

US012435182B2

(12) United States Patent

Liao et al.

(10) Patent No.: US 12,435,182 B2 (45) Date of Patent: Oct. 7, 2025

(54) MANUFACTURING METHOD OF POLYESTER FOR PLASTIC WRAP

(71) Applicant: NAN YA PLASTICS

CORPORATION, Taipei (TW)

(72) Inventors: Te-Chao Liao, Taipei (TW); Jung-Jen

Chuang, Taipei (TW); Tzu-Huan

Wong, Taipei (TW)

(73) Assignee: NAN YA PLASTICS

CORPORATION, Taipei (TW)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

U.S.C. 154(b) by 477 days.

(21) Appl. No.: 18/081,708

(22) Filed: Dec. 15, 2022

(65) **Prior Publication Data**

US 2024/0158570 A1 May 16, 2024

(30) Foreign Application Priority Data

Nov. 11, 2022 (TW) 111143216

(51) Int. Cl.

C08G 63/183 (2006.01) C08J 5/18 (2006.01) C09D 167/02 (2006.01)

(52) U.S. Cl.

(58) Field of Classification Search

CPC C08G 63/183; C08G 63/78; C08J 5/18; C08J 2367/02; C09D 167/02

See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

(Continued)

FOREIGN PATENT DOCUMENTS

P S56125445 10/1981 P H04306239 10/1992 (Continued)

OTHER PUBLICATIONS

Hong-Bing Tsai et al., "Copolyesters with Different Molecular Weights Controlled by p-Phenylbenzoic Acid", Journal of The Chin. I. Ch. E., Nov. 1989, pp. 313-317, vol. 20, No. 6.

(Continued)

Primary Examiner — Doris L Lee (74) Attorney, Agent, or Firm — JCIPRNET

(57) ABSTRACT

A manufacturing method of a polyester for a plastic wrap at least includes the following steps. An aromatic carboxylic acid, an aliphatic carboxylic acid, and an aliphatic alcohol are provided, wherein the aromatic carboxylic acid includes at least two of a phthalic acid, an isophthalic acid, and a terephthalic acid. The aromatic carboxylic acid, the aliphatic carboxylic acid and the aliphatic alcohol are subjected to at least an esterification reaction, a pre-polymerization reaction, and a polymerization reaction in sequence, so as to obtain a polybutylene adipate terephthalate.

7 Claims, 1 Drawing Sheet

Provide an aromatic carboxylic acid, an aliphatic carboxylic acid and an aliphatic alcohol, wherein the aromatic carboxylic acid includes at least two of a phthalic acid, an isophthalic acid, and an terephthalic acid

-S100

Obtain a polybutylene adipate terephthalate by subjecting the aromatic carboxylic acid, the aliphatic carboxylic acid, and the aliphatic alcohol to at least an esterification reaction, a pre—polymerization reaction and a polymerization reaction in sequence

S200