

November 2022

POSITION PAPER: CIRCULARITY OF COMPOSITE MATERIALS

Scope

This paper summarises the position developed by EuCIA on the circular end-of-life (EoL) management of products made from fibre reinforced polymer composite materials.

Composite materials market

Composites are durable, engineered materials, providing longevity, strength, excellent chemical and heat resistance, and freedom of design. Demand for composites has been growing over past decades as key industry sectors seek new material solutions to enable a climate-neutral economy. In 2021, the global composites market reached US\$37 billion or 12 million tons (of which the EU accounted for 19%) and a growth rate of 5% per year from 2021 to 2026¹. This trend will accelerate with the implementation of new policy measures in Europe promoting renewable energy, reduced energy use, and lightweight, durable solutions for transportation, buildings and infrastructure. Although the amount of composites waste is relatively small, volumes are going to increase over time and the need for waste management solutions in line with the circular economy model will become increasingly urgent.

Current situation

Composites cannot be easily separated into their fibre and matrix components, which is the basis for the success of these versatile materials but also means they are inherently difficult to recycle. EuCIA estimates that 40-70% of the composites waste today is still ending in landfill or is incinerated without energy recovery.

Circular solutions for today and tomorrow

Over the last decade, the industry has been working on solutions to improve the circularity of composites. These emerging solutions include the co-processing of composites in cement clinker production, and mechanical size reduction to allow re-use in new composite products, replacing virgin materials. In addition, many other solutions to preserve intrinsic material properties are currently researched, developed or tested by, or with the support of, the industry, such as product design and strategies to maximise the service life of products, to fostering the re-use of composites in other applications, as well as develop new recycling processes aiming at increasing the value retention of composites.

¹ JEC observer 2022 & AVK report 2022

Call for action

EuCIA is actively supporting the composites industry in the development and implementation of sustainable end-of-life solutions. EuCIA believes composites waste can effectively be reduced through various routes. Its members are convinced that composites circularity can be achieved by a combination of circular solutions and consider there is a shortfall of reliable data on quantities of end-of-life composites and current waste management practices across Europe. Therefore, EuCIA calls on relevant actors (e.g. associations, manufacturers, suppliers, users, waste management and recyclers, and the authorities) to assess the status of composites waste in Europe and to define a roadmap through a Composite Circularity Alliance with the aim of minimising the landfilling and incineration of composite materials.

For more information, please contact EuCIA at contact@EuCIA.eu.