

# Plastic packaging industry is moving towards completely bio-based products

December 4 2012

---

VTT Technical Research Centre of Finland has developed a technique to significantly improve the quality of bio-based plastic packaging.

The new generation of bio-based plastic packaging is not only eco-friendly but also has several superior qualities compared to traditional plastic packaging. The plastic packaging industry is moving towards completely bio-based products. The volume of oil used every year in the production of plastics equates to approximately five per cent of the world's total oil consumption. Approximately 40 per cent of all plastics are used in packaging, which puts special pressure on the packaging industry to reduce dependence on oil.

The use of renewable natural resources in [industrial applications](#) reduces dependence on oil and the carbon footprint attributable to consumption. A transition to bio-based economy nevertheless requires products that are not only ecologically sustainable but also competitive in terms of quality.

VTT has developed a technique that enables the production of the PGA [monomer](#) glycolic acid from bio-based materials more efficiently than before.

"Bio-based plastics are a tangible step closer to a bio-based economy. This new generation of plastic packaging not only reduces our dependence on oil but also offers superior quality compared to traditional plastic packaging", explains Research Professor Ali Harlin

from VTT.

Bio-based PGA plastic has excellent barrier properties. Adding PGA into the structure of traditional plastic packaging significantly improves its quality. In addition to strength and [heat resistance](#), [plastic packaging](#) also needs to be airtight, vapour-proof and grease-resistant. Bio-based PGA plastic is between 20 and 30 per cent stronger than PLA – the most popular [biodegradable plastic](#) on the market – and able to withstand temperatures 20 degrees Celsius higher. It also breaks down more quickly than [PLA](#), but its [biodegradability](#) can be regulated if necessary.

## **Growing market**

Bio-based plastic opens up new business opportunities for the forest industry: The estimated total volume of the global packaging market is approximately EUR 500 billion. The Chinese and Indian markets, for example, are growing rapidly. Ethical consumption principles and legislative changes are steering the packaging industry towards sustainable development. At the moment, bio-based plastic accounts for approximately one per cent of global plastic production.

The volume of oil used every year in the production of plastics equates to approximately five per cent of the world's total [oil consumption](#). Approximately 40 per cent of all plastics are used in packaging, which puts special pressure on the packaging industry to reduce dependence on oil. According to lifecycle analyses, carbon dioxide emissions from bio-based plastics can be as much as 70 per cent lower than from oil-based plastics.

Provided by VTT Technical Research Centre of Finland

Citation: Plastic packaging industry is moving towards completely bio-based products (2012, December 4) retrieved 6 May 2024 from <https://phys.org/news/2012-12-plastic-packaging-industry-bio-based-products.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.