



US012473420B2

(12) **United States Patent**
Liao et al.

(10) **Patent No.: US 12,473,420 B2**
(45) **Date of Patent: Nov. 18, 2025**

(54) **METHOD FOR PROCESSING WASTE FABRIC CONTAINING POLYESTER AND WOOL FIBERS**

(71) Applicant: **NAN YA PLASTICS CORPORATION**, Taipei (TW)

(72) Inventors: **Te-Chao Liao**, Taipei (TW); **Jung-Jen Chuang**, Taipei (TW); **Chung-Chi Su**, 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 710 days.

(21) Appl. No.: **17/877,827**

(22) Filed: **Jul. 29, 2022**

(65) **Prior Publication Data**

US 2023/0132013 A1 Apr. 27, 2023

(30) **Foreign Application Priority Data**

Oct. 25, 2021 (TW) 110139422

(51) **Int. Cl.**

C08J 11/26 (2006.01)

D01G 11/00 (2006.01)

(52) **U.S. Cl.**

CPC **C08J 11/26** (2013.01); **D01G 11/00** (2013.01); **C08J 2367/00** (2013.01); **D10B 2211/02** (2013.01); **D10B 2331/04** (2013.01); **Y02W 30/62** (2015.05)

(58) **Field of Classification Search**

CPC **C08J 11/26**; **C08J 2367/00**; **D01G 11/00**; **D10B 2211/02**; **D10B 2331/04**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

9,932,456 B2 4/2018 Rangaswamy et al.
2004/0219247 A1 * 11/2004 Bacher C08J 11/06 100/35
2011/0065817 A1 * 3/2011 Van Weynbergh C08J 11/02 521/46.5
2020/0262108 A1 8/2020 Keh et al.
2022/0049381 A1 2/2022 Herchl et al.

FOREIGN PATENT DOCUMENTS

CN 106674588 A 5/2017
CN 113226579 A 8/2021
JP 2000344933 A 12/2000
JP 2008222570 A 9/2008
JP 201935022 A 3/2019

OTHER PUBLICATIONS

Machine translation of JP 2000344933 by Wada (Year: 2000).
Machine translation of JP 2019035022 by Ito et al (Year: 2019).
Machine translation of DE 19534276 by Hasenpusch (Year: 1997).*

* cited by examiner

Primary Examiner — Christina H. W. Rosebach

(74) *Attorney, Agent, or Firm* — Li & Cai Intellectual Property (USA) Office

(57) **ABSTRACT**

A method for processing a waste fabric containing polyester and wool fibers includes the following steps. The method is to treat the waste fabric with an acid catalyst aqueous solution at 160° C. to 170° C. The wool fibers are degraded and completely separated from the polyester fibers in a treatment process. Afterwards, the polyester fibers are recycled.

8 Claims, 4 Drawing Sheets

providing a waste fabric containing polyester and wool fibers — S100

treating the waste fabric with an acid catalyst aqueous solution at 160° C to 170° C, such that the wool fibers of the waste fabric are degraded and separated from the polyester fibers — S102

recycling the treated waste fabric — S104