REDUCING MICROPLASTIC POLLUTION

ECHA
EUROPEAN CHEMICALS AGENCY

ECHA'S restriction proposal for microplastics in products

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« MICROPLASTICS »

Small solid particles, usually microscopic, made of a synthetic polymer.

Secondary microplastics

Intentionally added microplastics

Other sources

https://echa.europa.eu/documents/10162/05bd96e3-b969-0a7c-c6d0-441182893720

3 MAIN WAYS THEY GET RELEASES INTO THE ENVIRONMENT

01.

DOWN THE DRAIN

95% of rinse-off products
30% to 95% of Leave-on products
50% of the sludge is recovered through land application or composting

1,5% of microplastics in consumer paints

02.

MUNICIPAL SOLID WASTES

03.

DIRECT RELEASE TO ENVIRONMENT

3 MAIN WAYS THEY GET RELEASES INTO THE ENVIRONMENT

Table 7: Relative proportion of microplastic releases via each of the three principal pathways to the environment for the sectors/product groups assessed.

Sector / Product group	Percentage of overall release to each pathway		
	DTD[a]	MSW[b]	DRE[c]
Cosmetic Products	-	-	-
- Exfoliators/cleansers	95%	5%	-
- Other uses in rinse-off	95%	5%	-
- Leave-on	55%[l]	45%	-
Detergents and maintenance	-	-	-
- Polymeric fragrance encapsulates	100%	-	-
- Other microplastics contained in detergents	100%	-	-
- Waxes, polishes and air care products[d]	67%	-	33%
Agriculture and horticulture	-	-	-
- Controlled release fertilisers	-	-	100%
- Fertiliser additives	-	-	100%
- Treated seeds	-	-	100%
- Capsule suspension PPPs/biocides	-	-	100%
Infill material	~15%	-	~85%
Oil and gas	-	-	100%[f]
Paints and coatings[e]	-	-	-
- Consumer uses	100%	-	-
- Professional uses	100%		
***In vitro* diagnostic devices**[h]			
- Analytical and purification chemistry	-	-	-
- Reagents, assays and calibration for human health applications	10%	14%	
- Reagents, assays and calibration for veterinary applications	15-20%	15-20%	
Medical devices (MD)[j]			
- (substance-based) medical devices (SB-MD)	50%	50%	-
- Medical devices (other than substance-based MD)	-	-	-
Medicinal products and food additives[g]	95%	5%	-

Notes:
a: down the drain
b: municipal solid waste
c: direct release to the environment

WHAT ARE THE POTENTIAL RISKS ASSOCIATED WITH MICROPLASTICS?

The concern associated with microplastic particles stems from the potential environmental and human health risks posed by the presence of solid particles of synthetic polymer-based materials in the environment that :

01.

are small (typically microscopic) making them readily available for ingestion and potentially responsible for transfers within food chains;

02.

are very resistant to environmental (bio)degradation, which will lead to them being present in the environment for a long time after their initial release;

03.

(bio)degrade in the environment progressively via fragmentation into smaller and smaller particles, theoretically via ‘nanoplastic’ particles;

04.

are practically impossible to remove from the environment after release

« MICROPLASTICS »

Small solid particles, usually microscopic, made of a synthetic polymer.

Secondary microplastics

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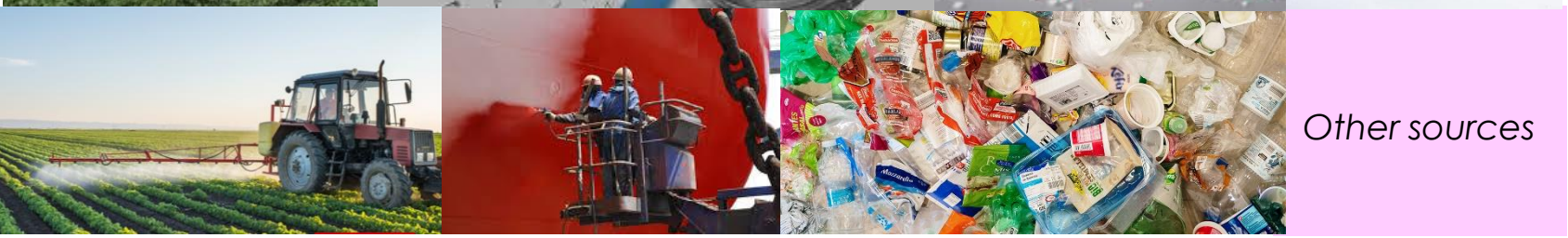
PROPOSAL FOR A RESTRICTION

Intentionally added microplastics

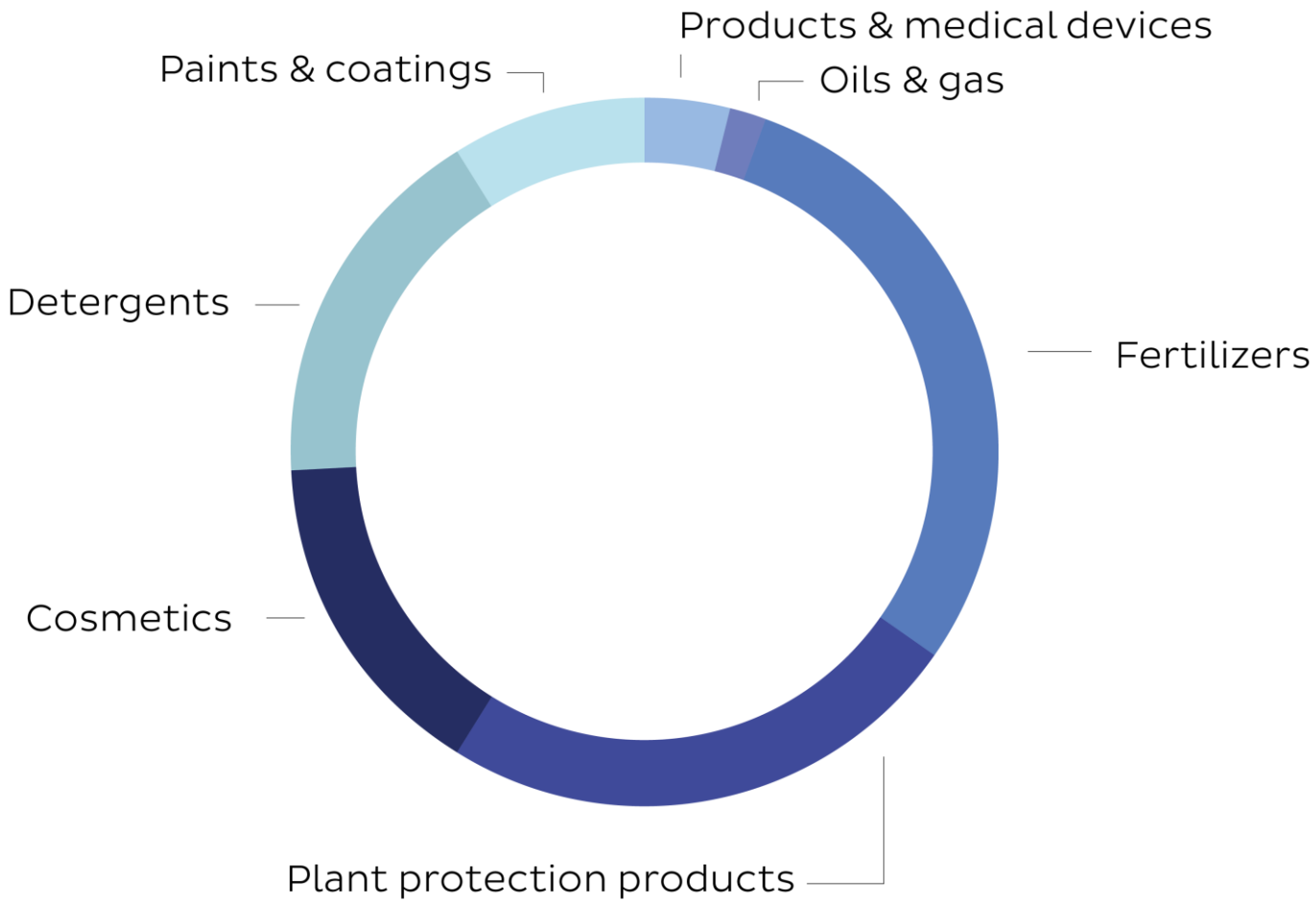


Other sources

https://echa.europa.eu/documents/10162/05bd96e3-b969-0a7c-c6d0-441182893720

TARGETED MARKETS

« MICROPLASTICS » ?



01.
AGRICULTURE AND HORTICULTURE

02.
COSMETICS

03.
DETERGENTS AND CLEANING PRODUCTS

04.
PAINTS, COATING AND INKS

05.
CHEMICALS USED IN THE OIL AND GAS SECTOR

06.
CONSTRUCTION

07.
MEDICINAL PRODUCTS

08.
MEDICINAL DEVICES

09.
FOOD SUPPLEMENTS AND MEDICAL FOODS

ECHA'S RESTRICTION PHASES

I Phase

Preparation and submission of a restriction proposal

- Starting the restriction process
- Notification of intention to submit a restriction proposal
- Registry of Intentions
- Preparing the restriction dossier
- Submission and conformity check

Date of Intention :
17/01/2018
Proposal for restriction :
22/08/2019

II-A Phase

Consultations

- Consultation on the restriction report
- Consultation on SEAC's draft opinion

Consultation phase :
20/03/2019 – 20/09/2019

II-B Phase

Opinion development

- Advice from the Forum
- RAC's opinion
- SEAC's opinion

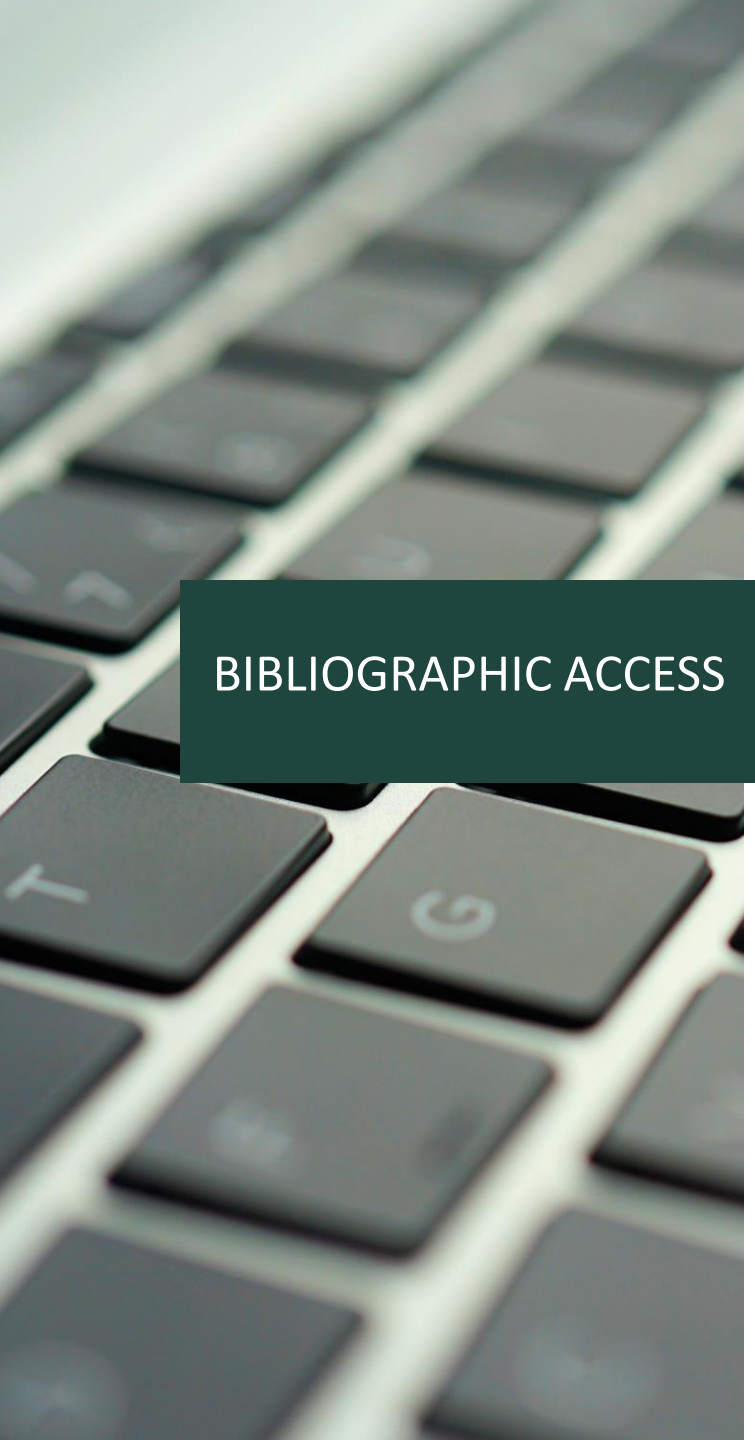
RAC and SEAC Opinion :
10/12/2020

III Phase

Decision and follow-up

- Commission decision on restriction
- Complying with restriction
- Enforcing the restriction

Waiting for the decision on restriction, and the details of the justification procedures
Entry in force [EIF] : 2022 ?



BIBLIOGRAPHIC ACCESS

01.

Annex XV Restriction Report – Proposal for a restriction

https://echa.europa.eu/documents/10162/05bd96e3-b969-0a7c-c6d0-441182893720

https://echa.europa.eu/documents/10162/db081bde-ea3e-ab53-3135-8aaffe66d0cb

Restriction proposal details the purpose and conditions of the restriction, specifying the scientific and environmental context

Annexes provide more operational explanations.

02.

Committee for Risk Assessment (RAC)
Committee for Socio-economic Analysis (SEAC)
Background Document
to the Opinion on the Annex XV report proposing restrictions on intentionally added microplastics

https://echa.europa.eu/documents/10162/b56c6c7e-02fb-68a4-da69-0bcbd504212b

This document specifies the counter proposal of the RAC and SEAC. Specifies the possible evolution of the restriction proposal.

03.

Registry of restriction intentions until outcome

https://echa.europa.eu/fr/registry-of-restriction-intentions/-/dislist/details/0b0236e18244cd73

This link connects to the registry of restriction intentions; it provides access to all the documents on ECHA's restriction.

DEFINITION OF THE TERM "MICROPLASTICS“ UNDER ECHA’S RESTRICTION PROPOSAL

1. RESTRICTION ON THE PLACING ON THE MARKET

Shall not, from [entry into force (EiF)], be placed on the market as a substance on its own or in a mixture as a microplastic in a concentration equal to or greater than [0.01]% w/w.

2.A. ‘MICROPLASTIC’

means a material consisting of solid polymer-containing particles, to which additives or other substances may have been added, and where ≥ 1% w/w of particles have

(i) all dimensions 1nm ≤ x ≤ 5mm,

(ii) or (ii), for fibres, a length of 3nm ≤ x ≤ 15mm and length to diameter ratio of >3

2.A. ‘MICROPLASTIC’

means particles containing solid polymer, to which additives or other substances may have been added, and where ≥ 1% w/w of particles have

(i) all dimensions 0.1µm ≤ x ≤ 5mm,

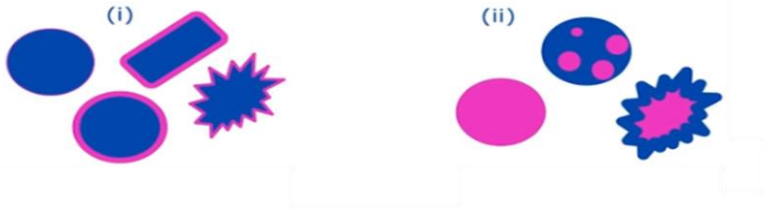
(ii) or (ii) a length of 0.3µm ≤ x ≤ 15mm and length to diameter ratio of >3.

MICROPLASTICS RESTRICTION AND DEFINITION(S)

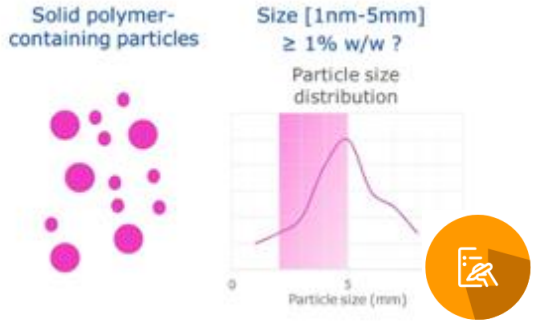
2B. ‘MICROBEAD’
means a microplastic used in a mixture as an abrasive i.e. to exfoliate, polish or clean.

2.C. ‘PARTICLE’
is a minute piece of matter with defined physical boundaries; a defined physical boundary is an interface**.**

2.D. ‘POLYMER-CONTAINING PARTICLE’
means either (i) a particle of any composition with a continuous polymer surface coating of any thickness or (ii) a particle of any composition with a polymer content of ≥ 1% w/w
‘encapsulation polymer’



2.C. ‘PARTICLE’
is a minute piece of matter with defined physical boundaries; a defined physical boundary is an interface. Single molecules are not particles.



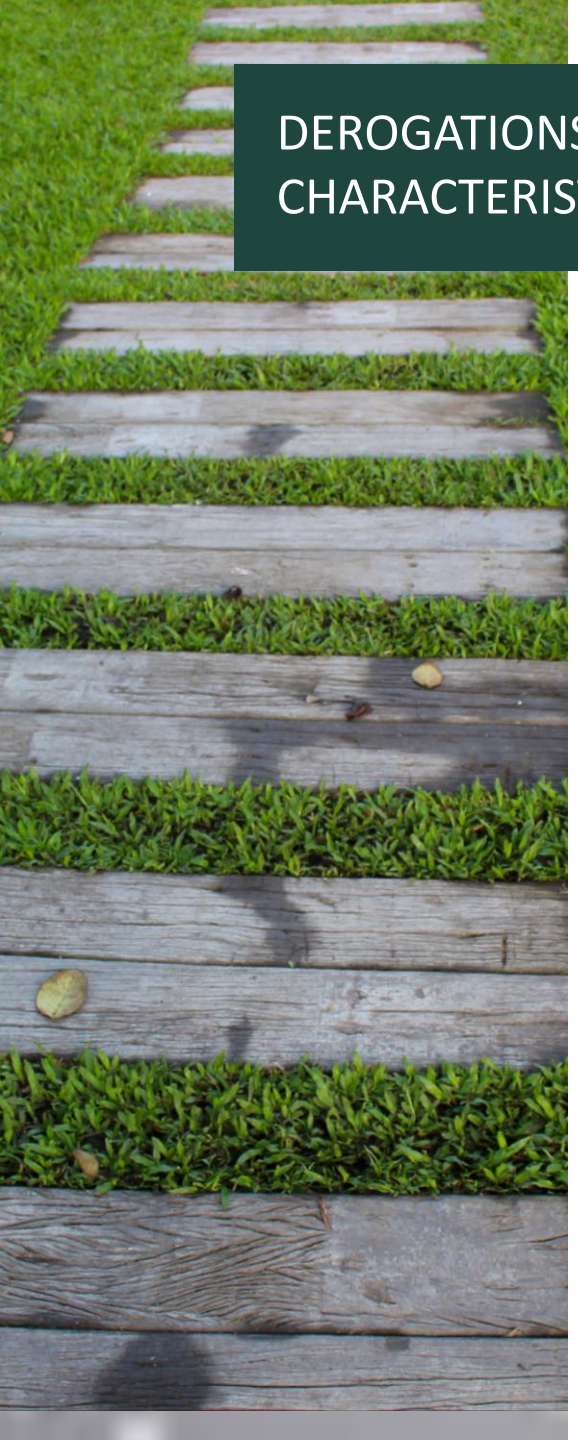
WHAT IS A SOLID ?

2.E ‘SOLID’
means a substance or a mixture which does not meet the definitions of liquid or gas.

2.F. ‘GAS’
means a substance which (i) at 50 °C has a vapour pressure greater than 300 kPa (absolute); or (ii) is completely gaseous at 20°C at a standard pressure of 101.3 kPa.

2.G. ‘LIQUID’
means a substance or mixture which (i) at 50 °C has a vapour pressure of not more than 300 kPa (3 bar); (ii) is not completely gaseous at 20 °C and at a standard pressure of 101.3 kPa; and (iii) which has a melting point or initial melting point of 20 °C or less at a standard pressure of 101.3 kPa.

2.G. ‘LIQUID’
means a substance or mixture which (i) at 50 °C has a vapour pressure of not more than 300 kPa (3 bar); (ii) is not completely gaseous at 20 °C and at a standard pressure of 101.3 kPa; and (iii) which has a melting point or initial melting point of 20 °C or less at a standard pressure of 101.3 kPa; or (b) fulfilling the criteria in ASTM D 4359-90 ; or (c) the fluidity test (penetrometer test) in section 2.3.4 of Annex A of the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).



DEROGATIONS ASSOCIATED WITH THE CHARACTERISTICS OF THE POLYMER

3.
Paragraph 2a and 2b shall not apply to:

3.A
Polymers that occur in nature that have not been chemically modified (other than by hydrolysis).

3.B
Polymers that are (bio)degradable, as set out in the criteria in Appendix X.

3. A
Natural polymers (as defined in REACH Guidance on monomers and polymers) that have not been chemically modified (as defined in REACH Article 3(40)).

3. B
Polymers that are (bio)degradable, according to the criteria in Appendix X.

3. C
Polymers with a solubility > 2 g/L, according to the criteria in Appendix Y.

SOLUBILITY – APPENDIX Y
OECD 105 / OECD 120

Test No. 105: Water Solubility

This Test Guideline describes methods to determine the water solubility of test substances. The water solubility of a substance is the saturation mass concentration of the substance in water at a given temperature. This guideline addresses the determination of the solubility in water of essentially pure substances which are stable in water and not volatile. Before determining water solubility, it is useful to have some preliminary information on the substance, like structural formula, vapour pressure, dissociation constant and hydrolysis as a function of pH.

The column elution method and the flask method which cover respectively solubilities below and above 10-2 g/l are described. The test is preferably run at 20 ± 0,5 °C. A simple preliminary test is allowed to determine approximately the appropriate amount of sample to be used in the final test, as well as the time necessary to achieve saturation.

SOLUBILITY – APPENDIX Y

Table 23 Criteria for demonstrating solubility > 2 g/L according to Paragraph 3c (APPENDIX Y).

The conditions for the test are the following:

- Temperature 20°C
- pH 7
- Loading: 10g/1000mL
- Test time: 24h

Quantification can be done either via the procedure described in OECD Guideline 120 or in OECD Guideline 105. Test is to be carried out with the particles as they are placed on market.

As "particle containing solid polymer" may refer to particles which are comprised of polymers and inorganic elements (e.g. capsulation or for example particles where polymer is grafted onto inorganic carrier). In such cases it will be sufficient to demonstrate that the polymer part meets the suggested criteria. In practice this may mean testing the polymer(s) prior to the formation of the particle.

Test should be conducted by laboratories certified to GLP or accredited to ISO 17025.

It shall be ensured that the particles are dissolved and that they do not form colloidal solutions. This can be confirmed by examination for the Tyndall effect. Presence of such particles invalidates the results, and the test should be repeated with improvements in the filtering action of the column.

THE SUCCESSIVE STAGES OF BIODEGRADABILITY

1. ACCESSIBILITY

Substance
In the environment

2. DEGRADATION

Biotic factors:
Extracellular enzymes

Abiotiques factors:
Water, UV, O_2

Hydrolysis

Monomers
Small molecules

3. ASSIMILATION/MINERALISATION

$CO_2 + H_2O + C_{microbial}$

BIODEGRADABILITY: METHODS OF ANALYSIS – SCREENING METHODS

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	Gr1	Gr2	Gr3	
Biodegradation test	**Ready biodegradation** **28 d**	**Enhanced/modified ready biodegradation** **60 d**	**Inherent biodegradation Zahn Wellens** **7 d**	**Inherent biodegradation MITI test** **14 d**
Method	OECD 301 – 28d OECD 301 TG B, C, D, F & OECD TG 310	OECD 301 – 60d Larger test vessels used OECD TG 301 B, C, D, F OECD TG 310 OECD TG 306 modified	OECD TG 302B – 7j Zahn Wellens	OECD TG 302C – 14j MITI II Test
Inoculum	WWTP Inoculum pre-adapted inoculum is not allowed	WWTP Inoculum pre-adapted inoculum is not allowed	WWTP inoculum *pre-adapted inoculum is not allowed*	WWTP Inoculum pre-adapted inoculum is not allowed
Treshold	60% in 28 days	60% in 60 days,	70% within 7 days	70% within 14 days
Conditions	10-day window does not apply	10-day window does not apply	Log phase no longer than 3d, removal before degradation occurs below 15%	Log phase no longer than 3d

It is required to analyze the substance under its marketing conditions: shape, size, surface area

In the case of capsules, only the wall needs to be tested under the same coating wall thickness conditions. The inner body can be replaced by an inert material, for example glass and such.

Test should be conducted by laboratories certified to GLP or accredited to ISO 17025

BIODEGRADABILITY: METHODS OF ANALYSIS – SCREENING METHODS

Gr4

Gr5

Test	Bio(degradation) relative to a reference material	Demonstrating (bio)degradability using the most revelant environmental assessment
Method	ISO 14852 : 2018 / ISO 14851 : 2004 ISO 19679 : 2016 , ISO 18830 : 2006 ISO 17556 : 2012	OECD 307, OECD 308, OECD 309
Inoculum	WWTP Inoculum Sediment inoculum Soil inoculum Soil not pre-adapted inoculum	Natural inoculum *Not pre-adapted*
Criteria	In aquatic tests : biodegradability > 90% within 6 months In water/ sediment and soil tests : biodegradability > 90% within 12 months	Degradation half-life in marine, fresh or estuarine water : < 60 d Degradation half-life in marine, fresh or estuarine sediment : < 180d Degradation half-life in soil : < 180 days
Conditions	Biodegradation = the maximum level of biodegradation determined from the plateau phase or the highest value if the plateau has not been reached Potential reference materials ; micro-crystalline cellulose powder, ashless cellulose filters or poly-β-hydroxybutyrate as positive controls and polyethylene (PE) or polystyrene (PS) as negative controls. The form, size and surface area of the reference material should be comparable to that of the test material.	Marine medium : 9°C Water sediment and soil medium : 12°C interpretation of results with caution and the half-life should be estimated with care when the particle size (surface area) is a degradation rate-limiting factor and the degradation is not following the first order kinetics..

It is required to analyze the substance under its marketing conditions: shape, size, surface area

In the case of capsules, only the wall needs to be tested under the same coating wall thickness conditions. The inner body can be replaced by an inert material, for example glass and such.
Test should be conducted by laboratories certified to GLP or accredited to ISO 17025

TESTING REQUIREMENTS

Test material in (bio)degradation tests

The test material should be comparable to the microplastic on the market in terms of the composition, form, size, and surface area as these parameters have an influence on the (bio)degradation behaviour of the microplastics.

When the degradation is assessed in relation to a reference material, the form, size and surface area of the reference material should be comparable to that of the test material.

In case, test material is used as capsulation agent of organic materials, when performing the (bio)degradation test, the organic core should be replaced with an inert material such as glass. Test material should be with comparable thickness to the produced microplastic coating

SCHEME FOR BIODEGRADABILITY ASSESSMENT

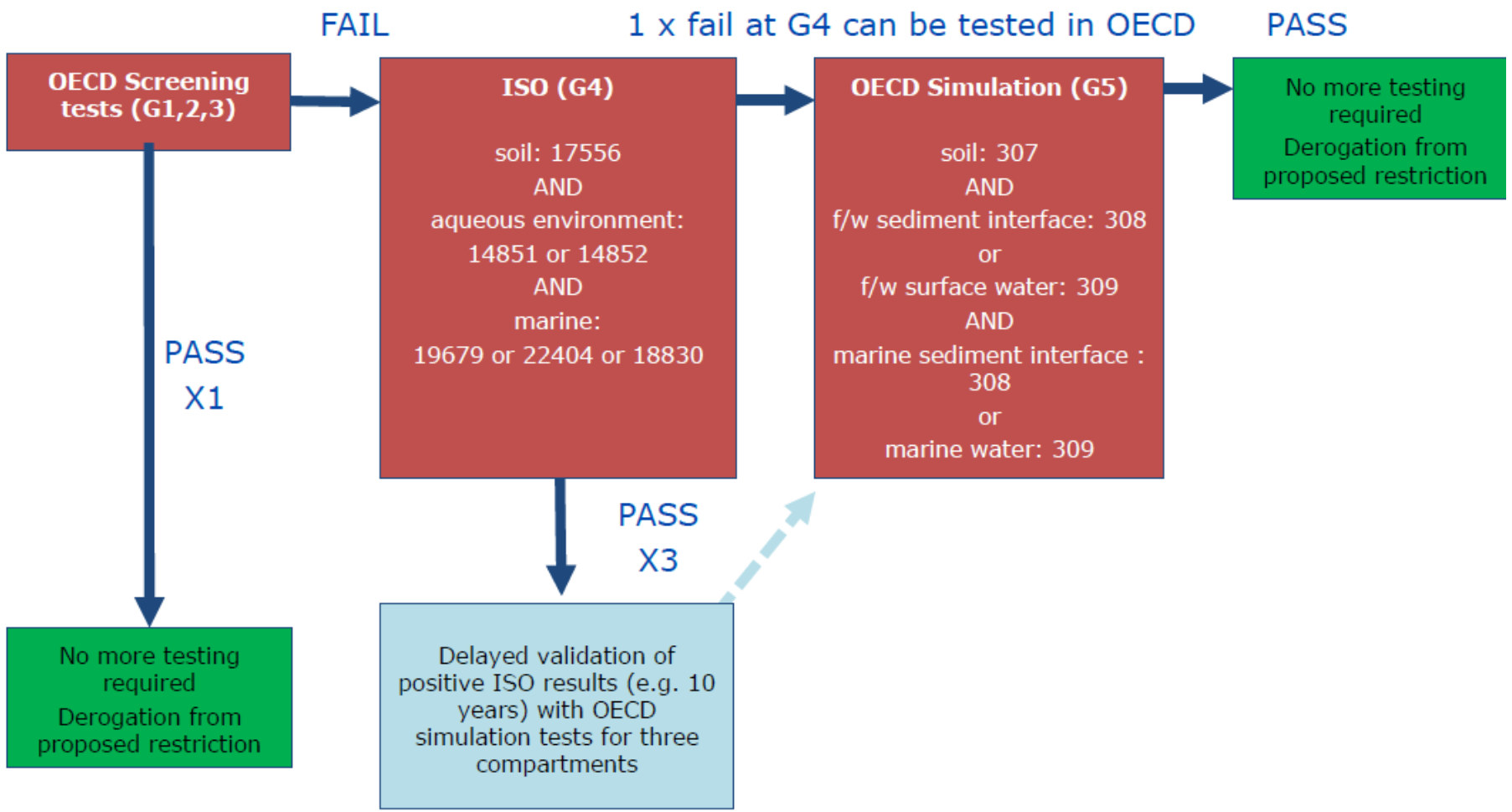


Figure 1 RAC-52 scheme for biodegradability assessment

MARKET DEROGATION

4. Paragraph 1 shall not apply to the placing on the market of :

4.A
Substances or mixtures containing microplastics for use at industrial sites.

4.B
Medicinal products for human or veterinary use.

4.C
Substances or mixtures that are regulated in the EU under Regulation (EC) No xxx/xxxx on Fertilising Products

4.B Medicinal products for human or veterinary use as defined in EU Directives 2001/83/EC and 2001/82/EC6.

4.C Substances or mixtures that are regulated in the EU under Regulation (EC) No. 2019/1009 on Fertilising Products.

4.D Substances or mixtures containing food additives as defined in EU Regulation (EC) No. 1333/2008.

4.E In vitro diagnostic devices.

4.F Sewage sludge (as defined in Directive 86/278/EEC) and compost.

4.G Food and feed.

4.H [OPTION A: granular infill used on synthetic sports surfaces where risk management measures are used to ensure that annual releases of microplastic do not exceed 7g/m2]

MARKET DEROGATION

5. Paragraph 1 shall not apply to the placing on the market of :

5.A
Substances or mixtures containing microplastic where the microplastic is both (i) contained by technical means throughout the whole lifecycle to prevent releases to the environment and (ii) any microplastic containing wastes arising are incinerated or disposed of as hazardous waste

5.B
Substances or mixtures containing microplastic where the physical properties of the microplastic are permanently modified when the substance or mixture is used such that the polymers no longer fulfil the meaning of a microplastic given in paragraph 2(a).

5.C
Substances or mixtures containing microplastic where the microplastic is permanently incorporated into a solid matrix when used.

5.A
Substances or mixtures containing microplastic where the microplastic is contained by technical means to prevent releases to the environment during end use.

5.B
Substances or mixtures containing microplastic where the physical properties of the microplastic are permanently modified during end use, such that the polymers no longer fulfil the meaning of a microplastic given in paragraph 2(a).

5.C
Substances or mixtures containing microplastics where microplastics are permanently incorporated into a solid matrix during end use.

RESTRICTION OPTIONS

To justify proposing a Union-wide action, the Dossier Submitter has assessed the risk reduction potential and socio-economic impacts of several restriction options. As a result, the Dossier Submitter is proposing a restriction comprising three types of measures:

01.
a restriction on the placing on the market of microplastics on their own or in mixtures where their use will inevitably result in releases to the environment, irrespective of the conditions of use. For some of these uses, a transitional period is proposed to allow sufficient time for stakeholders to comply with the restriction.

02.
a labelling requirement to minimize releases to the environment for uses of microplastics where they are not inevitably released to the environment but where residual releases could occur if they are not used or disposed of appropriately (See 2 for the uses this measure is applicable.).

03.
reporting requirement to improve the quality of information available to assess the potential for risks in the future.

LABELLING REQUIREMENT

7. From [EIF + 18 months] any manufacturer, importer or downstream user responsible for the placing on the market of a substance or mixture containing a microplastic derogated from paragraph 1 on the basis of paragraphs 4(a), 4(b) or 5 shall ensure that the label and/or SDS, where applicable, 'instructions for use' (IFU) and/or 'package leaflet' provides, in addition to that required by other relevant legislation, any relevant instructions for use to avoid releases of microplastics to the environment, including at the waste lifecycle stage.

The instructions shall be clearly visible, legible and indelible.

The label shall be written in the official language(s) of the Member State(s) where the mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise.

Where necessary because of the size of the package, the information labelling shall be included on the instructions for use.

7. From [EiF + 24 months] any supplier of a substance or mixture containing a microplastic derogated from paragraph 1 on the basis of paragraphs 4(a), 4(b), 4(d), 4(e) or 5 shall ensure that, where applicable, either the label and/or SDS and/or 'instructions for use' and/or 'package leaflet' provides, in addition to that required by other relevant legislation, any relevant instructions for use to avoid releases of microplastic to the environment, including at the waste life-cycle stage.

The instructions shall be clearly visible, legible and indelible. Instructions may be in the form of pictograms. Where written instructions are given, these shall be in the official language(s) of the Member State(s) where the substance or mixture is placed on the market, unless the Member State(s) concerned provide(s) otherwise. In addition, any supplier of a substance or mixture containing a microplastic derogated from paragraph 1 on the basis of paragraph 4(a) shall identify, where applicable, either on the label and/or SDS and/or 'instructions for use' and/or 'package leaflet' that (i) the substance or mixture is subject to the conditions of this restriction (ii) the quantity (or concentration) of microplastic in the substance or mixture and (iii) sufficient information on the polymer(s) contained in the substance or mixture for downstream users or suppliers to comply with paragraph 8.

REPORTING REQUIREMENT

8. From [EiF +12 months], any downstream user using a microplastic derogated from paragraph 1 on the basis of paragraph 4(a) or any importer or downstream user placing a microplastic derogated from paragraph 1 on the market on the basis of paragraphs, 4(b), 5(b) or 5(c) shall send to ECHA in the format required by Article 111 of REACH, by 31 January of each calendar year:

a) the identity of the polymer(s) used in the previous year,

b) a description of the use of the microplastic,

c) the quantity of microplastics used in the previous year, and

d) the quantity of microplastics released to the environment, either estimated or measured in the previous year.

ECHA shall publish a report summarising the information received by 31 March every year.

8. From [EiF + 36 months], any [industrial] downstream user using microplastic(s) derogated from paragraph 1 on the basis of paragraph 4(a) shall send to ECHA in the format required by Article 111 of REACH, by 31 January of each calendar year:

a) a description of the use(s) of microplastic in the previous calendar year,

b) For each use, generic information on the identity of the polymer(s) used,

c) For each use, an estimate of the quantity of microplastic released to the environment in the previous calendar year.

Any supplier placing a microplastic derogated from paragraph 1 on the market for the first time for a professional or consumer end use allowed on the basis of paragraphs 4(b), 4(d), 4(e), or 5 shall send to ECHA in the format required by Article 111 of REACH, by 31 January of each calendar year :

d) a description of the intended end use(s) of microplastic placed on the market in the previous calendar year,

e) For each intended end use, generic information on the identity of the polymer(s) placed on the market,

f) For each intended end use, an estimate of the quantity of microplastic released to the environment in the previous calendar year.

ECHA shall publish a report summarising the information received by 30 June every year.

MARKET DEROGATION

requirements under evolution

4.A
Substances or mixtures containing microplastics for use at industrial sites.

Reporting [EIF-12months] Labelling [EIF-18months]

4.B
Medicinal products for human or veterinary use.

Reporting [EIF-12months] Labelling [EIF-18months]

4.C
Substances or mixtures that are regulated in the EU under Regulation (EC) No xxx/xxxx on Fertilising Products

MARKET DEROGATION

requirements under evolution

5.A
Substances or mixtures containing microplastic where the microplastic is both (i) contained by technical means throughout the whole lifecycle to prevent releases to the environment and (ii) any microplastic containing wastes arising are incinerated or disposed of as hazardous waste

Labelling [EIF-18months]

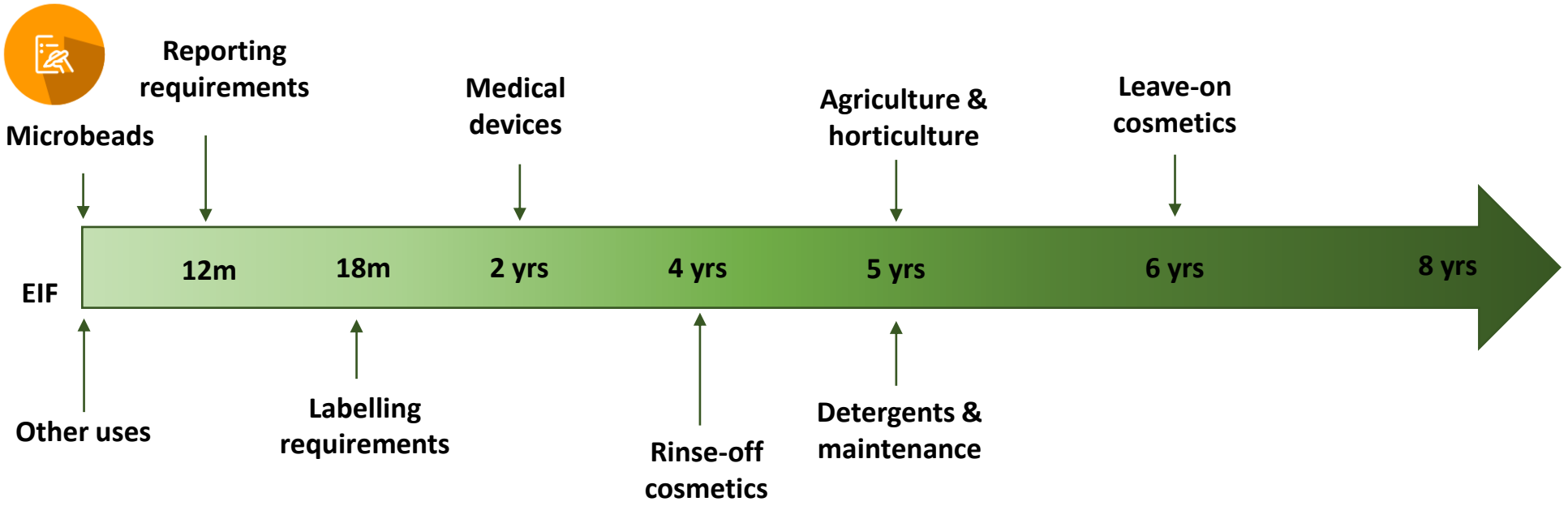
5.B
Substances or mixtures containing microplastic where the physical properties of the microplastic are permanently modified when the substance or mixture is used such that the polymers no longer fulfil the meaning of a microplastic given in paragraph 2(a).

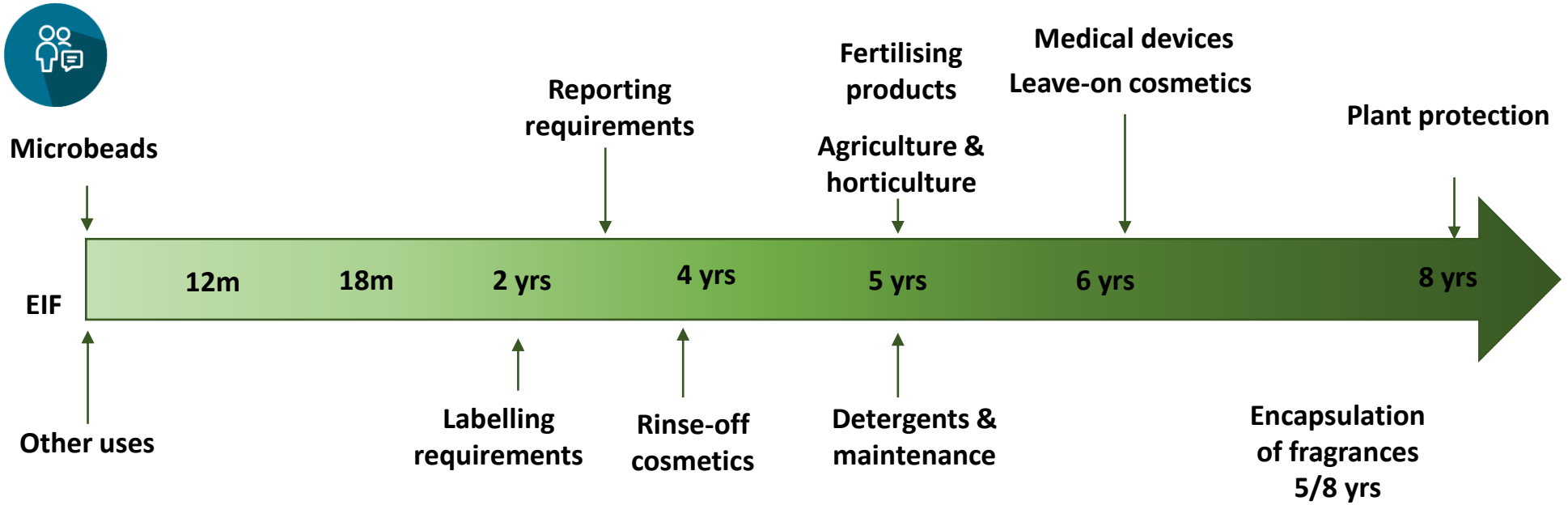
Reporting [EIF-12months] Labelling [EIF-18months]

5.C
Substances or mixtures containing microplastic where the microplastic is permanently incorporated into a solid matrix when used.

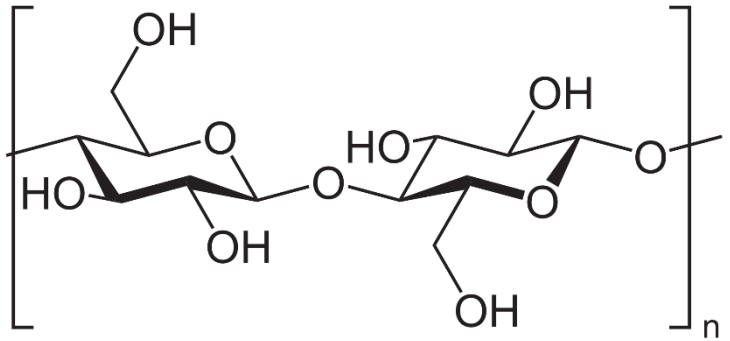
Reporting [EIF-12months] Labelling [EIF-18months]

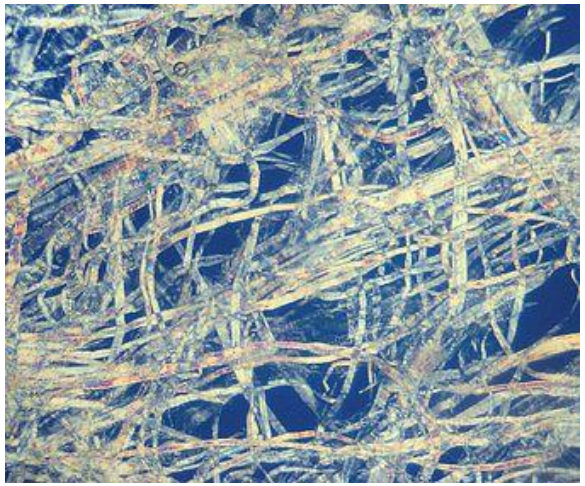
ENTRY IN FORCE





FOCUS ON NATURAL POLYMERS





RAC finds it justified to include a derogation for "natural polymers", and notes that in order to benefit from this derogation the polymer should exist in nature (e.g. vegetable origin as cellulose, hemicellulose, glucomannan, agar, starch, pectin, inulin, rosin, guar gum, locust bean gum, gum cacia, karaya gum, gum tragacanth, Aloe vera gel, or animal origin as chitin, alginates, carageenans, psyllium, xanthum gum) and the synthesis process resulting in this polymer must have occurred in nature. RAC notes that some manufactured fibres made by the transformation of natural polymers (macromolecular material existing in nature) would not be excluded from the proposed restriction on the basis of this derogation.

FOCUS ON WAXES

In the call for evidence, some stakeholders queried how “wax” will be considered. “wax” is a generic term for the state of a material (i.e. “waxy”) and can cover a multitude of very different chemicals (naturally occurring bees waxes, paraffinic waxes, polyethylene waxes, etc.).

“Waxes” that are solid in the context of the CLP definition are within scope.

However, some “waxes” may form a film on use (see section on film-forming)

FONCTION OF THE MICROPLASTIC

B.1.1.9.1. Film-forming

Film-forming polymer microparticles are intended to yield a continuous polymer film on use that has properties suitable for the intended application (e.g. long lasting paint coatings, complete coverage of the skin in sun screen applications). Although these materials cease to be microplastics at the point of use there could be releases of ‘free’ particles that have not coalesced through disposal of waste or unused materials e.g. the washing of paint brushes.

FUNCTION OF THE MICROPLASTIC

B.1.1.9.3. Binders

A binding agent or a "binder" is a term that describes a function of a chemical in the context of an application or use.
A "binder" can bind or hold other components together by mechanical, chemical, adhesive means. Depending on the sector, it can refer to thickening agents, film forming agents, coatings, agents to improve the adhesion of coatings, etc.
Polymers are widely used as "binders" in a diversity of applications (e.g. architectural coatings, cosmetics, inks, coatings on small objects such as seeds, fertiliser particles, medicinal products). For example, polymers used as "binders" can have a film-forming function (e.g. architectural paints), a thickening function in cosmetics (e.g. toothpaste) or be an adhesive to "bind" a coating to a small object (e.g. seed coatings, drug tableting).

Some of these polymers will be "microplastics" according to the definition have potential for release to the environment under reasonably foreseeable conditions of use.

FUNCTION OF THE MICROPLASTIC

B.1.1.9.4. Hydrogels, 'superabsorbent polymers (SAPs) and other 'swollen polymers'

The superabsorbent polymers are used primarily in absorbent hygiene products (e.g. nappies), cosmetics, agriculture and packaging for their water retention properties. In these cases it is clear that the polymer particles swell (absorbing water or other liquid) at the point of use to form a gel losing their solid particulate form. On this basis these substances no longer fulfil the regulatory definition of a microplastic.

However, certain other polymers also achieve their technical function by swelling during use (e.g. coatings used on pharmaceutical or veterinary products to control the release of an active ingredient after ingestion).
Although the physical structure of these materials changes during use they are likely to retain their solid particulate state. In this case they are still considered as microplastics after swelling.

REDUCING MICROPLASTIC POLLUTION

ECHA
EUROPEAN CHEMICALS AGENCY

ECHA'S restriction proposal for microplastics in products

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