

# Bring a New Wave PHACT

#### **Time to Break the Plastic Wave**

Over 9 million tons of plastic waste end up in the ocean every year. Over 700 species of marine animals, including endangered ones, are reported to have eaten or been entangled in plastic. Scientists think that the amount of plastic in the ocean might TRIPLE by 2050.

The plastic waste crisis in the marine ecosystem is a problem that impacts all of us and not just life below the surface. Be part of the solution and take action now. Together we can protect our planet, preserve our oceans, and provide a safe and healthy environment for humankind.



### Bring a New Wave PHACT

#### **Efforts to Protect the Ocean**, **CJ PHACT Provides a Solution**

CJ PHACT is a 100% biobased polyester produced by fermentation. Using CJ BIO's innovative fermentation technology, PHACT is a 100% biobased, marine biodegradable plastic. PHACT is an eco-friendly material that provides a solution to address plastic waste and is capable of all modes of biodegradation including marine, soil, home, and industrial composting. \* When used as modifier for transparent polymers, preserves that characteristic



#### Innovation

· PHACT PHA (Polyhydroxyalkanoate) is produced by bacterial fermentation of sugar.

- · PHAs are naturally occurring linear polyesters.
- · CJ has the unique ability to produce a wide range of polymer compositions by employing microbial engineering innovation.



### A Solution to the Pollution Crisis in the **Marine Ecosystem**

PHACT is our brand of Polyhydroxyalkanoates (PHA).

PHAs are a family of biobased and biodegradable polymers made by bacterial fermentation. Based on leading-edge strain and metabolic engineering, our biopolymer solutions offer attractive, sustainable alternatives to petrochemical-based materials. Our unique technology platform enables PHA biobased polymers to meet a variety of performance requirements-whether you're seeking to increase bio content, meet a biodegradation specification, or increase durability and flexibility.

CJ BIO develops innovative, biobased polymer solutions that enhance performance and add value for a wide range of industrial and consumer products. What sets CJ apart is world-scale biotech assets with a world-class technology portfolio to enable circular and sustainable solutions.

#### **Process Expertise**

CJ BIO benefits from decades of experience in developing and scaling up complex biotech processes.







### **SPORTS & LEISURE**

- Bracelet-type ticket
- Waterproof pack
- Golf Tee

#### **3D PRINTING**

· 3D filaments

• Prototype samples

• Medical devices

#### PAPER COATINGS

- Paper cup coatings
- Paper food trays
- Fertilizer coatings

#### **PHACT Value Proposition**

Enabling circular and sustainable solutions across a range of applications



#### **CJ PHACT Certifications & Registrations**



## CJ'S BIOMATERIAL HISTORY

Acquisition of Metabolix technology and PHA assets · CJ acquired intellectual property related to PHA biopolymers and biochemicals manufacturing via microbiology · CJ assumed responsibility for the USA-based Metabolix research facility in Massachusetts, USA

> · Development of plastic raw materials (Aliphatic diamine, Lactic acid) · Planning partnerships with global top-tier customers for production and sales of biobased chemicals



2022

2021

~ 2020

2016

2010

#### Plant commissioning and start-up

· CJ PHACT brand launched representing a diverse PHA technology portfolio · First shipments Q1-2022 • Ramp-up to full capacity Q3-2022

#### **Construction of PHA plant in Indonesia**

· Developed large scale PHA production technology · 5,000 ton/year investment in Pasuruan, Indonesia · Finalized mechanical completion end of 2021

#### Launch of biomaterials activities as a new growth engine

## CJ PHACT GLOBAL FOOTPRINT

SALES OFFICE
 R&D POST
 PRODUCTION PLANT

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