

The dispute over plastic: We can neither replace it, nor can we live with its waste

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Abstract

Conventional plastics pose substantial environmental challenges. Their ecological footprint is based on the exhaustion of non-renewable resources, their persistent and non-degradable properties, and the production of waste (CO₂) after incineration – intensifying climatic change.

Ending the plastic waste problem is becoming a global priority, provoking stakeholders to take actions to enhance existing waste management systems and to invest in new ones. For instance, the plastics industry is striving to boost the impact of circular economy on plastics in such a way that resources are maintained as long as possible and the maximum value is recovered after disposal.

This paper aims at discussing the challenge posed by plastic waste through an analysis of generated plastic wastes, their fates and the available treatment technologies. Additionally, this paper highlights the limitations of closed-loop plastics recycling with the aim of finding solutions to increase the quantity and to enhance the quality of recycled plastics. The conclusion drawn is that closing the loop of plastics requires the collaboration of all stakeholders in the plastics value-chain.