

## European Commission: Single Use Plastics Directive

### *Unilever: plant-based wipes*

#### Overview

Unilever welcomes the EU Single Use Plastics Directive and need for more stringent labelling requirements for plastic-containing wipes.

As a business, we acknowledge the growing concern around the environmental impact wipes can have, especially if disposed of incorrectly. To help prevent our wipes from being flushed down the toilet we feature the 'do not flush' logo on the front of our product packaging to help ensure they are disposed of correctly (see Annex I).

We have also been innovating our wipes portfolio and exploring the use of plant-based wipe materials, which we have already started to introduce across a number of brands (e.g. Simple and Baby Dove).

The purpose of this paper outlines our approach to plant-based wipes and why, in our view, they remain out of scope of the EU Single Use Plastics Directive.

#### EU Single Use Plastics Directive

Unilever supports the Commission's ambitious environmental agenda, and as a manufacturer of wet wipes, we are committed to using sustainable technologies which positively impact consumers, as well as the environment.

We acknowledge the scope and definition of a 'plastic' as outlined in the EU Single Use Plastics Directive.

We understand this definition to be as follows:

Art. 3 (1) SUP Directive states that "*'plastic' means a material consisting of a polymer within the meaning of Article 3(5) of Regulation (EC) No 1907/2006, to which additives or other substances may have been added, and which can function as a main structural component of final products, with the exception of natural polymers that have not been chemically modified.*" Article 3(40) of Regulation (EC) No 1907/2006 of the European Parliament ("REACH") states that a "*not chemically modified substance*" means "*a substance whose chemical structure remains unchanged, even if it has undergone a chemical process or treatment, or a physical mineralogical transformation, for instance to remove impurities*".

The following outlines our view on which of our wipes falls within scope of the EU Single Use Plastics Directive. We welcome any further discussion on our position.



✓ In scope = plastic containing wipes

A small number of our wipes contain polyester and polypropylene. Where our wipes contain these materials, we will ensure we adhere to the requirements outlined under the Single Use Plastics Directive. We already use the 'do not flush' logo on the front of pack, at the point of extraction.

× Not in scope = wipes made from natural, plant-based fibres

Unilever's plant-based wipes are made from materials derived from sustainably sourced, renewable wood pulp and plant-derived fibres (viscose, cotton, cellulose). These wipes do not use any synthetically produced polymers (i.e. polyester, polypropylene, polystyrene) and therefore we consider these wipes to fall out of scope of the EU Single Use Plastics Directive. Our plant-based wipes also feature the 'do not flush' logo on front of pack, at the point of extraction to ensure responsible disposal.

Please see below for more information which supports this rationale:

- External standards: All our plant-based wipes have passed the relevant ISO standard (ISO 14855/ISO 16929/EN 13432), which includes biodegradability, compostability, and ecotoxicity tests. These tests focus on soil degradation, imitate real-world scenarios and are robust and internationally standardised. Thus, when our wipes are disposed of correctly (i.e. not flushed down the toilet and discarded in home or industrial compost or in the bin), they will break down completely with no adverse impact on the environment (see Annex II for our test results). Our internal data shows wipes made up of viscose, cotton and cellulose biodegrade faster in compost than tree leaves, pine needles and wood fibres (see Annex II for a visual of our test results).
- Production process: In natural fibre production, there are both mechanical and chemical treatments that the starting materials must go through in order to become viable for consumer use. These methods are well developed, and essential for cleaning and processing these fibres. Lenzing, lead manufacturer of cellulose/Tencel®, has a 99% recovery rate of the materials used in their processing. While the chemical treatment may cause intermediate side reactions with the polymers, the final fibre structure is identical to its natural starting point. The physical properties are maintained, and the degradability of the fibres is not impacted.

It's important to recognise the progress industry has made in shifting to plant-based wipes and the broader benefits it has to the environment versus plastic-containing wipes. It is therefore important to acknowledge and reflect this in the Single Use Plastics Directive. Please take the following points into consideration when defining the scope of the requirements for wipes:

- Plant-based wipes offer solutions to growing disposal and greenhouse gas (GhG) concerns:
  - Through our own internal investigations, along with available industry data, we have data to support CO<sub>2</sub> reductions (in kg) from fiber manufacturing at an average of 30% in viscose and almost 100% in cellulose, compared to synthetic polyester.
  - Our available internal and external data also supports the proper disposal of these materials and their associated lower GhG footprint. If disposed of in a landfill, wipes which contain plant based fibers (e.g. viscose and cellulose) will generate over 15x the greenhouse gasses compared to synthetic based (e.g. polyester). This is explicitly driven by the synthetic material's inability to break down in the environment, and over time it will bioaccumulate in the landfills instead of generating biogas.
  - Alternatively, our data shows that when incinerated, polyester will generate nearly 80x the GhG from fossil carbon release than plant-based wipes.
  - There is significant industry data that shows, through composting, plant-based wipes will break down into safe, non-toxic compounds that can be used for plant growth. The production of CO<sub>2</sub> in this breakdown will help facilitate photosynthesis, while the compounds broken down in soil will contribute to plant growth. Synthetic materials, such as polyester, will not break down and bioaccumulate in compost environments.
- Plant-based wipes also offer solutions to the growing marine concern. As stated, through proper disposal, the materials are shown to break down in aerobic and anaerobic environments. Additionally, Lenzing's fibres, per ASTM D6691, are certified as seawater safe, meaning they will also

eventually biodegrade (see Annex III). Synthetic-based materials (i.e. polyester, polypropylene, polystyrene) have been shown to not break down in any environments and will only continue to bioaccumulate in landfill and marine environments.

- Classifying plant-based wipes as "plastic" may hinder innovation around alternative sustainable sources. With further development of these types of fibres, classifying nature-derived materials, such as bamboo, which offer more environmentally positive benefits on land use, as "plastic", may stifle innovation and increase the negative environmental impacts of synthetics on the environment.

- The danger of classifying plant-based wipes as a 'plastic' under the EU Single Use Plastics Directive is that it will fall under EPR requirements and will require producers to pay for litter clean-up costs, consumer awareness as well as responsibility fees. This may motivate these companies to remain in synthetic materials to absorb the costs associated with EPR. These materials, from a sustainability perspective, are worse than the naturals, as they rely on a non-renewable petrochemical resource, and will only continue to contribute to the growing landfill accumulations.



## Annex I

Figure 1: Pack-shot of our Simple biodegradable wipes - features the 'Do Not Flush' logo on front of pack, at the point of extraction.



## Annex II

Testing conducted on plant-based wipes v synthetic:



Figure 2: Wipes made of viscose, cellulose (plant-based). Biodegrades in compost in 2 weeks.

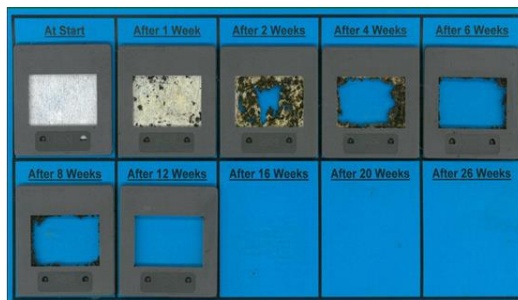


Figure 3: Wipes made of cotton and viscose (plant-based). Biodegrades in compost in 6 weeks.

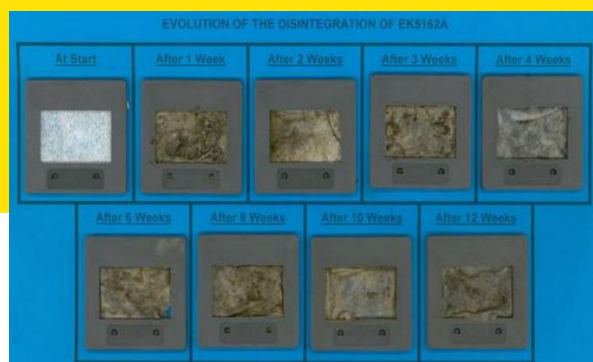


Figure 4: Synthetic, polyester-based fabric, no biodegradation occurs in compost.

### Annex III

Figure 5: Lenzing's fibres are certified as seawater safe

LENZING™ Standard fibers were shown to be fully biodegradable under seawater conditions. Accordingly, they were awarded the prestigious OK biodegradable MARINE logo by the certification body TÜV Austria. A material certified according to this scheme must fulfil the following testing requirements:

Test	Norms	Testing requirements	Measurements	LENZING™ fibers
Marine Aerobic Biodegradation	ASTM D6651 (2009)  Standard test method for determining aerobic biodegradation of plastic materials in the marine environment by a defined microbial consortium or natural seawater inoculum	90% of testing material must be biodegraded within 6 months in seawater under laboratory conditions  temperature: 30°C ± 2°C	Chemical breakdown, measurement of CO <sub>2</sub>	E.g. LENZING™ Lyocell: After 63 days an absolute biodegradation of 113.1% ± 14.0% was measured
Marine Aerobic Disintegration	T 8-OK-23 VINÇOTTE standard: Description of the marine disintegration test method  ASTM D7801 (2012):  Standard Specification for non-floating biodegradable plastics in the marine environment	90% of testing material must be disintegrated within 12 weeks (=84 days) according to the TÜV Austria Standard and pass through a 2 mm sieve  temperature: 30°C ± 2°C  (70% according to ASTM D7801)	Physical breakdown (fragmentation)	100% disintegration was reached after 12 weeks
Ecotoxicity: Aquatic Invertebrate acute toxicity test with Daphnia magna	OPPTS 850.1010 (1996):  Aquatic Invertebrate Acute Toxicity Test, Freshwater Daphnias  OECD 202 (2004):  Daphnia sp., Acute immobilization Test	Less than 10% of an aquatic organism (Daphnia) should be affected when they are put in water containing the tested material in a 0.1% concentration  temperature: 30°C ± 2°C  Before the start of this test, the test material is incubated in seawater in the dark during 3 months under laboratory conditions.	Demonstrate that there are no toxic effects to aquatic organisms	100% mobility after 24 h
Chemical Characterization (Heavy metals including cobalt and fluorine)	EN 13432 (2000):  Packaging – Requirements for packaging recoverable through composting and biodegradation – Test scheme and evaluation criteria for the final acceptance of packaging  EN13432, ISO17088 and ISO18606	Heavy metals [ppm]: Zn ≤ 150 Cu ≤ 50 Ni ≤ 25 Cd ≤ 0.5 Pb ≤ 50 Hg ≤ 0.5 Cr ≤ 50 Mo ≤ 1 Se ≤ 0.75 As ≤ 5 Co ≤ 38 Fluorine ≤ 100	Demonstrate that there are no toxic residuals left to the tested environment	Compliant with EN 13432

LENZING™ Standard fibers passed all these tests. For this reason, it was awarded the OK biodegradable MARINE logo.