HOLYGRAIL 2.0 DIGITAL WATERMARKS INITIATIVE

Intelligent packaging that will revolutionize recycling

KEY TAKEAWAYS

01 Digital: digital watermark technology brings value add throughout the lifecycle of a product and promotes access to cross bundle through distribution to the store, in the home and all the way through to recycling.

02 The technology also creates a new exciting forum for consumer engagement: augmented reality can be used to communicate everything about the product, package and how to recycle.

03 The Imperceptible digital watermark can be added to print materials (labels, sleeves, films) and to molded plastics. It consists of signal tiles that encode a unique identifier of the product and package attributes, and a synchronization signal that conveys package orientation to an optical viewing device when being recycled.

04 Project Holy Grail has been a successful 3-year collaborative pilot led by Procter & Gamble to embed digital watermarking in packaging as barcodes for recycling that will increase efficiencies in high quality sorting, striving for higher recycling rates, with 5 identification priorities: Food vs non-food grade plastics Recyclable vs compostable packaging Shrink sleeve vs rigid plastic identification New materials introduction Misc vs multi material thermoforms and films

05 Today, the Circular Economy challenges for 2025-2030 are huge with corporate and governmental focus to: Eliminate problematic and unnecessary single use packaging through re-design, innovation and new delivery systems. Plastics packaging to have average 30% recycled content 55% of plastics packaging effectively recyclable 100% of all packaging reusable, recyclable, compostable

06 Hence the opportunity for Project Holy Grail 2.0 led by AHI and the European Brands Association representing over 85 companies across the entire packaging value chain and will focus on industrial scale trials in Europe through 2022. The sorting technology to be used in the recycling facility will be a “bolt on” to existing NIR systems using a combination of high-speed cameras and LED lighting with a positive/negative sort to separate target materials (as determined by the operator vs prevailing end market requirements). Final report to be published late 2022.

07 PAC is excited by the promise of this program to deliver a true breakthrough in sorting technology and increased recycling rates for a broad range of valuable packing materials. The project will continue to update PAC members up to date with the developments and progress in the EU trials and beyond to the forefront of the implementation of this technology, when ready, across North America.

08 Project Holy Grail is sponsored by Ellen MacArthur Foundation’s New Plastics Economy Pioneering Projects. Now in its second phase, Project Holy Grail 2.0 is led by AHI and the European Brands Association who are working with a consortium of over 85 companies to test the technology in market and manufacturing.

THESE WEBINARS ARE BROUGHT TO YOU BY PAC Packaging Consortium

Learn more about PAC

KEY TAKEAWAYS

01 Digimarc: digital watermark technology brings value add throughout the lifecycle of a product and promotes access to cross bundle through distribution to the store, in the home and all the way through to recycling.

02 Digimarc is also leading the effort to create a new standard for the automatic identification of plastics using digital watermarking. By giving each plastic its own unique digital signature, and then discovered by recycling equipment in a recycling facility, industry will seek to achieve the highest quality and quantity of yields of recyclates to meet the sustainability targets of manufacturers, brand owners and facility operators and government agencies.

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OVERVIEW

P&G Packaging expert Gian De Belder and Digimarc’s digital watermarking evangelist Larry Logan discuss how Project Holy Grail will revolutionize plastics recycling through the use of watermark technology.

Presented on October 21, 2020 by Gian De Belder and Larry Logan

VIEW WEBINAR

HOLYGRAIL’S INTELLIGENT PACKAGING

Technical Director - R&D Packaging Sustainability, Procter & Gamble

LARRY LOGAN

Chief Evangelist, Lightning Corporation

MORE INFORMATION

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GIAN DE BELDER

Technical Director - R&D Packaging Sustainability, Procter & Gamble

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• Food vs non-food grade plastics • Recyclable vs compostable packaging • Shrink sleeve vs rigid plastic identification • New materials introduction • Misc vs multi material thermoforms and films

MORE INFORMATION

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