product** by reading and understanding labelling information. Therefore, the experiment included a comparative choice task where participants were presented with two variants of the product, i.e. the product "original" and its "twin". The product twins were constructed in parallel to their original versions and differed only with respect to the potential hazards for human health and the environment.[44] For the laundry detergent the product original was less harmful than its twin, while for the glue the original was more harmful than the twin.

Within the task, participants saw both the original and the twin next to each other on screen and had to **select the potentially less harmful variant**. The alignment to either right or left

[44] Furthermore, the fictious brand and company information differed.

was fully randomised. Furthermore, participants repeated the task for both the laundry detergent as well as the glue (order was randomised as well).

Each participant remained within the treatment they were assigned to at the beginning of the study, i.e. when assigned to the Status Quo Label, the participant also answered the comparative choice task on the Status Quo Label. Additionally, the comparative choice task included the zooming-feature for the Status Quo and Simplified Label as described above. In order to enlarge labelling details, participants were able to hover over both of the label images of the original and twin and a pop-up opened. Figure 23–Figure 28 display the original and twin product for the laundry detergent and glue in the Status Quo Label, Simplified Label and No Label Baseline treatment.

Figure 23: Comparative Choice Task for Status Quo Label – Laundry Detergent

Figure 24: Comparative Choice Task for Status Quo Label – Glue

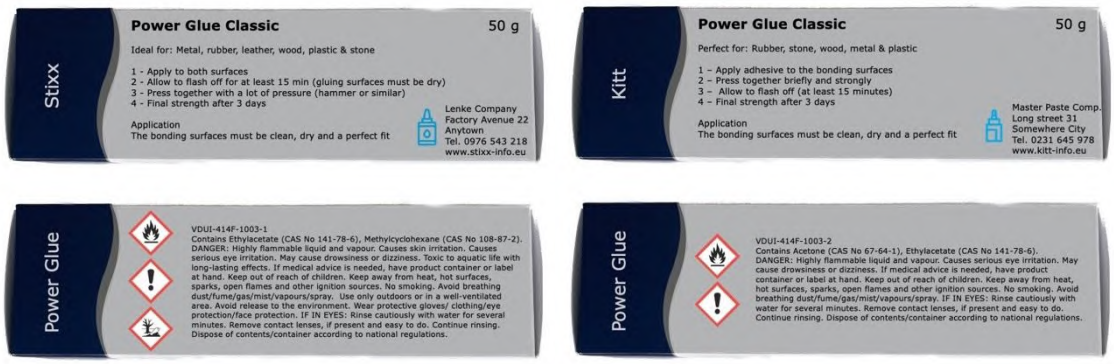


Figure 25: Comparative Choice Task for Simplified Label – Laundry Detergent

Figure 26: Comparative Choice Task for Simplified Label – Glue

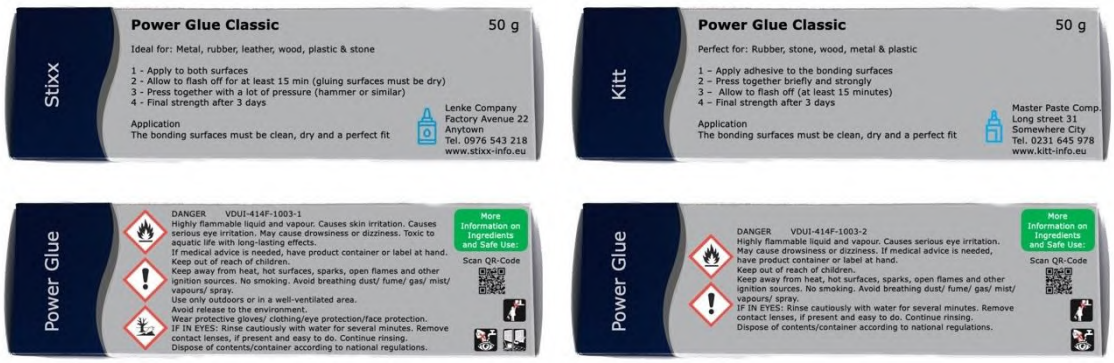


Figure 27: Comparative Choice Task for No Label Baseline – Laundry Detergent

Figure 28: Comparative Choice Task for Simplified Label – Glue

Since for the No Label Baseline the package images only contained the front of the packaging without any information on product hazards, participants that were assigned to the treatment not only were allowed to choose between either of the two products at display but also were able to choose "don't know / I would need more information to make that choice". This measure was introduced after the pilot analysis.

8.3.4.3 8.3.4.3 Further Variables

Following the experimental tasks where labels were at display, the last part of the experiment consisted of a **consumer survey**. The purpose of the survey was two-fold. On the one hand, **preferences for receiving labelling information** (on-pack versus digital) were elicited. On the other hand**, participants' characteristics** were collected. These include personal or professional experience with chemical products, digital readiness as well as trust and risk attitudes.

8.3.5 8.3.5 Incentives

As it is common practice in behavioural science, participants were incentivised in the experiment in two ways. Firstly, they received a **flat fee** for their overall time spent on the tasks. By that it was ensured that they reciprocate by paying attention and providing answers to their best knowledge and ability.

Secondly, the questions on objective understanding of labelling information were incentivised by paying an **additional amount per correct answer**. This methodological measure was applied to ensure that participants paid specific attention to the task itself and were motivated to solve the questions correctly. Nevertheless, it must be noted that this procedure only mimics the incentives of consulting a chemical label in the real world. If an accident occurs, consumers are inherently motivated to reduce the negative health impacts and pay attention to the label. This scenario and the inherent motives cannot be replicated by the experimental set-up.

8.3.6 8.3.6 Overview on the Data Set

The experiment was conducted with N=4,003 participants in September and October 2021. Data collection took place in four Member States, i.e. Germany (n=1,000), France (n=1,001), Romania (n=1,000) and Greece (n=1,002) and the median time to complete the experiment was 17 minutes.

8.3.6.1 8.3.6.1 Sample description

Participants were recruited from an actively-managed online-panel and hard quotas on age and gender were applied in order to reach representativeness. Furthermore, soft quotas on education and income were applied. Table gives an overview on the sample characteristics per country.

Table 31: Sample Description

	DE (N=1,000)	FR (N=1,001)	RO (N=1,000)	EL[45] (N=1,002)
Age mean (s.d.)	50.26 (16.53)	49.53 (16.94)	47.98 (16.11)	46.05 (14.89)
Gender (male / female / other-diverse)	49.3% / 50.7% / 0%	48.2% / 51.8% / 0.1%	48.4% / 51.6% / 0%	49.0% / 50.6% / 0.4%
Education[46] (low / Medium / high)	19% / 53% / 28%	9% / 55% / 36%	20% / 57% / 22%	8% / 46% / 46%
Income[47] (low / medium / high)	34.0% / 31.6% / 34.0%	34.0% / 35.5% / 30.6%	43.1% / 50.6% / 6.2%	31.0% / 40.6% / 28.4%

8.3.6.2 8.3.6.2 Treatment assignment

As described in the methodological section, participants were randomly assigned to one of two products, i.e. either laundry detergent or glue, and to one of three labelling treatments, i.e. either Status Quo Label, Simplified Label (QR) or No Label Baseline. The table below displays the number of observations per product-treatment-combination.

Table 32: Treatment Assignment

[45] Given that quotas on age in Greece were difficult to reach, in the analysis individual weights for Greek participants were used in order to draw upon representative results. The reason was that especially elderly participants are challenging to recruit for online studies given limited access to devices.

[46] As can be seen from the sample description consumers with lower educational level are slightly underrepresented in the sample. Especially in Greece the share of participants holding a university degree is comparatively large.

[47] Please not that income categories were defined within each country, i.e. using different tertile cut-off values for each country, because income distribution in absolute monetary terms differs per country.

	Laundry Detergent	Glue
Status Quo Label	16.7%	16.7%
Simplified Label (QR)	16.7%	16.7%
No Label Baseline	16.6%	16.6%

Furthermore, in the comparative choice task participants were randomly assigned to the order of products to be displayed, i.e. either laundry detergent first, then glue or glue first, then laundry detergent. Within the task the alignment of product variants was additionally randomised, i.e. original left and twin right or twin left and original right. Again, data reveals that for both order and variant alignment randomisation worked well (50% of the sample in each display condition).

8.3.6.2.1 RQ 1: What is the level of understanding of chemical and detergents labels?

To answer the first research question on consumers' understanding, the experiment included several questions which are presented in the following. All results are based on a **comparison** of the **Status Quo Label and** the **No Label Baseline** in order to confirm whether current legislation indeed enhances consumers' understanding.[48]

8.3.6.2.1.1 Objective Understanding of Product Hazards

Based on the desk research performed to design the two products, **different hazards apply** to the laundry detergent and glue. These include, for example: "Causes serious eye irritation" (H319) or "Toxic to aquatic life with long lasting effects" (H411).[49] The question was presented as a set of correct as well as incorrect hazard statements and participants were asked to identify the correct ones (additional payment for correct answer).

Figure 29 displays the percentage of participants that correctly answered the question on product hazards by product.[50] For the **Status Quo Label** of the laundry detergent **54%** of the participants answered the question on hazards **correctly** while **only 8%** in the **No Label Baseline** were successful. The difference between the two conditions is highly significant ($p<0.001$)[51].

The same pattern can be observed for the glue – although objective understanding was lower than for the laundry detergent. In the **Status Quo Label** treatment **29%** of the participants answered the question **correctly** while the percentage in the **No Label Baseline** was **only 6%**. Again, the difference between the two labelling treatments is highly significant. An

[48] Results on the performance of the Simplified Label with QR code may be found further below, i.e. section on the fourth research question.

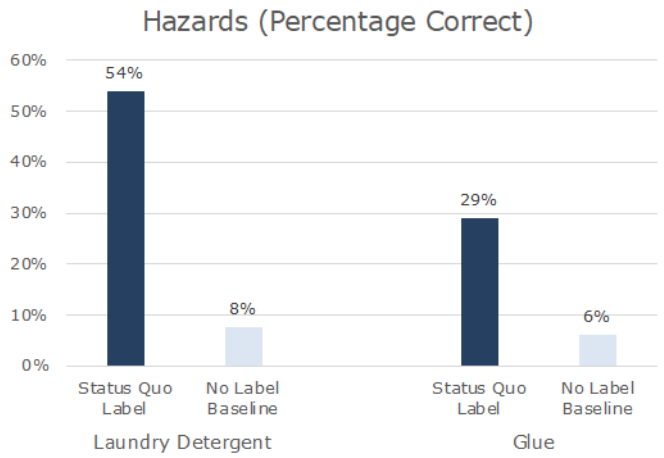
[49] Please note that the hazards differed by product. As described in the methodological section the laundry detergent was designed to be less harmful, while the glue included more hazards. The actual statements are representative for products to be found in supermarkets, drugstores and DIY-stores. A complete list may be found on the label-images provided in the methodological section.

[50] For better readability, in the following results are rounded to the nearest whole number. Hence, it might be possible that shares do not add up to 100%.

[51] If not otherwise specified, the statistical tests were Chi-2-test analysing the relationships between answer behaviour and categorial variables, i.e. treatments.

explanation for the worse performance of the glue compared to the laundry detergent might be that the product itself was constructed in a way to be more harmful, i.e. more hazard statements apply to the product.

Figure 29: Objective Understanding of Product Hazards by Treatment



Notes: The question was: "Please select all statements that are true about the product displayed on the left:" (Status Quo Label) and "Thinking about a [laundry detergent / glue], please select all statements that are usually true about such a product:" (No Label Baseline).

Number of observations: N=1,333 (LD), N=1,335 (G)

Source: ConPolicy analysis of the experiment and survey data.

Furthermore, data reveals that **73%** of the participants in the Status Quo treatment of the **laundry detergent zoomed in on the label**, i.e. took a closer look at it. Of those who zoomed, 70% were able to answer the question on hazards correctly, while only 12% of those who did not zoom were successful. The difference is again highly significant ($p<0.001$). The same may be observed for the **glue** where **78%** of the participants in the Status Quo treatment **zoomed in on the label**. Of those who zoomed, 36% answered the question on hazards correctly, while the share among those who did not zoom was only 4% ($p<0.001$).

The time spent to answer the question in the Status Quo treatment was on average 62 seconds for the laundry detergent and 78 seconds for the glue. For both products a positive, significant relationship between time spent to answer and performance in the question can be found (□=0.49 for laundry detergent and □=0.48 for glue, both $p<0.001$). I.e. the more time participants spent on the questions, the higher are the chances that they answer the question on product hazards correctly.

In summary, the results show that **providing labelling information and reading** it **helps consumers to understand hazard information**. Certainly not all consumers who were provided with a label under current legislation (Status Quo Label) performed equally well but compared to a situation where information is not available, they performed significantly better. When consumers solely answered based on their personal experience of chemical products (No Label Baseline) understanding was overall poor. Furthermore, **participants**

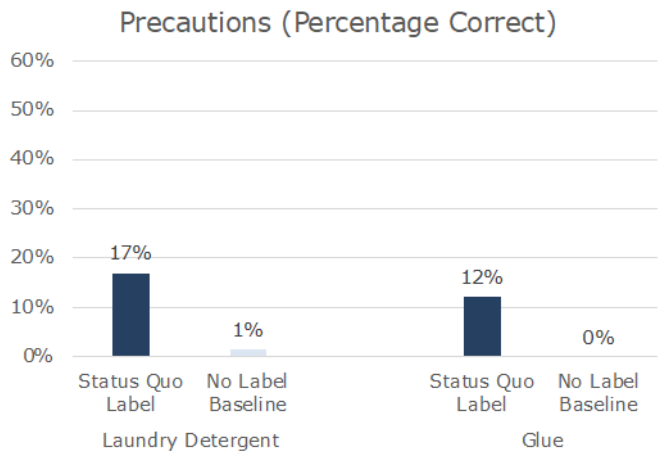
were motivated to consult labelling information in the experiment and **when they did,** they also **performed significantly better** than when they did not actively read the label.

8.3.6.2.1.2 Objective Understanding of Precautionary Measures

Similarly, **different precautionary statements apply** to the two products. These included for example: "Keep out of reach of children" (P102) or "IF IN EYES: Rinse cautiously with water for several minutes" (P305+P351).[52] Again, the question was presented as a set of correct as well as incorrect precautionary statements and participants were asked to identify the correct ones (additional payment for correct answer).

Figure 30 displays the percentage of participants that correctly answered the question on product precautions by product. It can be seen that the Status Quo Label again performs better than the No Label Baseline. For both products the difference is highly significant (p<0.001). For the **laundry detergent 17%** in the **Status Quo Label** treatment and **1%** in the **No Label Baseline** answered correctly. For the **glue 12%** in the **Status Quo Label** treatment and **0%** in the **No Label Baseline** answered correctly.

Figure 30: Objective Understanding of Precautions by Treatment



Notes: The question was: "From your reading of the label, when using this product would you: (Select all that apply)" (Status Quo Label) and "When using a [laundry detergent / glue] would you: (Select all that apply)" (No Label Baseline).

Number of observations: N=1,333 (LD), N=1,335 (G)

Source: ConPolicy analysis of the experiment and survey data.

When looking at **zooming behaviour, 63%** of the participants in the **Status Quo Label** of the **laundry detergent** took a closer look at the label. Of those who zoomed on the label 26% answered the question correctly while those who did not zoom only answered the question on precautions correctly in 1% of the cases (difference highly significant, p<0.001). The same pattern may be observed for the Status Quo Label of the **glue** where **66%** of the participants

[52] Again, these precautionary statements are only examples, and the complete list of applicable precautions may be found in the methodological section of the report.

took a closer look at the label. Of those who zoomed 18% answered the question correctly, while those who did not zoom only answered the question correctly in 2% of the cases (difference highly significant, $p<0.001$).

Overall, participants in the Status Quo treatment spent 53 seconds to answer the question on the laundry detergent and 68 seconds for the glue. Again, a positive significant correlation between time spent and performance can be detected (□=0.40 for laundry detergent and □=0.39 for glue, both $p<0.001$). I.e. the more time participants spent on the question, the higher are the chances that they answer the question on product precautions correctly.

In summary, objective understanding of the precautions applicable to chemical products follows the same pattern as for hazards. **Receiving labelling information** as defined by current regulation (Status Quo Label) **resulted in significantly better performance than answering on experience** (No Label Baseline). Overall, the understanding of precautions was poor and on average worse than for hazards. This might be due to the amount of precautions to be taken for safe use (especially for the glue, for which, as a more harmful product, legislation requests a long list of precautionary statements). Similarly, the results show that the majority of **participants** were **motivated to consult labelling information** in the experiment**,** and **if they did**, they also had a **better objective understanding**.

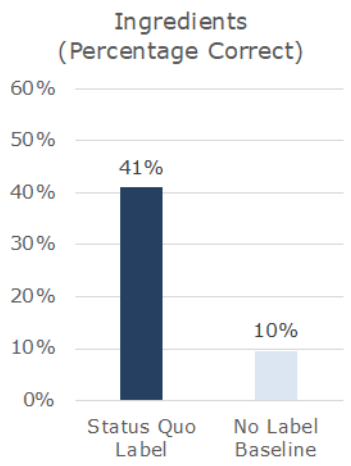
8.3.6.2.1.3 Objective Understanding of Ingredients

Lastly, a question on the **ingredients** was presented. It was only asked of participants that were assigned to the laundry detergent. Again, the question was presented as a set of correct, e.g. "enzymes" or "perfumes", and incorrect answer items and participants were asked to select the correct ones (additional payment for correct answer).[53]

Figure 31 displays the percentage of participants that correctly answered the question on product ingredients for the laundry detergent. It can be seen that **41%** in the **Status Quo Label** treatment answered the question on ingredients correctly, while the share was **only 10%** in the **No Label Baseline**. The difference between groups is statistically highly significant ($p<0.001$).

Figure 31: Objective Understanding of Product Ingredients by Treatment

[53] The list of ingredients may be found on the label-images contained in the methodological section of the report.



Notes: The question was: "From your reading of the label, which ingredients are contained in this product? (Select all that apply)" (Status Quo Label) and "From you experience with laundry detergents which ingredients are usually contained in such a product? (Select all that apply)" (No Label Baseline).

Number of observations: N=1,333

Source: ConPolicy analysis of the experiment and survey data.

Again, zooming behaviour is indicative for performance. Overall, **74%** of the participants **zoomed** in on the label. Among those who took a closer look the share of participants answering correctly was 54%, while the share was only 3% among those who did not zoom ($p<0.001$).

In addition, data reveals that in the Status Quo treatment participants spent on average 43 seconds to answer the question. The correlation between time spent and performance is positive and significant ($\square=0.53$, $p<0.001$), i.e. the more time participants took to answer the question, the higher the chance of answering the question on product ingredients correctly.

In summary, the results confirm previous findings and show that **labelling information enhanced consumers understanding** of ingredients as well. Again, **participants** in the experiment **were overall willing to consult the label** and **if they did**, they **performed significantly better**.

8.3.6.2.1.4 Ability to Identify a Less Harmful Product

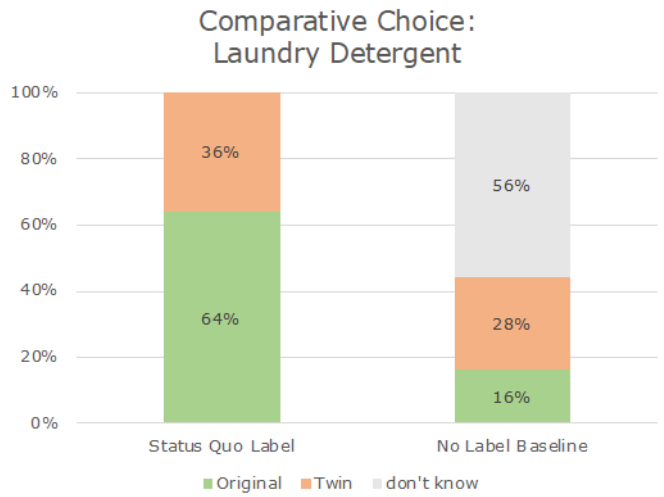
Further evidence on consumers' understanding of labelling information can be taken from the **comparative choice task**. Participants were asked to **identify the less harmful product** among two products which differed with respect to their properties.

For the **laundry detergent,** the product original was less harmful than its twin, i.e. less hazards and precautions applied. Furthermore, the GHS pictogram and signal word differed. Further information on the product labels presented in the task may be found in the methodological section of the report.

Figure 32 displays the percentage of participants correctly identifying the original product to be less harmful than its twin. As can be seen **64%** in the **Status Quo** treatment answered the

question **correctly**. In the No Label Baseline performance was significantly worse because participants were asked to answer the question based on their experience without any further information. Since the **No Label Baseline** only included the front packaging without any information on hazards (pictogram, statements), the majority of participants (**56%**) selected that they don't know the answer or would **need more information** to make the choice. 16% chose the correct product and 28% chose the wrong product. Again, the difference between the treatments is statistically highly significant (p<0.001).

Figure 32: Comparative Choice Task Laundry Detergent by Treatment



Notes: The question was: "Please take a look at the two laundry detergents. Taking into consideration the information available here, which product is less harmful, i.e. less hazardous for human health or the environment?". "Don't know"-category only available for No Label Baseline.

Number of observations: N=1,340 (Status Quo Label), N=1,328 (No Label Baseline)

Source: ConPolicy analysis of the experiment and survey data.

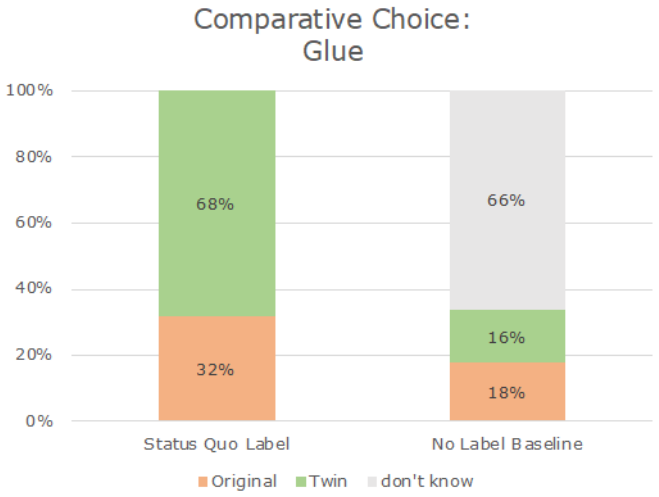
72% of the participants **zoomed on both labels** at display, **20% on one** of the two and **9% did not zoom**. Of those who zoomed on both 67% of the participants answered the question correctly, of those who zoomed on one 56% answered correctly and of those who did not zoom 58% answered correctly (difference is significant, p=0.002).

For the **glue,** the product original was more harmful than its twin, i.e. more hazards and precautions applied to it. Furthermore, the number of GHS-pictograms differed. Further information on the product labels presented in the task may be found in the methodological section of the report.

Figure 33 displays the percentage of participants correctly identifying the twin product to be less harmful than the original. Again, the same pattern may be observed. In the **Status Quo Label** treatment, the majority of **68%** selected the **correct** product. In the **No Label Baseline** the majority of **66%** indicated that they did not know the answer and **needed more information** for making their choice. The share of choosing the correct product was 16% and

the share of choosing the incorrect product was 18%. Again, the difference between the two treatments is statistically highly significant (p<0.001).

Figure 33: Comparative Choice Task Glue by Treatment



Notes: The question was: "Please take a look at the two glues. Taking into consideration the information available here, which product is less harmful, i.e. less hazardous for human health or the environment?". "Don't know"-category only available for No Label Baseline.

Number of observations: N=1,340 (Status Quo Label), N=1,328 (No Label Baseline)

Source: ConPolicy analysis of the experiment and survey data.

Regarding zooming behaviour, it can be found that **68%** of the participants in the Status Quo Label treatment **took a closer look at both products** at display, **25%** looked at **one** of the two and **7%** looked at **none**. Of those who zoomed on both products 71% were able to correctly identify the less harmful product, among those who looked at one product the share of correct answers was 64% and of those who did not zoom the share was 61% (p=0.03).

In conclusion, results are confirmative of the findings from the previous sections. **When labelling information was available** (Status Quo Label), the **majority of consumers were able to identify a less harmful product**. In contrast, when labelling information was not available, i.e. CLP information was not provided (No Label Baseline), consumers were not able to correctly identify the less harmful product but rather indicated that they would need more information to make their choice. Again, it can be observed that experiment-**participants were willing to consult the label** for further information and when they did, they at least slightly performed better than without zooming in on information. Nevertheless, it must be noted that even without zooming on further information such as a readable list of hazards and precautionary statements, the packaging was already indicative of the degree of harmfulness, i.e. the GHS-pictograms on the packaging for example already showed which product is more harmful.

Lastly, it must be noted that results only provide information on consumers' objective understanding and not whether labelling information also causes consumers to purchase the

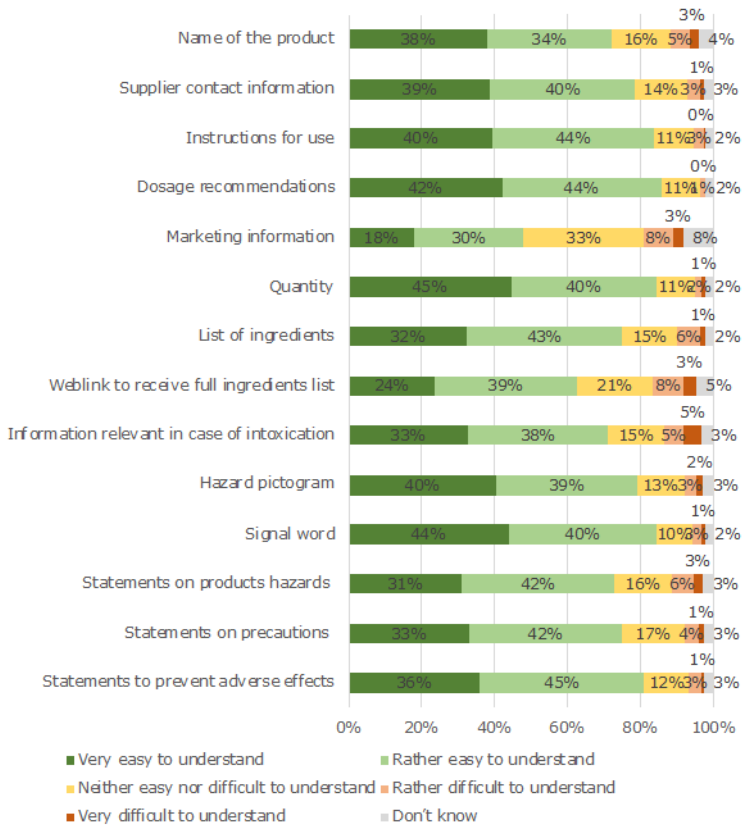
less harmful product. Furthermore, results also cannot demonstrate whether better objective understanding also causes consumers to behave more appropriately in case of an accident, i.e. whether they would follow instructions to minimise adverse effects. Therefore, the follow-up questionnaire of the experiment can shed further light on consumers' behaviour (see section on the third research question).

8.3.6.2.1.5 Rating of Understandability of Relevant Label Elements

Next to the objective questions on label understanding, the experiment contained a subjective understanding question. Participants were asked to indicate the **perceived understandability of different label elements** such as the hazard and precautionary statements, GHS-pictograms, ingredient lists or dosage instructions. The question was elicited on a 5-point-Likert-scale from "very easy to understand" to "very difficult to understand".

Figure 34 displays the subjective understandability of the Status Quo Label for the laundry detergent. All **aspects related to the CLP Regulation** performed well and were perceived as at least rather **understandable** by the vast majority of participants (above 70%). The only aspect that stands out to be different is marketing information. Here only 48% of the participants rated information as understandable.

Figure 34: Rating of Understandability of Label Elements (Status Quo Label, Laundry Detergent)



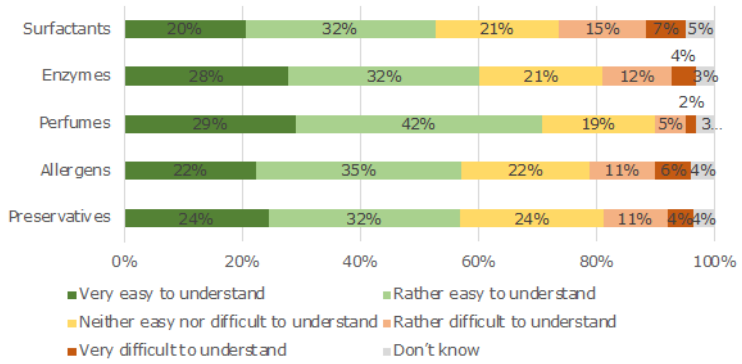
Notes: The question was: "Still looking at this label, how easy to understand do you find each piece of information?".

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

Figure 35 displays the subjective understandability of ingredients information of the Status Quo Label for the laundry detergent. Compared to the previous results on CLP-related labelling elements the rating was lower. Nevertheless, the **majority** of the participants indicated that **specific ingredient information** was **(rather) easy to understand**.

Figure 35: Rating of Understandability of Label Elements on Ingredients (Status Quo Label, Laundry Detergent)



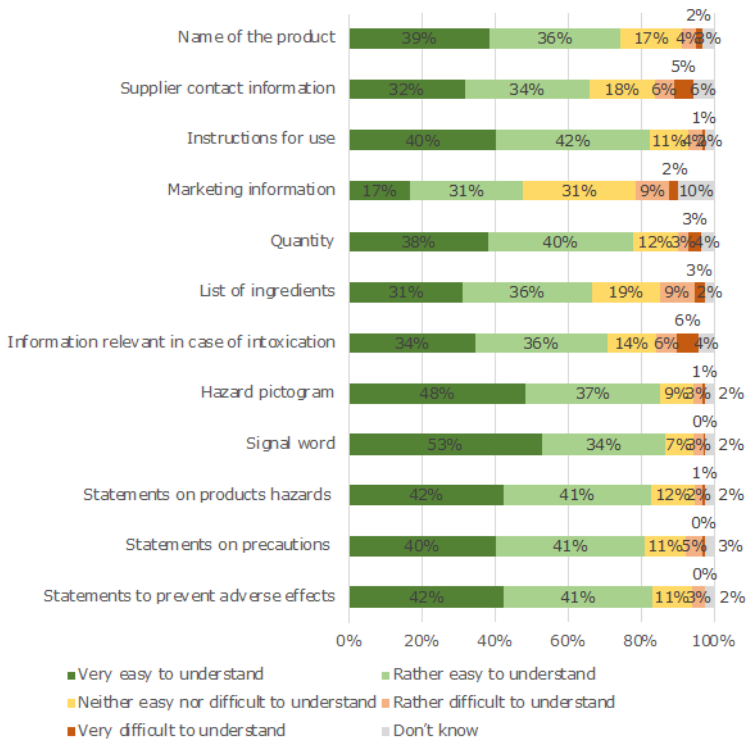
Notes: The question was: "Still looking at this label, how easy to understand do you find the specific information on the ingredients contained in the product?".

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

Lastly, Figure 36 displays the subjective understandability of the Status Quo Label for the glue. Again, the ratings of **CLP-related information** are good with a **majority** of over 70% indicating that information was very or rather **easy to understand**. The only aspect that stands out is marketing information which received a lower understandability rating (48%).

Figure 36: Rating of Understandability of Label Elements (Status Quo Label, Glue)



Notes: The question was: "Still looking at this label, how easy to understand do you find each piece of information?".

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

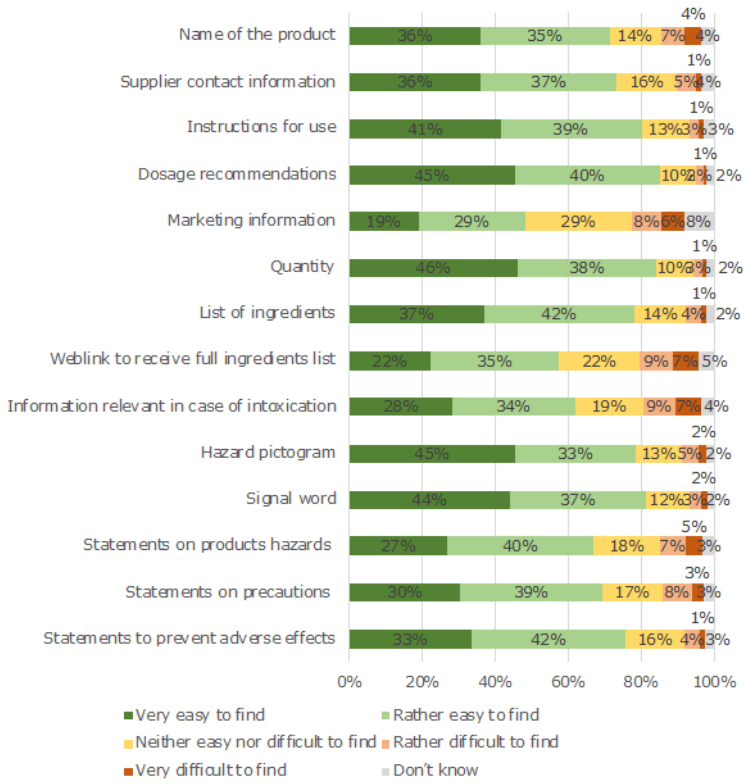
In conclusion, the data shows that overall **consumers perceived relevant labelling elements as (rather) understandable**. Nevertheless, it must be emphasised that this result is based on an individual and subjective self-assessment. When looking at the objective understanding of safe use information contained on labels performance was rather poor (see sections 8.3.6.2.1.1, 8.3.6.2.1.2 and 8.3.6.2.1.3).

8.3.6.2.1.6 Rating of Ease to Find Relevant Label Elements

In order to understand label information, it is also important that consumers are able to find all the information contained on a label in an easy way. Hence, the experiment included a question on the subjective **ease to find relevant label elements**. The question was elicited on a 5-point-Likert-scale from "very easy to find" to "very difficult to find".

Figure 37 displays the rating of the **ease to find label elements** for the Status Quo Label of the laundry detergent. **Over 60%** of the participants indicated that **CLP-related information** was very or rather **easy to find**. Additionally, dosage recommendations provided as a table on the label were perceived as very or rather easy to find by 85% of the participants. On the other hand, marketing information was perceived as easy to find by only 48% of the participants.

Figure 37: Rating of Ease to Find Label Elements (Status Quo Label, Laundry Detergent)



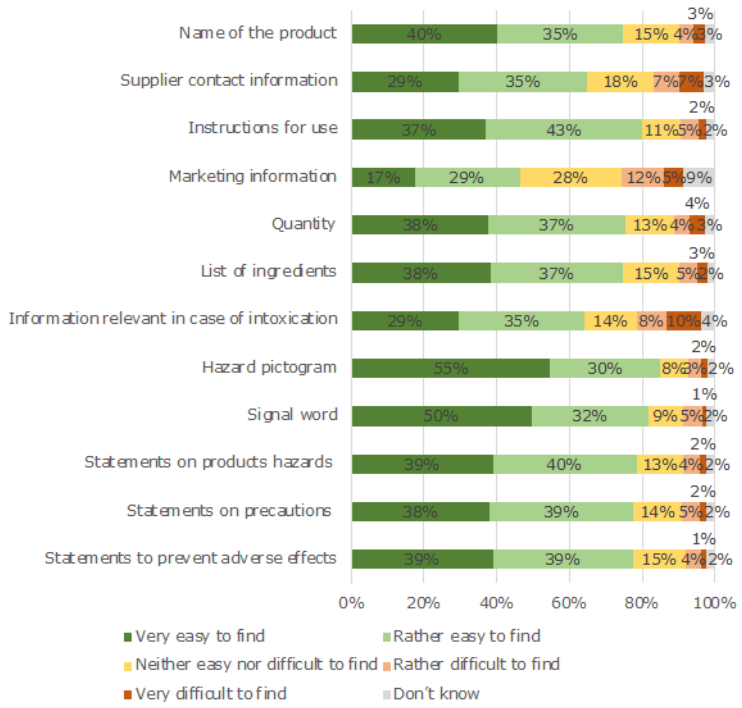
Notes: The question was: "Still looking at this label, how easy is it to find each piece of information?".

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

Figure 38 displays the rating of the ease to find label elements for the Status Quo Label of the glue. Again, all **CLP-related elements** were very or rather **easy to find** (above 60%) while marketing information stands out with a lower rating (36%).

Figure 38: Rating of Ease to Find Label Elements (Status Quo Label, Glue)



Notes: The question was: "Still looking at this label, how easy is it to find each piece of information?".

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

In conclusion, results on the ease to find label elements on the packaging given current regulations are positive. The **majority of the participants** indicated that the **relevant elements** are (rather) **easy to find**.

8.3.6.2.1.7 Conclusion

Taken the results from the previous section together, it can be shown that **labelling information under current regulation** (Status Quo Label) **performs systematically better than when consumers are not provided with CLP- and Detergent-relevant information**. Overall, objective understanding is rather poor and performance of consumers is dependent on the amount of information that needs to be processed, i.e. is displayed on the label. For a more harmful product, legislation requires more text to be displayed on the label, which might be especially problematic on small packaging. Nevertheless, participants in the experiment were motivated to consult the label and were partially able to find relevant information.

As flagged in the methodology section, the experiment was only able to mimic consumers' decision context, i.e. they found themselves in an artificial environment and were paid monetary incentives for their performance in the tasks. Nevertheless, when it comes to the actual health of consumers and their relatives, one would expect that they are even more motivated to read and understand the specifics of chemical substances. In that manner, the results support that current legislation is helpful for consumers' understanding.

One other aspect that makes the experimental set-up different is the time spent on the label, or at least, the time spent on answering questions on objective understanding. Data reveals that participants take rather sufficient time to answer questions and there also exists a positive correlation between time spent on the question and performance. On the one hand, this is a positive result as it confirms that consulting a label supports consumers' understanding. On the other hand, spending that much time on a label of a chemical substance or detergent is rather uncommon (e.g. in shopping situations labels are not consulted this thoroughly and in the case of an accident induced stress could also lower consultation times).

Lastly, results show that consumers subjectively rate the Status Quo Label in a positive way. Overall, **CLP- and Detergent-relevant information items are rated** as both **easy to understand as well as easy to find**. This stands **in contrast to the rather poor objective understanding** and might be **because subjective understanding is self-reported**, i.e. consumers overestimate their understanding. One aspect that systematically stands out in the results was marketing information provided on the packaging. It was rated as more difficult to understand and to find on the packaging. Certainly marketing information is not regulated by CLP, however, in practice it takes a comparatively large space on the packaging of products and competes with information relevant for safe use.

8.3.6.3 8.3.6.3 RQ 2: What is the importance of different elements contained in labels? Which information is considered essential?

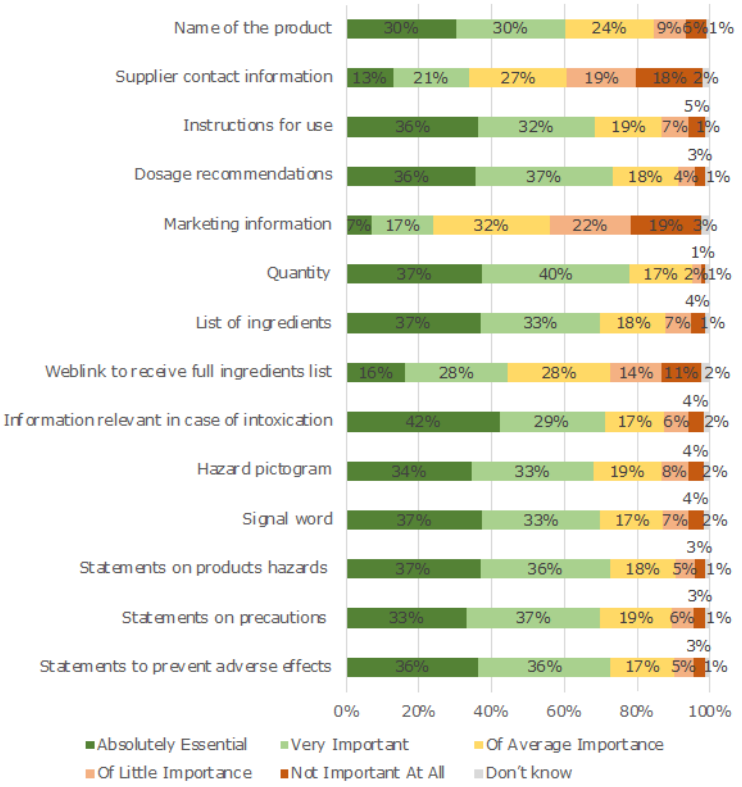
In order to answer the second research question on consumers' perceived importance of label elements, the experiment contained two questions which are presented in the following sections. The first question was asked at the beginning of the experiment before the participants saw the label images on screen, i.e. it was solely based on consumers' experience with chemical labels. By that the **general label appreciation** was elicited. The second question was asked at a later stage of the experiment when the participants were already familiar with the labelling content, i.e. they had already answered questions on objective understanding and label interpretation. By that the **label appreciation under current regulation** was elicited.

8.3.6.3.1 Rating of Importance of Label Elements Without Seeing a Label

As indicated above, the **importance of different label elements** was elicited **without label display** at the beginning of the experiment. Hence, the overall rating for the whole sample is displayed regardless of treatment assignment. The question was elicited on a 5-point-Likert-scale from "Absolutely essential" to "Not important at all".

Figure 39 displays the rating of the importance of label elements for the laundry detergent. **CLP- and Detergent relevant information** such as the hazard pictogram, signal word, statements on hazards and precautions and dosage instructions were rated as either **absolutely essential or very important by more than 70%** of the participants. The weblink to receive the full ingredient list received a share of 44% and supplier contact information of 34%. The lowest rating was assigned to marketing information with only 24% who indicated the information to be absolutely essential or very important.

Figure 39: Rating of Importance of Label Elements Without Label (Status Quo Label, Laundry Detergent)



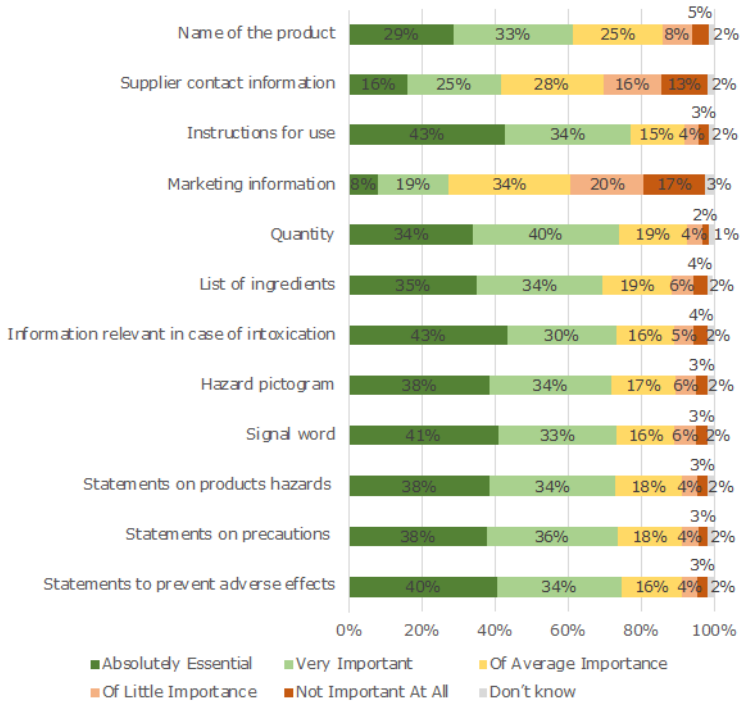
Notes: The question was: "Please think about your last purchase or use of a laundry detergent: In general, on the packaging of a laundry detergent how important do you rate having the following pieces of information?"

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

Figure 40 displays the rating of the importance of label elements for the glue. Again, the same patterns may be observed. **CLP-relevant information received high ratings** of **above 70%** (absolutely essential or very important). Supplier contact information received a lower rating of 31% and the lowest importance was again attached to marketing information were 17% of the participants rated the information to be absolutely essential or very important.

Figure 40: Rating of Importance of Label Elements Without Label (Status Quo Label, Glue)



Notes: The question was: "Please think about your last purchase or use of a glue: In general, on the packaging of a glue how important do you rate having the following pieces of information?"

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

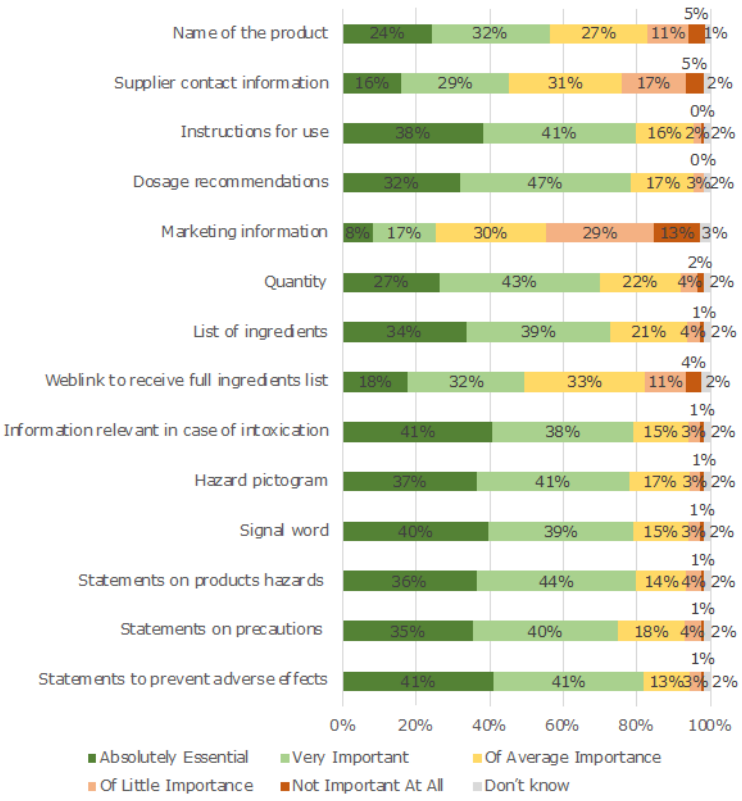
Overall, the **appreciation of different CLP- and Detergent-relevant label elements was high**. Even without seeing a label at display, consumers indicated that information on hazards and precautions are highly important.

8.3.6.3.2 Rating of Importance of Label Elements When Seeing a Label

Participants assigned to the **Status Quo Label** treatment were asked the rating question a second time, i.e. after they completed several experimental tasks and were familiar with the labels. Again, the question was elicited on a 5-point-Likert-scale from "Absolutely essential" to "Not important at all".

Figure 41 displays the rating of the **importance of label elements** for the Status Quo Label of the laundry detergent. The patterns are in accordance with the previous results. It can be found that **CLP- and Detergent relevant elements received ratings well above 70%**. The weblink to receive the full ingredients list was rated absolutely essential or very important by 50% of the participants and supplier contact information by 45%. The lowest rating again may be found for marketing information. Only 25% of the participants rated this type of information as absolutely essential or very important.

Figure 41: Rating of Importance of Label Elements With Label (Status Quo Label, Laundry Detergent)



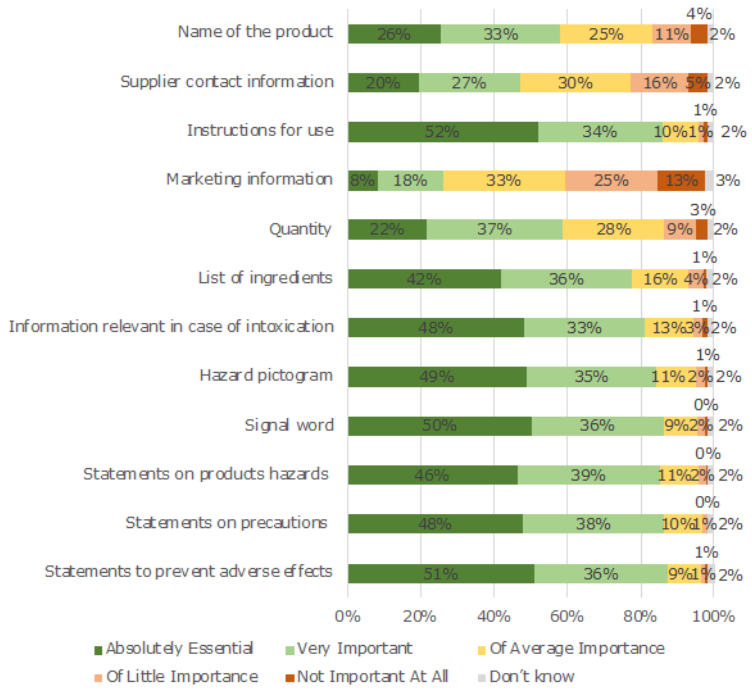
Notes: The question was: "Looking at this label, how important do you rate having the following pieces of information?".

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

Figure 42 displays the rating of the importance of label elements for the Status Quo Label of the glue. Again, the results are in accordance with the previous results. While **CLP-relevant information** such as hazard and precautionary statements or the pictogram received **shares of above 80%** (absolutely essential or very important), marketing information was rated less relevant. Only 26% of the participants indicated that it is absolutely essential or very important.

Figure 42: Rating of Importance of Label Elements With Label (Status Quo Label, Glue)



Notes: The question was: "Looking at this label, how important do you rate having the following pieces of information?"

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

Hence, the results are confirmative and show that **CLP- and Detergent-relevant label elements** are perceived as **very important** by consumers.

8.3.6.3.3 Conclusion

Taken the results together it can be shown that **label elements** that support consumers with the **safe use of chemical substances**, i.e. hazard and precautionary information, are **essential**. Furthermore, aspects relevant under Detergent regulation, e.g. dosage instructions, are perceived as essential. Marketing information, on the other hand, systematically stands out as less important. The later aspect should also be discussed in the light of results from the first research question, where consumers indicated that marketing information is less understandable and easy to find on packaging. In general, this result appears not to be problematic as marketing information is not necessary for consumers' understanding of safe use and therefore, there exists no objective need for improvement. Nevertheless, in practice marketing information takes a lot of space on the packaging of chemical products and therefore, competes with the space available for CLP-relevant information which is rated as more important by consumers.

8.3.6.4 8.3.6.4 RQ 3: How do consumers interpret labels with respect to hazards and safe use instructions?

The third research question regards the interpretation of labels given provided information. Therefore, several questions were included in the experiment. The first set of questions

focussed on the products' **risk perception** while the second investigated **behaviour induced by the labels**.

8.3.6.4.1 Risk Perception Induced by Label

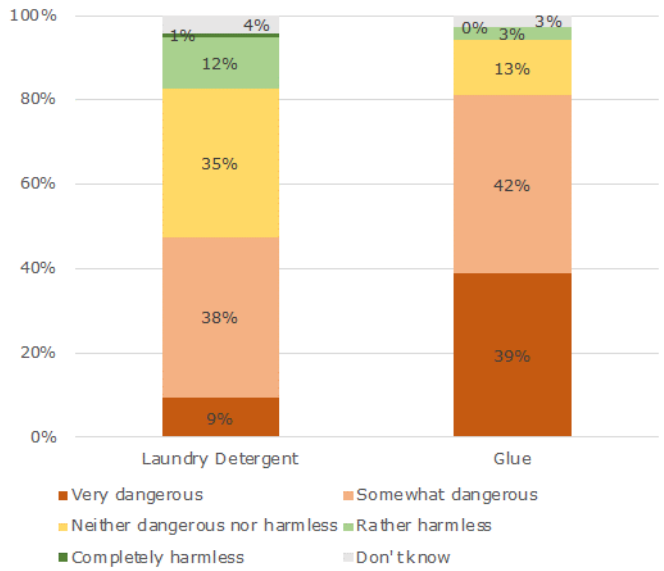
The experiment design included two different **products** that **differed in their degree of potential harmfulness**. Among other aspects, the labels at display differed in the amount of GHS-pictograms presented (one versus three), the signal word ("warning" versus "danger") as well as the amount and severity of the included hazard and precautionary statements. More information on the product specifics may be found in the methodology section.

Risk perception was investigated by three different questions, i.e. on the **general risk perception of use, risk following wrong application** as well as **risks attached to different hazards**. It must be noted that the purpose of the questions was not to interpret the average rating of each of the products, i.e. it is not relevant whether a laundry detergent or glue is perceived as "dangerous" or "harmless". The questions aimed at investigating whether displayed information causes participants to rate the glue as *more harmful* than the laundry detergent. Hence, the analysis aims at comparing the ratings by product type.

8.3.6.4.2 Risk Perception of Use

The question on **general risk perception of use** was elicited on a 5-point-Likert-scale ranging from "very dangerous" to "completely harmless". Figure 43 shows the results by product type. It can be seen that the glue indeed was rated as more dangerous than the laundry detergent. For the **glue 39%** of the participants indicated the product to be very **dangerous** while the share for the **laundry detergent** is **only 9%**. The difference in danger ratings between the two products is highly statistically significant ($p<0.001$).

Figure 43: Risk Perception of Use by Product (Status Quo Label)



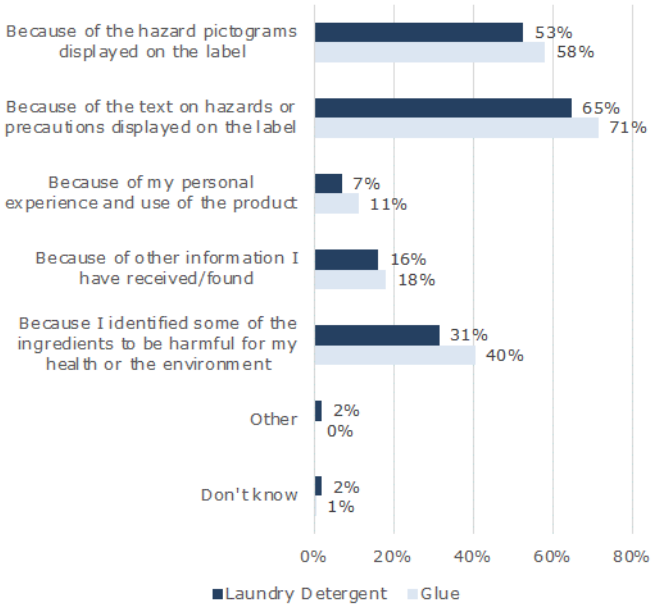
Notes: The question was: "In general, how dangerous do you rate using this product?"

Number of observations: N=670 (LD), N=670 (G)

Source: ConPolicy analysis of the experiment and survey data.

Subsequently, participants rating product use as very or somewhat dangerous were asked to indicate their **reasons for** their **danger perception**. Figure 44 displays the replies by product. It can be seen that for both products the **hazard and precautionary statements** on the label were the **most relevant** reason for rating the product as dangerous (69% for both product types). Similarly, the **hazard pictograms** were rated as **relevant information** for indicating the products to be dangerous (56% for both product types). The ingredients contained in the product were a reason for 37% of the participants, while only 17% and 10% named other information and personal experience.

Figure 44: Reasons for Risk Perception by Product (Status Quo Label)



Notes: The question was: "You indicated that you rate using this product as somewhat or very dangerous. Why?" (multiple answers)

Number of observations: N=313 (LD), N=543 (G)

Source: ConPolicy analysis of the experiment and survey data.

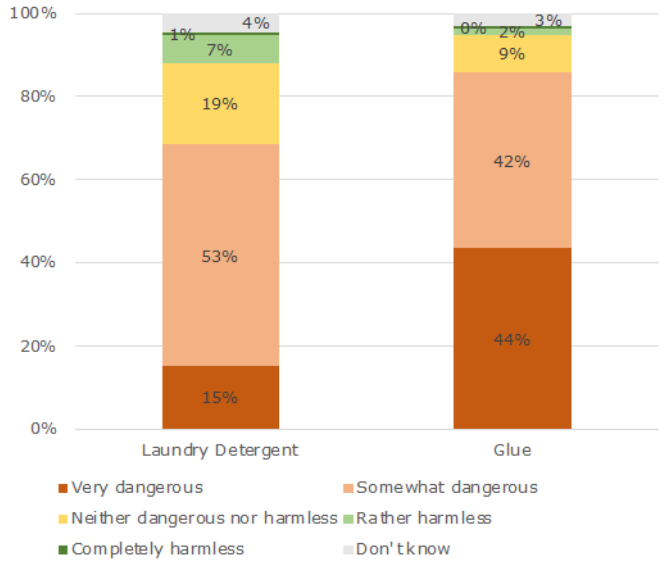
Hence, the results show that **under current regulation** (Status Quo Label) consumers were indeed **able to interpret** the provided information **correctly** and attached more risk to an objectively riskier product. The result confirms findings from the comparative choice task (see section on the first research question). Furthermore, consumers indicated that CLP-relevant information contained on the labels causes this perception.

8.3.6.4.3 Risk Perception of Wrong Application

The question on general risk perception of wrong application was elicited on a 5-point-Likert-scale ranging from "very dangerous" to "completely harmless". Figure 45 shows the results

by product type. Again, consumers rated the wrong application of the products differently. For the **glue 44%** indicated wrong use as **very dangerous** while the share for the **laundry detergent** was **only 15%**. The difference between product variants is statistically highly significant (p<0.001).

Figure 45: Risk Perception of Wrong Application by Product (Status Quo Label)



Notes: The question was: "In general, how dangerous do you rate the wrong application of this product, e.g. when an accident occurs?"

Number of observations: N=670 (LD), N=670 (G)

Source: ConPolicy analysis of the experiment and survey data.

Hence, it can be concluded that labelling information induces the **correct perception** of **application dangers** as well.

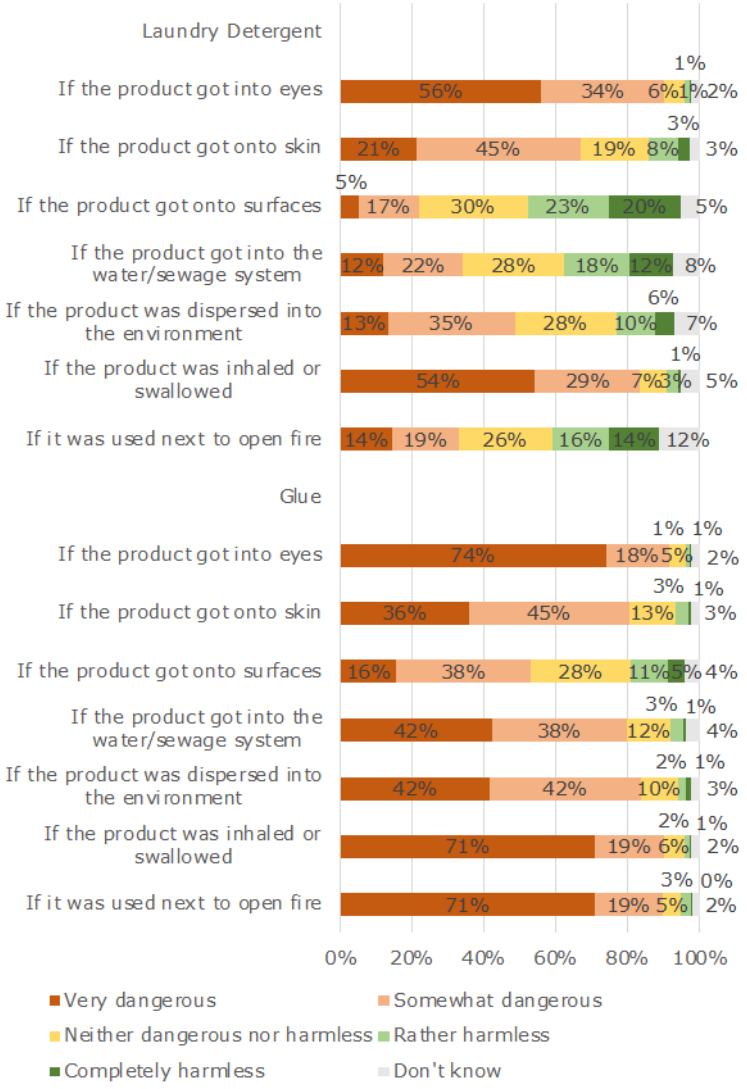
8.3.6.4.4 Risk Perception of Different Hazards

Lastly, a question on the **risk perception of different specific hazards** was elicited. It focused on risks attached to the product getting into eyes or being inhaled or swallowed. Again, a 5-point-Likert scale ranging from "very dangerous" to "completely harmless" was used.

Figure 46 displays the results by hazard category and product. For all categories the glue was on average rated as more dangerous (p<0.001). Furthermore, the rating of product getting into eyes was comparatively large for both product types. This is **in accordance with the actual information displayed on the labels**, i.e. a specific hazard statement is included on the packaging. Dispersing the product into the water systems or the environments was rated more threatening for the glue. Again, this is in accordance with the information contained on the specific labels, i.e. specific hazard statement as well as a GHS pictogram included on the packaging. The same applies to the products being used next to fire, where the glue received a higher rating than the laundry detergent. Similarly, a reason for this difference might be the

actual hazard statements and GHS pictogram included on the packaging (the glue was constructed to be flammable while the laundry detergent was not).

Figure 46: Risk Perception of Different Hazards by Product (Status Quo Label)



Notes: The question was: "From your reading of the label, please rate how dangerous each of the following would be:"

Number of observations: N=670 (LD), N=670 (G)

Source: ConPolicy analysis of the experiment and survey data.

Additionally, it may be concluded that consumers not only **correctly interpret** the general risk of products, but also **specific risks** that may differ by product.

8.3.6.4.5 Behaviour Induced by Label Information

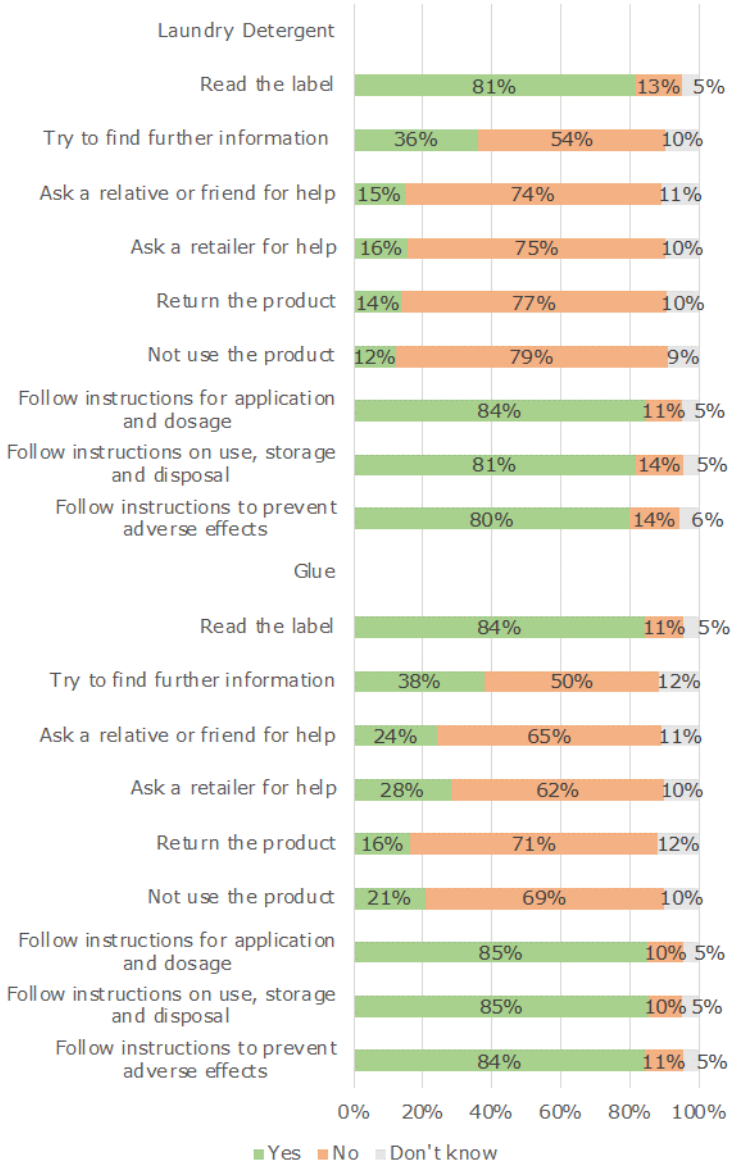
The second set of questions focussed on the behaviours induced by label information. It included questions on the **motivation to read and follow instructions**, **behaviour in case of an accident** as well as on **dosage behaviour**.

It must be noted that objectively there are no wrong answers for these questions. Nevertheless, from a policy perspective reading the information on package is relevant to avoid adverse effects or dose the product correctly, whereas the need to ask other people for help or consulting external sources would be less desirable. Similarly, bringing the packaging to a doctor or applying first aid measures in the case of an accident could be interpreted as positive, while the need to additionally consult a search engine would indicate that information on the packaging is not sufficient.

8.3.6.4.6 Motivation to Read and Follow Instructions

Results regarding consumers' motivation to read and follow instructions may be found in Figure 47. The results show that over **80%** of the participants (regardless of product) would indeed **read the label** and **follow the relevant instructions** on dosage, use and precautions. Trying to find **further information** only applies to **37%** of the participants and asking for **further help** either from relatives or friends or the retailer is **only** applicable to **19% and 22%** respectively.

Figure 47: Motivation to Read and Follow Instructions by Product (Status Quo Label)



Notes: The question was: "Does this label motivate you to:"

Number of observations: N=670 (LD), N=670 (G)

Source: ConPolicy analysis of the experiment and survey data.

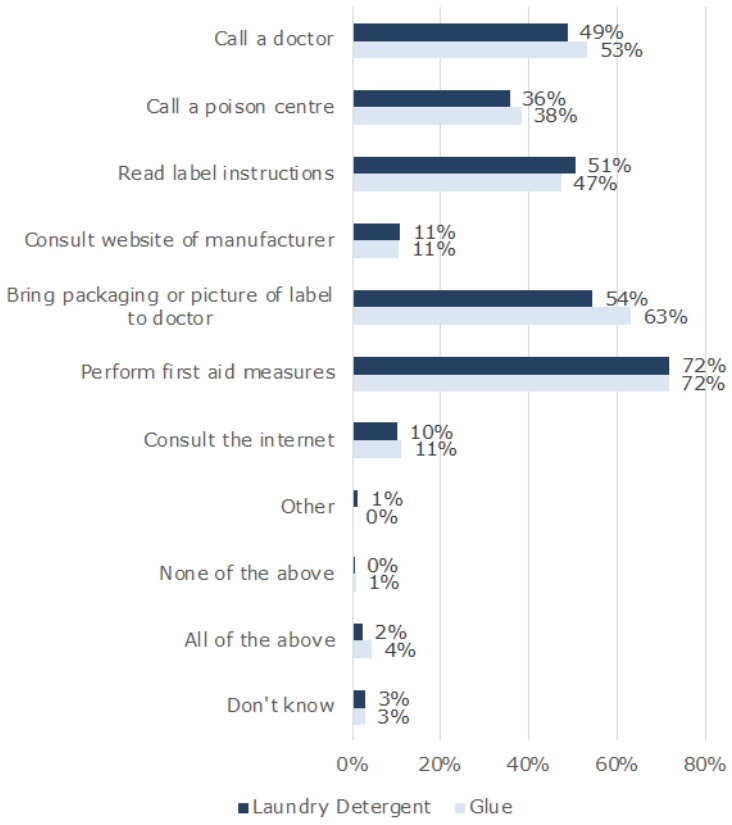
In conclusion, results show that consumers are **motivated to apply appropriate steps** related to labelling information. Especially **reading the label** and **following instructions** appears to be relevant whereas there is no indication that provided information was insufficient and consumers would need further information or help.

8.3.6.4.7 Behaviour in Case of an Accident

Results regarding consumers' behaviour in case of an accident are displayed in Figure 48. The results show that consumers indeed would be **willing to take appropriate actions**. The majority indicated performing first aid measure, bringing the packaging to the doctor and

calling a doctor. In contrast, **only 11%** indicated that they would **need to consult further sources**, i.e. via a search engine or the website of the manufacturer.

Figure 48: Behaviour in Case of an Accident by Product (Status Quo Label)



Notes: The question was: "Imagine an accident occurs while using this product. This could be that you or a member of your household swallows the product or the product splashes into someone's eyes. What would you do? (Select all that apply)"

Number of observations: N=670 (LD), N=670 (G)

Source: ConPolicy analysis of the experiment and survey data.

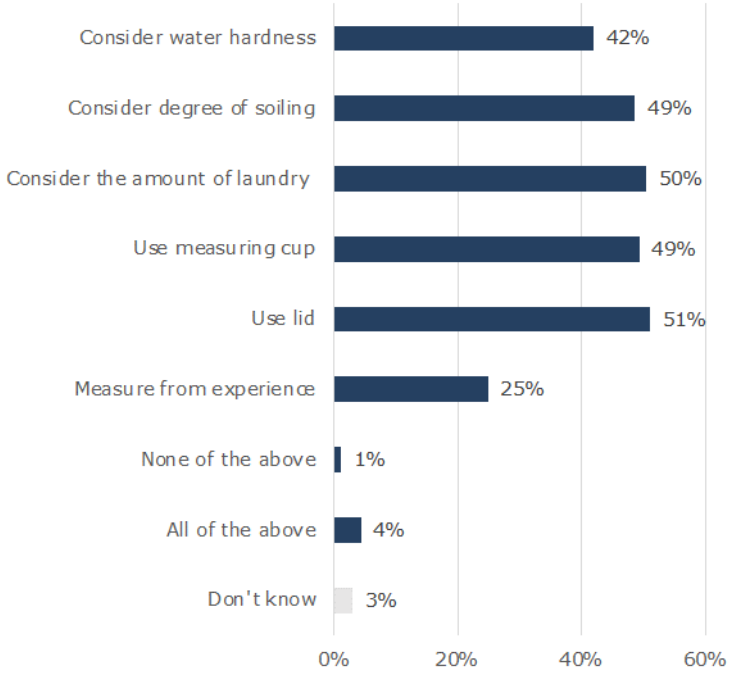
The results confirm previous findings and show that consumers would **take the appropriate measures** in case of an accidents. Furthermore, they **did not** indicate a **need** for **further information** by consulting additional resources.

8.3.6.4.8 Dosage Behaviour

As highlighted before, there is no "good" or "bad" behaviour when it comes to dosing the product. Nevertheless, dosage information following legislation considers several relevant aspects such as the water hardness and degree of soiling that determine the optimal amount of a product. Furthermore, tools such as a measuring cup or the product lid are helpful in order to avoid over-dosing. On the other hand, measuring from experience would only be appropriate if a consumer uses a product that he/she used before (and already considered relevant dosage information).

Figure 49 displays the results on dosage behaviour for the laundry detergent.[54] Results show that indeed **relevant measures** were claimed to be **taken by at least 40%**, whereas only **25%** of the participants would **rely on their personal experience** of using such a product. Lastly, **only 1%** of the participants indicated to take **none of the presented actions**.

Figure 49: Dosage Behaviour for Laundry Detergent (Status Quo Label)



Notes: The question was: "Imagine you would like to use this product. Which aspects do you consider and which tools would you use when dosing the product? (Select all that apply)"

Number of observations: N=670

Source: ConPolicy analysis of the experiment and survey data.

Again, results demonstrate that consumers would **follow relevant instructions** included in the **dosage table** of a product. Therefore, both water hardness as well as degree of soiling would be considered. Similarly, consumers indicated that they would measure the product by using a tool instead of basing their decision on experience alone.

8.3.6.4.9 Conclusion

Taken the results on the third research question together **consumers are (subjectively) able to interpret chemical labels under the current legislation/regulations**. They draw appropriate conclusions from the given information at display, i.e. the questions on risk ratings uniformly show that consumers attach more risk to an objectively riskier product. Furthermore, they are able to interpret specific label elements on hazards and process them correctly. In addition, the results show that CLP-relevant label elements are the ones

[54] Dosage behaviour was not elicited if a participant was assigned to the glue treatments.

consumers base their perception on, i.e. the GHS pictogram as well as hazard and precautionary statements. In the light of the second research question on the importance of labelling elements, results are confirmative. Hence, consumers not only rate CLP elements as important but also base their risk perception on them.

Next to the interpretation of labels it is also important that labelling induces appropriate behaviour. Hence, labelling should be constructed so that consumers take the correct measures in case of an accident and it should be assured that no further information is lacking. The results show that indeed **consumers would take appropriate measures** and **do not** indicate a **need** for **further information or help**. Additionally, consumers are motivated to read instructions and consider dosage aspects as instructed. It must be noted that results are not based on actual behaviour but rather self-reported. Nevertheless, it is in the best interest of consumers to follow instructions in order to promote safe use and prevent adverse effects that may arise from chemical substances.

8.3.6.5 8.3.6.5 RQ 4: Does label simplification and the introduction of digital tools positively or negatively affect consumers' understanding and perceptions?

The fourth research question aimed at investigating whether labels could be simplified. As described in the methodology section based on desk research a third treatment was introduced that was a simplification of the Status Quo Label. While most CLP-related information was maintained, certain aspects were reduced and moved to a website that could be accessed via a QR code. In the following, we refer to the third label as **Simplified Label with QR Code** and investigate how it performs compared to the No Label Baseline as well as the Status Quo Label. Therefore, several questions on understanding as well as consumer perceptions are presented.

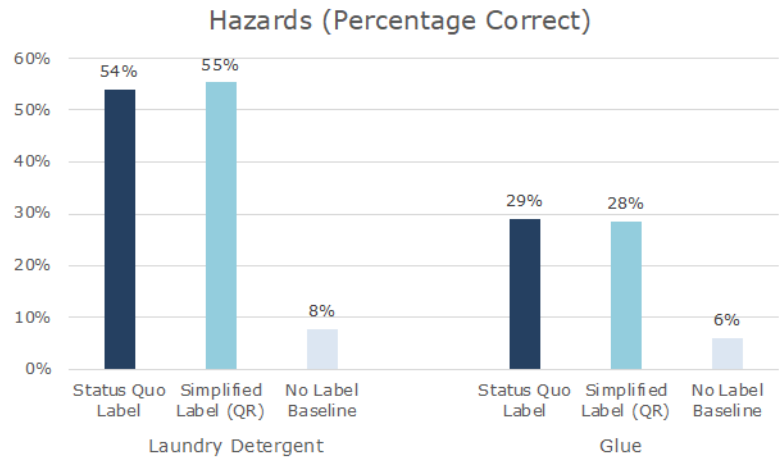
8.3.6.5.1 Objective Understanding

The first set of questions that aimed at investigating the performance of the different labelling treatments regarded the objective understanding of label information. Therefore, participants were asked to reply to three **objective questions** on **hazards**, **precautions** as well as **ingredients** that applied to the products.

Figure 50 displays the results for product hazards. **55%** of the participants in the **Simplified Label** treatment of the **laundry detergent** were able to **correctly** answer the question on hazards. The share of correct answers in the Status Quo treatment was 54% and in the No Label Baseline 8%. When comparing performance by treatment the difference between the Simplified Label and No Label Baseline is highly statistically significant ($p<0.001$). Performance between the Simplified and Status Quo Label on the other hand is not ($p=0.61$).

The same pattern may be observed for the **glue**. In the **Simplified Label** treatment **28%** of the participants answered the question **correctly**, in the Status Quo Label treatment the share was 29% and for the No Label Baseline it was only 6%. Again, the difference between the Simplified and Status Quo Label is not significant ($p=0.79$) while it is highly significant for the Simplified Label and the No Label Baseline ($p<0.001$).

Figure 50: Objective Understanding of Product Hazards by Treatment



Notes: The question was: "Please select all statements that are true about the product displayed on the left:" (Status Quo Label & Simplified Label (QR)) and "Thinking about a [laundry detergent / glue], please select all statements that are usually true about such a product:" (No Label Baseline).

Number of observations: N=2,001 (LD), N=2,002 (G)

Source: ConPolicy analysis of the experiment and survey data.

Furthermore, data reveals that **75%** of the participants assigned to the **Simplified Label** of the **laundry detergent zoomed** in on the label. Of those who took a closer look 70% answered the question on hazards correctly, while the share of correct answers among those who did not zoom was only 11%. The difference between the groups is statistically highly significant ($p<0.001$). The same pattern emerges for the **glue**. Overall, **80%** of the participants in the **Simplified Label** treatment **zoomed** in on the label. Among those who zoomed the share of correct answers was 34%, while it was only 5% among those who did not take a closer look at the label. Again, the difference is highly statistically significant ($p<0.001$).

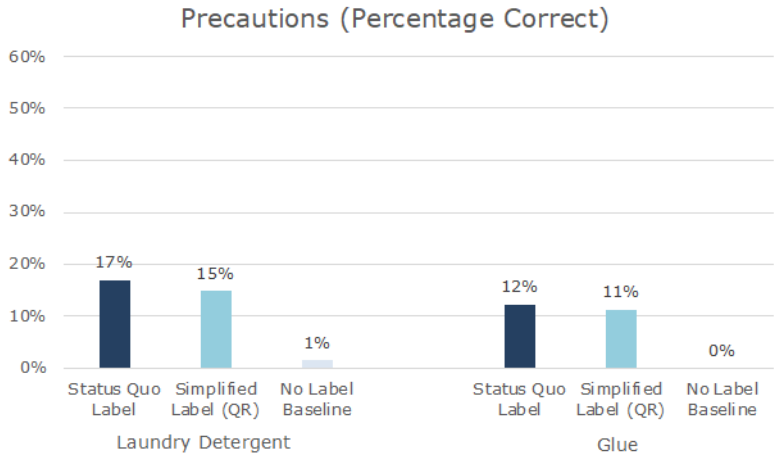
Overall, participants in the Simplified Label treatment of the laundry detergent spent on average 78 seconds to answer the question on hazards. For those assigned to the glue the average was 89 seconds. Furthermore, the data reveals that there exists a positive and significant correlation between time spent on the question and performance (□=0.43 for the laundry detergent and □=0.41 for the glue, both $p<0.001$).

Figure 51 displays the results for precautionary statements that apply to the products. As can be seen on the left (**laundry detergent**), the share of participants who **correctly** answer the question in the **Simplified Label** treatment was **15%**. For the Status Quo Label it was 17% and for the No Label Baseline 1%. The difference between the Simplified Label and the No Label Baseline is highly statistically significant ($p<0.001$), while it is not when comparing the Simplified and the Status Quo Label ($p=0.31$).

The same picture emerges when considering the **glue** (right side of the figure below). **11%** in the **Simplified Label** treatment answered the question **correctly**. The share for the Status Quo Label was 12% and for the No Label Baseline it was 0%. The difference between the

Simplified Label and the No Label Baseline is again highly statistically significant (p<0.001), while it is not when comparing the Simplified and Status Quo Label (p=0.61).

Figure 51: Objective Understanding of Precautions by Treatment



Notes: The question was: "From your reading of the label, when using this product would you: (Select all that apply)" (Status Quo Label & Simplified Label (QR)) and "When using a [laundry detergent / glue] would you: (Select all that apply)" (No Label Baseline).

Number of observations: N=2,001 (LD), N=2,002 (G)

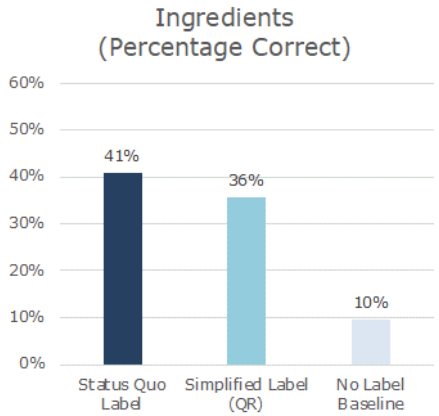
Source: ConPolicy analysis of the experiment and survey data.

With respect to taking a closer look at the Simplified Label (zooming) the following results emerge: In the **Simplified Label** treatment of the **laundry detergent 64%** of the participants **zoomed** in on the label. Of those who zoomed 22% answered the question on precautionary statements correctly, while the share of those who did not take a closer look was only 2% (difference statistically significant, p<0.001). Similarly, **68%** in the Simplified Label treatment of the **glue zoomed** in on the label. Among those participants who took a closer look 16% answered the question correctly and among those who did not zoom the share was 1% (difference statistically significant, p<0.001).

Furthermore, the time spent to answer the question was on average 53 seconds for the laundry detergent and 69 seconds for the glue. The more time participants spent to answer the question, the higher were chances of answering the question correctly (correlation □=0.37 for laundry detergent and □=0.31 for glue, both p<0.001).

Lastly, Figure 52 displays the results for ingredients contained in the laundry detergent. Participants in the **Simplified Label** treatment answered the question **correctly** in **36%** of the cases. The share of correct answers in the Status Quo Label treatment was 41% and in the No Label Baseline it was 10%. Performance in the Simplified Label treatment was significantly better than in the No Label Baseline (p<0.001). Similarly, performance in the Status Quo Label treatment was weakly, significantly better than in the Simplified Label treatment (p=0.05). Nevertheless, the effect size of the performance is negligible (Cohen's d = 0.11).

Figure 52: Objective Understanding of Product Ingredients by Treatment



Notes: The question was: "From your reading of the label, which ingredients are contained in this product? (Select all that apply)" (Status Quo Label & Simplified Label (QR)) and "From you experience with laundry detergents which ingredients are usually contained in such a product? (Select all that apply)" (No Label Baseline).

Number of observations: N=2,001

Source: ConPolicy analysis of the experiment and survey data.

Information regarding the ingredients was not included on the actual packaging of the Simplified Label but only could have been accessed via the QR code and the corresponding website (pop-up to be shown on screen). Overall, **63%** of the participants **accessed the website** with the ingredients list. Among those who accessed the website the share of answering the question on ingredients correctly was 54% while it was only 4% for those who did not access the website ($p<0.001$). Hence, consulting information enhances objective understanding by consumers.

Furthermore, participants on average took 48 seconds to answer the question. Again, there exists a positive and significant relationship between time spent to answer the question and performance (□=0.38, $p<0.001$).

In conclusion, the data shows that the **Simplified Label** with a QR Code **performs significantly better than** the **No Label Baseline**, i.e. receiving relevant information induced consumers to better understand safe use information compared to simply answering on experience with chemical products. Furthermore, the **Status Quo Label** and the **Simplified Label perform equally** with respect to hazards and precautions. Objective understanding of the ingredients contained in the product was – at least weakly significantly – worse in the Simplified Label treatment compared to the Status Quo Label, but the effect size was negligible. An explanation for this could be that ingredient information in the Simplified Label treatment was moved to a separate website to be accessed via a QR-code (pop-up on screen). **Accessing** this **website might be causing additional effort** on the side of the consumer and hence, not taking this further step on average negatively affects objective understanding. Lastly, the data on actively consulting the label, i.e. zooming, confirms previous results. The **majority of participants were willing to take a closer look** at the label

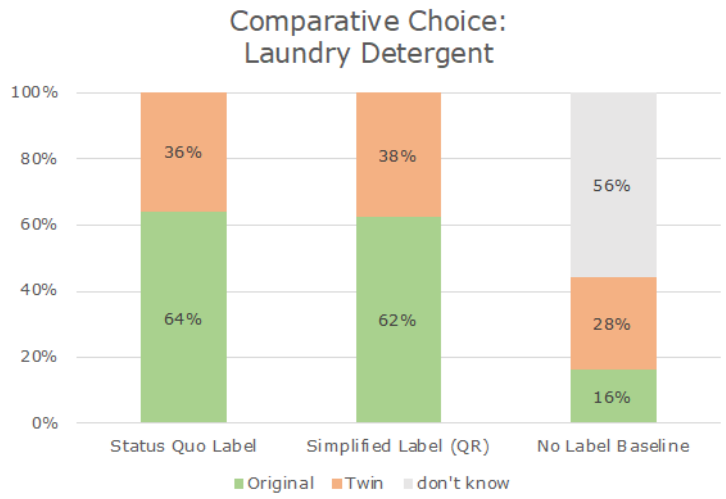
in the experiment and **if they consulted** the label their **understanding was** also **better** than when they did not consult the label.

8.3.6.5.2 Ability to Identify a Potentially Hazardous Product

In addition to the questions on objective understanding, the **comparative choice task** carried out in the experiment may be taken as further evidence on consumers' understanding of labelling information. Participants were asked to **identify the potentially less harmful product** among two.

As described previously for the **laundry detergent,** the original product was less harmful than its twin. Figure 53 displays the results by treatment. It can be observed that the majority of the participants (**62%**) in the **Simplified Label** treatment were able to **correctly** identify the less harmful product. The share among participants in the Status Quo Label was 64% and in the No Label Baseline it was 16%. When comparing the treatments with respect to correct answers, it can be found that the distribution of the Simplified Label and the No Label Baseline is highly statistically different ($p<0.001$). The difference between the Simplified Label and Status Quo Label, on the other hand, is not statistically significant ($p=0.46$).

Figure 53: Comparative Choice Task Laundry Detergent by Treatment



Notes: The question was: "Please take a look at the two laundry detergents. Taking into consideration the information available here, which product is less harmful, i.e. less hazardous for human health or the environment?". "Don't know"-category only available for No Label Baseline.

Number of observations: N=4,003

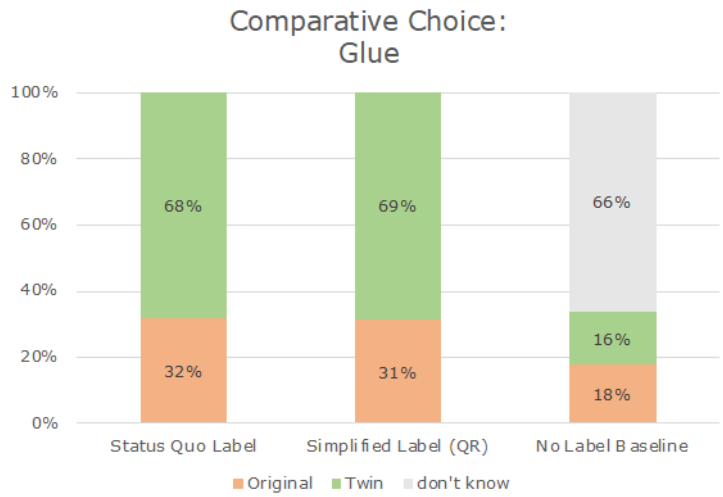
Source: ConPolicy analysis of the experiment and survey data.

Furthermore, the data from the comparative choice task shows that **72%** of the participants **zoomed** in **on both labels** displayed on screen. **21% consulted one** of the two labels and **8% did not zoom**. Among those who zoomed in on both labels 66% were able to correctly identify the less harmful product. The share among those who only consulted one of the two

labels was 55% and among those who zoomed in on none it was 47% (difference highly statistically significant, p<0.001).

The comparative choice task for the **glue** was designed such that the original product was more harmful than its twin. Hence, correctly interpreting labelling information would lead participants to choose the twin product. Figure 54 displays the results by treatment. Again, the majority of participants (**69%**) in the **Simplified Label** treatment were able to make the **correct** choice. The share for the Status Quo Label is 68% and for the No Label Baseline it is 16%. When comparing the distribution of correct answers by treatment it can be found that the Simplified Label treatment and the No Label Baseline are highly statistically different (p<0.001). The difference between the Simplified Label and the Status Quo Label, on the other hand, is not significant (p=0.77).

Figure 54: Comparative Choice Task Glue by Treatment



Notes: The question was: "Please take a look at the two glues. Taking into consideration the information available here, which product is less harmful, i.e. less hazardous for human health or the environment?". "Don't know"-category only available for No Label Baseline.

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

With respect to zooming behaviour the data shows that **71%** of the participants in the **Simplified Label** treatment **consulted both labels**, **25%** consulted **one** of the two and **5%** consulted **none**. Among those who consulted both labels, 70% answered the question correctly, among those who zoomed on one of the two labels the share was 65% and among those who did not zoom the share was 65% (differences not statistically significant, p=0.24).

In conclusion, the results from the comparative choice task confirm the findings from the previous question on objective understanding. The **Simplified Label performs significantly better than** the **No Label Baseline**, i.e. having label information allows consumers to make the correct choice. Similarly, the **Simplified Label and** the **Status Quo Label perform**

equally well. Lastly, **consumers were willing to consult** the label to gather relevant information and zooming in on the label partially helped consumers to make a better choice.

8.3.6.5.3 Rating of understandability and ease to find

As presented in the section on the first research question, consumers rated the Status Quo Label on average as rather or very easy to understand. Similarly, the individual label elements such as GHS-pictograms, hazard and precautionary statements were on average rated as rather or very easy to find on the packaging. In the following the rating of understandability and ease to find of the Simplified Label with QR-code is presented. Furthermore, the difference between the two labelling variants is statistically analysed.

The question on **understandability** was rated on a scale from "very easy to understand" (1) to "very difficult to understand" (5). The average rating over both products and all information elements was 2.00 for the **Simplified Label** which corresponds with **"rather easy to understand"**. The average rating of the Status Quo Label was slightly better with 1.94 which also corresponds with "rather easy to understand". Although the difference between the Simplified and Status Quo Label is weakly statistically significant ($p=0.04$) the absolute difference is rather negligible.

The question on **ease to find** the relevant label elements was rated on a scale for "very easy to find" (1) to "very difficult to find" (5). The average rating over both products and information elements was 2.06 for the **Simplified Label** which corresponds with **"rather easy to find"**. The average of the Status Quo Label was slightly better with 2.00 which also corresponds with "rather easy to find". Although the difference between the two label variants is weakly statistically significant ($p=0.05$), it again appears not very large.

As noted above, the Simplified Label was constructed such that the dosage table on-pack was reduced and the full table was available on a separate website to be accessed via the QR code. Furthermore, the list of ingredients was removed from the package label and moved to the QR code website. Hence, the analysis investigates the ease to find for those two label elements in more detail and compares the ratings between the Status Quo and Simplified Label. The average rating of the ease to find the dosage table was 1.70 for the Status Quo Label and 2.10 for the Simplified Label, i.e. "rather easy to find". Although the difference is statistically significant ($p<0.001$), the effect size is low (Cohen' $d = 0.43$). Similarly, the ease to find-rating of the list of ingredients was on average 1.90 for the Status Quo Label and 2.19 for the Simplified Label. The difference is statistically significant ($p<0.001$), but again, the effect size is only small (Cohen's $d = 0.32$).

Hence, both the results from subjective understanding and ease to find relevant label elements show that the **Simplified and the Status Quo Label are rated equally well** by consumers. Nevertheless, it must me noted that the rating questions are subjective and self-reported and hence, the appreciation of the labels could be over-rated by participants. Especially, because the overall performance in the questions on objective understanding is poor. But both subjective ratings and objective performance point in the same direction, i.e. the Status Quo Label and the Simplified Label perform equally.

8.3.6.5.4 Conclusion

In conclusion, the results on the fourth research question show that the **Simplified Label with QR code performs significantly better than** the **No Label Baseline**. Hence, providing

this type of labelling information can inform consumers with respect to relevant measures on safe use. Additionally, the **Simplified Label performs equally well as** the **Status Quo Label**, with the **exception of ingredients information** where the Status Quo Label performs slightly better.

An explanation for the later finding may be that the **effort of receiving ingredients information** is **larger for the Simplified Label**, i.e. information is moved to a separate website to be accessed via the QR-code. It must be noted that the experiment was only able to mimic access behaviour, i.e. opening the QR code in the experiment was comparatively easy and consumers could access the website as a pop-up directly on screen. In reality consumers would need to take their smartphone and scan the QR code in order to receive relevant information which might require more effort. Furthermore, accessing the QR code is only possible for consumers that own a smartphone and have access to mobile data.

Lastly, **both labels** are also **subjectively rated very positive**, i.e. with respect to subjective understanding and ease to find relevant labelling elements. The Status Quo Label under current regulation is rated slightly better than the Simplified Label. Nevertheless, the difference is not great and hence, both labels should be interpreted as equally good.

8.3.6.6 8.3.6.6 RQ 5: Do consumers prefer information to remain on the physical label or to be communicated via digital tools?

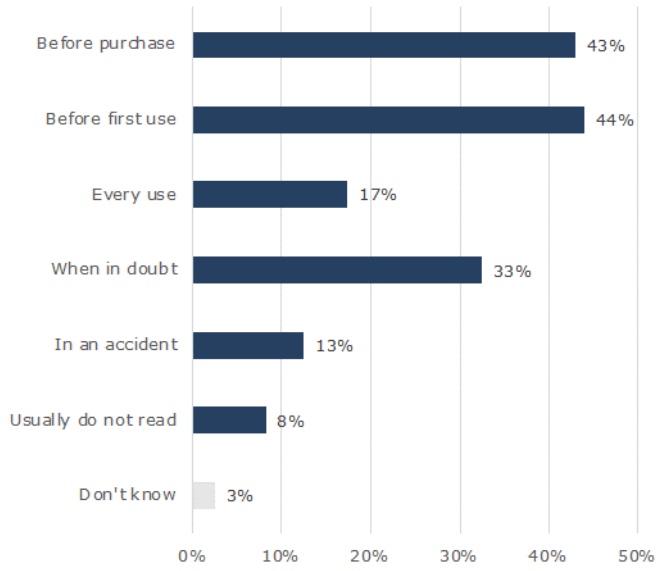
The fifth research question focusses on consumers' preferences regarding the ways to communicate CLP- and Detergents-relevant information. As the previous section demonstrated, both the Status Quo Label under current regulation and the Simplified Label with a QR code performed equally well with respect to objective understanding of hazards and precautions. Although the understanding of ingredients and ratings of subjective understandability and ease to find were slightly lower for the Simplified Label, the results are not conclusive regarding whether analogue or digital labelling is preferred by consumers.

Hence, the final set of questions asked participants to indicate their **willingness to consult labelling information via different means**. Furthermore, participants were asked to **choose between physical and digital communication** for CLP- and Detergents-relevant labelling aspects.

8.3.6.6.1 Reading Behaviour

As a first step, participants were asked about their reading behaviour of chemical labels, i.e. the point in time when they would usually read safety information. Figure 55 displays the results. The most frequent answers with **44% and 43%** respectively indicated reading the **label before first use or before purchase**. 33% said to read it when in doubt and 17% every use. 13% indicated to read it in case of an accident and only 8% said not to read the label.

Figure 55: Reading Behaviour of Labels



Notes: The question was: "When do you usually read the safety information on a label of a chemical product such as a laundry detergent or glue? (Select all that apply)"

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

Hence, the point in time when consumers usually consult labelling information is either **at purchase** (before buying the product) **or before using the product** at home. Hence, the means of communicating relevant information on safe use, ingredients and dosage should be tailored to these situations. The share of consulting the label in case of an accident was comparatively low which might be because not too many consumers "usually" experience accidents with chemical products. When looking at the results from the third research question, it can be seen that consulting the label in case of an accident is indeed a relevant measure to prevent adverse effects.

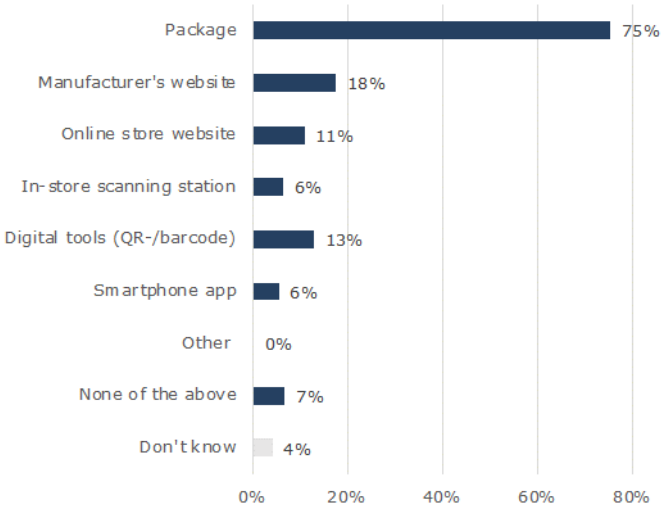
8.3.6.6.2 Information Channels

The second question focusses on the **general willingness to consult** chemical labels **by different analogue and digital means**. Therefore, participants were asked to indicate whether they would actively consult label instructions and safe use information via the package label, different types of websites as well as digital tools such as QR-codes or smartphone apps.

Figure 56 displays the results by information channel. The **vast majority** of participants **(75%)** indicated that they would **consult** labelling information **via the physical packaging.** All other means were less popular. 18% chose the manufacturer's website, 13% digital tools such as QR- or barcodes, 11% an online store website and 6% an in-store scanning station or

smartphone app. The percentage of consumers who are willing to **consult at least one digital tool** is **35%**.[55]

Figure 56: Willingness to Consult Labelling Information via different Information Channels



Notes: The question was: "When purchasing or using a chemical product such as a laundry detergent or glue, would you actively consult use instructions, information on hazards or precautions via any of the following means: (Select all that apply)"

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

In conclusion, the results are a first indication that physical labelling is the preferred option. The vast **majority** indicated to be willing to consult information **via** the **packaging** of the product. Nevertheless, it must also be noted that **approx. one third** of the consumers are **at least willing to consider digital means**.

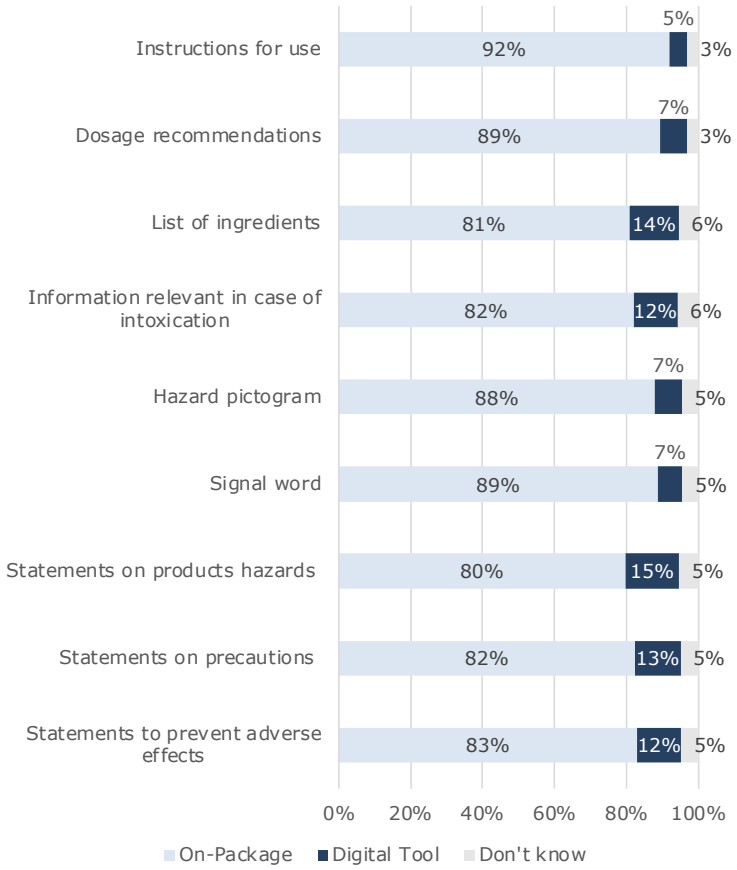
8.3.6.6.3 Preference for Communicating Label Elements (analogue versus digital)

Following the previous results on the general willingness to consult labelling information via different means, the subsequent question asked participants to indicate their **preference between physical and digital labelling** for different CLP-related information elements such as hazard pictograms, ingredients, and instructions for safe use.

Figure 57 shows that for all types of labelling elements the **majority of over 80% prefers physical labelling over digital tools**.

Figure 57: Preference for Communicating Label Elements (analogue versus digital)

[55] The binary variable groups those consumers who selected either the manufacturer's website, online store website, in-store scanning station, digital tools (QR- / barcode), smartphone app or a combination of the digital tools versus those who did not select any digital tool.



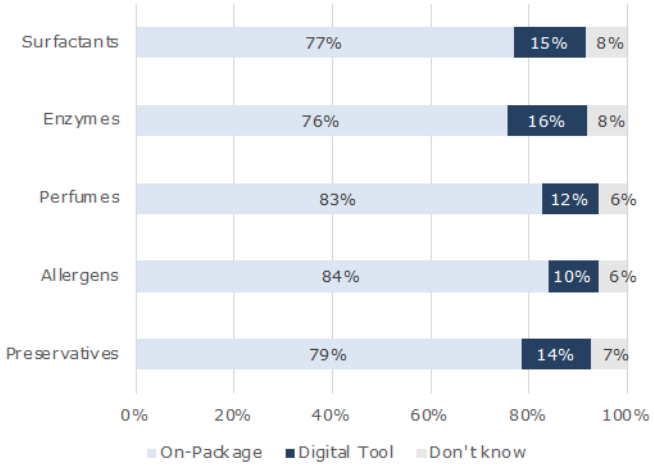
Notes: The question was: "Thinking of a product label for a chemical product such as a laundry detergent or glue, how would you like to receive the following product information: You can either choose to have it on the package label or to access it through / by using a digital tool such as websites, QR-codes or apps. Please select one answer per row"

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

Furthermore, the question was repeated for ingredients contained in detergent products. Participants again were asked to choose among physical or digital labelling for a list of specific laundry detergent ingredients. Again, the results confirm previous findings (see Figure 58). For all different types of specific ingredients potentially contained in detergents, **approx. 80% preferred the physical label over digital means**.

Figure 58: Preference for Communicating Ingredient Information (analogue versus digital)



Notes: The question was: "Thinking of a product label for a laundry detergent in specific, how would you like to receive the information on certain / some of the ingredients contained in the product:"

Number of observations: N=4,003

Source: ConPolicy analysis of the experiment and survey data.

The findings show that the preferences of consumers are clear. When having the choice between either analogue or digital means, the **analogue communication was strictly preferred**. This holds true for all CLP- and Detergent-relevant labelling elements.

Furthermore, the preference for analogue versus digital labelling was analysed with respect to two socio-demographic aspects, i.e. age and digital readiness. The preference in favour of digital labelling is negatively correlated with age (□=–0.28, p<0.001). Nevertheless, the correlation is rather low. Furthermore, the preference for digital labelling is positively correlated with digital readiness (□=0.25, p<0.001), hence, again rather low.

8.3.6.6.4 Conclusion

The results on the fifth research question on the preference between physical and digital labelling can be summarised as follows: Firstly, the survey data shows that consumers usually **read labelling information either before first use or before purchase**. Therefore, all means of communication **should be accessible** in both situations, i.e. not only when consumers are at home but also when they are in the shop deciding upon a product. When considering digital tools, it is therefore relevant that consumers either have a personal device to access information or the retailer provides an accessible way to gather information.

Overall, **approximately a third of consumers is open to consult labelling information via digital tools** such as websites, scanning stations or their phone. It must be noted that especially in-store scanning stations as well as specific smartphone apps for labelling information are currently rather uncommon. Hence, consumers do not have experience with using such tools, but their general openness shows that at least some would consider them.

Nevertheless, the results demonstrate that when consumers would need to decide between either physical labelling on the packaging or digital tools, their preferences are clear. The

majority prefers physical over digital labelling when it comes to relevant CLP- and Detergents-information. A potential explanation could be consumers' age and their digital readiness. Nevertheless, the analysis only indicates the effects to be small.

Annex 9 ANNEX 9 SIMPLIFICATION MEASURES

9.1 9.1 LABELLING OF PROFESSIONAL DETERGENTS THROUGH SAFETY DATA SHEETS ('SDS')

9.1.1 9.1.1 The problem

The evaluation found that an inconsistency exists between the requirements for compiling a SDS under REACH and the labelling requirements of the Regulation for industrial and institutional detergents that can be provided in a SDS as an alternative to the on-pack label. This inconsistency results from the fact that the safety data sheet is compiled in accordance with the requirements stipulated in REACH, which are different from the labelling requirements of the Regulation. The guidance[56] has clarified that the criteria for listing ingredients according with the Regulation differ in three important aspects from the corresponding criteria for Section 3 of the safety data sheet as detailed in Annex II to REACH:

- The specification of ingredients according to the Regulation is not dependent on whether these ingredients are hazardous or non-hazardous. In this sense the Regulation only provides a list of selected substances to be specified, whereas REACH requires that only hazardous substances or substances with specific characteristics are listed in the safety data sheet;
- For the listing of hazardous substances in the safety data sheet REACH refers to the concentration thresholds set in the CLP Regulation. These concentration thresholds are different from those provided for the listing of ingredients under the Detergents Regulation; and
- The format of listing substances under the two Regulations can sometimes differ: the safety data sheet requires the listing of individual hazardous substances while for certain ingredients[57] the Detergents Regulation requires the listing of classes of substances.

As a result, a single ingredient list cannot be expected to successfully meet the requirements of both pieces of legislation. However, according to the guidance, both lists (i.e. the list of substances to be listed in Section 3 of the safety data sheet according to REACH, and the list of detergent ingredients according to the labelling requirements of the Detergents Regulation) can be displayed under Section 3 of the safety data sheet, as long as they are clearly distinguished from each other by means of suitable (sub) headings indicating to which piece of legislation they apply.

Despite the existing guidance, stakeholders sustained that these inconsistencies could result in lack of clarity for workers and create an unnecessary burden on micro and small-sized manufacturers dealing with multiple pieces of legislation with different requirements.

[56] European Commission (2018): Questions and agreed answers concerning the correct implementation of Regulation (EC) No 648/2004 on detergents, available at: http://ec.europa.eu/DocsRoom/documents/19522/attachments/1/translations/en/renditions/native

[57] Enzymes, disinfectants, optical brighteners and perfumes (Annex VII A to the Detergents Regulation).

During the consultation for this Impact Assessment, stakeholders did not identify this as a significant issue. While several manufacturers confirmed the existence of the above described inconsistency, they did not classify this a 'major issue' for the industry. Similar views were also expressed by national authorities. Although the need for clarification was requested in a few cases, all respondents agreed this could be done with guidelines and not as a change to the Regulation. The only exception is one authority that suggested the simplification of Section 3 of Annex II to REACH.

9.1.2 9.1.2 The policy option

This policy option suggests that a provision will be included in the revised Regulation to explicitly refer to a suitable section of the SDS in which the specific labelling information for professional detergents should be included so that this information is clearer to professional users. This option is a simplification of the implementation of the existing requirements which will impose no additional costs to the industry but which will provide a clarification to professional users and will facilitate manufacturers when compiling the SDS for professional detergents. The intervention is linked with the second specific objective (SO2) i.e. to provide an optimised protection of human health and the environment.

9.2 9.2 CARRY-OVER PRESERVATIVES

9.2.1 9.2.1 The problem

The evaluation identified an issue related to the labelling of preservatives in detergents. The Regulation requires that, if added, preservatives shall be listed irrespective of their concentration on detergents labels. This provision of the Regulation has been subject to different interpretations and poses certain issues with regards to the labelling of what is often referred to as 'carry-over preservatives'. Carry-over preservatives are preservatives that are not added in the detergent as such by the detergent manufacturer, but are present in a mixture which the detergent manufacturer incorporates in the detergent (constituent mixture). Traces of the preservative that was included in the constituent mixture can be therefore found in the final product (i.e. the detergent) in small concentrations.

Companies, industry associations and Member State authorities noted that it is not clear how carry-over preservatives should be dealt with within the context of the Regulation and if the above mentioned provision is applicable to them as well. This lack of clarity results in differences in the implementation and enforcement of this provision of the Regulation alike.

For example, one consumer organisation noted during the consultation for the evaluation that carry-over preservatives are not always listed on the label and that only preservatives that preserve the final product are. An industry association highlighted the example of a company that had declared the use of a substance (a carry-over preservative) in a detergent on the product label even though it was included in the detergent at a concentration below the limit of detection. The company had received an official complaint by the authorities who indicated that the substance had been incorrectly labelled (because the authorities were unable to detect it). Another industry stakeholder indicated that the ability to test for substances used in products has increased over recent years and that the most important consideration is that substances used in detergents are below the levels deemed to cause any adverse impacts.

9.2.2 9.2.2 The policy option

In the revised Regulation, it will be clarified that carry-over preservatives will need to be listed on detergents labels unless these do not present an adverse effect even for sensitised persons or they are technically unavoidable. This policy option contributes to the achievement of the second specific objective (SO2 - optimised protection of human health and the environment).

9.3 9.3 AMBIGUOUS DEFINITIONS

9.3.1 9.3.1 The problem

During the consultation for the evaluation stakeholders reported that some of the definitions provided in Article 2 of DETREG are unclear or open to interpretation. The definitions that were identified as posing a particular issue in this regard are the following:

- Detergent (Article 2(1));
- Cleaning mixture (Article 2(1));
- Other cleaning and washing mixtures (Article 2(1)); and
- Cleaning (Article (2(3)).

These stakeholders claimed that this results in lack of clarity as to whether some of the products available on the market fall under the scope of the Regulation or not. During the Public Consultation for this initiative responses were split almost precisely in half (50/50) as to whether it is always clear if a product fall under the scope of the regulation or not. While business stakeholders believe by over two-thirds (31 out of 41) that it is always clear, public authorities see the exact opposite and more than two-thirds of them (15 out of 19) believe that it is not always clear if a product is a detergent or not within the meaning of the Regulation. Respondents from the civil society and other organisations believe even more strongly that this is not always clear (5 out of 6 responses and 5 out of 5 respectively).

9.3.2 9.3.2 The policy option

The definitions that have been identified as unclear or open to interpretation will be clarified based on existing guidelines. The definitions will in any case need to be revised to accommodate new products (microbial cleaning products) and clarify sustainable new practices (refill sales). During the Public Consultation for this initiative, the majority of respondents mentioned that clarifying the definitions would provide legal certainty, facilitate the work of manufacturers and Member States authorities and level the playing field for detergents manufacturers[58]. Clarifying the definitions will also contribute to the achievement

[58] 27 out of 121 respondents stated that it would not yield any benefits for detergents manufacturers or Member State authorities. It should be noted that this was a multiple choice question.

of SO1 as it could facilitate the take up of new products and practices in the future, and will help reduce uncertainties in the implementation of the Regulation.

9.4 9.4 LABELLING OF DISINFECTANTS

9.4.1 9.4.1 The problem

Detergents that have an antibacterial function or contain a preservation agent are required to comply with the provisions of both the Detergents Regulation and the Biocidal Products Regulation. The rules apply to both laundry and dishwasher detergents as well as other detergent types, covering detergents for consumer, professional and industrial use.

Under the Detergents Regulation, surfactants that are also active substances within the meaning of the Biocidal Products Regulation and that are used as disinfectants are exempt from the biodegradability criteria of the Detergents Regulation provided that they are either approved active substances or authorised constituents of biocidal products under the Biocidal Products Regulation[59]. These surfactants and the detergents that contain them do, however, need to comply with the labelling provisions of the Detergents Regulation.

During the consultation, several stakeholders noted that there is an overlap between the Detergents Regulation and the Biocidal Products Regulation in the sense that detergents that are also used as disinfectants would need to comply with the labelling provisions of both. As the labelling requirements for these ingredients differ between the two Regulations, this often leads to duplicate labelling i.e. the same substance being labelled twice, once following the provisions of the Detergents Regulation and once those of the Biocidal Products Regulation.

9.4.2 9.4.2 The policy option

The duplicated requirement to label disinfectants will be removed from the Detergents Regulation. This policy option will further increase the readability of detergents labels and reduce burden for detergents manufacturers, thus contributing to SO3 and SO4 of this initiative.

9.5 9.5 NLF ALIGNEMENT

9.5.1 9.5.1 The problem

Decision 968/2008[60] lays down a common framework for the marketing of products in the Union by establishing a general framework of a horizontal nature for future legislation harmonising the conditions for the marketing of products as well as a reference text for existing legislation. Its main objective is to improve market surveillance and clarify and strengthen the conformity assessment procedures through which products can be CE marked and move freely in the internal market.

[59] Article 3 of the Detergents Regulation.

[60] Decision No 768/2008/EC of the European parliament and of the council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC

The Regulation dating from 2004 is not aligned with the New Legislative Framework ('NLF') that the above Decision has established. As a result the Regulation is first not aligned with other Union product legislation and secondly not able to fully take advantage of the opportunities that this framework offers.

9.5.2 9.5.2 The policy option

This option suggests to align the Regulation with the NLF. While this option was not strongly supported by industry stakeholders who indicated in their responses to the IIA their preference for maintaining status quo, an alignment with the NLF is, nevertheless, considered appropriate and necessary in order to, on one hand, facilitate the work of economic operators that would have the same obligations as under all sectoral Union legislation already aligned to NLF and, on the other, to facilitate the work of market surveillance authorities.

As part of this alignment a digital product passport for detergents and surfactants will be introduced in the revised Regulation. This product passport should replace the EU declaration of conformity under Directive 2009/48/EC and include the elements necessary to assess the compliance of the detergent or surfactant with the applicable requirements and test methods. Through the data carrier, market surveillance authorities, economic operators and consumers should have immediate access to compliance or other information on the detergent or surfactant.

SME TEST

The initiative is considered as relevant for SMEs.

Step 1/4: Identification of affected businesses

Main affected businesses are manufacturers of detergents. Manufacturers encompass a wide range of players in the industry, covering small, medium and large enterprises that manufacture and sell an extensive and diverse range of products. Eurostat does not contain granular data on sizes of companies in the detergents sector as the relevant category is wider than the products falling under the scope of the Detergents Regulation[61]. However, using this category as a proxy for the detergents industry, we can gain an insight into the size composition for the sector. In general, SMEs are estimated to represent more than 92% of the overall companies in the detergents sector, generating about 11% of its turnover. In 2018, 7,568 enterprises in the sector were microenterprises (less than 10 employees) amounting to a total of 78% of the total number of companies, while small and medium enterprises represented about 8% and 6% respectively (see also Annex 6) [62].

Distributors and retailers of detergents and professional users (professional cleaning and hygiene sectors) are also affected.

Two types of policy options have been assessed and these affect differently the SMEs:

- Currently refill sales and microbial cleaning products are being actively undertaken mostly by SMEs in the EU, and this makes option 1b (facilitate the refill sales and introduce new requirements for microbial cleaning products) one which mainly impacts SMEs.
- Option 2b (abolishment of duplicated ingredient data sheet and streamline and simplify labelling requirements via the introduction of digital labelling), uniformly affects the sector overall, and hence also SMEs.

Key question: **To what extent is the initiative relevant for SMEs?** (not relevant, relevant, highly relevant)

This initiative is considered relevant for SMEs, as these constitute the main players in the manufacturing of microbial detergents and in refill sales. The initiative was considered as relevant for SMEs by the SME Filter.

Step 2/4: Consultation of SME Stakeholders

Acknowledging the importance of SMEs in the sector, several efforts were made to reach out to as many SMEs as possible and gather their views on the proposed intervention. The responses and concerns of SMEs as expressed during the consultation activities for this impact assessment have been duly considered and accounted for.

In particular, consultation with SMEs representatives has taken place through the following

[61] The relevant category is NACE 20.41 "Manufacture of soap and detergents, cleaning and polishing preparations". This includes some products that are included in Detergents Regulation, but also contains glycerol and manufacture of polishing products, perfumes and toilet preparations which are largely out of its scope.

[62] Draft final report of the Impact Assessment study on the making available and placing on the market of detergents, Europe Economics, The Huggard Group, Milieu (2022).

(for details see synopsis report in Annex 2):

The Commission published an Inception Impact Assessment[63] to inform citizens and stakeholders about the Commission's plans to revise the Detergents Regulation. During the consultation period (21 September 2021 - 19 October 2021) all interested stakeholders were invited to provide views on the Commission's understanding of the problem and possible solutions and to make available any relevant information that they may have, including on possible impacts of the different options. At the time of closure, there were 15 responses received, including a response from SME United, which is the main EU business federations grouping SME trade associations.

A Public Consultation (PC) was launched on 02 March 2022, and remained open until 25 May 2022, for a total of 12 weeks[64]. In total, 126 replies were recorded to the PC, coming from 21 EU Member States and 5 non-EU countries. Of those: 21 replies were from SMEs: 6 from micro (<10 employees), 11 from small (< 50 employees), and 4 from medium (< 250 employees). SME United also contributed to the PC. In an attempt to maximise SME participation and feedback on this initiative, the link to the PC and the questionnaire for the targeted consultation were also disseminated to SMEs through the SME Envoy Network.

Finally, several targeted interviews were undertaken. These included nine SMEs, as well as SME United. The responses and concerns of SMEs have been taken into account in the assessment. In cases where there were doubts, questions were followed up with additional interviews and email exchanges. During these interviews, no specific issues were raised by SMEs and where costs were identified, these were considered acceptable by them.

Step 3/4: Assessment of the impact on SMEs

When conducting the SME test, we have established that adding labelling requirements under policy option 1 (a and b) to inform consumers about the presence of microbes in detergents could be done at negligible costs for manufacturers and distributors. In addition, for those SME companies currently working on “known microbes” the costs of introducing new requirements on those products under policy option 1b will be negligible, as most of the microbes are already part of both the QPS list and Risk Group 1 (tests of exclusion of pathogens and antibiotic resistance are already being undertaken or can be done at negligible cost). Those firms will be able to work and expand their production at no cost. The policy option allows working in new strains for R&D purposes, but given the uncertain state of scientific evidence about possible harms from those new microbes, it also foresees that these can be placed on the market after a report has been produced by a scientific body based on a mandate stemming from the introduction of a review clause in the revised Regulation. Because at the moment most manufacturers are working with known microbes, this is expected to have little impact on SMEs. It is clear that as a result of the option, trade across the EU of microbial products would become easier, as a harmonised framework would be provided for such products, making intra-EU trade less costly also for small operators. However, the overall impact will be small, as the market for these products is currently very small (although it may grow over time). In any case, positive impacts would benefit mostly

[63] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13116-Detergents-streamlining-and-updating-the-EU-rules_en

[64] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13116-Detergents-streamlining-and-updating-the-EU-rules/public-consultation_en

SMEs, which represent most of the economic actors in this market. The intervention on refill sales under policy option 1 will modify labelling requirements for those sales, thus affecting administrative burdens borne by companies along the value chain (manufacturers and distributors). At the same time, the proposed changes would allow companies to use e-labelling as well as other forms of labels, including stickers and printouts of labels, which would reduce administrative burdens for manufacturers. In summary, we have concluded that this option would support the development of the refill distribution channels which could benefit existing players, including small ones, as well as attract new entrants (most likely SMEs) into this market. Intervention would be done in a way that does not result in additional burdens but rather provides clarity and legal certainty for manufacturers and retailers of refill detergents, all of which will benefit refill distributors that mostly consist of SMEs. In any case, by harmonising rules for refill sales, this option would prevent any emerging national diverging regulations for this new sales method. Therefore, it would avoid that barriers to trade emerge within the EU.

The net impact of abolishing duplicated ingredient data sheets and of streamlining and simplifying labelling requirements via the introduction of digital labelling under policy option 2b will result in cost savings for the industry, including SMEs. The burden savings achieved under this option are low to moderate, and hence unlikely to generate major market impacts. However, they would particularly benefit SMEs, since the burdens for compiling data sheets is a fixed cost, irrespective of the turnover / sales generated by the product and company. Under this option the functioning of the Single Market will also be improved because of a more even level-playing field, the elimination of current discrepancies among Member States in the application and enforcement of the existing information requirements. Finally, a more widespread use of e-labels would reduce burdens due to redesign, since online information is less costly to amend. However, the positive impact would be less significant for SMEs than for larger companies. This is largely because SMEs are more likely to lack the IT skills necessary to transition to digital labelling, as well have more limited resources to invest in digitalisation. The switch to digital labelling would generate certain administrative burdens, both one-off and ongoing, for setting up an online information repository, but it will not be disproportionate, as these would only be incurred on a voluntary basis. Given the SMEs' lower human and financial resources, targeted support for smaller players to promote digitalisation in this area could be considered.

Overall, the proposed policy interventions favour SMEs and when costs are incurred, these do not overburden SMEs in comparison to bigger enterprises. In particular, additional very small burdens are expected due to the risk management requirements for microbial cleaning products, in the area of €200.000[65]. However, the abolishment of the ingredient data sheet for hazardous detergents would generate cost savings of €7 million per year. The facilitation of refill sales under the revised Regulated is expected to generate further annual cost savings due to reduced disposal of plastic waste. While these could not be quantified, the relevant cost

[65] This **is an upper bound estimate, calculated on the basis of the average costs for testing and the highest number of batches reported by manufacturers** (see section 6.2.1). It is therefore highly likely that this number will vary depending on: a) the size of the company; b) the number of products in the company's portfolio or batches produced per year; c) whether the tests are conducted in house or outsourced to a laboratory; and d) the extent that the companies are already complying with all or some of these requirements. For example, companies whose products already bear the EU-Ecolabel, having a more limited product portfolio or producing less batches would incur no or minor additional costs.

savings under the baseline are within the range of €3.3 million. Even though these cost savings are for the whole detergents industry given that SMEs represent more than 95% of the companies in the sector and that most companies producing refill detergents are SMES, the latter would particularly benefit from these cost savings under the preferred option. Finally, it should be noted that some additional administrative costs savings due to voluntary digitalisation of labels that cannot be quantified could also exist.

Step 4/4: Minimising negative impacts on SMEs

Some measures have been considered to mitigate the impacts on SMEs. These are:

- Allowing a transition period greater than a year (*i.e.* 18 months) for updating labels of detergents.
- Allowing unknown microbes to be used for R&D purposes.
- Allowing unknown microbes to be placed on the market, introduction of a review clause for new ('unknown') microbes (following the report from a scientific body).
- Allowing exclusive digital labelling for refill detergents.

Annex 10 ANNEX 10 MONITORING INDICATORS

Table 33 Overview of indicators for monitoring the impacts of the preferred option

Specific objective	Operational objective	Indicator	Unit of measurement	Baseline (benchmarks for comparison)	Data Source
SO1: Clear and updated rules that level the playing field and allow for innovative products and sustainable new practices	Increased legal certainty and reduced fragmentation of the Single Market	Perceived increased legal certainty and reduced legal fragmentation	% increase of stakeholders declaring legal uncertainty	Stakeholders reported both during the consultation for the Evaluation and this Impact Assessment legal uncertainty and a lack of level playing field both for refill sales and microbial cleaning products	Study/ consultation___of stakeholders /
	Incentivise growth of refill sales	Growth of the refill sales of detergents	% growth of sales	1-2% of the overall detergents market	Study/ consultation___of stakeholders
	Increased compliance with labelling by the refill sector	Rate of compliance with the provision of labelling by the refill sector	% increase of compliance rate	50% non-compliance *	Consultation of market surveillance authorities within the Detergents Working Group/ Market surveillance findings in the internet-supported information and

					communication system for the pan-European market surveillance (ICSMS)
		Uptake of digital labelling within the sector (including for refill sales)	% of uptake of digital labelling	Baseline data not available given that these are newly introduced requirements-benchmarks to be established during the evaluation	Study/ consultation___of stakeholders /
		Rate of compliance with the provision of labelling information online	% increase of compliance with the requirement to maintain a website with a full ingredient list	40% of non-compliance with the website rules (either providing the address on the label or the full list of ingredients on the website)	Study/ consultation___of stakeholders / consultation of market surveillance authorities within the Detergents Working Group / Safety Gate notifications (e.g. RAPEX)
SO2: Optimised protection of human health and the environment	Increased safety from the introduction of safety requirements for microbial cleaning products	Perceived safety from the introduction of safety requirements for microbial cleaning products	% of compliance of microbial cleaning products with the new requirements Number of RAPEX notifications for microbial	Baseline data not available given that these are newly introduced requirements-benchmarks to be established	Study/ desk research / consultation of market surveillance authorities within the Detergents Working Group / Safety Gate notifications (e.g. RAPEX)

			cleaning products	during the evaluation 0 –no RAPEX notification concerning microbial products until 2021	
	Increased safety from the introduction of clarified rules for refill sales	Perceived safety from the introduction of clarified rules for refill sales	Number of RAPEX notifications for refilled detergents Consumers perception of safety of refilled detergents	0 –no RAPEX notification concerning refilled sales of detergents Baseline data not available given that this type of sale was previously not explicitly covered by the Regulation - benchmarks to be established during the evaluation	Study/ desk research / consultation of market surveillance authorities within the Detergents Working Group / Safety Gate notifications (e.g. RAPEX)
SO3: Burden reduction for detergents manufacturers	Reduction of relabelling costs due to simplification and digitalisation of labels	Reduced re-labelling costs	% of reduction of re-labelling costs and potential changes in the labelling cycle	Stakeholders highlighted high labelling costs for detergents during the consultatio	Study/desk research/consultation of stakeholders

				ns both under this IA and the Evaluation - benchmarks to be established during the evaluation	
	Reduction of plastic waste and unused label stock	Increased reduction of plastic waste and unused label stock	% of reduction of plastic waste and unused label stock	Estimated monetary value of unused label stock under baseline - 3.3. million annually	Study/desk research/consultation of stakeholders
SO4: Improved consumer understanding and awareness of labels	Reduction of accidents, or poisoning incidents with detergents	Increased reduction of accidents, or poisoning incidents with detergents	% of poisoning incidents with detergents	benchmarks to be established during the evaluation	Study/desk research/ consultation of poisoning centres
	Ease of readability and understandability of labels	Consumer perception of simplified labels	Increased ease of readability and understandability of labels compared to the baseline	Consumers do not understand current labels that are overloaded with information and include duplications Consumers do not easily locate the relevant informatio	Study/desk research/consultation of stakeholders

				n on detergents labels	
	Use of digital labelling by consumers and level of awareness and understanding of labelling information	Number of consumers using the digital label and impacts on awareness and understanding	Wide use of digital labelling by consumers and increased level of awareness and understanding of labelling information	benchmarks to be established during the evaluation	Study/desk research/consultation of stakeholders

* Rate of non-compliance of refill detergents with the CLP requirements and assumed the same with the similar requirements under the Detergents Regulation since in most cases consumers bring their own bottle to (re)fill in store from a larger container and this bottle either bears the wrong or no label at all (see section 3 of the report).

Annex 11 ANNEX 11 CONCLUSIONS OF THE DETERGENTS EVALUATION AND THE CHEMICALS FITNESS CHECK

11.1 11.1 DETERGENTS EVALUATION

11.1.1 11.1.1 Relevance

The findings of this evaluation indicate that the objectives of the Detergents Regulation (i.e. to achieve the free movement of detergents and surfactants for detergents in the internal market while, at the same time, ensuring a high degree of protection of the environment and human health) are still relevant considering the evolution of societal needs and technological developments. The new limits introduced in 2012 on the phosphorus content of consumer laundry detergents and consumer automatic dishwasher detergents, for example, were seen as a positive adaptation to changing needs.

A key issue that was identified is that the concepts and definitions used in the Detergents Regulation may not always be in line and coherent with the meaning they have gained over time and in practice. This results in lack of clarity on whether certain products available on the market fall under the scope of the Regulation or not (e.g. microbial cleaning products).

There are some areas where the Regulation has not kept pace with technical and other developments. For example, the labelling requirements of the Regulation are not well adapted to the recently developed practice of the refill sale of detergents and the dosing instructions might need to be adapted to the current size of standard washing machine loads.

11.1.2 11.1.2 Coherence

The provisions of the Detergents Regulation were found to be internally coherent with no major gaps or inconsistencies existing among them.

Some gaps were identified between the Detergents Regulation, the Cosmetic Products Regulation and the Biocidal Products Regulation. These gaps relate to the lack of specific provisions to restrict or ban the use of category 2 Carcinogenic Mutagenic and Reprotoxic substances ('CMRs') in detergents and the lack of specific labelling requirements for nanomaterial ingredients in the Detergents Regulation. While no evidence exists about the use of category 2 CMRs in detergents, it is however true that these substances are treated differently under the Detergents Regulation and the Cosmetic Products Regulation even though detergents and cosmetics are similar formulations to a large extent and certain detergents are comparable to rinse-off cosmetics in the sense that they come in contact with the human skin. No impacts have been reported from this inconsistency neither from the detergents industry's point of view nor from a consumer perspective.

A similar gap exists with regards to nanomaterial ingredients in detergents. While for both biocides and cosmetics specific labelling requirements are in place under the respective Regulations, no such requirements exist under the Detergents Regulation. It should, however, be noted that substances in nanoform that trigger a classification under the CLP Regulation would be labelled on detergents following the labelling requirements of the CLP Regulation.

The only difference with the requirements for cosmetic and biocidal products would be that in this case the word 'nano' would not be added next to the substance contained in the detergent in a nanoform. While it is understandable that such a reference would improve the communication of information to consumers, the extent to which this information would be useful to them needs to be further explored.

Some overlaps and inconsistencies were identified between the Detergents Regulation and other pieces of EU chemicals legislation, i.e. the REACH Regulation, the CLP Regulation, the recently added Annex VIII to the CLP Regulation harmonising the information relating to emergency health response and the Biocidal Products Regulation. These overlaps often result in duplications in the labelling of substances/ingredients on detergents' labels. The principal areas of overlap/inconsistency are as follows:

- **The Detergents Regulation and the REACH Regulation:**
    - An overlap between the ingredient data sheet under the Detergents Regulation and the safety data sheet under REACH was identified. The findings of this evaluation do not allow however to conclude with certainty what exactly the impact of this overlap is and whether it would be possible to rely on only one of these data sheets to achieve the purposes of both.
    - Inconsistencies were found between the requirements for compiling a safety data sheet under REACH and the labelling requirements of the Detergents Regulation for industrial and institutional detergents that can be provided in this safety data sheet (as an alternative to on-pack label). These inconsistencies could result in lack of clarity for workers and create an unnecessary burden on micro and small-sized manufacturers dealing with multiple pieces of legislation with differing requirements.

- **The Detergents Regulation and the CLP Regulation:** Legislative overlaps were identified between the Detergents Regulation and the CLP Regulation, notably with regard to the labelling of allergenic fragrance ingredients. As the labelling of detergents falls by default under these two pieces of EU legislation, this overlap may lead to the labelling of the same substance twice or thrice on the same label and most of the time under completely different names. This contributes to the overload of detergents labels, which on one hand can be detrimental to consumer understanding and on the other creates an unnecessary regulatory burden for the detergents industry.

- **The Detergents Regulation and Annex VIII to the CLP Regulation:** The ingredient data sheet under the **Detergents** Regulation serves a similar purpose as the harmonised information that will need to be provided to poison centres under the recently added Annex VIII to the CLP. When the CLP requirements start applying, the abolishment of the ingredient data sheet related provisions under the Detergents Regulation should be considered in order to avoid duplication and reduce administrative burden for detergents' manufacturers.

- **The Detergents Regulation and the Biocidal Products Regulation:** An overlap exists between the Detergents Regulation and Biocidal Products Regulation in the sense that detergents that are also disinfectants are subject to the labelling requirements of both Regulations which however often differ from one another. This overlap creates a duplication in the labelling requirements that contributes to the overload of detergents

labels and can be detrimental to the communication of use and safety information to consumers and an unnecessary regulatory burden for the detergents industry. A potential inconsistency also exists between these two Regulations with regards to the labelling requirements for what are often referred to as 'carry-over preservatives'. The relevant provision of the Detergents Regulation is currently subject to different interpretations by manufacturers and Member State authorities alike. Discussions on the correct implementation of this provision of the Detergents Regulation are already being held between the Member States' competent authorities and the European Commission in the Working Group on detergents.

The above-mentioned duplications and overlaps in the labelling requirements for detergents result in unclear information to consumers. As a result, consumers may not easily understand the information provided on the label with negative impacts on the protection of their health and the environment. Duplications in the labelling requirements also create an unnecessary burden for the detergents industry. Therefore, this issue needs to be addressed with priority.

11.1.3 11.1.3 Effectiveness

The Detergents Regulation has helped to harmonise the rules in place in different Member States, thus making it easier for companies to trade cross-border. The harmonised rules for placing detergents and surfactants for detergents in the internal market have levelled the playing field for detergents manufacturers. Data from Eurostat, supported by more concrete and recent data from the detergents industry show a steady growth of both the detergents market and the detergents industry since the entry into force of the Detergents Regulation.

The biodegradability requirements for surfactants provide a high degree of protection of the environment. Moreover, the restrictions on the phosphorus content for consumer laundry and consumer automatic dishwasher detergents have been largely effective in reducing the amount of phosphorus/phosphate used in these products. The impact of the harmonised limits is more noticeable in the case of consumer automatic dishwasher detergents where only four Member States had restrictions in place before the intervention at EU level. Due to several limitations it has not, however, been possible to quantify the exact contribution of these limits in reducing eutrophication.

Dosing instructions are generally perceived as an effective means of reducing the over consumption of detergents. However, part of the dosing information that is currently required under the Detergents Regulation is out of date (e.g. size of standard washing machine loads). This factor combined with the fact that consumers may not read, understand or correctly follow these instructions, reduces the effectiveness of the Regulation to protect the environment. Updating and simplifying the dosing instructions of the Detergents Regulation should therefore be considered.

A key issue that has arisen is a duplication in the labelling requirements for detergents that fall within the scope of multiple pieces of EU legislation (i.e. the Detergents Regulation, the CLP Regulation and the Biocidal Products Regulation). Detergents labels can become overloaded with information e.g. too much text, too long and not meaningful chemical names to non-professional users that make it difficult for consumers and downstream users to focus on the essential hazard and safety information and use instructions. Too much information provided on detergents labels may be detrimental to consumer understanding and reduces the

effectiveness of the Regulation in terms of protecting human health. It also creates an unnecessary regulatory burden for industry.

This issue could be addressed with the use of innovative communication methods and digital tools (e.g. Q-R codes) which are now available and already used on some detergents available on the EU market. This way, some of the ingredient information currently indicated on detergents labels would be provided online, and linked to the product using a Q-R code. Several aspects related to the use of digital tools, such as data safety issues, access to an internet enabled portable device (e.g. mobile phone, tablet computer, etc.) and assessment of the type of information that could be provided through these tools need however to be further examined.

Member States have put in place a variety of sanctions for infringements of the Detergents Regulation. Based on the available information these sanctions were found in theory to be dissuasive, effective and proportionate. However, due to lack of sufficient data, it has not been possible to conclude with certainty whether the enforcement activities of Member States are able to ensure the appropriate enforcement of the Detergents Regulation. Based on the perception of stakeholders the enforcement of the Detergents Regulation is at least "somewhat effective". In this respect, the introduction of reporting obligations for Member States under the Detergents Regulation could improve the availability of data, thus allowing us to better assess its enforcement.

11.1.4 11.1.4 Efficiency

The total cost to the detergents industry from the Detergents Regulation has been estimated at EUR 764 million to EUR 1.8 billion (2004-2016). Compared to the annual turnover of the detergents industry these costs appear to be proportionate (the costs are less than 0.5% of the annual turnover). The largest costs are estimated to have arisen as a result of the need to use different raw materials in place of phosphorus, from having to provide ingredient data sheets to poison centres and from the research and development necessary for reformulation in order to meet the phosphorus limitations for consumer laundry and consumer automatic dishwasher detergents ('CADD'). No quantification of costs incurred by other actors than industry authorities was carried out. No quantified cost figures were available regarding enforcement costs borne by public authorities.

In terms of benefits, the Detergents Regulation and its amendments are generally perceived by different groups of stakeholders as providing an enhanced level of protection to human health as well as improved information on product ingredients for consumers. There was general agreement among stakeholders that the Detergents Regulation has helped to level the playing field for manufacturers of detergents and surfactants within the EU. This is also supported by Eurostat and industry data that show a steady growth of both the detergents market and the detergents industry since the entry into force of the Detergents Regulation. The Regulation has also had a positive impact on the environment. This was achieved through the improved biodegradability of surfactants and the reduced amount of phosphorus/phosphate used in consumer laundry and consumer automatic dishwasher detergents. Industry stakeholders also considered that the Detergents Regulation has had a positive impact in terms of innovation. Finally, most industry stakeholders were of the opinion that the Regulation has improved the corporate image of the sector.

It is difficult to attribute any quantified benefits associated with reduced eutrophication to the Detergents Regulation via the introduction of limits of phosphorus content in detergent products.

As no quantified estimates of benefits were available, the answer to the question whether costs of implementing the Detergents Regulation are justified takes into account stakeholder views expressed during the different consultation activities carried out for the purposes of this evaluation. These views suggest that costs involved in implementing the Detergents Regulation are justified.

11.1.5 11.1.5 EU added value

The harmonisation of rules for making available and placing on the market of detergents has levelled the playing field for detergents' manufacturers and ensured to a large extent the free movement of detergents in the internal market. The Regulation's delivered added value on the protection of human health is also substantive as consumers have now access to the full list of ingredients contained in detergents and can therefore make more informed choices and better protect themselves. The Regulation also had a positive impact on the environment through improved biodegradability rules that require surfactants to be totally broken down into water, carbon dioxide and biomass. These harmonised rules for the biodegradability of surfactants are often regarded internationally as the "golden standard", potentially conferring a competitive advantage to detergents manufactured in the EU. In addition, the phosphorus limits, especially the limits for consumer automatic dishwasher detergents ('CADD'), were seen as having raised the bar in many countries, where similar limits were not already in force. For these reasons, there was widespread consensus among all stakeholders that the issues addressed by the Detergents Regulation continue to require action at the EU level.

11.2 11.2 BACKGROUND AND RELEVANT CONCLUSIONS OF THE CHEMICALS FITNESS CHECK

The Commission undertook the Fitness Check in 2015[66]. Unlike most evaluations carried out under the European Commission's Regulatory Fitness and Performance programme (REFIT)[67], this Fitness Check was not an evaluation of just one or two pieces of legislation. It assessed over 40 pieces of legislation[68] that cover a great part of the EU chemicals *acquis*. It focused on the chemical hazard and risk assessment and risk management requirements, procedures and processes within the legislation. The legislation within the scope of this Fitness Check regulates both the chemical sector as well as related downstream industries that use chemicals and thus covers the full lifecycle of products manufactured both in Europe and abroad. The REACH Regulation[69], the pharmaceutical and food additives legislation were

[66] Roadmap is available here http://ec.europa.eu/smart regulation/roadmaps/docs/2015_grow_050_refit_chemicals_outside_reach_en.pdf

[67] COM(2012) 746 final

[68] See Annex 4 of the Commission's Staff Working Document on the Fitness Check of the most relevant chemicals legislation (excluding REACH) as well as related aspect of legislation applied to downstream industries: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1561530884012&uri=SWD:2019:199:FIN

[69] Except its Annex XIII laying out identification criteria for persistent, bioaccumulative, toxic and very persistent and very bioaccumulative substances. Under the REACH Regulation, there is a legal obligation to review the legislation every five years. Findings of the second REACH evaluation are presented in the 'Commission General Report on the operation of REACH and review of certain elements' (COM(2018) 116

excluded from the scope of this Fitness Check[70]. The assessment provided a first comprehensive presentation of how various pieces of the EU chemicals legislation all fit together and addressed a number of stakeholder concerns expressed during the consultation activities. Its main findings are presented in a Report[71].

The EU chemicals legislation is composed of two horizontally applicable pieces of legislation (CLP and REACH) and around 100 sectoral or product specific pieces of legislation that contain one or more provisions on chemicals and that in some cases have embedded links with each other as well as with the CLP and/or the REACH Regulations[72]. The findings of the Fitness Check showed that different stakeholders, in particular SMEs, struggle with understanding the functioning of the EU chemicals legislation and their legal obligations thus affecting their capacity to comply with it. Cutting the red tape and reducing administrative burden could reduce regulatory compliance costs, increase compliance rates thus also increasing the protection of citizens and the environment. It requires however the simplification of the current regulatory complexity.

The Fitness Check provides a comprehensive assessment regarding the performance of the EU chemicals legislation in light of its objectives of protecting human health and the environment, ensuring the efficient functioning of the single market and enhancing competitiveness and innovation. The following findings of the Fitness check are also highly relevant for detergents:

1. There is room for simplification in the communication of hazard and safety information to consumers and for improvement in terms of its effectiveness and efficiency; and
2. The use of innovative digital tools for the communication of such information is currently suboptimal.

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final) and its accompanying Staff Working Documents (SWD(2018) 58 final). This second evaluation builds on the findings of its first evaluation in 2013 and focused on its developments and achievements since then.

[70] The fact that hazard and risk assessment under the pharmaceuticals and food additives legislation is based on different considerations and underpinning mechanisms explains their exclusion of the scope of this Fitness Check. For example, under the Medicinal Products for Human Use Directive (2001/83/EC) the primary objective is to safeguard public health i.e. treat or prevent disease in human beings, restore, correct or modify physiological functions or make a medical diagnosis.

[71] Report: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1561530857605&uri=COM:2019:264:FIN; and Commission Staff Working Document: https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1561530884012&uri=SWD:2019:199:FIN

[72] Please refer to Annex I for the list of 40+ the most relevant pieces of EU chemicals legislation that were in the scope of the recently adopted fitness check (COM(2019) 264); other pieces of legislation are listed in Annex I to the study entitled "Technical assistance related to the scope of REACH and other relevant EU legislation to assess overlaps" available here https://ec.europa.