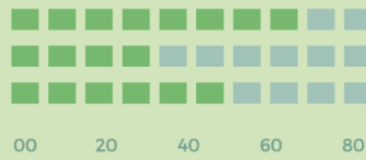


BIOCOMPOSITE

Biocomposite is derived from a biological or natural source



Biocomposite

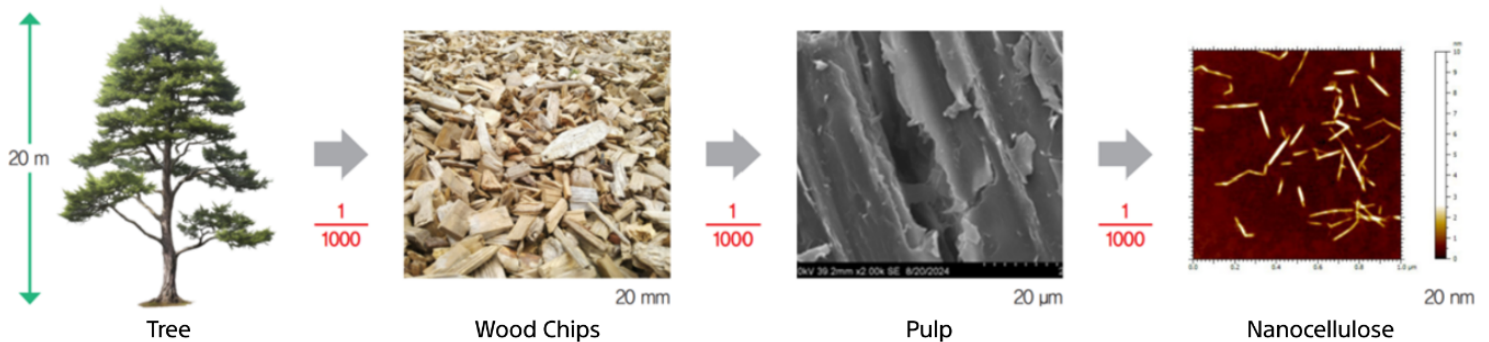
Sustaining the Future with Nanocellulose Biocomposite Innovation



ANPOLY

ANPOLY is an advanced materials company dedicated to developing and commercializing eco-friendly, high-performance materials based on plant-derived nanocellulose. Our eco-friendly biocomposites, made from nanocellulose sourced from plants, represent a new generation of sustainable materials that combine with existing composites to enhance mechanical strength, physical properties, and environmental performance. Through the development of innovative natural fiber composites for a sustainable future, ANPOLY is redefining the paradigm of the eco-friendly materials industry.

CNF?



CNF(Cellulose Nanofiber or Nanocellulose) is an eco-friendly fibrous nanomaterial derived from cellulose obtained from wood or plants. Although it weighs only one-fifth as much as steel, it is more than five times stronger, offering exceptional strength, transparency, biodegradability, and thermal stability. Recognized as a next-generation sustainable material, CNF is at the forefront of advanced material innovation. ANPOLY possesses proprietary technology to produce nanocellulose from wood pulp, rice husks, and coffee grounds, and applies it to develop and commercialize biocomposites, ECM materials, battery binders, and separators.

Biocomposites

ANPOLY Biocomposites represent a new class of eco-friendly, high-performance materials engineered from plant-derived nanocellulose and other natural ingredients combined with advanced polymer matrices. Designed to replace petroleum-based plastics, these biocomposites contribute to carbon reduction and environmental sustainability, while achieving outstanding mechanical strength, light weight, and processability. Through proprietary surface modification and dispersion technologies, ANPOLY's natural biocomposites deliver superior reinforcement, durability, and stability, enabling versatile applications across packaging, automotive components, cosmetics, and the bioindustry.



Re:ancel Biocomposite

- ANPOLY develops sustainable natural composites using plant-based cellulose, lignocellulose, and other renewable natural materials as key raw materials.
- By recycling natural materials generated and consumed in everyday life, ANPOLY produces and supplies environmentally friendly products, contributing to a more sustainable future.



Wood Chips



Wood pulps



Coffee grounds



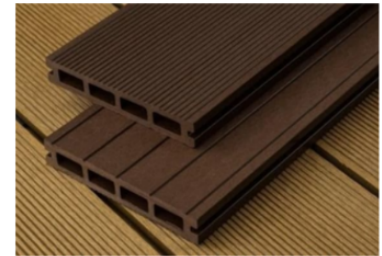
Soybean pulps



3D Printed Objects



Architecture



Outdoor Deck

Cellulose Nanofiber (CNF) Production Technology

ANPOLY designs high-performance, eco-friendly composites by directly producing and utilizing natural fibers at the nanoscale. Through hybridization with lignocellulose and conventional functional additives, ANPOLY has developed proprietary formulation technology that enables precise optimization of target properties and production costs. This technology enables the production of composites containing up to 60 wt% natural fibers, achieving a carbon footprint reduction of up to 40%.

Nanocellulose & Lignocellulose Compounding and Molding Technology

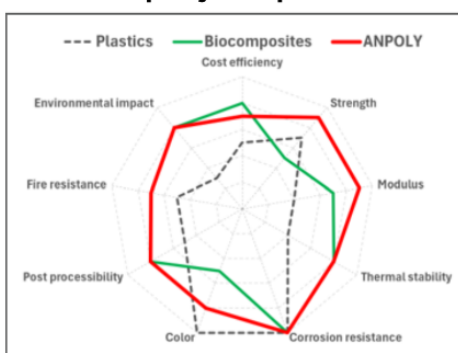
Conventional technologies face challenges in compounding wet-state nanocellulose with polymers. ANPOLY's innovative compounding technology enables wet-state materials to be directly mixed and compounded with polymers without a drying process, preserving their fibrous structure and properties. As a result, the resulting composites exhibit significantly improved mechanical and physical properties compared with conventional natural-fiber composites.

Advanced Surface Functionalization Technologies for Enhanced Compatibility Between Dissimilar Materials

ANPOLY's surface functionalization technologies overcome compatibility challenges between bio-based and conventional chemical materials, enabling applications across a wide range of industries.

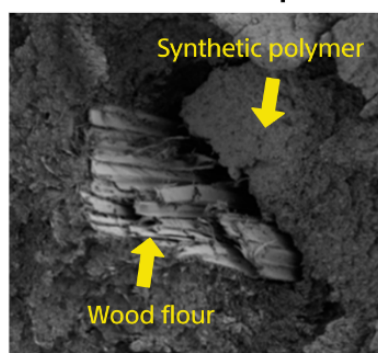
These technologies significantly enhance interfacial adhesion with polymer matrices, resulting in improved compatibility and composite performance.

Property Comparison



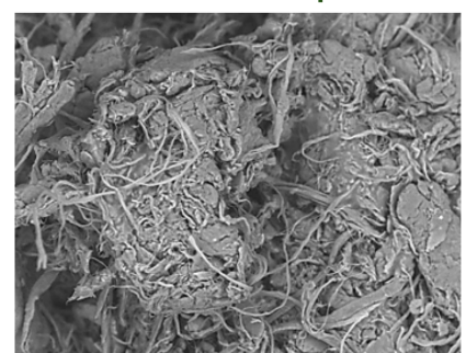
ANPOLY's product increases property

Traditional Biocomposite



Cross-section of a basic composite with powdered wood flour

ANPOLY's Biocomposite



Cross-section of a composite material containing fibrous lignocellulose

Re:ancel Biocomposite

Biocomposite Product Line

Cellustic® PP

PP based biocomposite

- Base: PP
- Biomass: Cellulose
- Content: 10 ~ 50wt%
- Density: 0.98g/cm³
- Color: Beige
- Tensile Strength: 46.5 MPa
- Tensile modulus: 2000 MPa
- Izod impact: 33 J/m
- Melting Temp: 165 °C
- Melt flow Index: 16g/10min

Cellustic® HCPP

HCPP based biocomposite

- Base: PP
- Biomass: Cellulose
- Content: 10 ~ 50wt%
- Density: 0.98g/cm³
- Color: Beige
- Tensile Strength: 35.2 MPa
- Tensile modulus: 1212 MPa
- Izod impact: 60.6 J/m
- Melting Temp: 165 °C
- Melt flow Index: 3.5g/10min

Cellustic® PETG

PETG based biocomposite

- Base: PETG
- Biomass: Cellulose
- Content: 10 ~ 50wt%
- Density: 1.2g/cm³
- Color: Light Brown
- Tensile Strength: 37.8 MPa
- Tensile modulus: 1,045 MPa
- Izod impact: 30.3 J/m
- Melting Temp: 50.4 MPa
- Melt flow Index: 2,650 MPa

Biocomposite Applicable Industries

ANPOLY's nanocellulose-based biocomposite is attracting attention as an innovative material in various industries based on its excellent mechanical performance and sustainable eco-friendly properties.

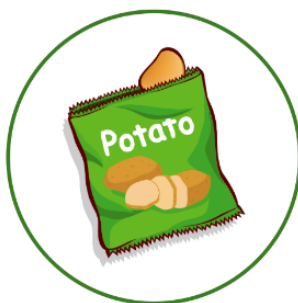
Automotive

Lightweight interior materials and parts
Eco-friendly composite dashboard
Noise and vibration reduction materials
Carbon emission reduction effect



Packaging

Biodegradable food packaging
Utilize antimicrobial and antioxidant properties
Improved oxygen and moisture barrier
A substitute for disposable products



Construction

Eco-friendly insulation and reinforcement
Durability improving building material
Lightweight composite panel
Improved water resistance and fire resistance



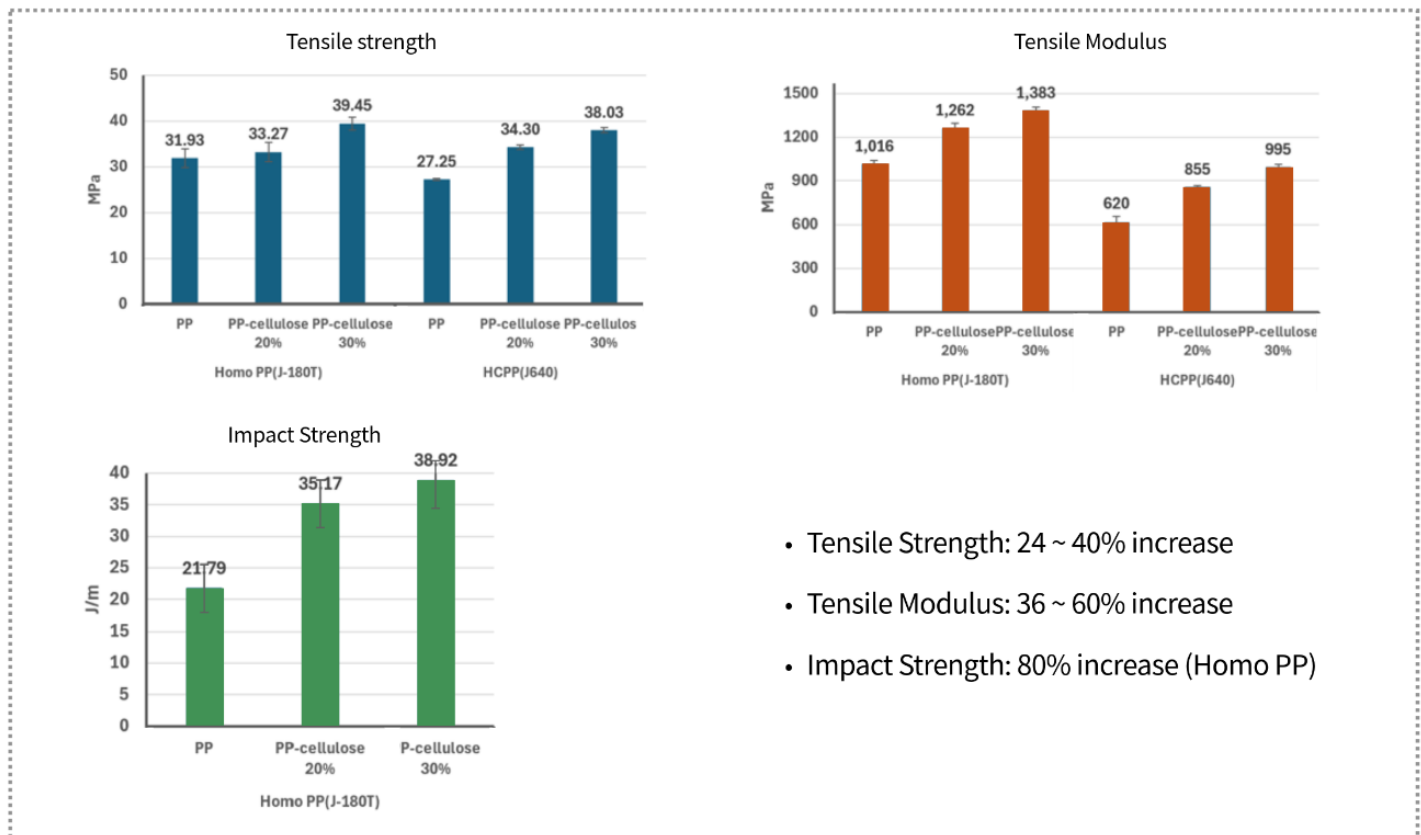
Electric Device

Flexible display substrate
Battery separator material
Eco-friendly electronic component housing
Electromagnetic shielding material



Re:ancel Biocomposite

Mechanical Properties of ANPOLY's Biocomposites



Other Properties of ANPOLY's Biocomposites

