

## RMC Abstract

### 1. Introduction to the development of bio-based material industry in China

In May 2022, China issued the "14th Five-Year Plan" for the Development of biological Economy, which included the replacement of traditional chemical raw materials by bio-based materials into the development goals of China's biotechnology and biological industry during the 14th Five-Year Plan period. At present, the domestic bio-based materials industry is developing rapidly, and all kinds of bio-based materials have been vigorously developed, such as PLA, PHA, etc., have realized large-scale production.

PEF as a material with excellent performance among bio-based materials, has also begun to receive attention in China. Not only has the Ministry of Science and Technology issued the "14th Five-Year" key project on PEF for three consecutive years, but it has also received the focus of domestic leading enterprises in China, such as Zhejiang HengYi, SINOPEC, China Resources New Materials, TongKun Group and other enterprises.

### 2. Progress in the industrialization of Sugar Energy technology

Sugar Energy Technology is a high-tech enterprise incubated by Ningbo Institute of Materials Engineering and Technology, Chinese Academy of Sciences. Its core technology is to get through the key technology of fructose conversion to produce HMF and its derivatives. After more than 8 years of development and expansion, Sugar Energy Technology has realized the pilot production of 3000 tons/year HMF and 100 tons FDCA.

### 3. Work on PEF development of Sugar Energy Technology

Sugar Energy Technology Products has supplied HMF and FDCA to many European, Japanese and Korean companies, and developed PEF sheet, film and fiber based on the project products.

Together with Ningbo Institute of Materials, Tianjin University of Technology and other scientific research institutions, Sugar Energy

Technology has realized the development of bio-based plastics such as PEF, PEF copolyester, PBF, PTF and many downstream customers have entered the verification stage.

#### 4. Future prospects of Sugar Energy technology

Sugar Energy Technology plans to build 10,000-ton HMF and 10,000-ton FDCA production lines before 2025, and complete the 10,000-ton PEF production line construction with partners. The single sales price is less than 10,000 euros/ton, and the PEF sales price is less than 9,000 euros/ton.