Color & Additive Solutions for Biopolymers

AVIENT™

Introduction to Biopolymers

In recent times, interest in using biopolymers has grown in several industry sectors. The agricultural market is looking to biopolymers as a new solution to lower environmental impact, while the packaging sector is turning to biopolymers since compostability can be seen as beneficial when compared to reuse and other forms of packaging recovery.

Biopolymers may be manufactured from renewable materials such as corn and sugar cane and can be biodegradable, meaning they degrade under biological—mainly microbial—conditions. Other biopolymers are also biodegradable and compostable, which means they will degrade under controlled conditions, such as those occurring at composting or anaerobic digestion sites. In all cases, environment and timeframe must be specified.

Recent publications from the European Union recognize that design for composting can be beneficial for applications such as bio-waste bags, teabags, plastic carrier, shopping or vegetable bags and coffee capsules to name a few.

Use of Biopolymers in Packaging Types

Industry Standards

To ensure compliance with requirements and regulations, suitable certification is of crucial importance. Constituents added to resins, such as colorants and additives, must be adapted to obtain a final article compliant with prescribed standards such as EN13432 for Packaging Applications and EN17033 for Agriculture Mulch Films. Certified bodies (Din Certo, TÜV Austria) have approved laboratories to carry out the relevant tests.

Avient is a TÜV Austria certified masterbatch supplier and can help support and secure the full certification process of a final part.

Color & Additive Formulations for Biodegradable Resins & Blends

Using a selected list of pigments and additives, Avient color experts know how to enhance biodegradable starch blends or PLA without affecting degradability of the resins.

In compliance with certification requirements, Avient biocolorants can offer a large spectrum of color possibilities supporting differentiation and appeal at consumer level.

To streamline the process of biodegradable resins without compromising performance or manufacturability, Avient bioadditives can help.

Many product applications, such as packaging for fruits and vegetables or carrier bags, require very low thicknesses to be compostable. A dedicated selection of aid processes, all following the requirements of Annex A of EN13432, including slip agents, anti-block and metal release additives, can help reduce issues during the film extrusion and harmonize the entire process.

LOOKING FOR NEW WAYS TO LOWER ENVIRONMENTAL IMPACT AND IMPROVE SUSTAINABILITY?

Reach out to Avient experts to learn more about color possibilities and process performance while complying with increasingly rigorous legislations.

ONCAP™ BIO & CESA™ ADDITIVES – FOR FLEXIBLE FILM APPLICATIONS

ADDITIVE	PRODUCT CODE	PROCESS	BENEFITS
Anti Block	CC10128310BG	PLA Film	Improve Separation
Slip Agent	CC10144939BG	PLA Fibers	Aids Process/ Stickiness Reduction
Slip Agent	CC10299977BG	BOPLA Film	Stickiness Reduction (End Products)
Anti Block/Slip Agent	CC10272954BG	PLA Film	Improve Separation/ Opening of the Bags
Anti Block/Slip Agent	BLA0050104	Injection	Improve Overall Process for Ejection
Anti Block/Slip Agent	CC10178477BG	BOPLA Film	Stickiness Reduction/ High Transparency
Metal Release	CC10312144BG	Extrusion Coating	Good Chill Roll Release
Melt Enhancer	BLA0025041	PLA Sheet	Melt Stabilizer for Thermoform Sheet

ONCOLOR™ BIO & RENOL™ COLORANTS – FOR INDUSTRIAL, AGRICULTURAL & HORTICULTURAL APPLICATIONS

COLOR	PRODUCT CODE	MB CARRIER	COMMENTS
Black	CC10253380BG	Blend	30% Carbon Black
Black	CC10085911BG	PLA	30% Carbon Black
Black	CC10324006BG	PBAT	40% Carbon Black
White	BL00050101	PLA	60% TiO2
White	CC10245763BG	Blend	60% TiO2 + Blue Undertone
White	CC10194583BG	PBAT	70% TiO2

See the World in Color

The coloration of biodegradable polymers—such as PLA, PHA, PBAT or blends—requires a careful selection of pigments that must comply with strict environmental standards.

The pigments and ingredients contained in Avient's bio colorants have been tested in independent laboratories who assessed the compliancy of those materials according to standard EN 13432 for content of heavy metals, and toxicity to plants.

Our current portfolio of pre-tested pigments offers:

- A wide range of color masterbatch options
- From opaque to transparent—depending on the blend or resin

It is important to note that the final colors will depend on the percentage of use, the resin, the thickness, and the opacity. Starch blend resins often vary from white to brown and this can influence the final color rendering in the application. The images shown in this brochure are intended as an illustration only.

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