Behavioural study on the effective marking of single use plastic products

Draft final report

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Table of Contents

1. Introduction

1.1. Problem background and policy context

Inappropriate disposal behaviour (such as littering) consists of people throwing away or leaving behind artefacts in places not officially intended or designated for such a purpose or with these artefacts ending up in such places by indirect action or inaction of people.[1] It has a wide range of negative consequences, including environmental (it is harmful to humans, wildlife, and the planet), social (it affects people's perception of their environment) and economic (it is expensive to clean up).[2,3,4]

Marine litter (litter in oceans) has become an especially serious concern worldwide. Plastics do not only constitute the major part of this litter – up to 85% of all marine litter is made up of plastic[5] – but are also particularly persistent: once littered, plastics will likely remain in the ocean for many years.[6] Currently, there are an estimated 260 million tons of plastics in the ocean, and each year, between 4.8 and 12.7 million additional tons of land-based plastic waste is added. Single-use plastic products comprises half of all marine plastic litter.[7] Plastic litter ends up in the marine environment either by littering in the sea or beaches, or by being transported into the marine environment by rivers, drainage or sewer systems, or winds.[8] For plastics disposed in sewer systems, economic costs are especially high due to the clogging pumps and blocking pipes. One study has estimated that in the UK, sewer blockages cost the country £100 million each year, with 93% of the blockages being caused by wet wipes.[9]

Research has indicated that consumers may not be sufficiently aware of the plastic content of some single-use products, adequate ways to dispose of products, and/or the adverse effects of inappropriate disposal on the marine environment. For example, the majority of smokers seems unaware that cigarette filters are mainly composed of

1 Wever, R., Van Onselen, L., Silvester, S., & Boks, C. (2010). Influence of packaging design on littering and waste behavior. *Packaging Technology and Science, 23,* 239-252. doi: 10.1002/pts.892

2 Geller, E. S., Winett, S., & Everett, R B. (1982). *Preserving the environment.* New York: Pergamon Press.

3 Wever, R., Van Onselen, L., Silvester, S., & Boks, C. (2010). Influence of packaging design on littering and waste behavior. *Packaging Technology and Science, 23,* 239-252. doi: 10.1002/pts.892

4 Kiessling, T., Salas, S., Mutafoglu, K., & Thiel, M. (2017). Who cares about dirty beaches? Evaluating environmental awareness and action on coastal litter in Chile. *Ocean & Coastal Management, 137,* 82-95. doi: 10.1016/j.ocecoaman.2016.11.029

5 Commission Staff Working Document, Impact Assessment, Reducing Marine Litter: action on single use plastics and fishing gear. European Commission. 28 May 2018. Available at: http://ec.europa.eu/environment/circulareconomy/pdf/single-use_plastics_impact_assessment.pdf

6 Galgani, F., Hanke, G., & Maes, T. (2015*). Global distribution, composition and abundance of marine litter*. In Marine anthropogenic litter (pp. 29-56). Springer, Cham; Worm, B., Lotze, H. K., Jubinville, I., Wilcox, C., & Jambeck, J. (2017). Plastic as a persistent marine pollutant. *Annual Review of Environment and Resources, 42,* 1-26.

7 Eriksen, M., Lebreton, L. C., Carson, H. S., Thiel, M., Moore, C. J., Borerro, J. C., ... & Reisser, J. (2014). Plastic pollution in the world's oceans: more than 5 trillion plastic pieces weighing over 250,000 tons afloat at sea. *PloS one, 9(12),* e111913; .Jambeck, J. R., Geyer, R., Wilcox, C., Siegler, T. R., Perryman, M., Andrady, A., ... & Law, K. L. (2015). Plastic waste inputs from land into the ocean. *Science, 347(6223),* 768-771.

8 Cheshire A. C., Adler E., Barbière J., Cohen Y., Evans S., Jarayabhand S., Jeftic L., et al. UNEP/IOC Guidelines on Survey and Monitoring of Marine Litter, 2009 *UNEP Regional Seas Reports and Studies, No. 186,* IOC Technical Series No. 83: xii + 120 pp

9 Funded by Water UK, The Department for Environment, Food and Rural Affairs, and EDENA. https://www.water.org.uk/news-item/new-proof-that-flushing-wipes-is-a-major-cause-of-sewer-blockages/

synthetic materials, one in four smokers does not think that cigarette butts are toxic, one in five believes that cigarette butts are biodegradable, and about 14% does not regard cigarette butts as litter.[10] Similarly, another study showed that a substantial amount of consumers do not know that a variety of menstrual products contain plastic, and one in five women think that flushing tampons is an appropriate disposal option.[11]

To reduce the impact of single use plastic products on the environment, Directive (EU) 2019/904 (the "SUP Directive")[12] has established various sets of measures, including bans of certain single-use plastic products and prevention measures. The focus of the current project lies on prevention in the form of **marking requirements**. This marking – of which different options were developed by the SUP support study[13] – shall inform consumers of (1) appropriate waste management options or waste disposal means to be avoided, (2) the presence of plastics in the products and (3) the resulting negative impact of littering or other inappropriate means of waste disposal on the environment.

There are two **categories of products** of single-use plastic products that will have to carry such a marking:

- Category 1: sanitary towels (pads), tampons and tampon applicators, wet wipes, i.e. pre-wetted personal care and domestic wipes;
- Category 2: tobacco products with filters and filters marketed for use in combination with tobacco products, cups for beverages.

As specified in the Directive (Recital 20), where appropriate, the marking should be tested in representative groups of consumer to ensure that it is effective and easily understood.

The aim of the current study is to provide insight into the effectiveness of the different marking options that have been developed under the SUP support study. Each of these options contains three information elements that need to be understood separately and that need to be linked by the consumer in order to fully understand its intended meaning. For example, in case of disposable cups, the consumer needs to understand that the cups (1) contain plastic, (2) should be disposed in a bin / not littered, and (3) can cause harm to the (marine) environment. In addition, the consumer should understand that these three elements are causally linked: when cups are littered, they may ultimately end up in the (marine) environment and cause harm because they add to plastic waste there. The current study examines if understanding and effectiveness of these interlinked elements is optimized when the three elements are presented more sequentially (as a **storyline**) and are accompanied by separate images, compared with when they are **combined** into one marking. Further, the

[10] Kotz, D., & Kastaun, S. (2020). Do people know that cigarette filters are mainly composed of synthetic material? A representative survey of the German population (the DEBRA study). Tobacco Control; Rath, J. M., Rubenstein, R. A., Curry, L. E., Shank, S. E., & Cartwright, J. C. (2012). Cigarette litter: smokers' attitudes and behaviors. *International journal of environmental research and public health, 9(6),* 2189-2203.

[11] Peberdy, E., Jones, A., & Green, D. (2019). A study into public awareness of the environmental impact of menstrual products and product choice. *Sustainability, 11(2),* 473.

[12] Directive (EU) 2019/904 of the European Parliament and the Council 5 June 2019 on the reduction of the impact of certain plastic products on the environment, O.J. L 155/1, 12.6.2019.

[13] DG ENV (July, 2019). Study to support the development of implementing acts and guidance under Directive (EU) 2019/904.

current study examined, for most products, whether markings may best use a **negative frame** (informing about the incorrect disposal means and its negative effects on the environment) or a **positive frame** (informing about the correct disposal means and its positive effects on the environment). Research suggests that positive and negative message frames can both promote adequate disposal behaviours, though the superiority of one type of framing over the other has not unequivocally been demonstrated. For example, while loss frames have been frequently found to be more effective in promoting environmentally sustainable behaviours than gain frames, there is also research to suggest that gain frames can be more effective when saliency of the environmental issue is high.[14]

1.2. Objectives and research questions

The main aim of the study is to identify the most effective content of the marking to promote correct disposal behaviours, increase understanding of certain product characteristics (e.g., its plastic content), and to examine which marking is evaluated the most positively by consumers.

More specifically, the study's main objectives are to provide insight into:

- The (intended) manner of **disposal**: Do the markings promote appropriate disposal of the product?
- Consumers' **understanding** of the individual elements of the proposed markings: Do the marking increase consumers' understanding of (1) the presence of plastics in the products, (2) the appropriate disposal means, and (3) the resulting negative impact of littering or other inappropriate means of waste disposal on the environment;
- Consumers' **evaluation** of the markings: Are the markings perceived as easy to understand and clear, and is the information conveyed by the markings perceived as useful, important, and trustworthy?
- Consumers' **attention** to the markings: Are the markings conspicuous and legible, so that they are noticed?

In line with the SUP Directive (Recital 20), it was also evaluated when the markings were considered *sufficiently* effective prior to data analyses.

1.3. Research methodology and structure of the report

To answer the research questions, large-scale multi-country online experiments as well as smaller-scale laboratory experiments were conducted. The aim of the online experiments is to provide detailed insight into the effectiveness of the proposed markings across all measures of interest, for four product types: disposable cups, wet wipes, sanitary items and cigarettes. The laboratory experiments investigate the effectiveness of the most promising marking on actual disposal behaviour in a real-life setting. Chapter 2 describes the general set-up of the experiments, including a depiction of the specific markings that were tested and a rationale outlining when markings are considered sufficiently effective. Chapter 3 presents the results of the

[14] Hansmann, R. & Steimer, N. (2016). A field experiment on behavioural effects of humorous, environmentally oriented and authoritarian posters against littering. *Journal of Environmental Research, Engineering and Management, 72(1),* 35-44; White, K., MacDonnell, R., & Dahl, D. W. (2011). It's the mind-set that matters: The role of construal level and message framing in influencing consumer efficacy and conservation behaviors*. Journal of Marketing Research, 48(3),* 472-485; Cheng, T., Woon, D. K., & Lynes, J. K. (2011). The use of message framing in the promotion of environmentally sustainable behaviors. *Social Marketing Quarterly*, *17*(2), 48-62.

online experiments, and Chapter 4 presents the results of the laboratory experiments. In Chapter 5, the results are synthesized and recommendations are provided.

2. General set-up of the experiments

This chapter describes the markings that were tested (Section 2.1) and the general set-up of the online experiments (Section 2.2.1) and of the laboratory experiments (Section 2.2.2). Section 2.3 describes when the markings were considered effective.

2.1. Marking types

For disposable cups, wet wipes, sanitary items, four markings are studied that differ in (1) whether or not the information elements are presented as a **storyline** or in **combined** form, and (2) whether the information conveyed is framed in a **positive** or **negative** manner. The markings are product-specific in the sense that the product icon(s) presented on them depend on the product type (e.g., in case of cups, a cup is depicted).[15]

In addition, for tampons with applicators only, two **icon variants** are tested: one variant in which only a tampon is shown, and one variant in which both a tampon and applicator is shown. This is done to examine whether the additional depiction of the applicator is necessary for consumers to understand that the applicator, like the tampon, should not be flushed, or whether this clutters the marking and leads to lower effectiveness.

For cigarettes, each marking (storyline and combined) uses a negative frame. In addition, because it might be difficult for consumers to understand how littering a cigarette butt can end up in the marine environment, it is additionally tested whether a "**flower**" icon instead of a "**marine**" icon is more effective: it might be easier to understand how cigarette butts affect the immediate environment (e.g., plants) than the marine environment. Finally, for cigarettes only, the **position** of the marking on the cigarette pack was investigated: for half of the respondents exposed to a marking, the marking was presented on the front of the pack, while for the other half, the marking was presented on the side of the pack.

The tested markings for cups, wet wipes and sanitary items are presented in Table 2.1; the tested markings for cigarettes are presented in Table 2.2. The sizes of the markings presented on the products adhered to the minimum size requirement as proposed in the SUP support study.

2.2. General experimental procedures

In this section, the overall set-up of the experiments is described. The online experiments are described first, with the disposal tasks and objective comprehension tests being described in detail. After this, the set-up of the laboratory experiments is described.

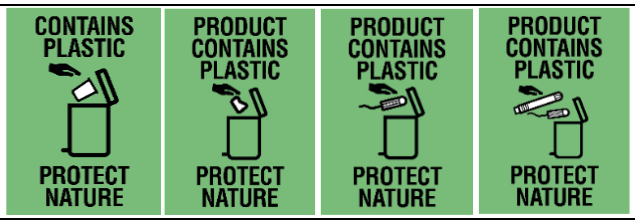
2.2.1. Online experiments

In the online experiments, four product types were tested (disposable cups, wipes, sanitary items, and cigarettes). Three respondent samples (across six Member States) were drawn (total N = 8500): one for testing effects of the markings on cups and wipes (general population aged 18-70, nationally representative on age and gender),

[15] The markings were developed by the SUP support study, and further refined based on consultations with CentERdata and visual communication expert prof. dr. Fons Maes (Tilburg University).

one for sanitary items (women aged 18 – 50), and one for cigarettes (smokers aged 18-70).

Table 1.1. Overview of the marking variants to be tested (for disposable cups, wet wipes, and sanitary items).

Variant	Marking type	Framing	Marking
1	Storyline	Negative	
2	Storyline	Positive	
3	Combined	Negative	
4	Combined	Positive	

Note: The markings for cups presented above concern those for paper cups with plastic lining/coating only. For coloured/white plastic cups, the markings are printed in black ink. For transparent plastic cups, the markings are printed in white ink.

Table 2.2. Overview of the marking/location variants to be tested (cigarettes).

Variant	Marking type	Icon type	Location on the pack	Marking
1	Storyline	Sea icon	Side	
2	Storyline	Flower icon	Side	
3	Combined	(one icon type)	Side	
4	Storyline	Sea icon	Front	
5	Storyline	Flower icon	Front	
6	Combined	(one icon type)	Front	

Respondents completing the cups/wipes or sanitary items experiment were randomly assigned to one of five conditions (one of the four markings or a no-marking control group). Respondents completing the cigarettes experiment were randomly assigned to one of seven conditions (one of the six marking/location types and one no-marking control group).

The online experiments consisted of three parts:

- In the first part, respondents completed **disposal tasks** in which they saw a picture of a disposal situation and asked to indicate how they would dispose of the product (see below for details). This was followed by a question on whether or not they had looked at the marking;
- In the second part, respondents completed **objective comprehension tests** in which they saw different products. For each product, they indicated (1) whether they think the product contained plastic, (2) how they think the product should be disposed of, and (3) whether they think that incorrect disposal (e.g., flushing) of the product would harm the environment or (4) lead to plastic pollution in the marine environment (see below for details).

- In the third part, consumers' **evaluation** of the markings is examined, by asking them if they think the marking is easy to understand, clear, useful, important, and trustworthy.

The experiments were concluded with a post-experiment questionnaire gathering information on, amongst others, socio-demographics. The complete questionnaires can be found in Appendices A (cups and wipes), B (sanitary items), and C (cigarettes).

To ensure high external validity, the cover story and task instructions did not explicitly draw respondents' attention to environmental information or the markings. For this reason, the disposal tasks preceded other outcome measures that required attention to the label (i.e., label understanding and evaluation).

Disposal tasks

Each respondent read a scenario in which they imagined just having bought a specific product. A picture of the product (package) was presented (carrying a marking or not). Then, respondents imagined they had just used the product and now need to dispose of it (e.g., having used a wet wipe on the toilet and needing to dispose of the wipe). A picture of the disposal situation was also presented (e.g., a restroom). Respondents were then asked how they would dispose of the used product (e.g., flush it or put it in a bin).

It is known that the context in which disposal behaviours occur can have (strong) effects on littering behaviour.[16] Similarly, it might be that certain product characteristics – specifically, product characteristics that signal biodegradability of the product – might be associated with an increased tendency to incorrectly dispose of used products, since the perceived adverse consequences of inadequate disposal might be lower. To ensure that findings are not specific to a certain product subtype or context, respondents completed multiple disposal tasks, which varied in the product subtype that needs to be disposed of (e.g., plastic cup or paper cup with plastic lining) and/or the context in which disposal occurs (e.g., a picnic area or a train station). In the contexts, it was ensured that, where plausible, some litter was already present. This was done to increase baseline incorrect disposal behaviours (by invoking the norm to litter/flush) and to ensure that there is room for markings to decrease incorrect disposal. An overview of all products and contexts is provided in Table 2.3 and a disposal task example is provided in Box 2.1. An overview of the context and product images used in the online experiments is provided in Appendix D.

Objective comprehension tasks

In these tasks, respondents were repeatedly presented with a product image (carrying a marking, if applicable) and were asked (1) whether they think the product contains plastics, (2) how they think the product should be disposed of (disposed in a bin vs. flushed, or left/dropped where it is used), and (3) whether they think incorrect disposal can harm the environment or (4) lead to plastic pollution of the marine environment. The task was repeated for each product subtype in Table 2.3.

[16] Weaver, R. (2015). Littering in context (s): using a quasi-natural experiment to explore geographic influences on antisocial behavior. *Applied Geography, 57,* 142-153.

In addition, for this task, each product subtype was shown a second time, in which the product now carried an **environmental claim** regularly found on this product type (e.g., for cups: "100% compostable"; for tampons: "100% organic cotton). Again, this was done to ensure that marking effects are not specific to certain product characteristics (e.g., only products without claims). Product examples with claims are provided in Appendix D.

Table 2.3. Overview of the disposal contexts and product subtypes used in the disposal tasks, per product type.

	Disposable cups	**Wipes**	**Sanitary items**	**Cigarettes**
Context 1	Picnic area	Private restroom	Private restroom	Street
Context 2	Train station	Public restroom	Public restroom	Park
Context 3	--	--	--	Beach
Product subtype 1	Plastic cup	Wet wipe	Tampons without applicators	--
Product subtype 2	Paper cup with plastic lining	Toilet wipe	Sanitary pads	--
Product subtype 3	--	--	Tampons with applicators	--

Box 2.1. Example of disposal task (cigarettes questionnaire, park context).

Now, imagine the following situation.

You are out of cigarettes and decide to walk to the supermarket to buy a new pack. You buy the same pack as you always do:

Later that day, you take a walk in a nearby park. After a while, you sit down on a bench and light up one of the cigarettes. You finish the cigarette and put it out on the bench. What would you do with the cigarette butt in this situation? Two options are indicated in the photograph below.

If these were the only options you had, which one would you choose?

□ Drop the butt on the ground (option 1)

□ Take the butt with you until you can put it in a bin (option 2)

2.2.2. Laboratory experiments

In the laboratory experiments (N = 378), two product types were tested: disposable cups and wet wipes. Testing took place in two Member States: Belgium (Ghent) and Bulgaria (Sofia). A specialized recruitment team recruited respondents on the street, targeting a heterogeneous sample from the general population.

In order to increase statistical power to detect (smaller) effects of the marking (given a fixed sample size), it was decided to test one marking alternative in the laboratory experiments: the negative storyline marking. The results of the online experiments suggested that this marking is most effective (see Chapter 3 for details). This marking was compared with a no-marking control condition. The two conditions were rotated after 25 respondents.

The laboratory experiments consisted of the following parts:

- Participants were approached on the street. They were asked whether they were interested in participating in a new product testing for wet wipes. This bogus test was used as a cover, to avoid that respondents understood the actual purpose of the study (testing marking effectiveness).
- After the respondent was welcomed in the research facility (a venue in the city centre), the experimenter asked the participant to wait outside for a few minutes. He instructed the participant to have some water in the meanwhile as a preparation for the product testing ("We are, amongst others, interested in what you think of the odour of the wet wipes. Slowly drinking some water and rinsing your mouth will help neutralize any odours that might currently reside in your mouth"). The experimenter poured some water in a **disposable cup** and the respondent was asked to finish the drink outside.
- Next, respondents completed a bogus product test in which they evaluated a **wet wipe** and its pack on a number of aspects. This was done to ensure that the pack of wipes was looked at (allowing the marking to be noticed), similar to real-life (purchase or usage) situations. After evaluating the pack of wipes, the respondent was asked to dispose of the wipe in the nearby restroom (either in the bin or by flushing it).
- After the product testing, respondents completed a **post-experiment questionnaire** in which they were asked how they disposed of the cup and wipe, whether they had considered inappropriately disposing of the cup and wipe, whether they had noticed the marking, and whether they understood the marking (see Appendix E).
- Finally, participants were debriefed. They were informed about the actual purpose of the study, and were reassured that their participation was equally valuable regardless of how they disposed of the products.

A detailed step-by-step protocol was developed to ensure identical testing conditions across respondents and Member States.[17]

Respondents were individually seen. After a respondent had left, but before the next respondent arrived, a dedicated observer looked for the cup and wet wipe to

[17] This protocol was also shared and discussed with dr. Ralph Hansmann (ETH Zurich), who is an expert in conducting field studies in the area of (in)appropriate product disposal.

determine where he or she **disposed of their cup and wet wipe**. The empty cup and wet wipe, if still present, were removed before the next respondent arrived.

Prior to the start of the laboratory experiments, a pilot run (N = 10) of the experiment was conducted using the disposable cup and wet wipes without marking. Importantly, this allowed further calibration of the experiment: for the markings to be able to have any effects on disposal behaviour, at baseline (without a marking present) not all respondents should already perform the correct disposal behaviour (i.e., there should still be room for improvement). The results of the pilot showed that while the cup disposal situation allowed sufficient variation in disposal manner (correct or incorrect), none of the respondents flushed the wet wipe. Therefore, for the main experiment, the wording of the instruction was altered; instead of instructing respondents to dispose of the wet wipe in the toilet room (which was done in the pilot run), the experimenter now explicitly mentioned that the respondent could either flush the wipe or put it in the bin.

Boxes 2.2 and 2.3 provide the product materials and disposal situations used in one Member State.

Box 2.2. Example images of a disposable cup and pack of wet wipes carrying a marking (Belgium).

Note: The size of the markings on these packages was (slightly) above the proposed minimum requirements: 1.7cm X 5.1cm for the wet wipes (surface area was 140cm2) and 1.5cm X 4.5cm for the cups.

Box 2.3. Example images of the cups and wet wipe disposal situations (Belgium).

Note: to increase baseline littering behaviour, some cups were intentionally left on and around the tables and on the toilet bin, and the toilet lid was lifted. The disposal situations in Bulgaria were similar, except that cup disposal was tested on a balcony (see Appendix F).

2.3. When are the markings sufficiently effective?

This study aims to provide insight into whether (and which of) the tested options are sufficiently effective and easily understandable for consumers. To determine whether tested options are sufficiently effective and understood, a literature review was performed to gain insight into typical effect sizes of markings in related contexts. These insights could help define benchmarks or minimum thresholds that the markings must pass in the consumer tests.

To estimate what effect sizes might be expected, we have reviewed (a selection of) relevant literature that focused on the extent to which informational interventions (such as labels) impact (in)appropriate disposal (and related) behaviours and cognitive outcomes (see Box 2.4). However, the outcomes of these studies varied widely depending on the precise type of intervention or label that was investigated, making it difficult to define minimum effects that might be expected in the current study. In addition, no broad consensus exists on the exact level of effectiveness or understanding that is generally deemed to be sufficient for markings (or other informational interventions) in order to be considered "effective". Consequently, it was concluded that any definition of minimum performance thresholds in the current project would be arbitrary. In addition, given the high amount of single-use plastics that end up in the environment every year and its adverse impact, and the fact that a very large group of consumers will be exposed to the markings over a prolonged time period, even relatively small improvements in disposal behaviours and understanding seem highly relevant from an environmental perspective.

Therefore, and in consultation with the Client, instead of defining benchmarks, the primary objective of the consumer testing is to examine which marking is most effective for each of the outcomes of interest. Here, a marking is considered effective if its effects can be detected by statistical tests, given our sample size. In other words, if an effect is large enough to be detected (i.e., it is statistically significant and hence, unlikely to have emerged by chance), we consider this effect meaningful. For some measures ([intended] disposal behaviours and objective understanding), marking effectiveness can be compared against a no-marking control group. The findings then show whether the marking result in improvements on these outcomes and which marking is most effective. For other measures (attention, subjective comprehension, and evaluation), responses could not be compared against a control group; here, it is examined which marking alternative performs best. Finally, although it is difficult to define specific thresholds above which markings are sufficiently effective, evaluating absolute performance values is, naturally, still helpful; if the markings are understood only by a minority of respondents, there is clearly room for improvement.

Box 2.4. Effect sizes in prior studies: summary

Several meta-analyses have been conducted on the impact of different types of interventions on a variety of pro-environmental behaviours (e.g., recycling, conserving energy). The results showed that various types of informational/instructional interventions are effective in promoting pro-environmental behaviours, though with widely varying effect sizes (Hedges *g* = 0,14 – 1,71).[18]

In a series of large-scale online studies in representative EU-wide consumer samples, we have examined the impact of informational product labels (i.e., energy labels, the product's environmental footprint, reparability information) on consumer behaviour and cognition. Overall, the labels were effective in promoting pro-environmental behaviours, though again, effectiveness varied across studies. For example, when information about a product's environmental footprint was added to product packages, it was found that 35,8% of the respondents chose a product that had a better environmental footprint score than the average product, versus 24,3% when no label was present; when information about reparability of a product was presented on products, 22% of the respondents chose the better reparable product, versus 18% when no label was presented.[19] With regards to more cognitive/evaluative outcomes, across studies, labels were commonly *attended to* in detail by approximately one-third of the respondents, labels were (objectively and subjectively) *understood* by 50% – 90% of respondents, and the information on the labels were considered *important and useful* by around 50% – 70% of respondents (i.e., scoring at least "5" on a 7-point scale). Again, these effects strongly depended on the specific label that was studied.

In the area of littering**,** several field experiments have been conducted that tested the effectiveness of informational interventions on littering behaviour. In one of these experiments, researchers examined ways to reduce the littering rate of flyers. They found that the littering rate (which was 7.2%) could be significantly reduced by hanging a humorous poster (littering rate: 3%; "Because waste has no wings"), environmentally oriented poster (2.6%; "Do it for the environment") or authoritarian poster (5.4%; "Littering prohibited").[20] Thus, in other words, these interventions resulted in a 25% - 64% reduction in littering. In another study, a littering rate of flyers of 19% in the control condition was found, and the littering rate decreased to

[18] Osbaldiston, R., & Schott, J. P. (2012). Environmental sustainability and behavioral science: Meta-analysis of proenvironmental behavior experiments. *Environment and Behavior, 44(2),* 257-299; Varotto, A., & Spagnolli, A. (2017). Psychological strategies to promote household recycling. A systematic review with meta-analysis of validated field interventions*. Journal of Environmental Psychology, 51,* 168-188.

[19] Consumer testing of alternatives for communicating the Environmental Footprint profile of products. Consumer study carried out for the European Commission (2019); Consumer study on the impact of reparability information formats on consumer understanding and purchase decisions. Consumer study carried out for the European Commission (2020).

[20] Hansmann, R., & Steimer, N. (2016). A Field Experiment on Behavioural Effects of Humorous, Environmentally Oriented and Authoritarian Posters against Littering. *Environmental Research, Engineering & Management, 72(1).*

10%, 11%, and 12% by using personal norm activation. This translates to a reduction in littering by almost 50%.[21] A further study that examined littering in cinemas showed that an informational strategy reduced littering from 25.4 to 18.2 grams per person – a reduction of almost 30%.[22] In an older study, effects of placing textual anti-littering prompts on tables in a cafeteria were examined. Littering rates reduced from 54.9% to 36.6% as a result of these messages (a reduction of 33%).[23] This study also found that positive messages (e.g. "Please be helpful! Clear your own table") more effectively reduced littering compared with negative messages (e.g. "Please don't litter! Clear your own table"), leading to littering rates of 31.8% vs. 41.8%, respectively. Of note, not all studies found informational interventions to be effective. In one study, while a highly salient textual message on paper cups effectively reduced littering (from 11.2% to 6.7%) on a student campus, a less salient textual message did not lead to reductions in littering.[24]

[21] De Kort, Y. A., McCalley, L. T., & Midden, C. J. (2008). Persuasive trash cans: Activation of littering norms by design. *Environment and Behavior, 40(6),* 870-891.

[22] Hansmann, R., & Scholz, R. W. (2003). A two-step informational strategy for reducing littering behavior in a cinema. *Environment and Behavior, 35(6),* 752-762.

[23] Durdan, C. A., Reeder, G. D., & Hecht, P. R. (1985). Litter in a university cafeteria: Demographic data and the use of prompts as an intervention strategy*. Environment and Behavior, 17(3),* 387-404.

[24] Wever, R., Van Onselen, L., Silvester, S., & Boks, C. (2010). Influence of packaging design on littering and waste behaviour. *Packaging Technology and Science, 23(5),* 239-252.

3. Results: online experiments

The primary purpose of the online experiment was to examine which of the markings is (most) effective in promoting intended correct disposal of the products (i.e., in a bin), in increasing understanding that the product contains plastic, its adequate manner of disposal, and the impact of incorrect disposal on the (marine) environment, and in promoting subjective understanding, perceived importance and trust.

3.1. Sample description

The experiments were conducted online in six countries: Belgium, Bulgaria, France, Greece, Hungary and Sweden. In total, 8500 respondents took part in the experiments (cups and wipes: 3029 respondents; sanitary items: 3035 respondents; cigarettes: 2436 respondents). Table 3.1 provides a description of the respondent samples, in total and per country.

Table 3.1. Sample description: socio-demographics

	Total	BE	BG	FR	GR	HU	SW
Sample size							
Cups/wipes	3029	500	510	503	506	509	501
Sanitary items	3035	504	509	507	509	506	500
Cigarettes	2436	401	410	408	409	408	400
Gender (male)							
Cups/wipes	49,9%	49,8%	49,6%	49,1%	50,0%	50,3%	50,7%
Sanitary items	0%	0%	0%	0%	0%	0%	0%
Cigarettes	50,1%	57,6%	46,6%	40,9%	54,3%	50,3%	51,3%
Age: cups/wipes							
Age: 18-34	29,9%	30,6%	28,2%	30,0%	29,1%	28,3%	33,1%
Age: 35-54	40,9%	40,4%	40,8%	39,8%	44,3%	41,3%	38,7%
Age: 55-70	29,2%	29,0%	30,1%	30,2%	26,7%	30,5%	28,1%
Age: sanitary items							
Age: 18-34	45,4%	46,3%	40,9%	44,6%	45,2%	45,7%	50,2%
Age: 35-50	54,6%	54,0%	59,1%	55,4%	54,8%	54,4%	49,8%
Age: cigarettes							
Age: 18-34	21,2%	12,5%	23,4%	13,5%	28,4%	25,8%	21,1%
Age: 35-54	45,4%	40,4%	53,7%	45,6%	53,1%	38,0%	45,4%
Age: 55-70	33,4%	47,1%	22,9%	40,9%	18,6%	36,3%	33,4%
Education: cups/wipes[25]							
Primary, partial secondary	7,1%	7,4%	0,8%	8,8%	3,0%	10,6%	12,2%
Completed secondary	31,0%	35,4%	19,4%	28,4%	23,1%	44,8%	34,9%
(Post) graduate	57,0%	51,2%	76,9%	58,5%	66,6%	41,7%	46,7%

[25] Percentages may not add up to 100% as the education level for some respondents was unknown (e.g., because they did not want to answer this question).

Education: sanitary items							
Primary, partial secondary	4,8%	3,6%	0,8%	6,7%	1,2%	4,9%	11,6%
Completed secondary	25,6%	26,2%	15,1%	22,3%	16,5%	41,9%	31,6%
(Post) graduate	62,1%	62,3%	80,9%	64,1%	70,1%	47,0%	48,0%
Education: cigarettes							
Primary, partial secondary	10,3%	14,2%	0,2%	13,2%	2,4%	13,2%	19,0%
Completed secondary	32,7%	38,7%	23,9%	36,3%	22,3%	43,1%	32,3%
(Post) graduate	52,6%	44,6%	74,4%	45,8%	68,2%	39,2%	42,8%
Household financial situation[26]							
Cups/wipes	3,9	4,0	4,0	3,6	4,2	3,8	3,8
Sanitary items	4,0	3,1	3,8	4,1	3,6	4,3	4,9
Cigarettes	3,6	3,8	3,8	3,6	3,6	3,8	2,9

Box 3.1. How to read the results tables

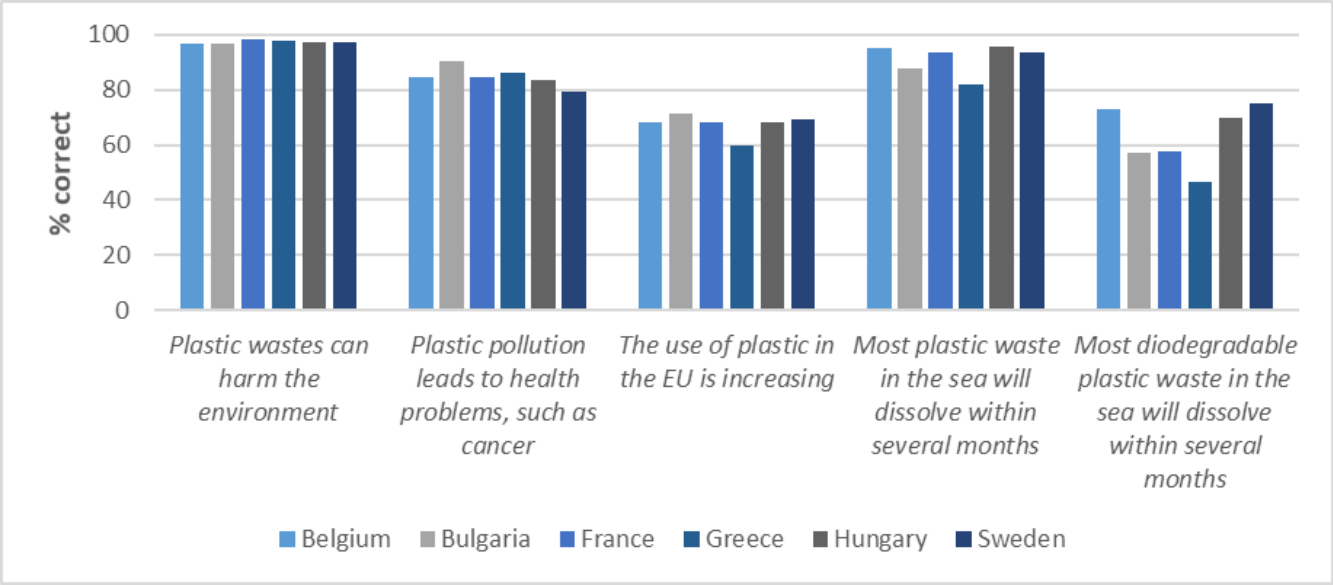
Throughout this and the next chapter, descriptive results (i.e. mean scores or percentages) per information condition are presented in tables, with superscripts indicating whether or not the differences in means or percentages are statistically significant. In each column, the highest mean has superscript "a". Means with different superscripts are statistically significantly different from each other (at p < 0,05): the observed difference is highly unlikely to be due to chance (e.g. 19,9%^{a} versus 17,3%^{b}). Means with the same superscript are not significantly different from each other: the observed difference could be due to chance (e.g. 19,9%^{a} versus 20,2%^{a}). Some means have multiple superscripts (e.g. 36,4%^{ab}). These fall in between two means that are significantly different (e.g. 37,6%^{a} and 35,4%^{b}), but are themselves not significantly different from either mean.

3.2. Knowledge about plastic waste

Respondents were asked about their general knowledge regarding plastic waste and its impact. The results for the general population sample, per country, are provided in Figure 3.1. Almost all respondents (over 96% in each country) understood that plastic waste can harm the environment; fewer respondents knew that the use of plastic products in the EU is increasing (60% - 71% knew this), and that most biodegradable marine waste will not dissolve within several months (46% - 75% understood this).

[26] Financial situation ("Would you say that making ends meet every month is…") measured on a 5-point scale from 1 = *very difficult* to 5 = *very easy*.

Figure 3.1. Percentage respondents who correctly answered each of the questions on (the impact of) plastic waste, per country (general population sample). Answering "yes" to the first three questions and "no" to the latter two questions was considered correct.



3.3. General disposal behaviour

3.3.1. Disposal intention in the disposal tasks

Respondents were asked how they would dispose of the different products in different situations (e.g., how they would dispose of a cigarette butt on the streets, in the park, or on the beach) and for different product subtypes (e.g., a plastic cup and a paper cup). Overall, when no marking was presented, respondents indicated to dispose of *cups* in a bin more often when disposal occurs in a train station vs. a picnic area, and when disposing of a plastic vs. paper cup with plastic lining. Intended bin disposal of *wipes* was more likely in a private vs. public restroom, and when the wipes were labelled as "toilet wipes" rather than "wet wipes". Regarding *sanitary items*, tampons (both applicator and non-applicator tampons) were more often intended to be correctly disposed of than tampon applicator and sanitary items, and correct disposal intentions of *cigarettes* were higher when being on a park or beach, compared with on the streets. Disposal intention per situation and product subtype are provided in Figures 3.2 and 3.3. Disposal intentions per country are provided in Figure 3.4.[27]

Finally, respondents who have children and used (or currently use) baby wipes (N = 1301) additionally completed a question on how they disposed of the baby wipes: in a (diaper) bin or in the toilet. The results showed that 2.4% of the respondents at least sometimes disposed of a baby wipe in the toilet (range across countries: 1% - 3,4%). For 1,1%, the toilet was the only manner of disposal (range across countries: 0,5% - 2,6%).[28]

[27] All described effects are statistically significant (all *p*s < 0,05).
[28] This question on disposal of baby wipes was included in the questionnaire for the general population sample.

Figure 3.2. Percentage respondents who indicated to dispose of a used product in the bin (vs. littering or flushing it), per product subtype (no marking conditions).

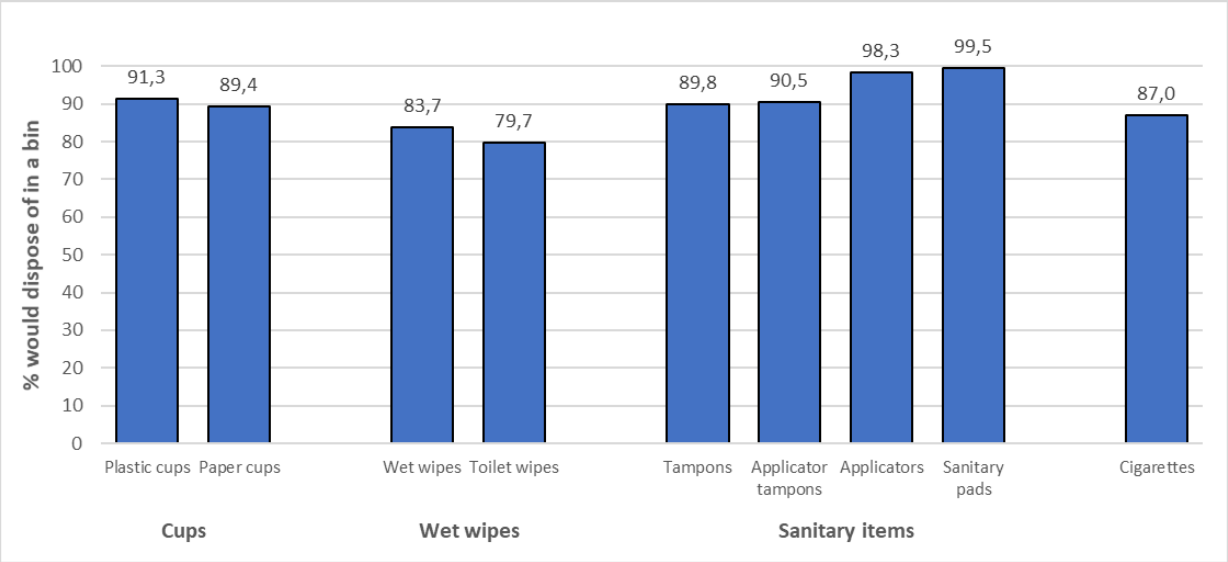


Figure 3.3. Percentage respondents who indicated to dispose of a used product in the bin (vs. littering or flushing it), per context (no marking conditions).

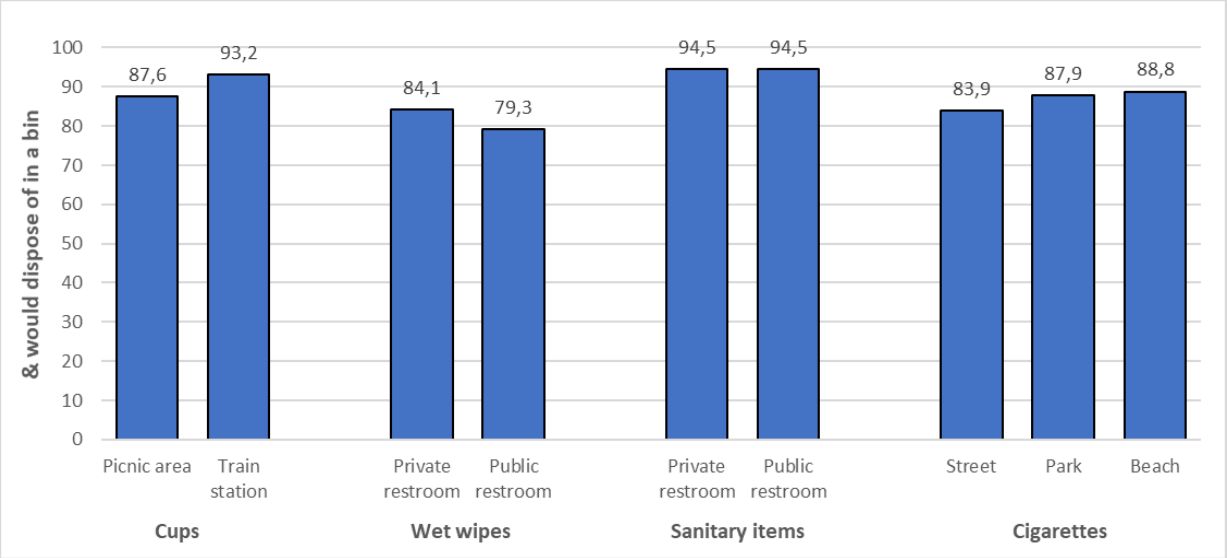
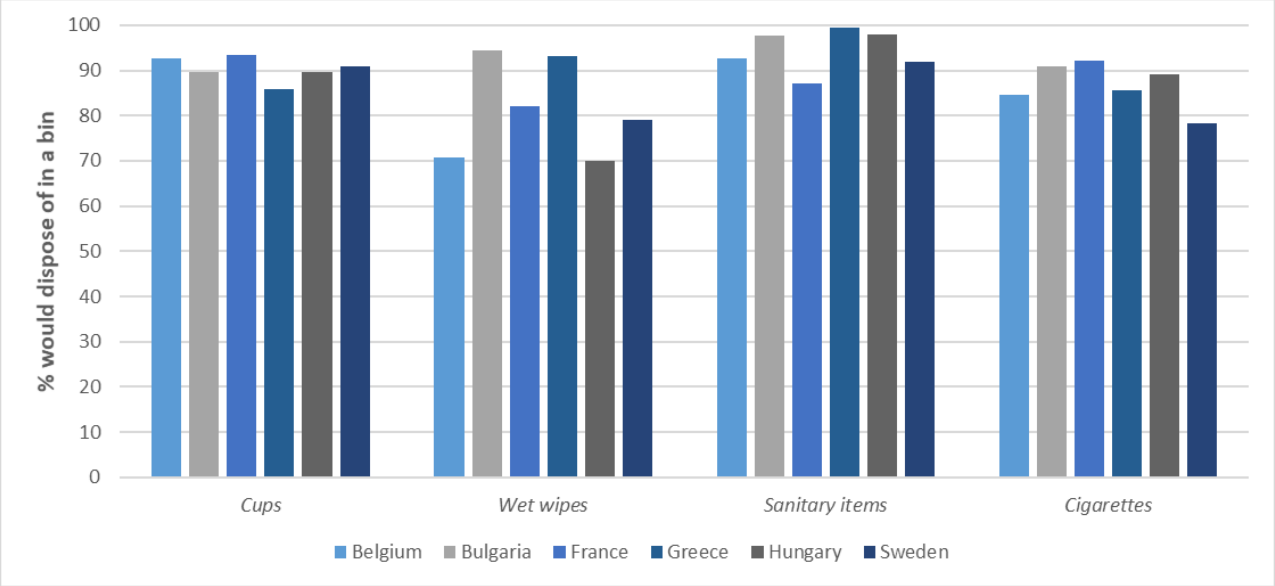


Figure 3.4. Percentage respondents who indicated to dispose of a used product in the bin (vs. littering or flushing it), per country (no marking conditions).



3.4. Effectiveness of the markings

In this section, the effects of the markings are described on disposal intention, objective understanding, attention and evaluative responses for each of the product types examined in this study (cups, wipes, sanitary items, and cigarettes). Responses are analysed across the product subtypes and situations. An overview of the results is provided in Tables 3.2 – 2.4. Marking effects on disposal, understanding, and evaluation scores for each product subtype and situation separately are provided in Appendix G.[29]

3.4.1. Disposal intention

Even when no marking was present on the disposable cups, nine in ten respondents (90.4%) already indicated to dispose of the cups in a bin (see Table 3.2 for an overview of the results). Still, some evidence for beneficial effects of the **negative combined marking** was found: when cups carried this marking, the intention to dispose of a cup in the bin instead of littering it was (marginally significantly) higher compared with when the cups carried no marking or when they carried the positive storyline marking.[30]

Stronger effects of the markings on intended disposal were found for wet wipes: respondents more often reported that they would dispose of a wipe in a bin instead of

[29] This chapter presents the results of multilevel logit analyses for disposal behaviour (which is binary) and multilevel regression analyses for understanding and evaluation (which are continuous). The models account for the fact that respondents answered the questions for multiple product subtypes (e.g. sanitary pads, tampons, and tampons with applicators) and situations (e.g., private and public setting). The models estimate the effects of the markings (relative to the no-marking control condition), while controlling for differences in age, gender (if applicable), financial situation, size of the products (as displayed on the respondents' screen), and country.

[30] Negative combined marking vs. no marking: p = 0,09; negative combined marking vs. positive storyline marking: p = 0,07. All other markings: p > 0,1.

flushing it when (certain) markings were added to the wipes. Specifically, the **negative storyline marking,** the **positive storyline marking,** and the **negative combined marking** all significantly promoted the disposal of wet wipes in a bin (from 82% when no marking was presented to 86% - 88% when one of these markings was presented).

Table 3.2. Overall effects of the markings on disposal intention and objective understanding, by product type. Bold values indicate markings that perform significantly better than the no-marking control group; values in italics indicate markings that performed marginally significantly better than the control group. Green-shaded cells indicate the most effective markings; lighter shades indicate markings that perform marginally significantly better than the no-marking control group.

			Objective understanding			
	Marking	**Correct disposal intention**	**Plastic content**	**Correct disposal**	**Harm to environ-ment**	**Pollution marine environ-ment**
Cups	No marking	90.4%^{a}	42,1%^{d}	87,2%^{b}	57,9%^{d}	47,9%^{d}
	Negative storyline	91,9%^{a}	**90,7%^{a}**	**92,1%^{a}**	**88,9%^{a}**	**80.3%^{a}**
	Positive storyline	90,3%^{a}	**89,5%^{ab}**	**93,8%^{a}**	**83,8%^{b}**	**76,5%^{b}**
	Negative combined	*92,5%^{a}*	**86,7%^{bc}**	**92,8%^{a}**	**85,2%^{a}**	**74,1%^{b}**
	Positive combined	91,8%^{a}	**85,0%^{c}**	**93,2%^{a}**	**81,4%^{b}**	**73,5%^{c}**
Wet wipes	No marking	81,7%^{c}	28,6%^{c}	74,7%^{d}	54,4%^{d}	46,8%^{d}
	Negative storyline	**88,4%^{a}**	**85,0%^{a}**	**90,7%^{a}**	**85,4%^{a}**	**80,5%^{a}**
	Positive storyline	**86,5%^{ab}**	**85,3%^{a}**	**89,2%^{ab}**	**81,0%^{b}**	**75,5%^{b}**
	Negative combined	**87,6%^{a}**	**78,1%^{b}**	**88,9%^{b}**	**80,1%^{b}**	**74,4%^{b}**
	Positive combined	84,4%^{bc}	**76,1%^{b}**	**85,4%^{c}**	**74,3%^{c}**	**69,4%^{c}**
Sanitary items	No marking	94,5%^{ab}	46,8%^{c}	88,5%^{c}	75.0%^{d}	67,4%^{d}
	Negative storyline	94,9%^{b}	**79,3%^{a}**	**94,1%^{ab}**	**90,2%^{a}**	**85,8%^{a}**
	Positive storyline	95,0%^{ab}	**76,7%^{a}**	**94,9%^{a}**	**88,4%^{ab}**	**83,8%^{ab}**
	Negative combined	95,0%^{ab}	**71,2%^{b}**	**93,2%^{ab}**	**86,3%^{b}**	**81,3%^{bc}**
	Positive combined	*95,9%^{a}*	**70,7%^{b}**	**92,4%^{b}**	**84,8%^{c}**	**79,1%^{c}**
Cigarettes	No marking	86,8%^{ab}	47,8%^{b}	92,5%^{a}	84,4%^{a}	69,2%^{a}
	Storyline sea - side	85,2%^{ab}	**67,7%^{a}**	89,8%^{a}	**89,2%^{b}**	**75,1%^{b}**
	Storyline flower - side	86,6%^{ab}	**68,1%^{a}**	90,1%^{a}	88,4%^{ab}	**76,2%^{b}**
	Combined - side	83,5%^{b}	**65,2%^{a}**	*88,4%^{a}*	**90,9%^{b}**	**76,2%^{b}**
	Storyline sea - front	85,3%^{ab}	**68,6%^{a}**	89,8%^{a}	*89,2%^{ab}*	**74,4%^{b}**
	Storyline flower - front	85,3%^{ab}	**67,3%^{a}**	91,8%^{a}	**89,5%^{b}**	*74,4%^{ab}*
	Combined - front	87.5%^{a}	**61,1%^{a}**	89,5%^{a}	**91,5%^{b}**	**77,8%^{b}**

Note: some of these measures (understanding that a product contains plastics and that incorrect disposal has adverse effects on the (marine) environment) were assessed using scales ranging from 1 (Certainly so) to 5 (Certainly not). In the statistical analyses, the original scores (from 1 to 5) were used as outcomes. Here, to aid interpretation, the results are displayed as the percentage respondents who indicated "Certainly so" or "I think so" to these questions.

Almost all participants (95%) indicated they would dispose of sanitary items in a bin, even when the sanitary items did not carry a marking. The **positive combined marking** still seemed to (marginally significantly) promote disposal in a bin compared with no marking and compared with the negative storyline and negative combined

marking.[31] For tampon applicators, two icon variants were tested on the marking: in one variant, the marking contained an image of only a tampon, and in another variant, the marking contained an image of a tampon as well as an applicator. Which of these icon variants was presented on the markings did not impact marking effectiveness.[32]

Cigarette butts appeared to be least frequently littered when the combined marking was placed on the front of the cigarette pack, compared with when this marking was placed on the side of the cigarette pack. However, the marking did not significantly outperform the other markings, nor led to significant increases in correct disposal behaviour compared with the baseline (the no-marking control condition).[33]

Respondents' disposal intention for each marking condition and product type is provided in Table 3.2.

Marking effectiveness within groups of consumers

Given the limited effects of the markings on intended disposal, it was examined whether the markings may be effective only for certain groups of consumers.

First, it was examined whether respondents who were more concerned about plastic (pollution) were more likely to correctly dispose of the used product when a marking was presented on it.[34] It was found that within the group of respondents who were more concerned about plastic, all markings were effective in promoting correct disposal of *cups*.[35] For the other product types, marking effectiveness did not depend on the respondents' levels of plastic concern.[36]

Second, given that only part of the respondents indicated to have had a (detailed) look at the markings (see Section 3.2.1), and this is a requirement for a marking to have effects, marking effects were examined within the subgroups of respondents who had attended to the markings in detail. Interestingly, within these groups, the markings appeared to increase correct disposal intention for cups, wipes, and sanitary items. More specifically, when a marking was added to a product (package), correct disposal intention increased, on average, from 90,4% to 94,9% for cups; from 81,7% to 90,8% for wet wipes, and from 94,5% to 97,7% for sanitary items. For wet wipes, both the negative storyline and negative combined marking outperformed the positive combined marking, suggested that these markings particularly benefit from increased

[31] Positive combined marking vs. no marking: p = 0,09; positive combined marking vs. negative storyline marking: p = 0,05; positive combined marking vs. negative combined marking: p = 0,07.

[32] Marking type x Icon type interactions: Tampons (with applicators): p = 0,43; applicators: p = 0,38; main effect icon type: p = 0,22.

[33] Combined front vs. combined side: p = 0,04; all other ps > 0,05.

[34] Irrespective of marking (type), respondents who have higher concern about plastic also more frequently intend to correctly dispose of the products. Main effects of plastic concern on disposal: ps < 0,01 for all product types (cups, wipes, sanitary items, cigarettes).

[35] Plastic concern x marking type interaction: p = 0,05; all plastic concern x individual marking interactions (marking vs control): ps < 0,05.

[36] Plastic concern x marking type interactions: wipes: p = 0,16; sanitary items: p = 0,34; cigarettes: p = 0,68.

attention.[37] Thus, overall, these findings suggests that *when* consumers attend to the markings, the markings indeed seem to promote correct disposal intention. However, it is important to note that in contrast to the marking conditions, no respondents were excluded in the control group for this analysis (as attention to markings could not be measured here). It could be that non-attention to the markings is related to certain respondent characteristics, such as, for example, low environmental concern, leading to the selective exclusion of these respondents in the marking conditions. In the control group, more respondents remain present with (for example) lower scores on environmental concern, which could lower correct disposal intentions in this group and hence, possibly (in part) explaining why disposal intentions in the control group were lower than in the subgroups of respondents who noticed the label in the marking conditions. In these analyses, we controlled for a number of respondent characteristics (plastic concern, displayed product size, gender, age, and financial situation) to deal with this potential issue, but the control group might still differ on other aspects that might affect disposal intentions. Nevertheless, the present results seem to suggest that attention to the markings promotes intended correct disposal behaviour.

To summarize, some evidence was found for certain markings to promote intentions to correctly dispose of a used product – although overall, effects seemed limited. However, the findings also suggested that once respondents attended to the markings, the markings often did seem to be effective. Some evidence also suggested that consumers who are more concerned about plastic are more likely to use the markings in disposal decisions. No marking clearly or consistently outperformed the other markings.

3.4.2. Objective understanding

Adding a marking to a disposable cup led to increases in all indices of objective understanding – in particular, the markings led to strong increases in understanding that the cup contains plastic (from 66% for cups without a marking to > 85% for cups with a marking) and that littering a cup can harm the environment and lead to plastic pollution in the marine environment (from 48%-58% for cups without a marking to 73%-89% for cups with a marking).[38] Overall, the **negative storyline marking** appeared superior in promoting understanding: it outperformed the other markings in communicating adverse effects of littering a cup on the marine environment.

Similarly, when placed on packs of wet wipes, the markings strongly increased all aspects of objective understanding, with the strongest increases being observed for understanding that a wet wipe contains plastic (from 29% to >76% of respondents understanding this) and that flushing a wet wipe can have adverse effects on the (marine) environment (from about 50% to 69%-85% of respondents understanding this).[39] Overall, the **negative storyline marking** again appeared superior in promoting understanding: it led to the highest levels of understanding that flushing a wipe can harm the environment and that this can contribute to plastic pollution in the marine environment.

[37] Overall marking effect (vs. control): all *p*s < 0,05. Negative storyline marking vs. control and negative combined marking vs. control: both *p*s < 0,05. In these analyses, plastic concern was additionally controlled for.
[38] Effects of each marking (vs. control): all *p*s < 0,001
[39] Effects of each marking (vs. control): all *p*s < 0,001.

Again, when placed on sanitary items, the markings led to increases in all aspects of understanding. In particular, adding a marking strongly increased understanding that a sanitary items contains plastic (from 47% to 70% - 80%), as well as understanding that flushing a sanitary item on the environment has adverse effects on the (marine) environment, from 67% - 75% without markings to 79% - 90% when a marking was added. Overall, the **negative storyline marking** and **positive storyline marking** lead to the highest levels of understanding. Depiction of an applicator in addition to the tampon on tampons with applicators had no impact on the effectiveness of the markings.[40]

When no marking was presented on the cigarette pack, less than half of the respondents (48%) understood that the cigarettes contain plastic. All markings effectively increased this percentage, to 61%-69%. Most markings also promoted understanding that dropping a cigarette butt on the ground can harm the environment and contribute to plastic pollution in the marine environment. Many participants (93%) already perceived the bin as the appropriate manner of disposal when no marking was presented; the markings did not further increase this percentage. Overall, although few differences between the markings were found, the **combined marking on the front** and the **storyline-sea marking** (presented on the side) appeared to lead to the most consistent increases in understanding. [41,42]

Finally, placing an environmental claim (e.g., "100% compostable", or "100% organic cotton") on products led to lower overall levels of understanding that the product contains plastic, that it should be disposed of in a bin, and that it can harm the (marine) environment. Placing a marking on products with a claim improved all indices of understanding. However, the marking could not fully counteract the negative effects of environmental claims on understanding: when a marking was present, levels of understanding were still lower for products with an environmental claim than products without claims.[43]

In general, the markings were found to successfully – and often, strongly – increase levels of understanding across all aspects of understanding and product types. More specifically, the markings led to particularly steep increases in understanding that a product contains plastic and that littering/flushing a used product can harm the environment and contribute to plastic pollution in the marine environment. The negative storyline marking appeared most effective.

Respondents' levels of understanding for each marking condition and product type are provided in Table 3.2.

[40] Icon type x marking type interactions: all *p*s < 0,05. Effects of each marking (vs. control): all *p*s < 0,001.

[41] Plastic content: effects of each marking (vs. control): all *p*s < 0,001. Correct disposal: Effects of each marking (vs. control): all *p*s > 0,05. Harm to the environment: effects of the storyline-flower marking (side) and the storyline-sea marking (front) (vs. control): *p*s > 0,05; plastic pollution in marine environment: storyline-flower marking (front): *p* = 0,06; all other *p*s < 0,001.

[42] The combined marking presented on the side appeared to perform relatively well on several aspects as well, however, some evidence suggested that it might lead to the lowest levels of understanding of the correct manner of disposal (vs. the no-marking control condition, *p* = 0,07).

3.4.3. Attention

Attention to the markings was the highest for cups and wipes, with around 4 in 10 respondents indicating having looked in detail at the marking, and 86% - 90% of the respondents at least having noticed the marking. The markings on cigarette packs were attended to least frequently, with less than 2 in 10 respondents having indicated to have looked at the marking in detail, and about half of the respondents having indicated to have at least noticed the marking. Within each product group, the markings did not show significant differences in how often they were attended to.[44] The percentage respondents that attended to the markings is provided in Table 3.3.

Table 3.3. Percentage respondents that attended to the markings in detail, per respondent group

Marking	Cups/wipes			Sanitary items		
	Looked in detail	Looked briefly	Did not look	Looked in detail	Looked briefly	Did not look
Negative storyline	41,3%	44,7%	14,0%	35,4%	38,7%	26,0%
Positive storyline	38,5%	48,3%	13,3%	33,7%	38,5%	27,9%
Negative combined	43,2%	43,2%	13,6%	32,8%	39,9%	27,3%
Positive combined	41,7%	47,8%	10,5%	30,5%	43,7%	25,8%

Marking	Cigarettes		
	Looked in detail	Looked briefly	Did not look
Storyline sea - side	17,8%	34,3%	47,9%
Storyline flower - side	18,6%	31,3%	50,1%
Combined - side	21,0%	30,3%	48,7%
Storyline sea - front	19,5%	28,5%	52,0%
Storyline flower - front	15,9%	25,6%	58,5%
Combined - front	20,2%	31,0%	48,8%

3.4.4. Marking evaluation

Overall, the markings were evaluated very positively.[45] Approximately 8 to 9 in 10 respondents (80% - 95%) considered the markings easy to understand and clear, and considered the information on the markings as important and useful. In addition, most respondents (61% - 80%) trusted the information conveyed by the markings. When the applicator icon was additionally presented on tampons with applicators, the markings were perceived as slightly less easy to understand and clear, compared with when only a tampon was depicted.[46]

[43] Main effects of claim (across all products and questions, and within each marking type) and effects of markings within each claim type: all *p*s < 0,05.

[44] This was analysed by comparing the conditions in whether respondents looked at the marking in detail vs. only briefly or not at all. All *p*s > 0,05.

[45] These measures were assessed on scales ranging from 1 (very difficult to understand/very unclear/not useful at all/not important at all to 7 (very easy to understand/very clear/very useful/very important). The statistical analyses also used the entire range of responses as outcomes. For ease of interpretation, the results are presented here as the percentage respondents who indicated a score of 5 or higher.

[46] Ease of understanding: mean tampon-only = 6.4 vs. 6.3 for tampon and applicator, *p* = 0,01; clarity: mean tampon-only = 6.3 vs. 6.2, *p* = 0,002, respectively. The effects of

Some evidence was found for the **negative storyline marking** to perform best: it outperformed at least one other marking in ease of understanding, perceived usefulness, and perceived importance when placed on sanitary items. For the other product types, it also received higher usefulness (wet wipes) and trust (wet wipes and cups) ratings than at least one other marking. For cigarettes, the **combined marking on the front** seemed most effective in promoting understanding, clarity, usefulness and importance, outperforming at least one other marking for each of these aspects.

Respondents' evaluations for each marking condition and product type are provided in Table 3.4.

Table 3.4. Percentage respondents that found the marking easy to understand, clear, important, useful, and trustworthy. Green-shaded cells indicate the most effective markings (i.e., that outperform at least one other marking).

	Marking	Easy to understand	Clear	Useful	Important	Trusted
Cups	Negative storyline	93,0%^{a}	90,0%^{a}	93,9%^{a}	94,1%^{a}	75,1%^{a}
	Positive storyline	91,7%^{a}	88,4%^{a}	90,4%^{a}	91,3%^{a}	71,4%^{b}
	Negative combined	92,5%^{a}	90,0%^{a}	90,6%^{a}	91,8%^{a}	70,7%^{b}
	Positive combined	93,3%^{a}	89,2%^{a}	91,7%^{a}	93,9%^{a}	71,4%^{ab}
Wet wipes	Negative storyline	93,3%^{a}	91,1%^{a}	94,4%^{a}	94,7%^{a}	75,7%^{a}
	Positive storyline	92,5%^{a}	88.4%^{a}	91,3%^{b}	92,6%^{a}	71,5%^{ab}
	Negative combined	93,5%^{a}	91,2%^{a}	91,5%^{ab}	92,5%^{a}	71,5%^{b}
	Positive combined	94,3%^{a}	90,0%^{a}	92,3%^{b}	93,5%^{a}	68,9%^{b}
Sanitary items	Negative storyline	93,9%^{a}	91,3%^{a}	93,9%^{a}	95,3%^{a}	79,7%^{a}
	Positive storyline	92,6%^{ab}	90,9%^{a}	92,4%^{ab}	93,7%^{ab}	76,7%^{a}
	Negative combined	91,9%^{ab}	89,1%^{a}	92,1%^{b}	93,2%^{ab}	78,0%^{a}
	Positive combined	91,0%^{b}	88,9%^{a}	90,1%^{b}	92,2%^{b}	77,5%^{a}
Cigarettes	Storyline sea - side	87,0%^{ab}	84,1%^{ab}	83,9%^{ab}	89,5%^{ab}	68,6%^{a}
	Storyline flower - side	87,3%^{ab}	85,8%^{ab}	82,9%^{ab}	87,8%^{ab}	61,2%^{ab}
	Combined - side	87,5%^{ab}	85,0%^{ab}	81,3%^{b}	86,4%^{b}	61,5%^{b}
	Storyline sea - front	85,2%^{b}	81,7%^{b}	80,5%^{b}	88,4%^{ab}	64,2%^{ab}
	Storyline flower - front	88,4%^{ab}	84,1%^{ab}	83,0%^{ab}	88,1%^{ab}	61,9%^{ab}
	Combined - front	90,4%^{a}	89,2%^{a}	87,7%^{a}	91,5%^{a}	66,1%^{ab}
	Storyline sea - side	87,0%^{ab}	84,1%^{ab}	83,9%^{ab}	89,5%^{ab}	68,6%^{a}

These measures were assessed on scales ranging from 1 (very difficult to understand/very unclear/not useful at all/not important at all to 7 (very easy to understand/very clear/very useful/very important). In the statistical analyses, the original scores (from 1 to 5) were used as outcomes. For ease of interpretation, the results are presented here as the percentage respondents who indicated a score of 5 or higher.

adding the applicator image did not differ across the markings (Icon type x marking type interactions: all *p*s > 0,05).

4. Results: laboratory experiments

In the online experiments, we attempted to create disposal situations that are as realistic as possible, by providing respondents with typical disposal scenarios and contexts. Nevertheless, intended disposal behaviours measured in the online experiment may not fully mirror real-life behaviour. For example, indicating one's intended disposal behaviour in an online experiment might directly interfere with the disposal behaviour in question as conscious attention is now directed to the manner of disposal; in contrast, in real-life, disposal is likely often carried out in a more habitual manner. Further, real-life situations are typically accompanied by a larger amount of distractors compared with online experiments that might decrease the amount of attention that is paid to a marking. Therefore, the primary purpose of the laboratory experiments was to examine whether the markings effectively promote correct disposal behaviour in a real-life setting. In addition to actual disposal behaviours, disposal consideration (the extent to which respondents had doubted about how to dispose of a product), and attention to, and understanding and evaluation of the marking were measured in a post-experiment questionnaire.

4.1. Sample description

In total, 378 respondents took part in the laboratory experiments.[47] Testing took place in two Member States (Belgium and Bulgaria). Table 4.1 provides a description of the respondent sample, per Member State.

Table 4.1. Sample description: socio-demographics

	Total	BE	BG
Total sample size	378	178	200
Gender (male)[48]	31,6%	26,6%	35,5%
Age			
16-34	50,0%	63,3%	40,0%
35-54	31,7%	15,3%	44,0%
55-70	14,6%	14,7%	14,5%
70+	3,7%	6,7%	1,5%
Education (ISCED)			
Low	14,4%	26,4%	2,0%
Medium	27,5%	19,7%	34,5%
High	52,6%	40,4%	63,5%

[47] Note that in Belgium, some drop-out was observed after the cup disposal task (N = 14) and after the wet wipe disposal task (N = 9). In part, this drop-out was the result of some respondents' concerns regarding COVID-19; testing in this Member State took place in August, shortly after stricter official guidelines were implemented to reduce the spread of COVID-19. Available data from the these respondents was included in the respective analyses.

[48] The substantially larger percentage women who participated in this study may be attributed to our cover story – i.e., that the study involved product testing of wet wipes.

Response definition

Disposal behaviour was measured by (1) an observer who noted the disposal behaviour after respondents had left (e.g., where the empty cup was found), and (2) the respondent's self-indicated disposal behaviour.[49] As reliability check, it was examined whether observed and self-reported disposal behaviours were consistent. Out of 742 available disposal behaviours, observed and self-reported disposal were inconsistent in 48 cases (6,5% of all observations). This seemed not due to social desirability issues, as half of the respondents with inconsistent data admitted to have flushed/littered the wet wipe/cup. To ensure data quality, the inconsistent responses were removed from the dataset, resulting in 336 cup disposal behaviours and 358 wet wipe disposal behaviours that were included in the respective analyses.

Part of the respondents handed the empty disposable cup and/or wet wipe to the experimenter (or in one case, cleaning staff) instead of disposing of it in the bin, or indicated to have taken the cup or wipe with them (e.g., in their purse). These respondents were defined as correctly disposing of the cup/wipe (given that they apparently did not want to litter the cup or flush the wipe). When the observers could not locate a wet wipe and the respondent did not indicate they had taken the wet wipe with them, the wipe was presumed flushed. In one case, a cup could not be located; this observation was removed from the dataset.

4.2. Effectiveness of the marking

4.2.1. Disposal behaviour

The marking did not have significant effects on disposal behaviour of the disposable cups and wet wipes (see Table 4.2). No differences between countries were found.[50]

Additional analyses were conducted to examine whether the marking might only be effective within certain groups of consumers. Given that consumers who are more concerned about the environment might be more motivated to act on the information provided by the marking, it was tested whether environmental concern moderated marking effects; however, this appeared not the case.[51]

4.2.2. Disposal consideration

In the post-experiment questionnaire, respondents were asked whether they had had doubts regarding where to dispose of the cup and wet wipe, in order to evaluate whether the marking would cause respondents to be more certain about the (correct) disposal manner. Respondents experienced relatively low levels of doubt overall (cup disposal mean: 2.6; wipe disposal mean: 1.8), and no significant differences were found between the two conditions.[52] Excluding respondents from the analyses who did not notice the marking did not change these results.[53]

[49] Respondents could indicate their disposal behaviour as an open answer, in case the multiple-choice options did not apply. 80 respondents did this. Only unambiguous open answers were coded.

[50] Effects for cups - overall: p = .35; effects for wet wipes – overall: p = .42. Marking x Country interaction for cups: p = 0,53; for wipes: p = 0,15.

[51] Marking x environmental concern (binary) interaction: cups: p = 0,22; wipes: p = 0,42.

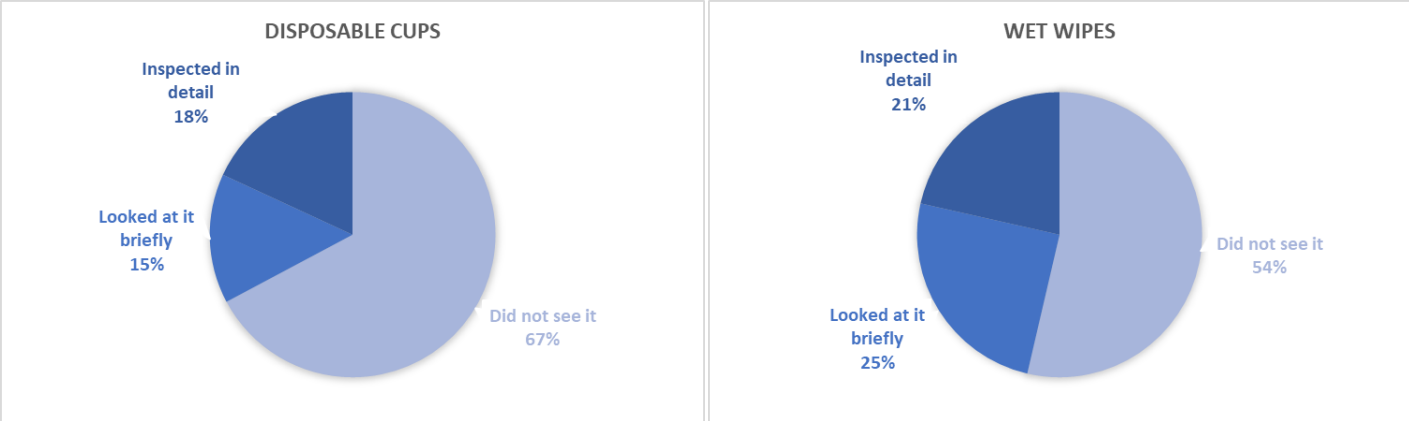
[52] Cups: p = 0,76; wet wipes: p = 0,70. These questions were measured on a 7-point Likert scale ranging from 1 (not at all) to 7 (very much so).

[53] Cups: p = 0,81; wet wipes: p = 0,28.

4.2.3. Attention to the marking

One in three respondents (32,8%) indicated to have noticed the marking on the disposable cup, and about half (46,3%) noticed the marking on the pack of wet wipes – despite having inspected the pack. Of the respondents who noticed the marking, about half looked at it in detail. Figure 4.1 presents the results per response category and product type.

Figure 4.1. The amount of attention paid to the markings



Given that a relatively low amount of respondents noticed the marking, and attention to a marking could be regarded as a requirement for the marking to affect disposal behaviour, analyses were repeated excluding respondents who did not notice the marking. Effects now appeared to go in the expected direction, with 3% to 5%-point increases in correct disposal behaviour compared with the no marking condition; however, these effects were not statistically significant, possibly due to the relatively low amount of respondents that could be included in these analyses.[54] Table 4.2 (bottom row) presents the percentage respondents that correctly disposed of the cup and wet wipe, per marking condition and for respondents in the marking condition who noticed the marking.

Table 4.2. Percentage respondents that correctly disposed of the cup and wet wipe.

Marking condition	Cups	Wet wipes
No marking	56,3%[a]	90,2%[a]
Negative storyline (overall)	51,2%[a]	92,6%[a]
Negative storyline (noticed marking)	59,2%[a]	95,1%[a]

4.2.4. Marking understanding and evaluation

In line with the findings of the online experiments, the marking was well understood and highly evaluated by the majority of respondents: for both cups and wet wipes, the markings were considered easy to understand (83-84% of the respondents), clear (81-85%), useful (90%), and important (90%).

[54] Marking effects excluding respondents who did not notice the markings: Cups: p = 0,72; wet wipes: p = 0,18.

5. Conclusion

To reduce the impact of single use plastic products on the environment, Directive (EU) 2019/904 (the "SUP Directive")[55] has established various sets of measures, including bans of certain single-use plastic products and prevention measures. The focus of the current project lies on prevention in the form of **marking requirements** for single-use plastic products. The SUP support study has already developed different marking options that inform consumers of the product's plastic content, its correct manner of disposal, and the adverse impact of incorrect disposal on the (marine) environment. The present study aimed to provide insight into the most effective marking option – that is, the marking that most effectively promotes correct disposal, improves understanding, attracts attention, and is considered useful and important. For cigarettes only, the study additionally aimed to provide insight into the most effective marking position: on the side or the front of the cigarette pack.

The study was conducted in two waves. In the first wave, large online experiments were conducted to examine a wide range of consumer responses across four product types that are to carry a marking (disposable cups, wet wipes, sanitary items, and cigarettes). In the second wave, smaller laboratory experiments were carried out aimed at examining the impact of the most promising marking on real-life disposal behaviour of disposable cups and wet wipes.

Below, the results are summarized and discussed. A summary of the findings is provided in Table 5.1.

Marking effects on levels of understanding and consumer evaluation
The markings were very effective in **increasing consumer understanding**. In particular, the markings often led to strong increases in understanding that products contain plastic and that littering/flushing them can harm the environment and can ultimately lead to plastic pollution in the marine environment. The markings generally also improved understanding of how to dispose of the products correctly, although many respondents often already knew about the appropriate manner of disposal. Marking effects were found across all product types.

When products carried an environmental claim (e.g., "100% compostable"), the markings were still effective in increasing understanding – although overall levels of understanding were still lower compared with when the markings were presented on products without claims.

The markings were also very **positively evaluated** by consumers: 8 to 9 in 10 consumers found the markings easy to understand and clear, and considered the information on the markings useful and important. In addition, the markings were trusted by the majority of respondents.

[55] Directive (EU) 2019/904 of the European Parliament and the Council 5 June 2019 on the reduction of the impact of certain plastic products on the environment, O.J. L 155/1, 12.6.2019.

Although all markings led to (steep) increases in understanding and received high evaluations, the **negative storyline marking** received the highest evaluations and/or led to the highest increases in understanding that incorrect disposal can harm the environment and contribute to plastic pollution in the marine environment for disposable cups, wet wipes and sanitary items. Regarding tobacco products, the **combined marking placed on the front** of a cigarette pack was among the most effective markings in increasing understanding, and was evaluated most positively.

Marking effects on (intended) disposal behaviour and attention

Marking effects on (intended) disposal behaviour were mixed. In the online experiments, certain markings seemed effective in promoting appropriate disposal of certain product types, but none of the markings consistently outperformed a situation in which no marking was present. The laboratory experiments did not establish a significant effect of the tested marking (negative storyline) on actual disposal behaviour.

Why were markings effects on (intended) disposal more limited? For one, most consumers often already (indicated to) perform the correct disposal behaviour, even when no marking was present – leaving **less room** for the markings to have effects.

Second, a **lack of attention** may have caused the limited marking effects on disposal behaviour/intention. In the online experiments, most consumers (48% to 90%) had noticed the markings, and 15% to 43% had looked at the markings in detail.[56] In the laboratory experiments, levels of attention to the markings appeared lower (even though the size of the markings on these packages was slightly above the proposed minimum requirements); specifically, less than half of the consumers had noticed the markings, and only about one in five had looked at the marking in detail. This suggests that under real-life circumstances (and with one-time exposure), the markings may not attract attention of a substantial proportion of consumers – possibly explaining their limited effects on (intended) disposal behaviour. In case of wet wipes, other attention-grabbing elements of the package design might have distracted from the marking. The lack of attention to the marking on disposable cups may be due to consumers easily covering the marking when holding the cup, or not being used to visually inspect a disposable cup.

In line with this explanation, findings of the online experiments suggested that **once the markings are attended to**, they do seem to effectively promote intended correct disposal. Specifically, respondents who had attended to the marking when making disposal decisions were also more likely to indicate to correctly dispose of the disposable cups, wet wipes, and sanitary items. Some indication for a similar trend was found for the laboratory experiments.

[56] The lowest amount of attention was paid to the markings presented on cigarette packs. In part, this could be due to the salient health messages on cigarette packs, which could have competed for attention with the marking. However, methodological aspects of the study could also play a role, as respondents saw the cigarette pack on three occasions (in three contexts) before they were asked whether or not they had seen the marking; in comparison, respondents who answered questions about cups and wipes had seen the marking on eight occasions, whereas respondents who answered questions about sanitary items had seen the marking on six occasions.

The markings appeared approximately equally effective in promoting correct disposal intention.

Implications

The results do not seem to suggest that the design of the markings is suboptimal: the markings were well understood and highly evaluated. Rather, relatively many consumers do not seem to notice the markings and/or are not sufficiently motivated to inspect it in detail. Therefore, it seems promising to attempt to increase consumer attention to the markings in order to increase their effectiveness. This might be achieved naturally (i.e., through a large number of exposures due to repeated use of a product), by presenting the markings at larger sizes or a more salient locations (if possible),[57]or by providing an information campaign that informs consumers about the markings.

Conclusion

Overall, the markings were highly effective in promoting consumer understanding (in particular, understanding that a product contains plastic and understanding the adverse effects of incorrect disposal on the (marine) environment). In addition, a large majority of consumers considered the markings easy to understand, clear, useful and important. Marking effects on actual and intended disposal behaviour were more limited overall. However, findings suggested that once the markings are attended to, they are generally effective in promoting (intended) correct disposal behaviour.

Table 5.1. Summary of the findings, per measured outcome. Colours (green, yellow and red) indicate the extent to which markings were effective.

Outcome	Result	Explanation
Correct disposal behaviour	Do the markings promote appropriate disposal behaviour? Answer: **Certain markings promote appropriate disposal behaviour in certain situations**	Effective markings in online experiment: • Cups: **negative combined marking** (from 90 to 93%) • Wet wipes: **negative and positive storyline marking**, and **negative combined marking** (from 82% to 87-88%) • Sanitary items: **positive combined marking** (from 95% to 96%) • Cigarettes: **none** Findings suggest that *when* consumers pay attention to the markings, they promote correct disposal intentions. Effective markings in laboratory experiment (i.e., on actual behaviour): • **None** (but note that only negative storyline marking was tested, and only for cups and wet wipes) Findings again seemed to suggest stronger effects of the markings among consumers that *noticed* them (but differences are not significant, too few consumers noticed the marking to allow to detect effect).

[57] The latter option would be in line with earlier findings showing that messages on disposable cups were only effective in reducing littering of the cups when this message was highly salient (in this case, large letters covering a large area of the cup). Wever, R., Van Onselen, L., Silvester, S., & Boks, C. (2010). Influence of packaging design on littering and waste behaviour. *Packaging Technology and Science, 23(5),* 239-252.

Understanding	Do the marking increase consumers' understanding of (1) the presence of plastics in the products, (2) the appropriate disposal means, and (3) the resulting negative impact of littering or other inappropriate means of waste disposal on the environment? Answer: **Yes**	Yes, strong increases in understanding of these aspects (particularly 1 and 3) after exposure to the markings, and the negative storyline marking in particular.
Evaluation	Are the markings perceived as easy to understand and clear, and is the information conveyed by the markings perceived as useful, important, and trustworthy? Answer: **Yes**	Yes, about 8-9 in 10 consumers find the markings easy to understand and clear and find the information useful and important. Most consumers (60-80%) trust the marking.
Attention	Are the markings conspicuous and legible, so that they are noticed? Answer: **No**	In the online experiment, most consumers indicated to have noticed the marking (50-90%), but relatively few consumers (15-40%) reported to have looked at it in detail. In the field experiment in which the marking was presented on real product packages, less than half of the consumers noticed the markings, and one in five looked at the markings in detail.

Appendix A. Cups and wipes: questionnaire

Value of X1	Marking type	Framing	Products	Size/location	Number of respondents per country
1	Storyline	Negative	Cups and wet wipes	(set)	100
2	Storyline	Positive	Cups and wet wipes	(set)	100
3	Combined	Negative	Cups and wet wipes	(set)	100
4	Combined	Positive	Cups and wet wipes	(set)	100
5	No marking	None	Cups and wet wipes	--	100

Value of X2	Sit / claim 1	Sit / claim 2	Sit / claim 3	Sit / claim 4	Sit / claim 5	Sit / claim 6	Sit / claim 7	Sit / claim 8	Number of respondents per country
1	X3 = 1	X3 = 2	X3 = 3	X3 = 4	X3 = 5	X3 = 6	X3 = 7	X3 = 8	63
2	X3 = 2	X3 = 1	X3 = 4	X3 = 3	X3 = 6	X3 = 5	X3 = 8	X3 = 7	63
3	X3 = 3	X3 = 4	X3 = 1	X3 = 2	X3 = 7	X3 = 8	X3 = 5	X3 = 6	63
4	X3 = 4	X3 = 3	X3 = 2	X3 = 1	X3 = 8	X3 = 7	X3 = 6	X3 = 5	63
5	X3 = 5	X3 = 6	X3 = 7	X3 = 8	X3 = 1	X3 = 2	X3 = 3	X3 = 4	63
6	X3 = 6	X3 = 5	X3 = 8	X3 = 7	X3 = 2	X3 = 1	X3 = 4	X3 = 3	63
7	X3 = 7	X3 = 8	X3 = 5	X3 = 6	X3 = 3	X3 = 4	X3 = 1	X3 = 2	63
8	X3 = 8	X3 = 7	X3 = 6	X3 = 5	X3 = 4	X3 = 3	X3 = 2	X3 = 1	63

Value of X3	Product	Situation or claim	Number of respondents per country
1	Plastic cup	Picnic / no claim	500
2	Paper cup	Picnic / no claim	500
3	Plastic cup	Waiting / claim	500
4	Paper cup	Waiting / claim	500
5	Wet wipe	Private / no claim	500
6	Toilet wipe	Private / no claim	500
7	Wet wipe	Public / claim	500
8	Toilet wipe	Public / claim	500

Value of X4	Product 1	Product 2	Product 3	Number of respondents per country
1	Plastic (X5 = 1)	Disposal (X5 = 2)	Impact (X5 = 3)	166

2	Disposal (X5 = 2)	Impact (X5 = 3)	Plastic (X5 = 1)	166
3	Impact (X5 = 3)	Plastic (X5 = 1)	Disposal (X5 = 2)	166

Value of X5	Product 1
1	Plastic
2	Disposal
3	Impact

Respondents are **assigned** to the levels of X1, X2 and X4 **within countries**, using the least-full allocation (=random&minimum). Ensure that participant numbers of the randomized variables are balanced across the values of X1 such that similar participant numbers are assigned to each value of X2 and X4 within each value of X1. Values of X2 are randomized to determine the order of questions in Part 1A (picnic, waiting, private or public situations) and Part 2 (products with claim or without claim).

The file names of country-specific images start with a country code, e.g. CUX_P1.jpg in this questionnaire is CUX_P1.jpg for Belgium, CUX_P1.jpg for Bulgaria etc.

Scripter: please ensure that respondents cannot go back to previous questions.

III. SCREENER

Screen 1

Base: all respondents

SD1 [SA] – HIDDEN, RECODE FROM RESP_GENDER
What is your gender?

1. Man
2. Woman

Base: all respondents

SD2 [Q; 2 digits, min 18, max 70] – HIDDEN, RECODE FROM RESP_AGE
What is your age?

Scripter: MQB

IV. INTRODUCTION

QUESTIONS TO DETERMINE IMAGE SIZES

Screen 2

Base: all respondents

[INFO]
This questionnaire contains images. It is important for this research to know how large these images appear on your screen. Therefore, we would like you to do a couple of things, which will be explained step by step on the next screens.

Screen 3

Base: all respondents

[INFO]

First of all, make sure that your browser zoom is set to 100%.

You can easily do this by simultaneously pressing the “Ctrl” and “0” (zero) button on your keyboard.

After your browser zoom is set to 100%, please leave it at 100% while completing the questionnaire.

If nothing happens, your browser zoom was likely already set to 100%.

Screen 4

Base: all respondents

S4. [SA]

For the next step, you need a ruler or measuring tape. This is very important for the success of this study, so please take your time to find one.

If you do not have a ruler or measuring tape, you can print this one (Scripter: insert hyperlink to Liniaal.pdf) (on A4 paper).

Respondent instruction: To ensure that the printed ruler is accurate, check “Actual size” or “100%” under print options (the “Shrink to fit” option should not be turned on, and page scaling should be set to none).

If you (really) do not have a ruler or a printer, that’s a pity (again, it is very important for this research). But you can still continue with this questionnaire.

1. I have found a ruler or measuring tape
2. I have printed the ruler
3. I really do not have a ruler or measuring tape or a printer

Screen 5

Base: All respondents

S5. [Q, min=0,0; max 30,0] foresee 2 digits before and 1 digit after decimal place

[IF S4=1 OR S4=2] Please place your ruler or measuring tape on your screen and measure the length of the line below.

[IF S4=3] If you do not have a ruler or measuring tape, please use your best guess for the length of the line below.

Scripter: insert “W_line.jpg” (line length corresponds to package width) –

The width of the image (W_line.jpg) corresponds to the width of the product image BG_CU1_P1.jpg (etc.) and the width of the black line corresponds to the width of the cup itself (widest part).

Please enter the length of the line in centimeters (cm) with one decimal (e.g. 5,5 cm).

This line is: _ _, _ cm

GENERAL INTRODUCTION

Screen 6 [General introduction]

Base: all respondents

[Info]

We are interested in how people form impressions about products and how they dispose of products.
This questionnaire consists of three parts and will take about 15 minutes to complete.
The first part is about the disposal of used products.

V. MAIN QUESTIONNAIRE

PART 1. DISPOSAL TASKS
PART 1A: DISPOSAL INTENTION

Images to be presented:	
Cups:	Wipes:
CUX_P1.jpg	WX_P1.jpg
CUX_P2.jpg	WX_P2.jpg
CU_S1.jpg	W_S1.jpg
CU_S2.jpg	W_S2.jpg

Scripter: The values of CU and W depend on the marking type (value of X1). Respondents see 8 scenarios (values of X3). The order of presentation depends on X2.

Screen 7 [introduction disposal task]

Base: all respondents

[Info]

On the next screens, you will be asked to imagine different situations in which you used a certain product and now need to dispose of it. You will see photographs of different situations in which the options for disposal are indicated with numbered arrows. Please indicate which option best reflects how you would dispose of the product in this situation. There are no right or wrong answers.

Screen 8

Base: - If X3 = 1 (plastic cup, picnic)

Q1. [SA]

[If X2 = 1 OR X2 = 3 OR X2 = 5 OR X2 = 7]

Now, imagine the following situation.
You are driving on a highway. After a while, you decide to take a short break near a gas station. At the gas station, you buy yourself this beverage:

[If X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]

Imagine again that you are driving on a highway and decide to take a short break near a gas station. At the gas station, you buy yourself this beverage:

<display CUX_P1.jpg>

You sit down at a picnic table nearby your car and finish your beverage. What would you do with the empty cup in this situation? Two options are indicated in the photograph below.

<display CU_S1.jpg>

If these were the only options you had, which one would you choose?
1 Leave the cup on the table (option 1)
2 Walk back to the gas station to put the cup in a bin (option 2)

Screen 9

Base: If X3 = 2 (paper cup, picnic):

Q2. [SA]
[If X2 = 2 or 4 or 6 or 8]
Now, imagine the following situation.
You are driving on a highway. After a while, you decide to take a short break near a gas station. At the gas station, you buy yourself this beverage:
[If X2 = 1 OR 3 or 5 or 7]
Imagine again that you are driving on a highway and decide to take a short break near a gas station. At the gas station, you buy yourself this beverage:

<display CUX_P2.jpg>

You sit down at a picnic table nearby your car and finish your beverage. What would you do with the empty cup in this situation? Two options are indicated in the photograph below.

<display CU_S1.jpg>

If these were the only options you had, which one would you choose?
1 Leave the cup on the table (option 1)
2 Walk back to the gas station to put the cup in a bin (option 2)

Screen 10
Base: If X3 = 3 (plastic cup, waiting):
Q3. [SA]
[If X2 = 1 OR X2 = 3 OR X2 = 5 OR X2 = 7]
Now, imagine the following situation.
You are travelling by train. After a while, you arrive at a station where you need to catch your connecting train. You get out of the train but need to wait a little for your next train to arrive. You decide to buy yourself this beverage:
[X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]
Imagine again that you are travelling by train and arrive at a station where you need to catch your connecting train. You get out of the train but need to wait a little for your next train to arrive. You decide to buy yourself this beverage:

<display CUX_P1.jpg>

You finish your beverage at the platform. What would you do with the empty cup in this situation? Two options are indicated in the photograph below.

<display CU_S2.jpg>

If these were the only options you had, which one would you choose?
1 Put the cup on the ground (option 1)
2 Walk to the other end of the platform to put the cup in a bin (option 2)

Screen 11
Base: If X3 = 4 (paper cup, waiting):
Q4. [SA]
[If X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]
Now, imagine the following situation.
You are travelling by train. After a while, you arrive at a station where you need to catch your connecting train. You get out of the train but need to wait a little for your next train to arrive. You decide to buy yourself this beverage:

[X2 = 1 OR X2 = 3 OR X2 = 5 or X2=7]
Imagine again that you are travelling by train and arrive at a station where you need to catch your connecting train. You get out of the train but need to wait a little for your next train to arrive. You decide to buy yourself this beverage:

<display CUX_P2.jpg>

You finish your beverage at the platform. What would you do with the empty cup in this situation? Two options are indicated in the photograph below.

<display CU_S2.jpg>

If these were the only options you had, which one would you choose?
1 Put the cup on the ground (option 1)
2 Walk to the other end of the platform to put the cup in a bin (option 2)

Screen 12

Base: If X3 = 5 (wet wipe, private)

Q5. [SA]
[If X2 = 1 OR X2 = 5]
Now, imagine the following situation.
You are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these wet wipes as a gift:
[If X2 = 2 OR X2 = 3 OR X2 = 4 OR X2 > 5]
Imagine again that you are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these wet wipes as a gift.

<display WX_P1.jpg>

[If X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]
Again, after having done some shopping, you head home. When you arrive at your house, you store the wet wipes in your bathroom. Next, you use the toilet and use a few of the wet wipes to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.
[If X2 = 1 OR X2 = 3 OR X2 = 5 OR X2 = 7]
After having done some shopping, you head home. When you arrive at your house, you store the wet wipes in your bathroom. Next, you use the toilet and use a few of the wet wipes to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.

<display W_S1.jpg>

If these were the only options you had, which one would you choose?
1 Flush the wipes (option 1)
2 Put the wipes in the bin (option 2)

Screen 13

Base: If X3 = 6 (toilet wipe, private):

Q6. [SA]
[[X2 = 2 OR X2 = 6]
Now, imagine the following situation.
You are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these toilet wipes as a gift:

[If X2 = 1 OR X2 = 3 OR X2 = 4 OR X2 = 5 OR X2 > 6]
Imagine again that you are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these toilet wipes as a gift:

<display WX_P2.jpg>

[If X2 = 1 OR X2 = 3 OR X2 = 5 OR X2 = 7,
Again, after having done some shopping, you head home. When you arrive at your house, you store the toilet wipes in your bathroom. Next, you use the toilet and use a few of the toilet wipes to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.
[If X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]
After having done some shopping, you head home. When you arrive at your house, you store the toilet wipes in your bathroom. Next, you use the toilet and use a few of the toilet wipes to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.
<display W_S1.jpg>

If these were the only options you had, which one would you choose?
1 Flush the wipes (option 1)
2 Put the wipes in the bin (option 2)

Screen 14
Base: If X3 = 7 (wet wipe, public):
Q7. [SA]
[X2 = 3 OR X2 = 7]
Now, imagine the following situation.
You are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these wet wipes as a gift:
If X2 < 3 OR X2 = 4 OR X2 = 5 OR X2 = 6 OR X2 = 8]
Imagine again that you are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these wet wipes as a gift:

<display WX_P1.jpg>

[If X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]
Again, after having done some shopping, you decide to head to the restroom at the mall. While using the toilet, you see that there is no toilet paper. Therefore, you use a few of the wet wipes you received to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.

[If X2 = 1 OR X2 = 3 OR X2 = 5 OR X2 = 7]
After having done some shopping, you decide to head to the restroom at the mall. While using the toilet, you see that there is no toilet paper. Therefore, you use a few of the wet wipes you received to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.
<display W_S2.jpg>

If these were the only options you had, which one would you choose?
1 Flush the wipes (option 1)
2 Put the wipes in the bin (option 2)

Screen 15

Base: If X3 = 8 (toilet wipe, public):

Q8. [SA]

[X2 = 4 OR X2 = 8, then

Now, imagine the following situation.

You are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these toilet wipes as a gift:

If X2 < 4 OR X2 = 5 OR X2 = 6 OR X2 = 7]

Imagine again that you are in the mall and see that there are several product booths. You approach a booth and receive a free pack of these toilet wipes as a gift:

<display WX_P2.jpg>

[If X2 = 1 OR X2 = 3 OR X2 = 5 OR X2 = 7]

Again, after having done some shopping, you decide to head to the restroom at the mall. While using the toilet, you see that there is no toilet paper. Therefore, you use a few of the toilet wipes you received to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.

[[If X2 = 2 OR X2 = 4 OR X2 = 6 OR X2 = 8]

After having done some shopping, you decide to head to the restroom at the mall. While using the toilet, you see that there is no toilet paper. Therefore, you use a few of the toilet wipes you received to clean your butt. What would you do with the used wipes in this situation? Two options are indicated in the photograph below.

<display W_S2.jpg>

If these were the only options you had, which one would you choose?

1 Flush the wipes (option 1)

2 Put the wipes in the bin (option 2)

PART 1B: ATTENTION TO THE MARKINGS

Scripter: All respondents who are assigned to X1 < 5 complete Part 1B. Respondents should not be able to return to previous screens. The values of CU and W depend on the marking type (value of X1).

Images to be presented:	
Cups:	Wipes:
CUX_PA.jpg	WX.jpg

Screen 16 [attention]

Base: IF X1 <5

Q9. [SA]

On the disposable cups and packs of wipes you just saw, the following label was shown:

<display CUX_PA.jpg and display WX.jpg >

When you looked at the disposable cups and packs of wipes, did you notice this label?

1 Yes, I noticed it and inspected it in detail

2 Yes, I noticed it and looked at it briefly

3 No, I did not notice this label

Base: IF Q9 <3

Q10. [SA]

[if X1 = 1 OR X1 = 2: The label contains small symbols and text. When you saw this label on the product packaging, could you see the symbols well and read the text*?*
if X1 = 3 OR X1 = 4: The label contains a small symbol and text. When you saw this label on the product packaging, could you see the symbol well and read the text*?*

1. [if X1 = 1 OR X1 = 2: I could not see the symbols well and I could not read the text
   if X1 = 3 OR X1 = 4: I could not see the symbol well and I could not read the text
2. [if X1 = 1 OR X1 = 2: I could see the symbols well but I could not read the text
   if X1 = 3 OR X1 = 4: I could see the symbol well but I could not read the text
3. IF X1= 1 OR X1=2 I could not see the symbols well but I could read the text
   IF X1 = 3 OR X1 = 4 I could not see the symbol well but I could read the text
4. [if X1 = 1 OR X1 = 2: I could see the symbols well and I could also read the text
   if X1 = 3 OR X1 = 4: I could see the symbol well and I could also read the text
5. I don't remember

PART 2. OBJECTIVE UNDERSTANDING

Scripter: Again, the values of CU and W depend on the marking type (value of X1). Respondents answer questions about eight products that contain markings. Again, the order of presentation depends on the value of X2. The question order depends on the value of X4.

Cups	Wipes
CUX_P1_C1.jpg	WX_P1_C1.jpg
CUX_P1_C2.jpg	WX_P1_C2.jpg
CUX_P2_C1.jpg	WX_P2_C1.jpg
CUX_P2_C2.jpg	WX_P2_C2.jpg

Screen 19 [objective understanding - introduction]

Base: All respondents

[INFO]

On the next screens, you will see pictures of different disposable cups and packs of wet wipes. This time, you will receive questions about your impression of these products.

Screens 20-27 (questions in order of X4)
Screens 20 (order screens 20-27 in order of X4)

Base: If X3 = 1:

[INFO]

Now, take a look at this disposable cup once more.
<display CUX_P1_C1.jpg> [plastic cup, no claim]

Base: If X3 = 1 & IF X5=1

Q11. [SA]

Do you think this cup contains plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 1 & IF X5=2

Q12. [MA]

According to you, which of the options below reflects an appropriate way to dispose of this cup?
Multiple answers possible

1 Put the cup in a bin
2 Leave the cup wherever it is used
3 I (really) don't know [S]

Base: If X3 = 1 & IF X5=3

Q13. [SA]
Do you think that leaving this cup behind on the ground could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 1 & IF X5=3

Q14. [SA]
If you were to leave this cup on the ground, do you think this could ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 21 (order screens 20-27 in order of X4)

Base: If X3 = 2:

[INFO]
Now, take a look at this disposable cup once more.
<display CUX_P2_C1.jpg> [paper cup, no claim]

Base: If X3 = 2 & IF X5=1

Q15. [SA]
Do you think this cup contains plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 2 & IF X5=2

Q16. [MA]
According to you, which of the options below reflects an appropriate way to dispose of this cup?
Multiple answers possible

1 Put the cup in a bin
2 Leave the cup wherever it is used
3 I (really) don't know [S]

Base: If X3 = 2 & IF X5=3

Q17. [SA]
Do you think that leaving this cup behind on the ground could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 2 & IF X5=3

Q18. [SA]
If you were to leave this cup on the ground, do you think this could ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 22 (order screens 20-27 in order of X4)

Base: If X3 = 3:

[INFO]
Now, take a look at this disposable cup.

<display CUX_P1_C2.jpg> [plastic cup, claim]

Base: If X3 = 3 & IF X5=1

Q19. [SA]
Do you think this cup contains plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 3 & IF X5=2

Q20. [MA]
According to you, which of the options below reflects an appropriate way to dispose of this cup?
Multiple answers possible

1 Put the cup in a bin
2 Leave the cup wherever it is used
3 I (really) don't know [S]

Base: If X3 = 3 & IF X5=3

Q21. [SA]
Do you think that leaving this cup behind on the ground could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 3 & IF X5=3

Q22. [SA]
If you were to leave this cup on the ground, do you think this could ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 23 (order screens 20-27 in order of X4)

Base: If X3 = 4:

[INFO]
Now, take a look at this disposable cup.

<display CUX_P2_C2.jpg> [paper cup, claim]

Base: If X3 = 4 & IF X5=1

Q23. [SA]
Do you think this cup contains plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 4 & IF X5=2

Q24. [MA]
According to you, which of the options below reflects an appropriate way to dispose of this cup?
Multiple answers possible

1 Put the cup in a bin
2 Leave the cup wherever it is used
3 I (really) don't know [S]

Base: If X3 = 4 & IF X5=3

Q25. [SA]
Do you think that leaving this cup behind on the ground could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 4 & IF X5=3

Q26. [SA]
If you were to leave this cup on the ground, do you think this could ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 24 (order screens 20-27 in order of X4)

Base: If X3 = 5

[INFO]
Now, take a look at this pack of wet wipes once more.

<display WX_P1_C1.jpg> [wet wipe, no claim]

Base: If X3 = 5 & IF X5=1

Q27. [SA]
Do you think these wet wipes contain plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 5 & IF X5=2

Q28. [MA]
According to you, which of the options below reflects an appropriate way to dispose of these wet wipes?
Multiple answers possible

1 Put the wet wipes in a bin
2 Flush the wet wipes down the toilet
3 I (really) don't know [S]

Base: If X3 = 5 & IF X5=3

Q29. [SA]
Do you think that flushing these wet wipes down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 5 & IF X5=3

Q30. [SA]
If you were to flush these wet wipes down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 25 (order screens 20-27 in order of X4)

Base: If X3 = 6

[INFO]

Now, take a look at this pack of toilet wipes once more.

<display WX_P2_C1.jpg> [toilet wipe, no claim]

Base: If X3 = 6 & IF X5=1

Q31. [SA]

Do you think these toilet wipes contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 6 & IF X5=2

Q32. [MA]

According to you, which of the options below reflects an appropriate way to dispose of these toilet wipes?

Multiple answers possible

1 Put the toilet wipes in a bin
2 Flush the toilet wipes down the toilet
3 I (really) don't know [S]

Base: If X3 = 6 & IF X5=3

Q33. [SA]

Do you think that flushing these toilet wipes down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 6 & IF X5=3

If you were to flush these toilet wipes down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 26 (order screens 20-27 in order of X4)

Base: If X3 = 7

[INFO]

Now, take a look at this pack of wet wipes.

<display WX_P1_C2.jpg> [wet wipe, claim]

Base: If X3 = 7 & IF X5=1

Q35. [SA]

Do you think these wet wipes contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 7 & IF X5=2

Q36. [MA]

According to you, which of the options below reflects an appropriate way to dispose of these wet wipes?

Multiple answers possible

1 Put the wet wipes in a bin
2 Flush the wet wipes down the toilet
3 I (really) don't know [S]

Base: If X3 = 7 & IF X5=3

Q37. [SA]

Do you think that flushing these wet wipes down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 7 & IF X5=3

Q38. [SA]

If you were to flush these wet wipes down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screens 27 (order screens 20-27 in order of X4)

Base: If X3 = 8

[INFO]

Now, take a look at this pack of toilet wipes.

<display WX_P2_C2.jpg> [toilet wipe, claim]

Base: If X3 = 8 & IF X5=1

Q39. [SA]

Do you think these toilet wipes contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 8 & IF X5=2

Q40. [MA]
According to you, which of the options below reflects an appropriate way to dispose of these toilet wipes?
Multiple answers possible

1 Put the toilet wipes in a bin
2 Flush the toilet wipes down the toilet
3 I (really) don't know [S]

Base: If X3 = 8 & IF X5=3

Q41. [SA]
Do you think that flushing these toilet wipes down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X3 = 8 & IF X5=3

Q42. [SA]
If you were to flush these toilet wipes down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

PART 3. LABEL UNDERSTANDING (SUBJECTIVE) AND LABEL EVALUATION

Scripter: only show these questions if X1 < 5. Again, the values of CU and W depend on the marking type (value of X1).

Cups	Wipes
CUX_PL.jpg	WX.jpg
CUX_PA.jpg	

Screen 28 [Introduction and subjective understanding]

Base: IF X1<5

[INFO]
[if X2 < 5, then: Below, you again see the label that was displayed on some of the disposable cups that you saw earlier.
if X2 > 4, then: Below, you again see the label that was displayed on the packs of wet wipes that you saw earlier.

You will now receive more specific questions about this label.

If X2 = 1 OR X2 = 3: <display CUX_PL.jpg>

If X2 = 2 OR X2 = 4: <display CUX_PA.jpg>
If X2 > 4: <display WX.jpg>

Screen 29 (subjective understanding and evaluation)

Base: IF X1<5

Q43. [INFO]
Now, please indicate what you think of this label.
Scripter: use horizontal sliders

If X2 = 1 OR X2 = 3: <display CUX_PL.jpg>
If X2 = 2 OR X2 = 4: <display CUX_PA.jpg>
If X2 > 4: <display WX.jpg>

Q43_1 [SA]
The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q43_2 [SA]
The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4
5 5
6 6
7 7 - Very clear

Q43_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very useful

Q43_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3

4 4
5 5
6 6
7 7 - Very important

Screen 30 [Subjective understanding and evaluation]

Base: IF X1<5

Q44. [SGRID, progressive]
Please indicate to what extent you agree or disagree with the following statements.
If X2 = 1 OR X2 = 3: <display CUX_PL.jpg>
If X2 = 2 OR X2 = 4: <display CUX_PA.jpg>
If X2 > 4: <display WX.jpg>

if X2 < 5 If I would see this label on a disposable cup, I would…
if X2 > 4 If I would see this label on a pack of wet wipes, I would…

Rows (randomize)
1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very much so

Screen 31 [Introduction second product]

Base: IF X1<5

[INFO]
[If X2 > 4, then: Now, you again see the label that was displayed on some of the disposable cups that you saw earlier.
if X2 < 5, then: Now, you again see the label that was displayed on some of the other cups that you saw earlier.

You will now receive more specific questions about this label.

If X2 = 2 OR X2 = 4 OR X2 = 5 OR X2 = 7: <display CUX_PL.jpg>
If X2 = 1 OR X2 = 3 OR X2 = 6 OR X2 = 8: <display CUX_PA.jpg>

Screen 32 [Subjective understanding and evaluation]

Base: IF X1<5

Q45. [INFO]
Now, please indicate what you think of this label.
If X2 = 2 OR X2 = 4 OR X2 = 5 OR X2 = 7: <display CUX_PL.jpg>
If X2 = 1 OR X2 = 3 OR X2 = 6 OR X2 = 8: <display CUX_PA.jpg>

Scripter: use horizontal sliders

Q45_1 [SA]
The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q45_2 [SA]
The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4
5 5
6 6
7 7 - Very clear

Q45_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very useful

Q45_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very important

Screen 33 [Subjective understanding and evaluation]

Base: IF X1<5

Q46. [SGRID, progressive]
Please indicate to what extent you agree with the following statements.
If X2 = 2 OR X2 = 4 OR X2 = 5 OR X2 = 7: <display CUX_PL.jpg>
If X2 = 1 OR X2 = 3 OR X2 = 6 OR X2 = 8: <display CUX_PA.jpg>

If I saw this label on a disposable cup, I would…

Rows (randomize)

1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very much so

Screen 34 [Introduction third product]
Base: IF X1<5
[INFO]
[if X2 < 5: Now, you again see the label that was displayed on the packs of wipes that you saw earlier.
If X2 > 4,: Now, you again see the label that was displayed on some of the other cups that you saw earlier.

If X2 = 6 OR X2 = 8: <display CUX_PL.jpg>
If X2 = 5 OR X2 = 7: <display CUX_PA.jpg>
If X2 < 5: <display WX.jpg>

Screen 35 [Subjective understanding and evaluation]
Base: IF X1<5
Q47. [INFO]
Now, please indicate what you think of this label.
If X2 = 6 OR X2 = 8: <display CUX_PL.jpg>
If X2 = 5 OR X2 = 7: <display CUX_PA.jpg>
If X2 < 5: <display WX.jpg>

Scripter: use horizontal sliders

Q47_1 [SA]
The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q47_2 [SA]
The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4

5 5
6 6
7 7 - Very clear

Q47_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very useful

Q47_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very important

Screen 36 [Subjective understanding and evaluation]
Base: IF X1<5
Q48. [SGRID, progressive]
Please indicate to what extent you agree with the following statements.
If X2 = 6 OR X2 = 8: <display CUX_PL.jpg>
If X2 = 5 OR X2 = 7: <display CUX_PA.jpg>
If X2 < 5: <display WX.jpg>

[if X2 < 5 If I would see this label on a pack of wet wipes, I would…
if X2 > 4 If I would see this label on a disposable cup, I would…

Rows (randomize)
1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very much so

PART 4. BACKGROUND INFORMATION

Screen 37

Base: All respondents:

[INFO]

Finally, we would like to ask you a few general questions.

Screen 38 [Concern about plastic]

Base: all respondents

Q49**.** [SGRID, progressive]

Please indicate to what extent you agree with the following statements.

Rows (randomize):

1. I am concerned about the amount of plastic in the environment.
2. I am concerned about the amount of plastic in the oceans.
3. I always try to use less plastics in my daily life.
4. I would be willing to pay more for a plastic-free product.

Columns

1 1 - Completely disagree
2 2
3 3
4 4
5 5
6 6
7 7 - Completely agree

Screen 39 [Knowledge about plastic waste; adapted from Hammami et al., 2017

Base: all respondents

Q50 [SGRID, progressive]

Please indicate if you think the following statements are true or false.

Rows (randomize)

1. Plastic wastes can harm the environment.
2. Plastic pollution leads to health problems, such as cancer.
3. The use of plastic in the EU is increasing.
4. Most plastic waste in the sea will dissolve within several months.
5. Most biodegradable plastic waste in the sea will dissolve within several months.

Columns

1 True
2 False

Screen 40

Base: All respondents

Q51. [SA]

Do you have children?

1 Yes, one
2 Yes, multiple
3 No

Base: If Q51 <3

Q52. [SA]

When your [If Q51 = 1 child was a baby; If Q51 = 2, children were babies], did you sometimes use baby wipes?

1 Yes
2 No

Base: If Q52 = 1

Q53. [MA]
Where did (or do) you dispose of the baby wipes?
Multiple answers possible

1 In a (diaper) bin
2 In the toilet

Screen 41 [Other questions]

Base: all respondents

SD3 [SA]
At what stage did you complete your full-time studies?

1. Elementary (primary) school or less
2. Some high (secondary) school
3. Graduation from high (secondary) school
4. Graduation from college, university or other third-level institute
5. Post-graduate degree (Masters, PhD)
6. Still studying full-time
7. Other qualification
99. Prefer not to answer

Base: all respondents

SD4 [SA]
Thinking about your household's financial situation, would you say that making ends meet every month is:

1. Very easy
2. Fairly easy
3. Neither easy nor difficult
4. Fairly difficult
5. Very difficult
99. I really don't know

Base: all respondents

SD5 [SA]
Which of the following best describes where you live?

1 A city
2 A town
3 A village
4 The countryside

Base: all respondents

SD6 [SA]
Which type of device did you use when completing this questionnaire?

1 Tablet
2 Laptop
3 Personal computer

4 Other, namely [OE]

Appendix B. Sanitary items: questionnaire

Value of X1	Marking type	Framing	Size/location	Number of respondents per country
1	Storyline	Negative	(set)	100
2	Storyline	Positive	(set)	100
3	Combined	Negative	(set)	100
4	Combined	Positive	(set)	100
5	No marking	None	--	100

Value of X2	Depicted products	Number of respondents per country
1	Tampon only	200
2	Tampon and applicator	200

Value of X3	Sit / claim 1	Sit / claim 2	Sit / claim 3	Sit / claim 4	Sit / claim 5	Sit / claim 6	Number of respondents per country
1	X4 = 1	X4 = 2	X4 = 3	X4 = 4	X4 = 5	X4 = 6	83
2	X4 = 3	X4 = 4	X4 = 5	X4 = 6	X4 = 1	X4 = 2	83
3	X4 = 5	X4 = 6	X4 = 1	X4 = 2	X4 = 3	X4 = 4	83
4	X4 = 6	X4 = 5	X4 = 4	X4 = 3	X4 = 2	X4 = 1	83
5	X4 = 4	X4 = 3	X4 = 2	X4 = 1	X4 = 6	X4 = 5	83
6	X4 = 2	X4 = 1	X4 = 6	X4 = 5	X4 = 4	X4 = 3	83

Value of X4	Product	Situation or claim	Number of respondents per country
1	Tampon	Private / no claim	500
2	Tampon	Public / claim	500
3	Sanitary pad	Private / no claim	500
4	Sanitary pad	Public / claim	500
5	Applicator tampon	Private / no claim	500
6	Applicator tampon	Public / claim	500

Value of X5	*Product 1*	*Product 2*	*Product 3*	*Number of respondents per country*

1	Plastic (X6 = 1)	Disposal (X6 = 2)	Impact (X6 = 3)	166
2	Disposal (X6 = 2)	Impact (X6 = 3)	Plastic (X6 = 1)	166
3	Impact (X6 = 3)	Plastic (X6 = 1)	Disposal (X6 = 2)	166

Value of X6	***Product 1***
1	Plastic
2	Disposal
3	Impact

Respondents are **assigned** to the levels of X1, X3 and X5 **within countries**, using the least-full allocation (=random&minimum).

Respondents randomized to X1 < 5 are additionally randomized to values of **X2** (applicator marking type). Ensure that participant numbers of the randomized variables are balanced across the randomized variables such that for example similar participant numbers are assigned to all combinations of X1, X2, X3 and X5.

The file names of country-specific images start with a country code, e.g. SX_P1.jpg in this questionnaire is BE_ SX_P1.jpg for Belgium, BG_ SX_P1.jpg for Bulgaria etc.

Scripter: please ensure that respondents cannot go back to previous questions.

III. SCREENER

Screen 1 [Socio-demographics]

Base: all respondents

SD1 [SA] – HIDDEN, RECODE FROM RESP_GENDER
What is your gender?

1. Man
2. Woman

IF SD1 = 1 → Screen out

Base: all respondents

SD2 [Q; 2 digits, min 18, max 50] – HIDDEN, RECODE FROM RESP_AGE
What is your age?

Scripter: IF SD2 <18 OR >50: Screen out

Base: all respondents

S3. [SA]
In this questionnaire, you will be asked to imagine situations in which you use sanitary products (tampons and sanitary pads) and answer questions about this.

It could be that you do not use these products because you do not menstruate (for example, because of anticonception that stops your menstruation, because you are pregnant, or because you are in menopause). If it is easy for you to *imagine* using tampons or sanitary pads (for example, because you have used these products in the past), you can still fill in the questionnaire.

In the questionnaire, you will be asked to imagine certain situations in which you use a tampon or sanitary pad and receive questions about how you would dispose of the used tampon or sanitary pad. You will not receive any personal questions about how you use tampons or sanitary pads. If you really cannot imagine using tampons or sanitary pads or do not want to answer questions about this, you can indicate this below.

1 I regularly use tampons and/or sanitary pads
2 Right now, I do not regularly use tampons and/or sanitary pads but I can imagine doing so
3 Right now, I do not regularly use tampons and/or sanitary pads and I cannot imagine doing so, or I do not want to answer questions about this

Scripter: IF S3 = 3 → screen out

Base: all respondents

S4. [MA]
What type of sanitary product(s) do (or did) you typically use when you menstruate?
Please select all that apply.
1 Tampons without applicators
2 Tampons with applicators
3 Sanitary towels
4 Other

Scripter: MQB

IV. INTRODUCTION

QUESTIONS TO DETERMINE IMAGE SIZES

Screen 2

Base: all respondents

[INFO]
This questionnaire contains images. It is important for this research to know how large these images appear on your screen. Therefore, we would like you to do a couple of things, which will be explained step by step on the next screens.

Screen 3

Base: all respondents

[INFO]
First of all, make sure that your browser zoom is set to 100%.

You can easily do this by simultaneously pressing the “Ctrl” and “0” (zero) button on your keyboard.

After your browser zoom is set to 100%, please leave it at 100% while completing the questionnaire.

If nothing happens, your browser zoom was likely already set to 100%.

Screen 4

Base: all respondents

S5. [SA]

For the next step, you need a ruler or measuring tape. This is very important for the success of this study, so please take your time to find one.

If you do not have a ruler or measuring tape, you can print this one (Scripter: insert hyperlink to Liniaal.pdf) (on A4 paper).

Respondent instruction: To ensure that the printed ruler is accurate, check "Actual size" or "100%" under print options (the "Shrink to fit" option should not be turned on, and page scaling should be set to none).

If you (really) do not have a ruler or a printer, that's a pity (again, it is very important for this research). But you can still continue with this questionnaire.

1. I have found a ruler or measuring tape
2. I have printed the ruler
3. I really do not have a ruler or measuring tape or a printer

Screen 5

Base: All respondents

S6. [Q, min=0,0; max 30,0] foresee 2 digits before and 1 digit after decimal place

[IF S5=1 OR S5=2] Please place your ruler or measuring tape on your screen and measure the length of the line below.

[IF S5=3] If you do not have a ruler or measuring tape, please use your best guess for the length of the line below.

Scripter: insert "T_line.jpg" (line length corresponds to package width) - the width of the image (T_line.jpg) corresponds to the width of the product image BG_S1_P1.jpg

Please enter the length of the line in centimeters (cm) with one decimal (e.g. 5,5 cm).

This line is: _ _, _ cm

GENERAL INTRODUCTION

Screen 6 [General introduction]

Base: all respondents

[Info]

We are interested in how people form impressions about products and how they dispose of products. This questionnaire consists of three parts and will take about 8 minutes to complete. The first part is about the disposal of used products.

V. MAIN QUESTIONNAIRE

PART 1. DISPOSAL TASKS
PART 1A: DISPOSAL INTENTION

Images to be presented:
SX_P1.jpg
SX_P2.jpg

SX_VX_P3.jpg
S_S1.jpg
S_S2.jpg

Scripter: The values of S depend on the marking type (value of X1); the value of V depends on the product(s) depicted on the tampon applicator marking (value of X2). All respondents see six scenarios (values of X4). The order of presentation depends on X3.

Screen 7 [introduction disposal task]

Base: all respondents

[Info]

On the next screens, you will be asked to imagine different situations in which you used a certain product and now need to dispose of it. You will see photographs of different situations in which the options for disposal are indicated with numbered arrows. Please indicate which option best reflects how you would dispose of the product in this situation. There are no right or wrong answers.

Screen 8-13 (disposal intention) (order determined by X3)

Screen 8 (disposal intention

Base: If X4 = 1 (tampon, private):

Q1.

[If X3 =1]

Now, imagine the following situation.

You go to the mall to buy groceries. Amongst others, you need to buy new tampons as you are on your period. You buy this box of tampons:

If X3 = 2 OR X3 = 3

Imagine again that you go to the mall to buy groceries. You are still on your period, and this time, you buy this box of tampons:

If X3 > 3,

Imagine again that you just bought this box of tampons at the mall:

<display SX_P1.jpg>

After arriving home, you put away your groceries. Next, you go to your bathroom to replace your tampon. You first remove the used tampon, which is of the same brand and type as the tampons you have just bought. Then, you insert a new tampon. What would you do with the used tampon in this situation? Two options are indicated in the photograph below.

<display S_S1.jpg>

If these were the only options you had, which one would you choose?

1 Flush the tampon (option 1)

2 Put the tampon in the bin (option 2)

Screen 9 (disposal intention)

Base: If X4 = 2 (tampon, public):

Q2. [SA]

If X3 = 6

Now, imagine the following situation.

You go to the mall to buy groceries. Amongst others, you need to buy new tampons as you are on your period. You buy this box of tampons:

If X3 = 4 OR X3 = 5

Imagine again that you go to the mall to buy groceries. You are still on your period, and this time, you buy this box of tampons:
If X3 < 4
Imagine again that you just bought this box of tampons at the mall:

<display SX_P1.jpg>

Next, you go to the restroom at the mall to replace your tampon. You first remove the used tampon, which is of the same brand and type as the tampons you have just bought. Then, you insert a new tampon. What would you do with the used tampon in this situation? Two options are indicated in the photograph below.

<display S_S2.jpg>

If these were the only options you had, which one would you choose?
1 Flush the tampon (option 1)
2 Put the tampon in the bin (option 2)

Screen 10 (disposal intention)
Base: If X4 = 3 (pad, private):
Q3. [SA]
If X3 = 2
Now, imagine the following situation.
You go to the mall to buy groceries. Amongst others, you need to buy new sanitary pads as you are on your period. You buy this pack of sanitary pads:
If X3 = 1 OR X3 = 3, then:
Imagine again that you go to the mall to buy groceries. You are still on your period, and this time, you buy this pack of sanitary pads:
If X3 > 3, then:
Imagine again that you just bought this pack of sanitary pads at the mall:

<display SX_P2.jpg>

After arriving home, you put away your groceries. Next, you go to your bathroom to replace your sanitary pad, which is of the same brand and type as the sanitary pads you have just bought. What would you do with the used sanitary pad in this situation? Two options are indicated in the photograph below.

<display S_S1.jpg>

If these were the only options you had, which one would you choose?
1 Flush the sanitary pad (option 1)
2 Put the sanitary pad in the bin (option 2)

Screen 11 (disposal intention)
Base: If X4 = 4 (pad, public):
Q4. [SA]
If X3 = 5:
Now, imagine the following situation.
You go to the mall to buy groceries. Amongst others, you need to buy new sanitary pads as you are on your period. You buy this pack of sanitary pads:
If X3 = 4 OR X3 = 6:

Imagine again that you go to the mall to buy groceries. You are still on your period, and this time, you buy this pack of sanitary pads:
If X3 < 4:
Imagine again that you just bought this pack of sanitary pads at the mall:

<display SX_P2.jpg>

Next, you decide to head to the restroom at the mall to replace your sanitary pad, which is of the same brand and type as the sanitary pads you have just bought. What would you do with the used sanitary pad in this situation? Two options are indicated in the photograph below.

<display S_S2.jpg>

If these were the only options you had, which one would you choose?
1 Flush the sanitary pad (option 1)
2 Put the sanitary pad in the bin (option 2)

Screen 12 (disposal intention)
Base: If X4 = 5 (applicator tampon, private):
Q5. [SA]
If X3 = 3
Now, imagine the following situation.
You go to the mall to buy groceries. Amongst others, you need to buy new tampons with applicators as you are on your period. You buy this box of tampons with applicators:
If X3 < 3:
Imagine again that you go to the mall to buy groceries. You are still on your period, and this time, you buy this box of tampons with applicators:
If X3 > 3:
Imagine again that you just bought this box of tampons with applicators at the mall:

Scripter: i (mouse roll-over): *These tampons consist of two parts: the tampon itself and an applicator. The applicator surrounds the tampon and helps to insert the tampon. These tampons are used as follows. First, the applicator with tampon is inserted in the vagina. Next, a tube on the applicator is pushed which causes the tampon to be released. Then, the applicator is removed.*

<display SX_VX_P3.jpg>

After arriving home, you put away your groceries. Next, you go to your bathroom to replace your tampon. You first remove the used tampon, which is of the same brand and type as the tampons with applicators you have just bought. Then, you insert a new tampon using the applicator. What would you do with the used tampon and the used applicator in this situation? Two options are indicated in the photograph below.

<display S_S1.jpg>

If these were the only options you had, which one would you choose to get rid of the **tampon**?
1 Flush the tampon (option 1)
2 Put the tampon in the bin (option 2)

Base: If X4 = 5 (applicator tampon, private):
Q6. [SA]
If these were the only options you had, which one would you choose to get rid of the **applicator**?

1 Flush the applicator (option 1)
2 Put the applicator in the bin (option 2)

Screen 12 (disposal intention)

Base: If X4 = 6 (applicator tampon, public):

Q7. [SA]

If X3 = 4

Now, imagine the following situation.
You go to the mall to buy groceries. Amongst others, you need to buy new tampons with applicators as you are on your period. You buy this box of tampons with applicators:

If X3 > 4

Imagine again that you go to the mall to buy groceries. You are still on your period, and this time, you buy this box of tampons with applicators:

If X3 < 4

Imagine again that you just bought this box of tampons with applicators at the mall: [i]

Scripter: i (mouse roll-over): *These tampons consist of two parts: the tampon itself and an applicator. The applicator surrounds the tampon and helps to insert the tampon. These tampons are used as follows. First, the applicator with tampon is inserted in the vagina. Next, a tube on the applicator is pushed which causes the tampon to be released. Then, the applicator is removed.*

<display SX_VX_P3.jpg>

Next, you go to the restroom at the mall to replace your tampon. You first remove the used tampon, which is of the same brand and type as the tampons with applicators you have just bought. Then, you insert a new tampon using the applicator. What would you do with the used tampon and the used applicator in this situation? Two options are indicated in the photograph below.

<display S_S2.jpg>

If these were the only options you had, which one would you choose to get rid of the **tampon**?
1 Flush the tampon (option 1)
2 Put the tampon in the bin (option 2)

Base: If X4 = 6 (applicator tampon, public):

Q8. [SA]

If these were the only options you had, which one would you choose to get rid of the **applicator**?
1 Flush the applicator (option 1)
2 Put the applicator in the bin (option 2)

PART 1B: ATTENTION TO THE MARKINGS

Scripter: **All respondents who are assigned to X1 < 5 complete Part 1B**. Respondents should not be able to return to previous screens. The value of S depend on the marking type (value of X1).

Images to be presented:
SX_T.jpg
SX_P.jpg

Screen 14 [attention]

Base: IF X1 <5

Q9. [SA]

On the boxes of tampons and the pack of sanitary pads you just saw, the following label was shown:
<display SX_T.jpg and SX_P.jpg>

When you looked at the tampons and sanitary pads, did you notice this label*?*
1 Yes, I noticed it and inspected it in detail
2 Yes, I noticed it and looked at it briefly
3 No, I did not notice this label

Base: IF Q9 <3

Q10. [SA]
[if X1 = 1 OR X1 = 2: The label contains small symbols and text. When you saw this label on the product packaging, could you see the symbols well and read the text*?*
if X1 = 3 OR X1 = 4: The label contains a small symbol and text. When you saw this label on the product packaging, could you see the symbol well and read the text*?*

6. [if X1 = 1 OR X1 = 2: I could not see the symbols well and I could not read the text
   if X1 = 3 OR X1 = 4: I could not see the symbol well and I could not read the text
7. [if X1 = 1 OR X1 = 2: I could see the symbols well but I could not read the text
   if X1 = 3 OR X1 = 4: I could see the symbol well but I could not read the text
8. IF X1= 1 OR X1=2 I could not see the symbols well but I could read the text
   IF X1 = 3 OR X1 = 4 I could not see the symbol well but I could read the text
9. [if X1 = 1 OR X1 = 2: I could see the symbols well and I could also read the text
   if X1 = 3 OR X1 = 4: I could see the symbol well and I could also read the text
10. I don't remember

PART 2. OBJECTIVE UNDERSTANDING

Scripter: Again, the value of S depends on the marking type (value of X1), and the value of V depends on the product(s) depicted on the tampon applicator marking (value of X2). Respondents answer questions about six products that contain markings; the order depends on the value of X4. The question order depends on the value of X6.

Images to be presented:
SX_P1_C1.jpg
SX_P1_C2.jpg
SX_P2_C1.jpg
SX_P2_C2.jpg
SX_VX_P3_C1.jpg
SX_VX_P3_C2.jpg

Screen 15 [objective understanding - introduction]

Base: All respondents

[INFO]
On the next screens, you will see pictures of different boxes of tampons and packs of sanitary pads. This time, you will receive questions about your impression of these products.

Screen 16

Base: If X4 = 1

[INFO]
Now, take a look at this box of tampons once more.
<display SX_P1_C1.jpg> [tampon, no claim]

The questions below are about the tampons in this box. The questions are not about the protective wrappers that surround each of the tampons.

Base: If X4 = 1 AND X6 = 1

Q11. [SA]

Do you think these tampons contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 1 AND X6=2

Q12. [MA]

According to you, which of the options below reflects an appropriate way to dispose of these tampons?

Multiple answers possible

1 Put the tampons in a bin
2 Flush the tampons down the toilet
3 I (really) don't know [S]

Base: If X4 = 1 AND X6=3

Q13. [SA]

Do you think that flushing these tampons down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 1 AND X6=3

Q14. [SA]

If you were to flush these tampons down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screen 17

Base: If X4 =2

[INFO]

Now, take a look at this this box of tampons.

<display SX_P1_C2.jpg> [tampons, claim]

The questions below are about the tampons in this box. The questions are not about the protective wrappers that surround each of the tampons.

Base: If X4 = 2 & If X6 = 1

Q15. [SA]

Do you think these tampons contain plastic?

1 Certainly so

2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 2 & IF X6=2

Q16. [MA]
According to you, which of the options below reflects an appropriate way to dispose of these tampons?
Multiple answers possible

1 Put the tampons in a bin
2 Flush the tampons down the toilet
3 I (really) don't know [S]

Base: If X4 = 2 & IF X6=3

Q17. [SA]
Do you think that flushing these tampons down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 2 & IF X6=3

Q18. [SA]
If you were to flush these tampons down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screen 18

Base: If X4 = 3

[INFO]
Now, take a look at this pack of sanitary pads once more.
<display SX_P2_C1.jpg> [sanitary pads, no claim]
The questions below are about the sanitary pads in this box. The questions are not about the sticky strips on the pads.

Base: If X4 = 3 & If X6 = 1

Q19. [SA]
Do you think these sanitary pads contain plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 3 & IF X6=2

Q20. [MA]

According to you, which of the options below reflects an appropriate way to dispose of these sanitary pads?

Multiple answers possible

1 Put the sanitary pads in a bin
2 Flush the sanitary pads down the toilet
3 I (really) don't know [S]

Base: If X4 = 3 & IF X6=3

Q21. [SA]

Do you think that flushing these sanitary pads down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 3 & IF X6=3

Q22. [SA]

If you were to flush these sanitary pads down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screen 19

Base: If X4 = 4:

[INFO]

Now, take a look at this pack of sanitary pads.

<display SX_P2_C2.jpg> [sanitary pads, claim]

The questions below are about the sanitary pads in this box. The questions are not about the sticky strips on the pads.

Base: If X4 = 4& If X6 = 1:

Q23. [SA]

Do you think these sanitary pads contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 4 & IF X6=2

Q24. [MA]

According to you, which of the options below reflects an appropriate way to dispose of these sanitary pads?
Multiple answers possible

1 Put the sanitary pads in a bin
2 Flush the sanitary pads down the toilet
3 I (really) don't know [S]

Base: If X4 = 4 & IF X6=3

Q25. [SA]
Do you think that flushing these sanitary pads down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 4 & IF X6=3

Q26. [SA]
If you were to flush these sanitary pads down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screen 20

Base: If X4 = 5

[INFO]
Now, take a look at this box of tampons once more. These tampons consist of two parts: the tampon itself and a tampon applicator.

<display SX_VX_P3_C1.jpg> [tampons with applicators, no claim]

The questions below are about the tampons and applicators in this box. The questions are not about the protective wrappers that surround each tampon and applicator.

Base: If X4 = 5 & If X6 = 1

Q27. [SA]
Do you think the **tampons** contain plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 5 & If X6 = 1

Q28. [SA]
Do you think the **applicators** contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 5 & IF X6=2

Q29. [MA]
According to you, which of the options below reflects an appropriate way to dispose of the **tampons**?
Multiple answers possible

1 Put the tampons in a bin
2 Flush the tampons down the toilet
3 I (really) don't know [S]

Base: If X4 = 5 & IF X6=2

Q30. [MA]
According to you, which of the options below reflects an appropriate way to dispose of the **applicators**?
Multiple answers possible

1 Put the applicators in a bin
2 Flush the applicators down the toilet
3 I (really) don't know [S]

Base: If X4 = 5 & IF X6=3

Q31. [SA]
Do you think that flushing the **tampons** down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 5 & IF X6=3

Q32. [SA]
Do you think that flushing the **applicators** down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 5 & IF X6=3

Q33. [SA]
If you were to flush the **tampons** down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so

3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 5 & IF X6=3

Q34. [SA]
If you were to flush the **applicators** down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Screen 21

Base: If X4 = 6

[INFO]
Now, take a look at this box of tampons. These tampons consist of two parts: the tampon itself and a tampon applicator.

<display SX_VX_P3_C2.jpg> [tampons with applicators, claim]

The questions below are about the tampons and applicators in this box. The questions are not about the protective wrappers that surround each tampon and applicator.

Base: If X4 = 6 & If X6 = 1:

Q35. [SA]
Do you think the **tampons** contain plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 6 & If X6 = 1:

Q36. [SA]
Do you think the **applicators** contain plastic?
1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 6 & IF X6=2

Q37. [MA]
According to you, which of the options below reflects an appropriate way to dispose of the **tampons**?
Multiple answers possible

1 Put the tampons in a bin
2 Flush the tampons down the toilet
3 I (really) don't know [S]

Base: If X4 = 6 & IF X6=2

Q38. [MA]
According to you, which of the options below reflects an appropriate way to dispose of the **applicators**?
Multiple answers possible

1 Put the applicators in a bin
2 Flush the applicators down the toilet
3 I (really) don't know [S]

Base: If X4 = 6 & IF X6=3

Q39. [SA]
Do you think that flushing the **tampons** down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 6 & IF X6=3

Q40. [SA]
Do you think that flushing the **applicators** down the toilet could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 6 & IF X6=3

Q41. [SA]
If you were to flush the **tampons** down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: If X4 = 6 & IF X6=3

Q42. [SA]
If you were to flush the **applicators** down the toilet, do you think this would ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so

3 Maybe so, maybe not
4 I think not
5 Certainly not

PART 3. LABEL UNDERSTANDING (SUBJECTIVE) AND LABEL EVALUATION

Scripter: only show these questions if X1 < 5. Again, the value of S depends on the marking type (value of X1).

Images to be presented:
SX_T.jpg
SX_P.jpg
SX_V2_TA.jpg

Screen 22 [Introduction and subjective understanding]

Base: IF X1<5 and X2=1

[INFO]
[If X3 < 4,
Below, you again see the label that was displayed on the boxes of tampons you saw earlier.
If X3 > 3, then:
Below, you again see the label that was displayed on the pack of sanitary pads you saw earlier.

You will now receive more specific questions about this label.

If X3 < 4: <display SX_T.jpg>
If X3 > 3: <display SX_P.jpg>

Base: IF X1<5 and X2=2

[INFO]
If X3 = 1 OR X3 = 6
Below, you again see the label that was displayed on the boxes of tampons without applicators you saw earlier.
If X3 = 2 OR X3 = 5,
Below, you again see the label that was displayed on the packs of sanitary pads you saw earlier.
If X3 = 3 OR X3 = 4
Below, you again see the label that was displayed on the boxes of tampons with applicators you saw earlier.

You will now receive more specific questions about this label.

If X3 = 1 OR X3 = 6: <display SX_T.jpg> (tampons without)
If X3 = 2 OR X3 = 5: <display SX_P.jpg> (pack of pads)
If X3 = 3 OR X3 = 4: <display SX_V2_TA.jpg> (tampons with)

Screen 23 (subjective understanding and evaluation)

Base: IF X1<5

Q43. [INFO]
Now, please indicate what you think of this label.
X2 = 1:
If X3 < 4: <display SX_T.jpg>
If X3 > 3: <display SX_P.jpg>

X2 = 2:
If X3 = 1 OR X3 = 6: <display SX_T.jpg> (tampons without)
If X3 = 2 OR X3 = 5: <display SX_P.jpg> (pack of pads)
If X3 = 3 OR X3 = 4: <display SX_V2_TA.jpg> (tampons with)

Q43_1 [SA] horizontal slider
The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q43_2 [SA]
The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4
5 5
6 6
7 7 - Very clear

Q43_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very useful

Q43_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very important

Screen 24 [Subjective understanding and evaluation]
Base: IF X1<5
Q44. [SGRID, progressive]

Please indicate to what extent you agree with the following statements.
X2 = 1:
If X3 < 4: <display SX_T.jpg>
If X3 > 3: <display SX_P.jpg>
If X3 < 4: If I would see this label on a box of tampons, I would…
If X3 > 3: If I would see this label on a pack of sanitary pads, I would…

X2 = 2:
If X3 = 1 OR X3 = 6: <display SX_T.jpg> (tampons without)
If X3 = 2 OR X3 = 5: <display SX_P.jpg> (pack of pads)
If X3 = 3 OR X3 = 4: <display SX_V2_TA.jpg> (tampons with)
If X3 = 1 OR X3 = 6: If I would see this label on a box of tampons, I would…
If X3 = 2 OR X3 = 5: If I would see this label on a pack of sanitary pads, I would…
If X3 = 3 OR X3 = 4: If I would see this label on box of tampons with applicators, I would…

Rows (randomize)
1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very much so

Screen 25 [Introduction second product]
Base: IF X1<5 and X2=1
[INFO]
[X3 < 4
Now, you again see the label that was displayed on the packs of sanitary pads you saw earlier.
If X3 > 3,
Now, you again see the label that was displayed on the boxes of tampons you saw earlier.

You will now receive more specific questions about this label.

If X3 < 4: <display SX_P.jpg>
If X3 > 3: <display SX_T.jpg>

Base: IF X1<5 and X2=2
[INFO]
If X3 = 3 OR X3 = 5:
Now, you again see the label that was displayed on the boxes of tampons without applicators you saw earlier.
If X3 = 1 OR X3 = 4:
Now, you again see the label that was displayed on the packs of sanitary pads you saw earlier.

If X3 = 2 OR X3 = 6:
Now, you again see the label that was displayed on the boxes of tampons with applicators you saw earlier.

You will now receive more specific questions about this label.

If X3 = 3 OR X3 = 5: <display SX_T.jpg> (tampons without)
If X3 = 1 OR X3 = 4: <display SX_P.jpg> (pack of pads)
If X3 = 2 OR X3 = 6: <display SX_VX_TA.jpg> (tampons with)

Screen 26 [Subjective understanding and evaluation]
Base: IF X1<5
Q45. [INFO]
Now, please indicate what you think of this label.

X2 = 1:
If X3 < 4: <display SX_P.jpg>
If X3 > 3: <display SX_T.jpg>

X2 = 2:
If X3 = 3 OR X3 = 5: <display SX_T.jpg> (tampons without)
If X3 = 1 OR X3 = 4: <display SX_P.jpg> (pack of pads)
If X3 = 2 OR X3 = 6: <display SX_V2_TA.jpg> (tampons with)

Q45_1 [SA] horizontal slider
The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q45_2 [SA]
The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4
5 5
6 6
7 7 - Very clear

Q45_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6

7 7 - Very useful

Q45_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very important

Screen 27 [Subjective understanding and evaluation]
Base: IF X1<5
Q46. [SGRID, progressive]
Please indicate to what extent you agree with the following statements.

X2 = 1:
If X3 < 4: <display SX_P.jpg>
If X3 > 3: <display SX_T.jpg>
If X3 < 4 If I would see this label on a pack of sanitary pads, I would…
If X3 > 3 If I would see this label on a box of tampons, I would…

X2 = 2:
If X3 = 3 OR X3 = 5: <display SX_T.jpg> (tampons without)
If X3 = 1 OR X3 = 4: <display SX_P.jpg> (pack of pads)
If X3 = 2 OR X3 = 6: <display SX_V2_TA.jpg> (tampons with)
If X3 = 3 OR X3 = 5: If I would see this label on a box of tampons, I would …
If X3 = 1 OR X3 = 4: If I would see this label on a pack of sanitary pads, I would…
If X3 = 2 OR X3 = 6: If I would see this label on a box of tampons with applicators, I would …

Rows (randomize):
1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very much so

Screen 28 [Introduction third product]
Base: IF X1<5 AND X2=2
[INFO]
If X3 = 2 OR X3 = 4:
Finally, you again see the label that was displayed on the box of tampons you saw earlier.
If X3 = 3 OR X3 = 6:

Finally, you again see the label that was displayed on the pack of sanitary pads you saw earlier.
If X3 = 1 OR X3 = 5:
Finally, you again see the label that was displayed on the box of tampons with applicators you saw earlier.

You will now receive more specific questions about this label.

If X3 = 2 OR X3 = 4: <display SX_T.jpg>
If X3 = 3 OR X3 = 6: <display SX_P.jpg>
If X3 = 1 OR X3 = 5: <display SX_V2_TA.jpg>

Screen 29 [Subjective understanding and evaluation]
Base: IF X1<5 AND X2=2
Q47. [INFO]
Now, please indicate what you think of this label.
If X3 = 2 OR X3 = 4: <display SX_T.jpg>
If X3 = 3 OR X3 = 6: <display SX_P.jpg>
If X3 = 1 OR X3 = 5: <display SX_V2_TA.jpg>

Q47_1 [SA] horizontal slider
The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q47_2 [SA]
The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4
5 5
6 6
7 7 - Very clear

Q47_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very useful

Q47_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very important

Screen 30 [Subjective understanding and evaluation]
Base: IF X1<5 AND X2=2
Q48. [SGRID, progressive]
Please indicate to what extent you agree with the following statements.
If X3 = 2 OR X3 = 4: <display SX_T.jpg>
If X3 = 3 OR X3 = 6: <display SX_P.jpg>
If X3 = 1 OR X3 = 5: <display SX_V2_TA.jpg>

If X3 = 2 OR X3 = 4: If I would see this label on a box of tampons, I would…
If X3 = 3 OR X3 = 6: If I would see this label on a pack of sanitary pads, I would…
If X3 = 1 OR X3 = 5: If I would see this label on a box of tampons with applicators, I would…

Rows (randomize):
1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6
7 7- Very much so

PART 4. BACKGROUND INFORMATION

Base: All respondents:
[INFO]
Finally, we would like to ask you a few general questions.

Screen 31 [Concern about plastic]
Base: all respondents
Q49**.** [SGRID, progressive]
Please indicate to what extent you agree with the following statements.

Rows (randomize):
1. I am concerned about the amount of plastic in the environment.
2. I am concerned about the amount of plastic in the oceans.
3. I always try to use less plastics in my daily life.
4. I would be willing to pay more for a plastic-free product.

Columns
1 1 - Completely disagree
2 2
3 3
4 4
5 5
6 6
7 7 - Completely agree

Screen 32 [Knowledge about plastic waste; adapted from Hammami et al., 2017
Base: all respondents
Q50 [SGRID, progressive]
Please indicate if you think the following statements are true or false.

Rows (randomize):
1. Plastic wastes can harm the environment.
2. Plastic pollution leads to health problems, such as cancer.
3. The use of plastic in the EU is increasing.
4. Most plastic waste in the sea will dissolve within several months.
5. Most biodegradable plastic waste in the sea will dissolve within several months.

Columns
1 True
2 False

Screen 33 [Other questions]
Base: all respondents
SD3 [SA]
At what stage did you complete your full-time studies?
1. Elementary (primary) school or less
2. Some high (secondary) school
3. Graduation from high (secondary) school
4. Graduation from college, university or other third-level institute
5. Post-graduate degree (Masters, PhD)
6. Still studying full-time
7. Other qualification
99. Prefer not to answer

Base: all respondents
SD4 [SA]
Thinking about your household's financial situation, would you say that making ends meet every month is:

1. Very easy
2. Fairly easy
3. Neither easy nor difficult
4. Fairly difficult
5. Very difficult
99. I really don't know

Base: all respondents
SD5 [SA]

Which of the following best describes where you live?

1 A city
2 A town
3 A village
4 The countryside

Base: all respondents

SD6 [SA]
Which type of device did you use when completing this questionnaire?

1 Tablet
2 Laptop
3 Personal computer
4 Other, namely [OE]

Appendix C. Cigarettes: questionnaire

Value of X1	Marking type	Framing	Size/location	Number of respondents per country
1	Storyline	Sea icon	Smaller/side	57
2	Storyline	Flower icon	Smaller/side	57
3	Combined	(one icon type)	Smaller/side	57
4	Storyline	Sea icon	Larger/front	57
5	Storyline	Flower icon	Larger/front	57
6	Combined	(one icon type)	Larger/front	57
7	No marking	None	--	57

Value of X3	
1	Street
2	Park
3	Beach

Value of X2	Cigarette 1	Cigarette 2	Cigarette 3	Number of respondents per country
1	Street (X3 = 1)	Park (X3 = 2)	Beach (X3 = 3)	133
2	Park (X3 = 2)	Beach (X3 = 3)	Street (X3 = 1)	133
3	Beach (X3 = 3)	Street (X3 = 1)	Park (X3 = 2)	133

Value of X5	
1	Plastic
2	Disposal
3	Impact

Value of	Product 1	Product 2	Product 3	Number of respondents per

X4				country
1	Plastic (X5 = 1)	Disposal (X5 = 2)	Impact (X5= 3)	133
2	Disposal (X5 = 2)	Impact (X5 = 3)	Plastic (X5 = 1)	133
3	Impact (X5 = 3)	Plastic (X5 = 1)	Disposal (X5 = 2)	133

*Scripter: Respondents are **randomly assigned** to the levels of **X1 (marking type), X2 and X4 (orders of presentation)** **within countries**, using the least-full allocation (=random&minimum). Ensure that participant numbers of the randomized variables are balanced across the values of X1 such that similar participant numbers are assigned to each value of X2 and X4 within each value of X1.*

The file names of country-specific images start with a country code, e.g. CI_S1.jpg in this questionnaire is BE_CI_S1.jpg for Belgium, BG_CI_S1.jpg for Bulgaria etc.

Scripter: please ensure that respondents cannot go back to previous questions.

III. SCREENER

Screen 1

Base: all respondents

SD1 [SA] – HIDDEN, RECODE FROM RESP_GENDER
What is your gender?

1. Man
2. Woman

Base: all respondents

SD2 [Q; 2 digits, min 18, max 70] – HIDDEN, RECODE FROM RESP_AGE
What is your age?

Base: all respondents

S3. [SA]
Do you smoke cigarettes, and if so, how often?

1 Yes, every day
2 Yes, weekly (but not every day)
3 Yes, monthly (but not every week)
4 Yes, less than monthly
5 No, I do not smoke cigarettes

Scripter : IF S3=5: screen out

Scripter: MQB

IV. INTRODUCTION

QUESTIONS TO DETERMINE IMAGE SIZES

Screen 2

Base: all respondents

[INFO]

This questionnaire contains images. It is important for this research to know how large these images appear on your screen. Therefore, we would like you to do a couple of things, which will be explained step by step on the next screens.

Screen 3

Base: all respondents

[INFO]

First of all, make sure that your browser zoom is set to 100%.

You can easily do this by simultaneously pressing the “Ctrl” and “0” (zero) button on your keyboard.

After your browser zoom is set to 100%, please leave it at 100% while completing the questionnaire.

If nothing happens, your browser zoom was likely already set to 100%.

Screen 4

Base: all respondents

S4. [SA]

For the next step, you need a ruler or measuring tape. This is very important for the success of this study, so please take your time to find one.

If you do not have a ruler or measuring tape, you can print this one (Scripter: insert hyperlink to Liniaal.pdf) (on A4 paper).

Respondent instruction: To ensure that the printed ruler is accurate, check “Actual size” or “100%” under print options (the “Shrink to fit” option should not be turned on, and page scaling should be set to none).

If you (really) do not have a ruler or a printer, that’s a pity (again, it is very important for this research). But you can still continue with this questionnaire.

1. I have found a ruler or measuring tape
2. I have printed the ruler
3. I really do not have a ruler or measuring tape or a printer

Screen 5

Base: All respondents

S5. [Q, min=0,0; max 30,0] foresee 2 digits before and 1 digit after decimal place

[IF S4=1 OR S4=2] Please place your ruler or measuring tape on your screen and measure the length of the line below.

[IF S4=3] If you do not have a ruler or measuring tape, please use your best guess for the length of the line below.

Scripter: insert "CI_line.jpg" (line length corresponds to package width)

Please enter the length of the line in centimeters (cm) with one decimal (e.g. 5,5 cm).

This line is: _ _, _ cm

Screen 6

Base: All respondents

S6. [Q, min=10,0; max 50,0] Scripter: foresee 2 digits before and 1 digit after decimal place

You are viewing this questionnaire on a certain screen. The screen size is typically expressed in inches (e.g. 13,3 inch, 15,6 inch, 22 inch).

What is the size of your screen?

_ _, _ inch

99. Don't know my screen size [S]

GENERAL INTRODUCTION

Screen 8 [General introduction]

Base: all respondents

[Info]

We are interested in how people form impressions about products and how they dispose of products.

This questionnaire consists of three parts and will take about 8 minutes to complete.

The first part is about the disposal of used products.

V. MAIN QUESTIONNAIRE

PART 1. DISPOSAL tasks
PART 1A. DISPOSAL INTENTION

Images to be presented:
CIX_P1.jpg
CI_S1.jpg
CI_S2.jpg
CI_S3.jpg

Scripter: The value of CI depends on the marking type (value of X1). Respondents see three scenarios (values of X3). The order of presentation depends on X2. The order of the questions Q1-Q2-Q3 is based on X2 – All respondents get Q1-Q2-Q3

Screen 9 [introduction disposal task]

Base: all respondents

[Info]

On the next screens, you will be asked to imagine different situations in which you used a certain product and now need to dispose of it. You will see photographs of different situations in which the options for disposal are indicated with numbered arrows. Please indicate which option best reflects how you would dispose of the product in this situation. There are no right or wrong answers.

Screen 10-12 (order determined by X2)

Base: IF X3= 1 (Street)

Q1. [SA]

[If X2 = 1]

Now, imagine the following situation.

You are out of cigarettes and decide to walk to the supermarket to buy a new pack. You buy the same pack as you always do:

[If X2 = 2 OR 3] Imagine again that you just bought this pack of cigarettes in the supermarket:

<display CIX_P1.jpg>

On your way back, you light up one of the cigarettes. You finish the cigarette halfway home and put it out on the street. What would you do with the cigarette butt in this situation? Two options are indicated in the photograph below.

<display CI_S1.jpg>

If these were the only options you had, which one would you choose?

1 Drop the butt on the street (option 1)

2 Take the butt with you until you can put it in a bin (option 2)

Screen 10-12 (order determined by X2)

Base: IF X3= 2 (Park)

Q2. [SA]

[If X2 = 2]

Now, imagine the following situation.

You are out of cigarettes and decide to walk to the supermarket to buy a new pack. You buy the same pack as you always do:

[If X2 = 1 OR 3]

Imagine again that you just bought this pack of cigarettes in the supermarket:

<display CIX_P1.jpg>

Later that day, you take a walk in a nearby park. After a while, you sit down on a bench and light up one of the cigarettes. You finish the cigarette and put it out on the bench. What would you do with the cigarette butt in this situation? Two options are indicated in the photograph below.

<display CI_S2.jpg>

If these were the only options you had, which one would you choose?

1 Drop the butt on the ground (option 1)
2 Take the butt with you until you can put it in a bin (option 2)

Screen 10-12 (order determined by X2)
Base: IF X3= 3 (Beach)
Q3. [SA]
[If X2 = 3]
Now, imagine the following situation.
You are out of cigarettes and decide to walk to the supermarket to buy a new pack. You buy the same pack as you always do:
[If X2 = 1 OR 2]
Imagine again that you just bought this pack of cigarettes in the supermarket:

<display CIX_P1.jpg>

Later that day, you go to the beach with some friends. While relaxing in the sun, you light up one of the cigarettes. You finish the cigarette and put it out in the sand. What would you do with the cigarette butt in this situation? Two options are indicated in the photograph below.

<display CI_S3.jpg>

If these were the only options you had, which one would you choose?

1 Bury the butt in the sand (option 1)
2 Take the cigarette butt with you when you leave the beach to put it in a bin (option 2)

PART 1C: ATTENTION TO THE MARKINGS (IF X1<7)

Scripter: All respondents who are assigned to X1 < 7 complete Part 1C. Respondents should not be able to return to previous screens. The value of CI depends on the marking type (value of X1).

Screen 13
Base: IF X1 <7
Q4. [SA]
You just saw pictures of a pack of cigarettes. On the pack, the following label was shown:

Scripter <display CIX.jpg>

When you looked at the pack of cigarettes, did you notice this label?

1 Yes, I noticed it and inspected it in detail
2 Yes, I noticed it and looked at it briefly
3 No, I did not notice this label

Base: IF Q4 <3
Q5. [SA]
IF X1= 1 OR X1=2 OR X1 = 4 OR X1 = 5 The label contains small symbols and text. When you saw this label on the pack of cigarettes, could you see the symbols well and read the text?

IF X1 = 3 OR X1 = 6: The label contains a small symbol and text. When you saw this label on the pack of cigarettes, could you see the symbol well and read the text?

4. IF X1= 1 OR X1=2 OR X1 = 4 OR X1 = 5 I could not see the symbols well and I could not read the text
   IF X1 = 3 OR X1 = 6 I could not see the symbol well and I could not read the text
5. IF X1= 1 OR X1=2 OR X1 = 4 OR X1 = 5 I could see the symbols well but I could not read the text
   IF X1 = 3 OR X1 = 6 I could see the symbol well but I could not read the text
6. IF X1= 1 OR X1=2 OR X1 = 4 OR X1 = 5 I could not see the symbols well but I could read the text
   IF X1 = 3 OR X1 = 6 I could not see the symbol well but I could read the text
7. IF X1= 1 OR X1=2 OR X1 = 4 OR X1 = 5 I could see the symbols well and I could also read the text
   IF X1 = 3 OR X1 = 6 I could see the symbol well and I could also read the text
8. I don't remember

PART 2. OBJECTIVE UNDERSTANDING

Scripter: Again, the value of CI depends on the marking type (value of X1). The question order depends on the value of X5.

Screen 14 [objective understanding - introduction]

Base: All respondents

[INFO]

On the next screens, you will see a picture of the pack of cigarettes that you saw previously. This time, you will receive questions about your impression of this product.

Screens 15

Base: All respondents

[INFO]

Now, take a look at this pack of cigarettes once more.

<display CIX_P1.jpg>

Base: All respondents

Q6. [SA]

Do you think these cigarettes with filters contain plastic?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: All respondents

Q7. [MA]

According to you, which of the options below reflects an appropriate way to dispose of the butts of these cigarettes?

Multiple answers possible

1 Drop the butts on the ground
2 Put the butts in a trash bin

3 I (really) don't know [S]

Base: All respondents

Q8. [SA]
Do you think that dropping the cigarette butts on the ground could harm the environment?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

Base: All respondents

Q9. [SA]
If you were to drop the cigarette butts on the ground, do you think this could ultimately contribute to plastic pollution in seas and oceans?

1 Certainly so
2 I think so
3 Maybe so, maybe not
4 I think not
5 Certainly not

PART 3. LABEL UNDERSTANDING (SUBJECTIVE) AND LABEL EVALUATION (IF X1<7)

Scripter: only show these questions if X1 < 7. Again, the value of CI depends on the marking type (value of X1).

Screens 16 (introduction Part 3)

Base: IF X1<7

[INFO]
Below, you again see the label that was displayed on the pack of cigarettes you saw earlier. You will now receive more specific questions about this label.

<display CIX.jpg>

Screens 17 (subjective understanding and evaluation)

Base: IF X1<7

Q10
Now, please indicate what you think of this label.

<display CIX.jpg>
Scripter: use horizontal sliders

Q10_1 [SA] The information on this label is…

1 1 - Very difficult to understand
2 2
3 3
4 4
5 5
6 6
7 7 - Very easy to understand

Q10_2 [SA] The information on this label is…

1 1 - Very unclear
2 2
3 3
4 4
5 5
6 6
7 7 - Very clear

Q10_3 [SA]
The information on this label is…

1 1 - Not useful at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very useful

Q10_4 [SA]
The information on this label is…

1 1 - Not important at all
2 2
3 3
4 4
5 5
6 6
7 7 - Very important

Screens 18 (Subjective understanding and evaluation)

Base: IF X1<7

Q11. [SGRID, progressive]
Please indicate to what extent you agree with the following statements.

<display CIX.jpg>

If I would see this label on a pack of cigarettes, I would..

Rows (randomize):
1. ... have doubts about the accuracy of the information on this label
2. … assume that the information on this label is correct

Columns
1 1 - Not at all
2 2
3 3
4 4
5 5
6 6

7 7 - Very much so

PART 4. BACKGROUND INFORMATION

Screen 19

Base: All respondents:

[INFO]

Finally, we would like to ask you a few general questions.

Screen 20 [Concern about plastic]

Base: all respondents

Q12. [SGRID, progressive]

Please indicate to what extent you agree with the following statements.

Rows (randomize):

1. I am concerned about the amount of plastic in the environment.
2. I am concerned about the amount of plastic in the oceans.
3. I always try to use less plastics in my daily life.
4. I would be willing to pay more for a plastic-free product.

Columns

1 1 - Completely disagree
2 2
3 3
4 4
5 5
6 6
7 7 - Completely agree

Screen 21 [Knowledge about plastic waste; adapted from Hammami et al., 2017

Base: all respondents

Q13 [SGRID, progressive]

Please indicate if you think the following statements are true or false.

Rows (randomize)

1. Plastic wastes can harm the environment.
2. Plastic pollution leads to health problems, such as cancer.
3. The use of plastic in the EU is increasing.
4. Most plastic waste in the sea will dissolve within several months.
5. Most biodegradable plastic waste in the sea will dissolve within several months.

Columns

1 True
2 False

Screen 22 [Other questions]

Base: all respondents

SD3 [SA]

At what stage did you complete your full-time studies?

1. Elementary (primary) school or less
2. Some high (secondary) school
3. Graduation from high (secondary) school
4. Graduation from college, university or other third-level institute
5. Post-graduate degree (Masters, PhD)
6. Still studying full-time

7. Other qualification
99. Prefer not to answer

Base: all respondents

SD4 [SA]
Thinking about your household's financial situation, would you say that making ends meet every month is:

1. Very easy
2. Fairly easy
3. Neither easy nor difficult
4. Fairly difficult
5. Very difficult
99. I really don't know

Base: all respondents

SD5 [SA]
Which of the following best describes where you live?

1 A city
2 A town
3 A village
4 The countryside

Base: all respondents

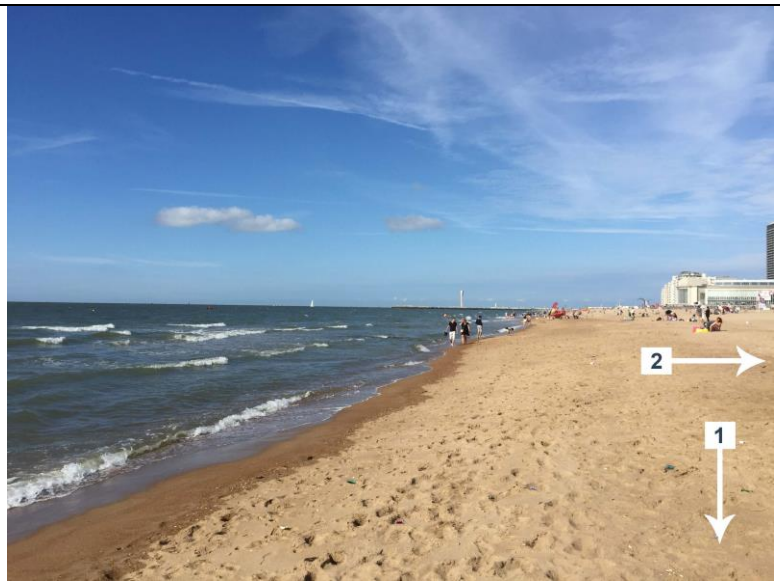
SD6 [SA]
Which type of device did you use when completing this questionnaire?

1 Tablet
2 Laptop
3 Personal computer
4 Other, namely [OE]

Appendix D. Product and context images (online experiments)

Product type	Disposal situation	Image
Cups	Picnic area	
	Train station	

Wipes and sanitary items	Private restroom	
	Public restroom	

Cigarettes	Street	
	Park	
	Beach	

Product type	Product subtype	Images (with and without claim)
Cups	Plastic cups	
	Paper cups	
Wipes	Wet wipes	
	Toilet wipes	
Sanitary items	Tampons	
	Tampons with applicators	

	Sanitary pads	
Cigarettes	--	

Appendix E. Post-experiment questionnaire (laboratory experiments)

Scripter: Foresee a unique number per respondent. Please make sure that respondents cannot go back to prior questions. Also, provide each question on a new screen.

[Screen 1]
You will now receive some questions about the product test that you just took part in. This questionnaire will take only a few minutes to complete.

[Screen 2]
After the product testing, you were asked to throw away the **wet wipe** in the restroom.
Q1. What did you do with the wet wipe?
1 I flushed it through the toilet
2 I put it in the bin
3 I left it on the sink
4 Other, namely…
5 I don't remember

Q2. Did you doubt about where to leave the wet wipe (e.g. in the toilet or in the little bin)?
Horizontal 7-point scale from (1) not at all to (7) very much so

[Screen 3]
Before you started the product test, you were offered a drink.
Q3. What did you do with the empty **cup**?
1 I left it behind in the waiting area
2 I put it in a bin
3 I gave it to the research assistant
4 Other, namely…
5 I don't remember

Q4. Did you doubt about where to leave your empty cup?
Horizontal 7-point scale from (1) not at all to (7) very much so

[Screen 4]
During the product test, you were asked to inspect the packaging of the wet wipes. It could be that the packaging you inspected contained the following label:

Scripter: <Display Wipe_marking.jpg>

Q5. Did you see this label on the package of wet wipes?
1 No, I did not see it
2 Yes, I saw it and looked at it briefly
3 Yes, I saw this label and inspected it in detail

[Screen 5]
The following question is about the cup you received when you were offered a drink. It could be that your cup carried the following label:

Scripter: <Display Cup_marking.jpg>

Q6. Did you see this label on your cup?
1 No, I did not see it
2 Yes, I saw it and looked at it briefly
3 Yes, I saw this label and inspected it in detail

[Screen 6]
Now, please take a look at the labels again and indicate what you think of them.

Scripter : <Display Wipe_marking.jpg>
Q7. The information on this label is…
(1) very difficult to understand - (7) very easy to understand
(1) very unclear - (7) very clear
(1) not useful at all - (7) very useful
(1) not important at all - (7) very important

[Screen 7]
Scripter: <Display Cup_marking.jpg>
Q8. The information on this label is…
(1) very difficult to understand - (7) very easy to understand
(1) very unclear - (7) very clear
(1) not useful at all - (7) very useful
(1) not important at all - (7) very important

[Screen 8]
Finally, we ask you a few questions about yourself.
Q9. Please indicate to what extent you agree or disagree with the following statements.
Q9_1. I am concerned about the amount of plastic in the environment.
Q9_2. I am concerned about the amount of plastic in the oceans.
Q9_3. I always try to use less plastics in my daily life.
Q9_4. I would be willing to pay more for a plastic-free product.
Horizontal 7-point scale from (1) completely disagree to (7) completely agree

[Screen 9]
Q10. What is your gender?
1 Man
2 Woman
3 Other

Q11. What is your age? _ _

Q12. What is the highest level of education you have attained? [country-dependent]
1 Elementary (primary) school or less
2 Some high (secondary) school

3 Graduation from high (secondary) school
4 Graduation from college, university or other third-level institute
5 Post-graduate degree (Masters, PhD)
6 Other qualification
7 Prefer not to answer

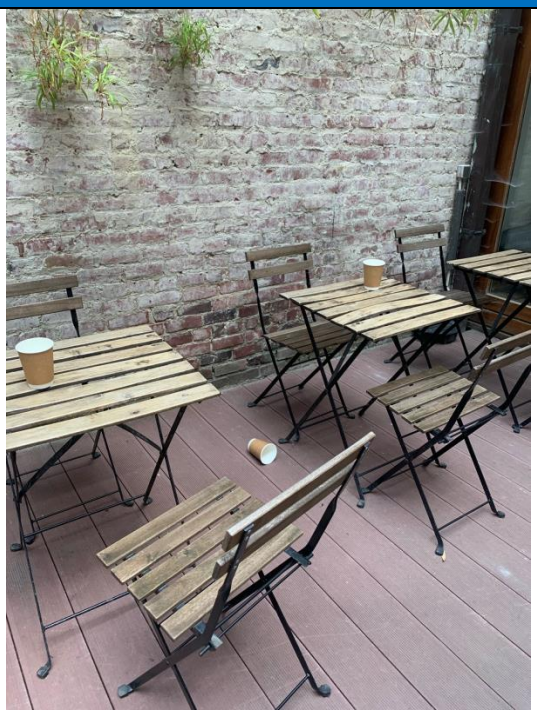
[Screen 10 - Debriefing]
Thank you for your participation!

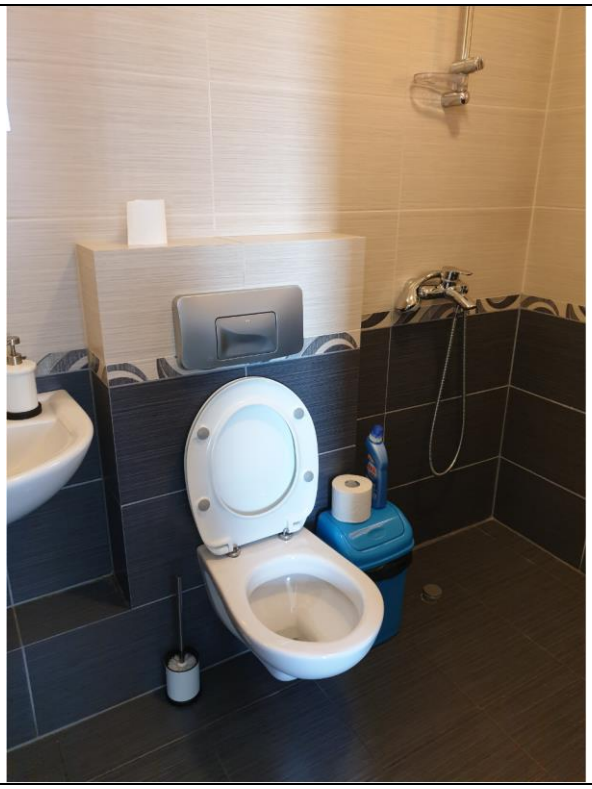
You may wonder why we are also interested in how you disposed of the wet wipe and cup that you received. Some participants received wet wipes and cups with new labels on them, and we wanted to see if this would affect their disposal behaviour. This research is part of an important study for the European Commission on the effectiveness of labels on single-use plastic products in reducing plastic littering.

Be reassured you could not do anything right or wrong in this study. Your participation is equally valuable regardless of how you disposed of the products.

Finally, for the success of this study, we would like to ask you to not talk about this research to anyone. This is very important, as knowing what the research is about can influence the behaviour of future participants.

Appendix F. Context images (laboratory experiments)

Disposal situation	Country	Image
Balcony (cups)	Belgium	
	Bulgaria	

Restroom (wet wipes)	Belgium	
	Bulgaria	

Appendix G. Results per product subtype and context

In this Appendix, for each product subtype and context, the percentage respondents is displayed that indicated to dispose of the product correctly (intended disposal), that indicated only the correct disposal option for a product when asked how the product should be disposed of, that understood that the product contains plastic and is harmful to the (marine) environment (score of ≥ 4 on a 5-point scale), and that evaluated the marking positively (score of ≥ 5 on a 7-point scale). Significant differences are indicated using (different) letters; marginally significant differences with the control group are indicated in italics. All analyses are performed on product/context-level.

F.1. Effects on intended disposal

Table F.1.1. Effects on intended disposal behaviour: % respondents who would choose to dispose of the cup in a bin instead of on a picnic table or on the ground.

		Picnic area		Train platform	
Marking	Overall	Plastic cups	Paper cups	Plastic cups	Paper cups
No marking	90,4%	88,4%^{a}	86,7%^{ab}	94,2%^{a}	92,2%^{a}
Negative storyline	91,9%	90,5%^{a}	88,3%^{ab}	94,1%^{a}	*94,6%^{a}*
Positive storyline	90,3%	87,2%^{a}	85,4%^{b}	95,3%^{a}	93,3%^{a}
Negative combined	92,5%	90,0%^{a}	*90,0%^{a}*	95,1%^{a}	*95,0%^{a}*
Positive combined	91,8%	88,9%^{a}	88,9%^{ab}	95,1%^{a}	94,4%^{a}

Table F.1.2. Effects on intended disposal behaviour: % respondents who would choose to dispose of the wipe in a bin instead of flushing it.

		Private		Public	
Marking	Overall	Wet wipes	Toilet wipes	Wet wipes	Toilet wipes
No marking	81,7%	85,9%^{b}	82,3%^{c}	81,5%^{bc}	77,1%^{c}
Negative storyline	88,4%	**90,4%^{a}**	**90,1%^{a}**	**86,5%^{ab}**	**86,4%^{a}**
Positive storyline	86,5%	**90,7%^{a}**	**89,2%^{ab}**	83,5%^{bc}	**82,5%^{ab}**
Negative combined	87,6%	*89,5%^{ab}*	**87,7%^{ab}**	**87,1%^{a}**	**85,9%^{a}**
Positive combined	84,4%	87,7%^{ab}	*86,3%^{bc}*	82,0%^{bc}	81,5%^{bc}

Table F.1.3. Effects on intended disposal behaviour: % respondents who would choose to dispose of the sanitary item in a bin instead of flushing the item.

		Private				Public			
Marking	Overall	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads
No marking	94,5%	89,6%^{b}	90,7%^{a}	98,3%^{a}	99,5%^{a}	90,0%^{a}	90,4%^{a}	98,2%^{a}	99,5%^{a}
Negative storyline	94,9%	91,3%^{ab}	90,8%^{a}	98,0%^{a}	99,3%^{a}	90,6%^{a}	91,8%^{a}	97,7%^{a}	99,2%^{a}
Positive storyline	95,0%	*92,7%^{ab}*	91,4%^{a}	98,7%^{a}	98,7%^{a}	91,6%^{a}	90,9%^{a}	97,2%^{a}	98,5%^{a}
Negative combined	95,0%	91,8%^{ab}	91,8%^{a}	97,9%^{a}	98,9%^{a}	91,8%^{a}	91,5%^{a}	98,0%^{a}	99,2%^{a}
Positive combined	95,9%	93,3%^{a}	92,9%^{a}	99,0%^{a}	99,7%^{a}	92,4%^{a}	92,6%^{a}	98,2%^{a}	99,3%^{a}

Table F.1.4. Effects on intended disposal behaviour: % respondents who would choose to dispose of the cigarette in a bin instead of littering it.

Marking	Average	Street	Park	Beach
No marking	86,9%	83,9%[a]	87,9%[a]	88,8%[a]
Storyline sea - side	85,2%	82,2%[a]	85,6%[a]	87,8%[a]
Storyline flower - side	86,6%	83,2%[a]	87,0%[a]	89,6%[a]
Combined - side	83,5%	79,6%[a]	85,3%[a]	85,6%[a]
Storyline sea - front	85,3%	81,7%[a]	86,9%[a]	87,2%[a]
Storyline flower - front	85,3%	81,5%[a]	84,4%[a]	90,1%[a]
Combined - front	87.5%	84,5%[a]	87,1%[a]	90,9%[a]

F.2. Effects on objective understanding

Table F.2.1. Effects on understanding: % respondents who understood that a **cup** contains plastic.

		No claim		Claim	
Marking	Overall	Plastic cups	Paper cups	Plastic cups	Paper cups
No marking	42,1%	94,4%[b]	21,2%[d]	41,8%[d]	10,9%[c]
Negative storyline	90,7%	**95,7%[a]**	**89,5%[a]**	**91,6%[a]**	**86,3%[a]**
Positive storyline	89,5%	**96,7%[a]**	**88,1%[ab]**	**91,5%[a]**	**81,7%[a]**
Negative combined	86,7%	**95,6%[a]**	**85,8%[bc]**	**87,7%[b]**	**77,6%[b]**
Positive combined	85,0%	**96,9%[a]**	**84,8%[c]**	**84,3%[c]**	**74,1%[b]**

Table F.2.2. Effects on understanding: % respondents who understood that a **wipe** contains plastic.

		No claim		Claim	
Label type	Overall	Wet wipes	Toilet wipes	Wet wipes	Toilet wipes
No marking	28,6%	38,6%[c]	36,6%[c]	21,2%[c]	18,0%[b]
Negative storyline	85,0%	**87,3%[a]**	**87,2%[a]**	**82,7%[a]**	**82,8%[a]**
Positive storyline	85,3%	**88,1%[a]**	**87,6%[a]**	**81,9%[a]**	**83,5%[a]**
Negative combined	78,1%	**82,4%[b]**	**82,7%[b]**	**73,0%[b]**	**74,2%[c]**
Positive combined	76,1%	**80,6%[b]**	**82,2%[b]**	**70,6%[b]**	**71,1%[c]**

Table F.2.3. Effects on understanding: % respondents who understood that (part of) a **sanitary item** contains plastic.

		No claim				Claim			
Marking	Overall	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads
No marking	46,8%	46,1%[c]	38,3%[c]	58,4%[d]	66,0%[c]	32,2%[d]	32,5%[c]	49,1%[c]	51,2%[c]
Negative storyline	79,3%	**84,2%[a]**	**76,2%[a]**	**80,4%[a]**	**89,5%[a]**	**79,8%[a]**	**68,6%[a]**	**69,6%[a]**	**86,3%[a]**
Positive storyline	76,7%	**80,7%[a]**	**72,4%[a]**	**77,7%[ab]**	**87,5%[a]**	**76,2%[a]**	**66,2%[a]**	**68,2%[ab]**	**84,3%[a]**
Negative combined	71,2%	**77,5%[b]**	**68,0%[b]**	**72,4%[c]**	**84,1%[b]**	**67,8%[b]**	**60,6%[b]**	**61,9%[b]**	**77,5%[b]**
Positive combined	70,7%	**75,0%[b]**	**67,2%[b]**	**75,5%[bc]**	**83,1%[b]**	**64,0%[c]**	**58,0%[b]**	**66,0%[ab]**	**76,7%[b]**

Table F.2.4. Effects on understanding: % respondents who understood that a **cigarettes** with filter contains plastic.

Marking	
No marking	47,8%[b]
Storyline sea - side	**67,7%[a]**
Storyline flower - side	**68,1%[a]**
Combined - side	**65,2%[a]**
Storyline sea - front	**68,6%[a]**
Storyline flower - front	**67,3%[a]**
Combined - front	**61,1%[a]**

Table F.2.5. Effects on understanding: % respondents who understood that a **cup** should only be disposed of in a bin.

		No claim		Claim	
Marking	**Overall**	**Plastic cups**	**Paper cups**	**Plastic cups**	**Paper cups**
No marking	87,2%	94,4%[a]	89,6%[b]	84,2%[b]	80,6%[b]
Negative storyline	92,1%	93,6%[a]	**93,6%[a]**	**91,4%[a]**	**89,8%[a]**
Positive storyline	93,8%	96,2%[a]	**95,4%[a]**	**92,0%[a]**	**91,6%[a]**
Negative combined	92,8%	93,6%[a]	**94,3%[a]**	**92,2%[a]**	**90,9%[a]**
Positive combined	93,2%	95,7%[a]	**95,2%[a]**	**91,5%[a]**	**90,3%[a]**

Table F.2.6. Effects on understanding: % respondents who understood that a **wipe** should only be disposed of in a bin.

		No claim		Claim	
Label type	**Overall**	**Wet wipes**	**Toilet wipes**	**Wet wipes**	**Toilet wipes**
No marking	74,7%	85,2%[b]	79,3%[b]	68,9%[c]	65,5%[c]
Negative storyline	90,7%	**92,4%[a]**	**92,4%[a]**	**89,0%[a]**	**88,9%[a]**
Positive storyline	89,2%	**92,3%[a]**	**91,2%[a]**	**86,4%[a]**	**87,1%[a]**
Negative combined	88,9%	**92,5%[a]**	**92,0%[a]**	**85,6%[a]**	**85,6%[a]**
Positive combined	85,4%	**91,2%[a]**	**90,8%[a]**	**80,5%[b]**	**79,2%[b]**

Table F.2.7. Effects on understanding: % respondents who understood that (part of) a **sanitary item** should be disposed of in a bin.

		No claim				Claim			
Marking	**Overall**	**Tampons**	**Tampon w. applicators**	**Appli-cators**	**Sanitary pads**	**Tampons**	**Tampon w. applicators**	**Appli-cators**	**Sanitary pads**
No marking	88,5%	88,4%[c]	86,2%[c]	91,4%[b]	95,5%[a]	84,1%[c]	83,3%[b]	85,7%[b]	93,0%[c]
Negative storyline	94,1%	**94,9%[ab]**	**93,4%[a]**	**96,2%[a]**	97,2%[a]	**92,9%[ab]**	**92,1%[a]**	**89,6%[a]**	**96,1%[ab]**
Positive storyline	94,9%	**95,4%[a]**	**95,0%[a]**	**96,0%[a]**	97,5%[a]	**94,6%[a]**	**92,2%[a]**	**91,4%[a]**	**97,2%[a]**
Negative combined	93,2%	**93,8%[ab]**	**93,1%[a]**	94,3%[ab]	96,4%[a]	**90,0%[b]**	**91,5%[a]**	**90,0%[a]**	**96,9%[ab]**
Positive combined	92,4%	**91,8%[b]**	**91,5%[b]**	**94,6%[a]**	96,4%[a]	**90,8%[b]**	**89,7%[a]**	**89,8%[a]**	94,9%[bc]

Table F.2.8. Effects on understanding: % respondents who understood that a **cigarettes** should only be disposed of in a bin.

Marking	
No marking	92,5%[a]
Storyline sea - side	89,8%[a]
Storyline flower - side	90,1%[a]
Combined - side	88,4%[a]
Storyline sea - front	89,8%[a]
Storyline flower - front	91,8%[a]
Combined - front	89,5%[a]

Table F.2.10. Effects on understanding: % respondents who understood that leaving a **cup** on the ground can harm the environment.

		No claim		Claim	
Marking	Overall	Plastic cups	Paper cups	Plastic cups	Paper cups
No marking	57,9%	92,2%[b]	57,1%[d]	47,6%[c]	34,6%[d]
Negative storyline	88,9%	**95,2%[a]**	**92,8%[a]**	**85,2%[a]**	**82,2%[a]**
Positive storyline	83,8%	**95,3%[a]**	**90,9%[bc]**	**76,2%[b]**	**73,1%[b]**
Negative combined	85,2%	**94,9%[a]**	**89,4%[ab]**	**80,8%[a]**	**75,8%[b]**
Positive combined	81,4%	**95,4%[a]**	**88,2%[c]**	**75,0%[b]**	**66,9%[c]**

Table F.2.11. Effects on understanding: % respondents who understood that flushing a **wipe** can harm the environment.

		No claim		Claim	
Label type	Overall	Wet wipes	Toilet wipes	Wet wipes	Toilet wipes
No marking	54,4%	70,0%[d]	67,0%[c]	41,1%[d]	39,4%[d]
Negative storyline	85,4%	**90,4%[a]**	**90,3%[a]**	**80,0%[a]**	**80,8%[a]**
Positive storyline	81,0%	**88,4%[ab]**	**88,8%[a]**	**72,1%[b]**	**74,8%[b]**
Negative combined	80,1%	**87,5%[bc]**	**87,6%[a]**	**72,7%[b]**	**72,5%[b]**
Positive combined	74,3%	**85,6%[c]**	**84,2%[b]**	**63,0%[c]**	**64,3%[c]**

Table F.2.12. Effects on understanding: % respondents who understood that flushing (part of) a **sanitary item** can harm the environment.

		No claim				Claim			
Marking	Overall	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads
No marking	75,0%	79,9%[d]	75,3%[c]	78,6%[c]	87,9%[c]	67,0%[d]	65,2%[d]	64,3%[b]	81,4%[d]
Negative storyline	90,2%	**94,4%[a]**	**91,3%[a]**	**90,5%[a]**	**96,2%[a]**	**91,1%[a]**	**86,2%[a]**	**77,0%[a]**	**94,7%[a]**
Positive storyline	88,4%	**91,9%[b]**	**88,9%[a]**	**87,8%[ab]**	**95,5%[ab]**	**88,3%[b]**	**85,1%[ab]**	**76,9%[a]**	**92,6%[a]**
Negative combined	86,3%	**89,2%[b]**	**88,5%[a]**	**86,4%[ab]**	**93,6%[b]**	**84,1%[b]**	**81,8%[bc]**	**74,2%[a]**	**92,8%[a]**
Positive combined	84,8%	**87,2%[c]**	**85,7%[b]**	**86,2%[b]**	**93,9%[b]**	**80,0%[c]**	**80,3%[c]**	**75,0%[a]**	**90,0%[b]**

Table F.2.13. Effects on understanding: % respondents who understood that throwing a **cigarette** butt on the ground can harm the environment.

Marking	
No marking	84,4%[b]
Storyline sea - side	**89,2%[a]**
Storyline flower - side	88,4%[ab]
Combined - side	**90,9%[a]**
Storyline sea - front	89,2%[ab]
Storyline flower - front	**89,5%[a]**
Combined - front	**91,5%[a]**

Table F.2.14. Effects on understanding: % respondents who understood that leaving a **cup** on the ground can contribute to plastic pollution in the marine environment.

		No claim		Claim	
Marking	Overall	Plastic cups	Paper cups	Plastic cups	Paper cups
No marking	47,9%	83,0%[b]	40,8%[c]	42,2%[d]	25,5%[d]
Negative storyline	80,3%	**86,0%[a]**	**82,2%[a]**	**77,8%[a]**	**75,1%[a]**
Positive storyline	76,5%	*86,8%[ab]*	**79,8%[ab]**	**72,2%[b]**	**67,3%[b]**
Negative combined	74,1%	83,2%[ab]	**77,3%[b]**	**69,6%[b]**	**66,5%[b]**
Positive combined	73,5%	85,4%[ab]	**78,0%[b]**	**68,5%[c]**	**62,0%[c]**

Table F.2.15. Effects on understanding: % respondents who understood that flushing a **wipe** can contribute to plastic pollution in the marine environment.

		No claim		Claim	
Label type	Overall	Wet wipes	Toilet wipes	Wet wipes	Toilet wipes
No marking	46,8%	58,8%[d]	56,6%[d]	36,9%[d]	34,7%[d]
Negative storyline	80,5%	**84,4%[a]**	**84,7%[a]**	**76,6%[a]**	**76,3%[a]**
Positive storyline	75,5%	**83,0%[ab]**	**81,3%[ab]**	**68,1%[b]**	**69,4%[b]**
Negative combined	74,4%	**80,5%[bc]**	**81,3%[bc]**	**66,8%[b]**	**69,2%[b]**
Positive combined	69,4%	**78,6%[c]**	**77,6%[c]**	**60,6%[c]**	**60,7%[c]**

Table F.2.16. Effects on understanding: % respondents who understood that flushing (part of) a **sanitary item** can contribute to plastic pollution in the marine environment.

		No claim				Claim			
Marking	Overall	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads	Tampons	Tampon w. applicators	Appli-cators	Sanitary pads
No marking	67,4%	69,7%[d]	66,7%[d]	72,3%[c]	81,6%[c]	59,4%[d]	55,1%[d]	60,9%[b]	73,3%[d]
Negative storyline	85,8%	**90,0%[a]**	**87,3%[a]**	**85,4%[a]**	**92,6%[a]**	**86,5%[a]**	**80,8%[a]**	**73,5%[a]**	**90,6%[a]**
Positive storyline	83,8%	**87,5%[ab]**	**85,1%[ab]**	**82,0%[ab]**	**91,1%[a]**	**83,0%[a]**	**79,7%[ab]**	**72,3%[a]**	**89,6%[ab]**
Negative combined	81,3%	**84,6%[b]**	**82,4%[b]**	**80,6%[ab]**	**90,0%[ab]**	**78,8%[b]**	**76,5%[bc]**	**70,3%[a]**	**86,9%[b]**
Positive combined	79,1%	**80,1%[c]**	**79,1%[c]**	**82,3%[b]**	**88,2%[b]**	**75,5%[c]**	**73,9%[c]**	**70,4%[a]**	**83,4%[c]**

Table F.2.17. Effects on understanding: % respondents who understood that throwing a **cigarette** butt on the ground can contribute to plastic pollution in the marine environment.

Marking	
No marking	69,2%[b]
Storyline sea - side	**75,1%[a]**
Storyline flower - side	**76,2%[a]**
Combined - side	**76,2%[a]**
Storyline sea - front	**74,4%[a]**
Storyline flower - front	74,4%[ab]
Combined - front	**77,8%[a]**

F.3. Effects on attention

Table F.3.1. Effects on attention: % respondents who looked at a marking in detail.

Marking	Cups/wipes	Sanitary items
Negative storyline	41,3%[a]	35,4% [a]
Positive storyline	38,6%[a]	33,7%[a]
Negative combined	43,2%[a]	32,8%[a]
Positive combined	41,8%[a]	30,5%[a]

Marking	Cigarettes
Storyline sea - side	17,8%[a]
Storyline flower - side	18,6%[a]
Combined - side	21,0%[a]
Storyline sea - front	19,5%[a]
Storyline flower - front	15,9%[a]
Combined - front	20,2%[a]

F.4. Effects on subjective understanding/clarity

For these analyses, average scores for ease of understanding and clarity were calculated.

Table F.5.1. Effects on understanding: % respondents who indicated they understood the information on the marking and found it clear (cups, wipes, and sanitary items).

		Cups			Sanitary items		
Marking	Overall	Plastic cups	Paper cups	Wipes	Tampons (without)	Tampons (with)	Sanitary pads
Negative storyline	90,4%	89,2%[a]	90,2%[a]	90,7%[a]	92,1%[a]	89,7%[a]	90,6%[a]
Positive storyline	89,1%	87,6%[a]	87,9%[a]	88,3%[a]	90,3%[ab]	90,8%[a]	89,6%[a]
Negative combined	89,7%	90,0%[a]	89,7%[a]	91,4%[a]	90,5%[ab]	88,5%[a]	87,8%[a]
Positive combined	89,0%	90,5%[a]	88,8%[a]	90,0%[a]	89,2%[b]	87,0%[a]	88,2%[a]

Table F.5.2. Effects on understanding: % respondents who indicated they understood the information on the marking and found it clear (cigarettes).

Marking	
Storyline sea - side	82,2%[ab]
Storyline flower - side	84,6%[ab]
Combined - side	84,1%[ab]
Storyline sea - front	82,0%[b]
Storyline flower - front	81,5%[ab]
Combined - front	87,4%[a]

F.5. Effects on perceived importance/usefulness

For these analyses, average scores for perceived importance and usefulness were calculated.

Table F.5.1. Effects on perceived importance: % respondents who indicated they perceived the information on the marking as important and useful (cups, wipes, and sanitary items).

		Cups			Sanitary items		
Marking	Overall	Plastic cups	Paper cups	Wipes	Tampons (without)	Tampons (with)	Sanitary pads
Negative storyline	93,5%	92,8%[a]	93,4%[a]	93,7%[a]	93,4%[a]	93,7%[a]	94,2%[a]
Positive storyline	91,0%	90,3%[a]	90,5%[a]	91,0%[a]	92,1%[ab]	91,5%[ab]	90,8%[ab]
Negative combined	90,6%	89,8%[a]	90,4%[a]	90,5%[a]	92,0%[ab]	91,1%[ab]	90,3%[ab]
Positive combined	90,8%	91,2%[a]	92,6%[a]	91,8%[a]	91,3%[b]	87,7%[b]	90,3%[b]

Table F.5.2. Effects on perceived importance: % respondents who indicated they perceived the information on the marking as important and useful (cigarettes).

Marking	
Storyline sea - side	84,7%[ab]
Storyline flower - side	85,2%[ab]
Combined - side	81,9%[b]
Storyline sea - front	82,6%[b]
Storyline flower - front	83,8%[b]
Combined - front	89,8%[a]