

Investigating options for reducing releases in the environment of microplastics.

Fields marked with * are mandatory.

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Introduction

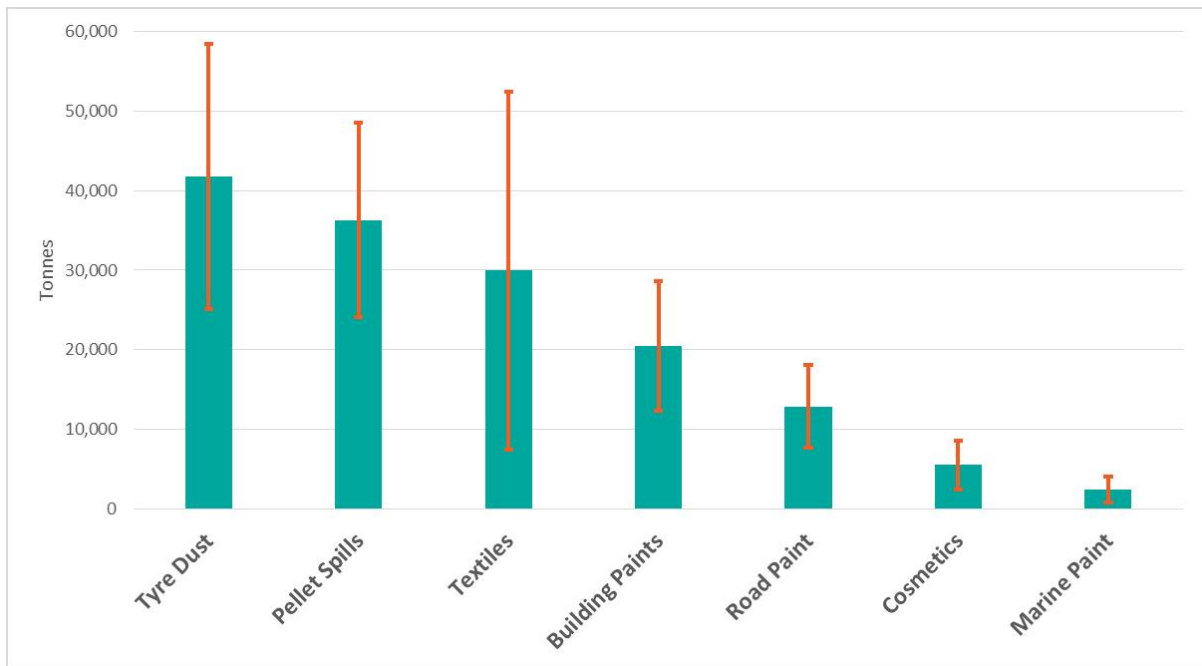
Marine litter, much of which is plastic, is found in marine and coastal habitats throughout the world, washed ashore, floating or accumulating on the seafloor.

Microplastics (Sized below 5 mm) are of particular concern.

The small size of microplastics and their material characteristics facilitate adsorption of toxic substances from the natural environment and increase their potential bioavailability to organisms throughout the food-chain. Their impacts can therefore be disproportionately high relative to the overall tonnage. They are used either intentionally in products (such as exfoliating components in cosmetics, in detergents, or as industrial blasting abrasives) or generated during the life cycle of products (for example during production of plastic products, through tyre wear or the washing of clothes). Microplastics can be partially treated in some waste water treatment plants or dispersed by the wind or via waste water effluents, rain drainage systems and/or rivers to reach the coastal and marine environment.

This internet-based consultation is part of the European Commission's efforts to understand the citizens' and stakeholders' views on the need for and possible range of measures which could be undertaken in order to reduce microplastics entering the marine environment under the basis of the precautionary principle.

Some of the main sources of microplastics were identified in a previous Commission study (see below graph). As part of the study that this consultation is supporting these sources and estimates are being investigated and fine-tuned.



Questionnaire

Please note that the first questions are of general nature, and replies from question 3 onwards may require some prior knowledge about EU policy measures. The option of 'don't know' is available for all questions if you believe you are not in a position to answer. Questions marked with an asterisk (*) require an answer to be given. In general several answers are possible. Completing this questionnaire could take up to 30 minutes of your time. Once you start filling in this questionnaire, the maximum time allowed by the system to complete is 90 minutes. Partial responses will not be saved. It is therefore recommended to download the full questionnaire as a PDF and prepare your answers in advance.

Thank you very much for taking the time to contribute to this consultation.

Consultation Questions

Fields marked with * are mandatory.

1. Information about you

* 1.1a Your full name

Hanna Sjölund

* 1.1b Your email address

hanna.sjolund@su.se

* **Important** notice on the publication of contributions

Replies to this public consultation will be published on the European Commission's website (for further information, please consult the privacy statement).

Please note: regardless of the option chosen below, your contribution may be subject to a request for access to documents under Regulation 1049/2001 on public access to European Parliament, Council and Commission documents. In such cases, the request will be assessed against the conditions set out in the Regulation and in accordance with applicable data protection rules.

Respondents should not include personal data in documents submitted in the context of consultation if they opt for anonymous publication.

* **Please indicate whether your reply:**

- Can be published, including your name or that of your organisation (I consent to publication of all information in my contribution and I declare that none of it is under copyright restrictions that prevent publication)
- Can be published in an anonymous way (I consent to publication of all information in my contribution except my name/the name of my organisation, and I declare that none of it is under copyright restrictions that prevent publication)
- Cannot be published but only used for statistical and analytical purposes

* * 1.2 I'm replying as a(n):

- Interested individual/citizen/consumer
- Stakeholder/expert

* * 1.2 a If you are replying as stakeholder/expert you represent:

- Private company
- Non-governmental organisation (NGO)
- Academic/scientist/research
- National authority
- Local/regional authority
- European Institution
- International body
- Industrial or trade association
- Consumer association
- Other associations
- Other

1.2 c If you represent a private company, what size is it?

- Micro enterprises: fewer than 10 persons employed
- Small enterprises: 10 to 49 persons employed
- Medium-sized enterprises: 50 to 249 persons employed
- Large enterprises: 250 or more persons employed

1.2 d If responding on behalf of a(n) organisation/association/authority/company/body, please provide the name:

Stockholm University's Baltic Sea Centre

* 1.2 e Is your organisation registered in the Transparency Register of the European Commission and the European Parliament?

In the interests of transparency, organisations, networks, platforms or self-employed individuals engaged in activities aimed at influencing the EU decision making process have been invited to provide the public with relevant information about themselves, by registering in Transparency Register and subscribing to its Code of Conduct.

Please note: If the organisation is not registered, the submission is published separately from the registered organisations. During the analysis of replies to a consultation, contributions from respondents who choose not to register will be treated as individual contributions (unless the contributors are recognised as representative stakeholders through Treaty provisions, European Social Dialogue, Art. 154-155 TFEU). If your organisation is not registered, you have the opportunity to register [register now](#)

- yes
 no

* 1.3 Your country/ies:

- AT - Austria
- BE - Belgium
- BG - Bulgaria
- CY - Cyprus
- CZ - Czech Republic
- DE - Germany
- DK - Denmark
- EE - Estonia
- EL - Greece
- ES - Spain
- FI - Finland
- FR - France
- HR - Croatia
- HU - Hungary
- IE - Ireland
- IT - Italy
- LT - Lithuania
- LU - Luxembourg
- LV - Latvia
- MT - Malta
- NL - Netherlands
- PL - Poland
- PT - Portugal
-

- RO - Romania
- SE - Sweden
- SI - Slovenia
- SK - Slovakia
- UK - United Kingdom
- EU
- Other

2. Gauging Your Awareness and Concern for Microplastic Pollution

The following section looks at how aware you are of the different sources of microplastics pollution and how concerned you are about it.

*2.1 On a scale of (1) HIGH awareness to (3) NO awareness, what was your awareness level of the following possible sources of microplastic emissions to the environment before starting this survey?

Main sources

	(1) High awareness	(2) Somewhat aware	(3) No awareness
* Agricultural Mulch Films	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Artificial Sports Turf	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Building Paints	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Clothing and textiles	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Cosmetics	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Detergents/cleaning products	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Fishing nets and related equipment	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Industrial Abrasives	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Marine Paints	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Pre-production Plastic Pellets	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Road Paint	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Road Tyres	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

*2.2 On a scale of (1) MOST concern to (5) LEAST concern, which sources of microplastics emission sources are of most ENVIRONMENTAL concern to you?

Click [here](#) here for definitions/explanations of the sources and base your judgement on your current understanding.

Main Sources

	(1) High Environmental Concern	(2)	(3)	(4)	(5)Not At All Concerned	Don't Know
* Agricultural Mulch Films	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Artificial Sports Turf	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Building Paints	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Clothing and textiles	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Cosmetics	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Detergents/cleaning products	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Fishing Nets and related equipment	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Industrial Abrasives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Marine Paints	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Pre-production Plastic Pellets	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Road Paint	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Road Tyres	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2.3 Are there any other sources of microplastics emissions to the environment, not already listed above about which you are particularly concerned? Please state and explain why.

Other sources of concern:

Littering and illegal dumping of waste from ships are likely big sources of microplastics (through degradation of larger plastic items into smaller particles) found in the marine environment, however how much they contribute to microplastics concentrations have so far proven difficult to quantify. Wear and tear from floating devices, e.g. buoys and docks of expanded polystyrene, are other identified sources.

An additional, secondary, source is sewage sludge. The microplastics filtrated from the wastewater ends up in the sludge which may be spread on farm land, or used for landscaping and landfill. Depending on the national or regional use of sewage sludge, this may be a sizeable source of microplastics emission to the environment.

Justification for grading sources:

Mulch: A recent scientific review article on plastic mulching in agriculture concludes that "compiled findings suggest a successive enrichment of the

plastic residues in the soil – whether or not they are left in the soil intentionally or unintentionally.”, and it further concludes that plastic mulch increases runoff. More knowledge on concentrations of plastics (micro and macro) in agriculture soil is needed, and the potential spread to the aquatic environment.

Turf: Potentially a large source that will increase with the increasing construction of artificial turf pitches, but to our knowledge the spread of microplastics to the aquatic environment is unknown for this source. The infill potentially contains hazardous substances if it comes from recycled tyres.

Building paints: This is may be a relatively large source, but there is a lack of knowledge about how much microplastics that are released to the environment. Painting and sandblasting of outdoor surfaces, especially when close to water, can emit large amounts of microplastics.

Textiles: A relatively large source of synthetic fibres/microplastics that can reach the sea via wastewater treatment plants (WWTPs). Depending on the treatment efficiency of the WWTPs, a large proportion of the fibres may be retained in the sludge. These microplastics may end up in the environment if the sewage sludge is spread on arable fields or other types of land. Synthetic fibres prove a common pollution found in the marine environment that has been shown to decrease growth in langoustines at environmentally relevant concentrations.

Cosmetics: in several assessments done, the amount of microplastics in cosmetics is based only on a sub-segment, i.e. in scrub creams and shower gels. But many other cosmetic products contain microplastics where a phase-out process is largely lacking across Europe, thus the total contribution from this source is commonly underestimated. Microplastics in cosmetics can reach aquatic environments directly via WWTPs, with the extent depending on the retention efficiency in the WWTPs, particle size used in cosmetics and if sludge from WWTPs is being spread.

Detergents: the amount of microplastics used in these products is unknown to us. But their pathways follow the same principle as for clothes and cosmetics.

Fishing nets: In the 2017 Swedish IVL report there are large uncertainties regarding how large a source of microplastics wear from fishing net and floating devices constitute. But it is clear that this source is being spread directly in the aquatic environment. The loss of fishing equipment is also of large concern even before it degrades to microplastics, with many marine animals being hurt or dying each year through entanglement.

Ind. abrasives: We have no data on this source, thus we cannot assess it.

Marine paints: A relatively large source of synthetic polymer particles /microplastics that are being released directly in, or from close proximity to, the aquatic environment. These microplastics may also contain hazardous substances, designed to be toxic to aquatic organisms.

Plastic pellets: A relatively large source of microplastics and the risk for release to the environment is especially large during transportation, which is not covered by Operation Clean Sweep according to information from the plastics industry. Plastic pellets is a common litter type found in the marine environment.

Road paint: is estimated as a relatively large source of microplastics, but the release to the aquatic environment have not been able to assess in the Swedish IVL report of 2017.

Road tyres: The largest source of microplastics in both the Swedish and

Norwegian national assessments. The Swedish assessment could not estimate the fraction that reaches the sea, but the Norwegian assessment estimates the fraction to half of the releases. Tyre particles may also can contain harmful compounds.

*2.4 On a scale of (1) MOST concern to (5) LEAST concern, which are the potential impacts of microplastic emissions that are of most concern to you?

	(1) High Concern	(2)	(3)	(4)	(5)Not At All Concerned /No impact	Don' t Know
* Harm to human health	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Harm to marine life	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Costs and associated reduction in attractiveness for tourism	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Reduction in aesthetic value of marine environments (sea surface, beaches etc.)	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Reducing Microplastics Pollution

The following section seeks your views on some of the potential policy options and mitigation strategies that could be employed to reduce microplastic emissions and who should potentially be responsible.

Microplastics generated from wear and tear and/or lost during product use

The following questions focus on individual sources of microplastics that are generated during the use of a product and your answers should relate to these.

*3.1 a Road Tyres

Please express your opinion on whether you believe that the following possible approaches to reduce road tyre microplastic emissions to the marine environment would be effective. If you do not have a firm view or understanding of the particular measure select 'don't know'.

Measures to reduce the wear rate of tyres

	Very Effective	Effective	Not Effective	Don't know

* Inclusion of a durability rating on the EU tyre label to enable consumers to make a more informed choice when purchasing tyres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Information campaign to raise awareness of the role of eco-driving in reducing tyre wear (e.g. avoid excessive speed, ensure correct tyre inflation etc.)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* A voluntary commitment by industry to increase the durability of tyres	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Legislation requiring producers to increase the durability of their tyres (including phasing out the least durable tyres over time)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Financial incentives for producers to increase the durability of vehicle tyres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Measures to increase the capture of tyre particles

	Very Effective	Effective	Not Effective	Don't know
* Increasing the use of porous asphalt which allows particulates (and rainwater) to pass through the road surface and the particulates can be captured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Increasing the use of natural buffers e.g. SuDS (sustainable drainage) to capture surface water from roads in vegetated strips adjacent to the asphalt surface	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Increasing the rate of road sweeping in order to remove dust (including vehicle tyre particles)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Develop and install technologies that are proven to capture microplastics in a municipal waste water treatment plant and prevent them from entering effluents (and subsequently surface waters)	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

* *3.1 b Are there any other approaches to reducing tyre microplastics emissions to the marine environment that you believe would be effective? Please state and explain why.

Additional approaches include:

Incentives that promote a shift of modes of transport - from road transport with private cars, freight on trucks etc, to other transport systems with increased access to public transport and railway freight. These measures also provide positive synergy for carbon dioxide releases and the climate.

Justification for grading measures to reduce the wear rate:

Tyre label: Even if we do not consider the EU tyre label to practically be one of the most effective measures to decrease microplastics from tyre wear, in a

revision of the tyre label it should include durability parameters. Information campaigns can be effective as eco-driving can reduce microplastic emissions with 10%, as well as decreasing carbon dioxide releases and increasing road safety.

Justification for grading measures to increase the capture:

Road sweeping: the Mepex report on Norwegian sources of microplastics and mitigation measures shows that road sweeping can be an effective measure to reduce microplastics from tyres and roads in highly trafficked areas, such as cities.

WWTPs: in cities where storm water is handled in WWTPs this might be an effective measure, otherwise not. Also important is that tyre particles likely end up in WWTP sludge together with other microplastic particles, and as such risk being spread on farmland or on other types of land. WWTPs might not be the most effective measure for capturing tyre particles on a large scale, but have other positive aspects capturing microplastics from many sources.

*3.1 c On a scale of (1) GREATEST responsibility (5) LEAST responsibility, who do you think should take action for reducing tyre microplastics emissions to the marine environment?

	(1) GREATEST responsibility	(2)	(3)	(4)	(5) LEAST responsibility	Don't Know
* European Commission	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Member states (countries)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Individuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Tyre Industry	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*3.2 a Pre-production Plastic Pellets, Powders and Flakes

Please express your opinion on whether you believe that the following possible approaches to reduce pre-production plastic pellets emissions to the marine environment would be effective. If you do not have a firm view or understanding of the particular measure select 'don't know'.

Preventing supply chain loss through implementation of industry recognised best practice

	Very Effective	Effective	Not Effective	Don't know
* Continue current industry-led activities to encourage the voluntary uptake of best practice measures highlighted in Operation Clean Sweep guidance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

* An 'enhanced' business-led approach using retailer procurement standards to require suppliers (and those who supply them) to demonstrate (including an audit process) that they are adhering to Operation Clean Sweep guidance	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Legislation at the EU level requiring all companies placing plastics on the EU market to demonstrate that their supply chain adheres to best practice as outlined in Operation Clean Sweep guidance	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Measures to increase the capture of plastic pellets

	Very Effective	Effective	Not Effective	Don't know
* Develop and install technologies that are proven to capture microplastics in a municipal waste water treatment plant and prevent them from entering effluents (and subsequently surface waters).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Mandate the installation of technologies that are proven to capture microplastics on manufacturing locations or sites handling pellets e.g. drain traps or onsite waste and waste water treatment.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* *3.2 b Are there any other approaches to reducing pre-production plastic pellets emissions to the marine environment that you believe would be effective? Please state and explain why.

Additional approaches include:
 More stringent requirements could be put on the business in question in order to obtain an environmental permit.

Businesses could be obliged to declare quantities lost at different stages in order to obtain an environmental permit. This as one of the problems for this source of microplastics is that there is a lack of information about how much pellets that are lost.

Operation Clean Sweep could be expanded to cover the whole value chain from manufacture to use. Transport is not included today which is a clear deficiency.

*3.2 c On a scale of (1) GREATEST responsibility (5) LEAST responsibility, who do you think should take action for reducing pre-production plastic pellets emissions to the marine environment?

	(1) GREATEST responsibility	(2)	(3)	(4)	(5) LEAST responsibility	Don't Know
* European Commission	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* Member states (countries)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Individuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Plastic pellet producers	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Plastic pellet converters	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Logistics Companies	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*3.3 a Clothing and Textiles

Please express your opinion on whether you believe that the following possible approaches to reduce microplastic (synthetic fibre) emissions from clothing and textiles to the marine environment would be effective. If you do not have a firm view or understanding of the particular measure select 'don't know'.

Research on the relative importance of attributes of synthetic clothing (such as the type of fibre, fibre length, type of weave used) that may affect the rate of microfibre loss, is still at an early stage. It is therefore not clear at present what manufacturers or users can do to reduce the loss of microfibres from synthetic clothing. Research also suggests that the rate of loss of synthetic microfibres from clothing is highest during the first few washes, and then declines.

Measures to reduce the propensity of synthetic textiles to be shed from clothing

	Very Effective	Effective	Not Effective	Don't know
* Require all synthetic clothing to be pre-washed by the manufacturer, with fibres collected and managed appropriately, prior to the items being placed on the market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Awareness raising campaign among consumers to alert them to actions they can take to reduce fibre loss, including washing less, washing full loads, washing at low temperatures, and using liquid detergents rather than powder	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Promote further research on the relative importance of attributes of synthetic clothing affecting the rate of microfiber (e.g. the type of fibre, fibre length, type of weave used) and widely disseminate its results	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Require all clothing placed on the EU market to indicate whether the item is likely to lead to high /medium/low or no loss of synthetic microfibres	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

* Develop EU Ecolabel criteria that manufacturers can choose to adopt.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Develop a mandatory requirement for the progressive reduction of microfiber release that must be adopted by manufacturers of clothing sold in the EU.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Apply an economic instrument to financially incentivise a shift towards clothing that releases fewer or no synthetic microfibers.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Measures to capture synthetic textiles shed from clothing

	Very Effective	Effective	Not Effective	Don't know
* A requirement for all new washing machines to be fitted with filters to trap microfibres. These would need to be manually emptied periodically with the contents discarded with residual solid waste.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* A voluntary measure whereby manufacturers are encouraged to provide a microfibre capture bag with each washing machine placed on the market. The user places clothing inside this bag before placing it in the washing machine, and it captures microfibres. It then needs to be manually emptied.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Develop and install technologies that are proven to capture microfibres in a municipal waste water treatment plant and prevent them from entering effluents (and subsequently surface waters).	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* *3.3 b Are there any other approaches to reducing microplastics (synthetic fibre) emissions to the marine environment from clothing and textiles that you believe would be effective? Please state and explain why.

Additional approaches include:
Public procurement could be utilised to a greater extent. Green Public Procurement (GPP) can help put more stringent requirements on the choice of textiles that are bought as well as on laundry facilities procured and the filters they use. In the newly revised EU GPP criteria for textiles, there is no mention of microplastics. In a future revision, it should be considered to include it here.

The Ecodesign Directive provides an opportunity to include requirements for filters on laundry machines. In a future revision, it should be considered to include it here.

A general difficulty when it comes to textiles is that there is a lack of standardised definitions and measurement methods for releases of synthetic fibres/microplastics. Further research and standardisation work in this field

is desirable.

Promotion of research on materials for textiles with alternatives to synthetic polymers.

Justification for grading measures to reduce the propensity of shedding:

Pre-wash: If such a demand can be put on synthetic textile products being imported to EU, this could be a relatively effective measure, otherwise likely not. For a pre-wash demand to be an effective measure, it would need to be coupled with a demand for filtering of synthetic fibres at pre-wash facilities, both within EU or outside, to hinder the release to the environment.

Awareness: At this stage there is still a lack of comprehensive understanding of microplastic release and thus more knowledge is needed before effective measures can be recommended.

Justification for grading measure to capture shed:

Capture bags: to our knowledge there is no research evaluating the effectiveness of microfibers capture bags. The most problematic microfiber particles are those passing through the WWTPs and thus ending up in the aquatic environment. The smallest particles are those least effectively retained in WWTPs and we find it unlikely that micrometre sized fibres will be retained or could be removed from these kind of bags.

WWTPs: It is preferable to stop microfibers upstream, such as with filters on washing machines. But if such a process is insufficient or slow then technologies that capture microfibers in WWTPs would constitute a good measure to reduce microplastic release to the aquatic environment. This measure would also stop microplastics (especially larger particles or fibres) from other sources that also pass through WWTPs.

*3.3 c On a scale of (1) GREATEST responsibility (5) LEAST responsibility, who do you think should take action for reducing microplastics (synthetic fibre) emissions to the marine environment from clothing and textiles?

	(1) GREATEST responsibility	(2)	(3)	(4)	(5) LEAST responsibility	Don't Know
* European Commission	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Member states (countries)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Individuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Textiles/fibres Manufacturers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Clothing Manufacturers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* Clothing Retailers	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Washing machine manufacturers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*3.4 a Artificial Sports Turf

Please express your opinion on whether you believe that the following possible approaches to reduce microplastic emissions from artificial sports turf to the environment would be effective. If you do not have a firm view or understanding of the particular measure select 'don't know'.

Changes to handling and management of infill

	Very Effective	Effective	Not Effective	Don't know
* Develop and disseminate best practice guidance for the management of infill associated with artificial sports turf in order to increase awareness and encourage improvements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Include best practice management techniques as requirements for pitches that wish to be certified by FIFA (or the relevant accreditation body for the pitch in question).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Develop and install technologies that are proven to capture microplastics in a municipal waste water treatment plant and prevent them from entering effluents (and subsequently surface waters).	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Mandate the installation of technologies that are proven to capture microplastics on sports turf sites e.g. drain traps or onsite waste water treatment.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Changes to the nature of the infill

	Very Effective	Effective	Not Effective	Don't know
* Awareness raising of the possible use of alternative non-polymer based infill material such as cork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Voluntary, industry led, commitment to increase the use of non-polymer based infill	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Financial incentives to move towards non-polymer based infill	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* A ban on the use of polymer based infill as an infill material for artificial sports turf	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

***3.4 b Are there any other approaches to reducing microplastics emissions to the marine environment from artificial sports turf that you believe would be effective? Please state and explain why.**

Additional approaches include:

Guidelines for GPP could be further developed in this field including for how to deal with maintenance, including snow clearance. Guidelines could also include geographical recommendations for where and how to construct artificial sports turfs, e.g. with a minimum distance to waterways and with effective measures to hinder release of plastic straws as well as infill to the surrounding environment.

Strong instruments ensuring that sport facilities with artificial turf follow best practices in maintenance and handling of polymer infill, both new and old, would be welcome.

Justification for grading measure to handling infill:

Best practice FIFA: Likely not an effective measure in the grand scheme. In Stockholm only, 5 of about 180 artificial football pitches are certified by FIFA, which is less than 3 %.

Technologies in WWTPs: it would be even better to stop infill and plastic straws upstream, in at the sports facilities. But if the processes are proven insufficient or slow then technologies in the WWTPs could constitute a good measure to reduce microplastics release to the aquatic environment, given that storm water and runoff are connected to WWTPs. Something which in Sweden often is not the case.

***3.4 c On a scale of (1) GREATEST responsibility (5) LEAST responsibility, who do you think should take action for reducing microplastics emissions to the marine environment from artificial sports turf?**

	(1) GREATEST responsibility	(2)	(3)	(4)	(5) LEAST responsibility	Don't Know
* European Commission	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Member states (countries)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Individuals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
* Artificial turf manufactures/ installers	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Artificial turf pitch owners /managers	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* National and regional sport Federations	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Intentionally added microplastics

The following question focuses on individual sources of microplastics that are intentionally added to a product. This is in support of a targeted stakeholder consultation which took place on this subject during April/May 2017.

* 3.5 Which is for you, the most efficient and effective way to address individual sources of microplastics that are intentionally added into the following products?

	Voluntary Industry phase-out	Prominent, mandatory labelling to show the product contains microplastics	Tax on microplastic ingredients	Ban on microplastics ingredients	Strongly Oppose such measures	Don't Know
* Cosmetics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Detergents /Cleaning products	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Building Paints	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
* Other - please specify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

3.5 a If you have chosen Other please specify the product

Financial Responsibility

The following question looks at where the financial responsibility should lie for the implementation of any of the proposed measures.

*3.6 On a scale of (1) GREATEST responsibility (5) LEAST responsibility, who do you think should bear the FINANCIAL responsibility for reducing microplastics emissions to the marine environment?

	(1) GREATEST responsibility	(2)	(3)	(4)	(5) LEAST responsibility	Don' t Know
* Manufacturers of the products concerned, through their own waste and waste water treatment facilities or through public facilities which should capture or be upgraded to capture microplastics before they are released in the environment with costs potentially included in the prices of those products	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* The (public or private) waste and waste water treatment companies (who may be able to capture microplastics) and potentially pass the costs in water price/taxes	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
* Government/ Tax payers	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Document Upload

You may upload here an additional document on the subject of this consultation (max. 3 pages/2000 words).

All additional documents provided will be published on the Commission website.

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