



# Biodegradable & Compostable Packaging

## Eurofins solutions for sustainability

Packaging manufacturers are faced with an increasing discussion about the environmental impact of their products. Growing landfill and the discussion about microplastics facilitate the developments of alternative concepts. Bio-based and biodegradable packaging might be solutions to reduce the pollution of the environment with durable food packaging.

European Directive 94/62/EC aims, as a first priority, at preventing the production of packaging waste and, as additional principles, at reuse, recycling and other forms of recovering packaging waste. EN 13432 is a harmonized European standard linked to the Directive and provides presumption of conformity with the essential requirements of the Directive.

### Compostability

EN13432 covers the requirements for packaging composting and biodegradation and a test scheme as well as evaluation criteria for the final acceptance. At the international level, the International Standards Organization (ISO) has developed ISO 17088 which is in harmony with this European as well as the US standard ASTM 6400.

The analysis in Eurofins' accredited laboratories confirms the demands of EN 13432:

- Chemical composition: the standard sets limits for volatile matter, heavy

metals, such as Cu, Zn, Ni, Cd, Pb, Hg, Cr, Mo, Se, As, etc., and fluorine

- Biodegradation: chemical breakdown of materials into CO<sub>2</sub>, water and minerals. Pursuant to the standard at least 90% of the materials have to be broken down by biological action within 6 months to CO<sub>2</sub>
- Disintegration: the physical decomposition of a product into tiny pieces. After 12 weeks, at least 90% of the product should be able to pass through a 2 x 2 mm mesh.
- Quality of the final compost and ecotoxicity: the quality of the compost should not decline as a result of the added packaging material. The standard specifies checking this via ecotoxicity tests: this involves making an examination to see if the germination and biomass production of plants are not adversely affected by the influence of composted packaging.

EN 13432 standard specifies that packaging may be deemed to be compostable only if all the constituents and components of the packaging are compostable. During the certification procedure an assessment is made not only of the base materials but also of the various additives and other product properties.

## Ready biodegradation

Ready biodegradation describes the degradation of substances and material in an aqueous environment under aerobic conditions, e.g. in oceans. Eurofins offers the determination of ready biodegradation according to OECD standard 301:

- **OECD 301A:** Dissolved organic carbon test
- **OECD 301B:** CO<sub>2</sub> evolution test
- **OECD 301C:** Oxygen consumption test (MITI)
- **OECD 301D:** Dissolved oxygen test (Closed bottle)

## Inherent biodegradation

When a product is classified as 'inherently biodegradable', it means it will biodegrade to its natural state, when subjected to sunlight, water and microbial activity from as low as 20% to less than 60% in 28 days. Testing is performed according to

- **OECD 302:** Asemi-continuous activated sludge (SCAS)
- **OECD 302B:** Inherent biodegradability: Zahn-Wellens/EMPA Test

## Good reasons to partnership with Eurofins

- Eurofins' technical managers are involved in Standardization Committees and Industry Associations, keeping the company abreast of the most updated regulatory and market trends.
- Beyond compliance testing we customise the service to help your products deliver according to your claims and benchmark:
  - Document review
  - Toxicological risk assessment
  - Troubleshooting
- State-of-the-art laboratories and expert inspection teams close to key production hubs, to help you meet your *time-to-market* needs.
- One-stop solution provider of comprehensive services across the entire supply chain.

