

[BIOPLASTIC SMART PACKAGING/SINTEF]

TITLE	SINTEF develops plant-based bioplastic packaging and oxygen-proof materials	
COMPANY / ORGANIZATION		
KEYWORDS	Monitoring, food, spoilage, bioplastic	
INDUSTRY AREA(S) AFFECTED	Point of purchase – Retail or Food Service Food warehousing / storage Finished goods transportation	
ISSUE ADDRESSED	<p>According to the Food and Agriculture Organization of the UN, an estimated one third of all food produced is wasted, causing strain on the environment and the economy. Significant factors in wasted food include inadequate packaging materials, and inaccurate best before dating stamped on foods found in retail outlets and households, leading to otherwise edible foods being thrown away.</p>	
SOLUTION	<p>SINTEF has developed bio-degradable plant-based packaging with greatly improved food preservation properties. The packaging is made from polylactic acid (PLA), manufactured by cultivated carbohydrates from bacteria; and polyethylene terephthalate (bio-PET), macromolecules extracted from plant residues.</p> <p>SINTEF's bioplastic material combats food waste by reducing the amount of oxygen that reaches the packaging's contents, thus improving shelf life. There are four prototypes currently: a blow molded bottle and a pot, designed to hold seafood, both of which are applied with an oxygen-proof exterior coating; a three-layer coating comprised of a cellulose-based film sandwiched between two biodegradable biopolymer layers that act as an oxygen barrier; and a blow molded film that can be used to make bags and oxygen-protective coverings.</p> <p>Accompanying this packaging are sensors developed by SINTEF that can detect small changes in the package's contents, such as temperature or spoilage. The sensors react by releasing signal substances that change the colour of the package to alert retailers, manufacturers, and consumers that its contents are no longer edible.</p>	
EXPECTED BENEFITS	Reduction of food waste By reducing the amount of oxygen reaching the food within its containers, SINTEF's bioplastic packaging and coatings can potentially extend the shelf life of foods. SINTEF's sensors also provide consumers and retailers with an accurate way to detect true food spoilage, rather than relying on often inaccurate and often incorrect best before stamps.	
CASE LINK	AIPIA, <i>New Barrier Nano Bio-plastic Alerts if Food Spoils</i> http://www.aipia.info/news-New-Barrier-Nano-Bio-plastic-Alerts-if-Food-Spoils-583.php SINTEF, <i>Green light for plant-based food packaging</i> https://www.sintef.no/en/latest-news/green-light-for-plant-based-food-packaging/	
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