High performance natural coating for barrier paper

The industrial bioeconomic revolution is targeting to progressively introduce biobased, (conventional) plastic free solutions for packaging applications.

Plastic packaging is extensively used due to economic and technical advantages, however, it poses a lot of environmental issues like microplastic proliferation in the environment.

Paper-based materials are perceived eco-friendlier being more sustainable and inherently biodegradable/compostable, however, to perform and guarantee the shelf life, durability, and integrity of the goods contained, they must be treated with functional coatings in order to improve their barrier properties.

For these reasons, the transition from plastic to paper packaging needs innovative surface treatment solutions made of sustainable materials, conventional plastic free and with barrier properties to water, oil, grease, and oxygen. Moreover, a key feature for flexible packaging market is the thermosealability.

High-performance barrier materials are mainly based on synthetic polymers that do not solve the environmental issues. Nature has inspired Lamberti in the quest of effective barrier materials.
Through millions of years of evolution, nature has been developing the most efficient solutions. Vegetable fruit skins are the most performing means to extend life of all organic matters.

The plant cuticle is primarily composed of a substance called cutin, it protects plants against environmental stresses and acts as a barrier against pathogens.

After wood derivatives, cutin is one of the most abundant biomaterials on the Earth and can be profitably extracted from several fruits and vegetables, in particular from tomato peels.

The tomato processing industry uses 40 million tonnes of Tomato yearly, which makes tomatoes the world's leading vegetable for processing and generates significant amounts of tomato peel by-products that can be reused in a circular economy perspective to produce barrier coating materials.

Through an innovative patented process, Lamberti found the way to convert the virgin cutin extracted from the tomato peels in a waterborne dispersion for the paper barrier treatments.

Lamberti is now launching Esacote® BIO BC 100 that meets the most stringent commitments in terms of plastic reduction in packaging products. It is based on 100 % biobased carbon, ASTM D 6866 certified by Beta Analytics.

Although Esacote® BIO BC 100 is not chemically modified, it shows a perfect combination of barrier to water, oil, grease, and hexane vapour in a single layer coating, bringing also an optimal welding temperature for all flexible packaging applications.

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