

## Title (en)

WASHING OR CLEANING AGENT WITH ELECTROCHEMICALLY ACTIVATABLE MEDIATOR COMPOUND

## Title (de)

WASCH- ODER REINIGUNGSMITTEL MIT ELEKTROCHEMISCH AKTIVIERBARER MEDIATORVERBINDUNG

## Title (fr)

LESSIVE OU PRODUIT DE NETTOYAGE PRÉSENTANT UN COMPOSÉ MÉDIATEUR ACTIVABLE ÉLECTROCHIMIQUEMENT

## Publication

**EP 2737042 B1 20180314 (DE)**

## Application

**EP 12740133 A 20120724**

## Priority

- DE 102011080099 A 20110729
- EP 2012064491 W 20120724

## Abstract (en)

[origin: WO2013017476A1] The cleaning performance of washing or cleaning agents, more particularly in relation to bleachable contamination, needs to be improved without usage thereof causing damage to the textile being treated. This has been achieved essentially by using an active bleach species produced electrolytically from an organic mediator compound by a redox reaction.

## IPC 8 full level

**C11D 3/28** (2006.01); **C11D 3/30** (2006.01); **C11D 3/395** (2006.01); **C11D 11/00** (2006.01)

## CPC (source: EP US)

**C11D 3/28** (2013.01 - EP US); **C11D 3/30** (2013.01 - EP US); **C11D 3/3951** (2013.01 - US); **C11D 3/3955** (2013.01 - EP US); **C11D 3/3956** (2013.01 - EP US); **C11D 2111/46** (2024.01 - EP US)

## Citation (examination)

- DE 19843571 A1 20000330 - DEGUSSA [DE]
- KIM H-C ET AL: "Electrochemically mediated bleaching of pulp fibers", ELECTROCHIMICA ACTA, ELSEVIER SCIENCE PUBLISHERS, BARKING, GB, vol. 47, no. 5, 3 December 2001 (2001-12-03), pages 799 - 805, XP004328058, ISSN: 0013-4686, DOI: 10.1016/S0013-4686(01)00760-5

## Citation (opposition)

Opponent : **PROCTER & GAMBLE COMPANY**

- WO 9605283 A1 19960222 - PROCTER & GAMBLE [US], et al
- WO 2006032327 A1 20060330 - UNILEVER PLC [GB], et al
- DE 4445088 A1 19960620 - IBV IND BIOVERFAHREN [DE]
- WO 9748786 A1 19971224 - CALL HANS PETER [DE]
- WO 2010135499 A1 20101125 - DANISCO US INC [US], et al
- WO 2005116320 A1 20051208 - PROCTER & GAMBLE [US], et al
- WO 2009106406 A1 20090903 - UNILEVER NV [NL], et al
- BARRECA ET AL.: "Catalytic Efficiency of some Mediators in Laccase-Catalysed Alcohol Oxidation", BIOCATALYSIS AND BIOTRANSFORMATION, vol. 22, no. 2, 2004, pages 105 - 112, XP055542820

Opponent : **Procter & Gamble**

- US 2969329 A 19610124 - ALLEN HEININGER SAMUEL
- EP 1614742 A1 20060111 - PROCTER & GAMBLE [US]
- WO 2006128525 A2 20061207 - UNILEVER PLC [GB], et al
- ANONYMOUS: "Chemical Book entry: 1-Hydroxybenzotriazole", CHEMICALBOOK, 30 July 2020 (2020-07-30), pages 1 - 4, XP055809975, Retrieved from the Internet <URL:https://www.chemicalbook.com/ChemicalProductProperty\_EN\_CB2420172.htm> [retrieved on 20210602]
- ANONYMOUS: "Wikipedia entry: 4-Hydroxy-TEMPO", WIKIPEDIA, 24 June 2020 (2020-06-24), pages 1 - 3, XP055809969, [retrieved on 20210602]
- ANONYMOUS: "Ammonyx LO Product Bulletin", STEPAN PRODUCT BULLETIN, 1 January 2010 (2010-01-01), pages 1 - 2, XP055809961

## Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

## DOCDB simple family (publication)

**DE 102011080099 A1 20130131**; EP 2737042 A1 20140604; EP 2737042 B1 20180314; EP 2737042 B2 20220406; ES 2664834 T3 20180423; ES 2664834 T5 20220520; KR 102046861 B1 20191120; KR 20140060506 A 20140520; PL 2737042 T3 20180831; PL 2737042 T5 20230109; US 10435649 B2 20191008; US 2014143959 A1 20140529; WO 2013017476 A1 20130207

## DOCDB simple family (application)

**DE 102011080099 A 20110729**; EP 12740133 A 20120724; EP 2012064491 W 20120724; ES 12740133 T 20120724; KR 20147004860 A 20120724; PL 12740133 T 20120724; US 201414166905 A 20140129