

# Plastics in a circular economy: Mitigating the ambiguity of widely-used terms from stakeholders consultation

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## Abstract

This study aims to examine, through stakeholders consultation, the widely used definitions of four terms related to plastics sustainability: ‘bio-based plastics’, ‘bioplastics’, ‘biodegradable plastics’ and ‘plastics recycling’ and to mitigate their potential ambiguity for diverse scientific communities and sectors of activity. For the three terms ‘bio-based plastics’, ‘biodegradable’ and ‘recycling’, consolidated definitions were elaborated based on the feedback of online survey and analysis of the pro and con arguments given by face-to-face interviews with 18 experts followed by an online survey of 122 stakeholders. Acceptance of the consolidated definitions was higher than the official ones with an increase of acceptance from 43% to 81% for bio-based plastics, from 47% to 61% for biodegradable plastics, and from 28% to 60% for plastics recycling. The terms ‘biodegradable’ and ‘recycling’ remain ambiguous even after consolidation of the definition. This highlights that more discussions are necessary to achieve a consensual and fair definition of such complex properties and mechanisms. In the term ‘Bioplastics’ the prefix ‘bio’, referring either to the origin of the resources or the end of life of the material, remains difficult to understand and we prefer to advise against its use, especially with non-expert people (e.g. consumers and the public at large), in favour of the use of ‘bio-based plastics’ or ‘biodegradable plastics’. The issue of this study is to help consolidate wider efforts to develop new strategies for replacing oil-based plastics and improving end-of-life options.

Access to the full paper is available at <https://doi.org/10.1016/j.envsci.2022.04.011>.