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PHA (Polyhydroxyalkanoates) are a class of ***Natural Polymers*** that have ***not been chemically modified*** *within the SUP Directive P8-TA-2019_305.1*

GO!PHA is a member driven Foundation (not-for-profit) engaged in the proliferation of PHA (Polyhydroxyalkanoates), a class of natural materials abundantly produced by microorganisms as a carbon/energy storage material. PHAs biodegrade in all environments, including marine environments similar to cellulose – paper, Viscose®, Lyocell®, Tencent® etc., therefore giving them all end of life options – compost, incinerate, and recycle. In addition to the foregoing, PHAs have the beneficial properties of plastics and they can be processed like plastics; and hence represent the next generation of innovations in sustainable materials, packaging and consumer products that are also circular.

GO!PHA has already requested the European Commission to classify PHA as a natural polymer and therefore fall outside the scope of the above referenced SUP Directive via two position papers. We attach the two position papers for your review and comment. [1,2]

Natural Polymers is not defined in the SUP Directive and no reference to the ECHA guideline is made in the SUP Directive. The Commission requested ECHA recommend a definition and ECHA has proposed the definition from the guidelines on Monomer and Polymers under REACH. During the April 3, 2020 Workshop ECHA presented a case for an alternative definition of ***Natural Polymer***, however that would require the Commission to ***agree on the boundaries and develop a definition specifically for the SUP Directive or have an alternative reference to the Guidance definition***. [3] We urge the Commission to consider broadening the definition of ***Natural Polymers*** in line with ***Directive (EC) No 1334/2008 on flavoring,*** which already and rightfully classifies ***fermentation*** as a ***natural process and their output as natural materials.*** Indeed, fermentation is not different from growing a managed forest to harvest cellulose to manufacture paper, cellulose, lignin, etc.

PHAs are industrially produced via the cultivation of microorganisms (fermentation) that use natural and renewable substrates/raw materials such as sugars, fatty acids, food waste, and

other carbon rich biomass. PHAs thus produced have identical structures and chemical compositions as naturally occurring PHA.

The draft report of March 31, 2020 ECHA presented three possible interpretations to the ***have not been chemically modified*** portion of the definition of plastics. [4] They are as follows:

1. A strict interpretation where no modification is allowed even during the extraction process.
2. An interpretation that refers to a process in which no intentional change occurs in any stage of the manufacturing process. The changes which occur due to the extraction process are not considered as intentional changes and therefore not to affect the status of the extracted substance as a natural polymer.
3. An interpretation that refers to the end stage of the manufacturing process. The changes occurring during the manufacturing process are not considered relevant, the end product of the manufacturing should be considered when determining the status of the polymer.

The third interpretation, above, states that the manufacturing process is irrelevant, as long as the end product is the ***natural polymer***. Setting aside the fact that fermentation is already classified by the Commission as a natural process (*Directive (EC) No 1334/2008 on* flavorings), by simply rendering the manufacturing process irrelevant, PHAs produced would fit the definition of a natural polymer that has not been chemically modified, since they are identical to those found in nature. Therefore, PHAs are then exempt from the SUP Directive. Therefore, we urge the Commission to accept this (third) interpretation of the ***have not been modified*** part of the definition.

GO!PHA has identified over 91 projects on the development, production and applications testing of PHAs that have been sponsored by the EU over the last twenty years [5]. 34 of those projects alone have had a total budget of 134 Million Euros, out of which the EU has spent 110 Million Euros [3]. Most of these projects have focused on valorizing waste streams from human activity such as from cheese production, from wastewater treatment facilities, etc. to minimize waste generation and to promote a Circular Economy.

Several manufacturers have recently increased their production capacities and others have announced significant new investments in the order of hundreds of millions of Euros to produce PHA at commercial scale. They have done so on the basis of established scientific research that demonstrates the plastics like properties of PHA during use and their multiple end of life options such as recyclability, and biodegradability (and therefore industrial and home compostability).

Given the body of evidence on the:

a) Innovative nature, value and significance of PHA as a class of ***natural polymers***
b) Multiple end of life options - compost (home and industrial), recycle, incinerate
c) Their beneficial properties for use in single use applications,
d) The effort to industrialize PHA in the EU via sponsored research and development, and
e) Industrial activity and new investments surrounding PHA,

The Commission must not wait an additional 7 years to exempt PHA from the SUP Directive.

In addition, we have presented clear and convincing arguments in our two position papers and (above) in this paper to ensure that PHA can be classified as a ***Natural Polymers*** **that have** ***not been chemically modified*** within the scope of the SUP Directive

GO!PHA and our members are ready to meet for further discussion, evidence and information in order to fully achieve the objectives, the intent and the spirit of the SUP Directive.

REFERENCES

1. March 9, 2020 GO!PHA Response to SUP Directive
2. APRIL 16, 2020 GO!PHA Response to SUP Directive
3. Page 20 of SUPD Workshop ECHA Presentation (SUPD_W1_2nd Stakeholder webinar Part A B_Final)
4. Page 15 of Background information for the April 3, 2020 SUPD Workshop; Study to support the development of implementing acts and guidance under the Directive on the reduction of the impact of certain plastic products on the environment: IDENTIFYING AND DESCRIBING THE PRODUCTS COVERED BY THE SUP DIRECTIVE PARTS A, B, D DRAFT 31 March 2020 (Prepared by the European Commission DG ENV in cooperation with Ramboll, Deloitte, In Extenso, Prognos, European Institute of Environmental Policy)
5. Overview of PHA projects funded by the European Commission