

Title (en)

Sequestering agent used in detergents with high calcium binding capacity

Title (de)

Sequestriermittel zur Verwendung in Waschmitteln mit hoher Kalkbindungsfähigkeit

Title (fr)

Agent séquestrant utilisé dans des détergents avec une grande capacité de fixation du calcium

Publication

**EP 2657329 A1 20131030 (EN)**

Application

**EP 13164735 A 20130422**

Priority

TR 201204884 A 20120426

Abstract (en)

The present invention relates to the synthesis of the maleic acid/acrylic acid/sodium vinyl sulfonate terpolymer not posing an environmental risk and comprising substituted sulfonate groups (SO<sub>3</sub><sup>-</sup>). In particular, the present invention relates to the utilization of said synthesized polymer in the production of cleaning products as sequestering agent.

IPC 8 full level

**C11D 3/37** (2006.01)

CPC (source: EP)

**C11D 3/3757** (2013.01); **C11D 3/378** (2013.01)

Citation (applicant)

- US 3635915 A 19720118 - GALE DONALD J
- US 3624048 A 19711130 - BLUMBERGS JOHN H, et al
- US 3903039 A 19750902 - GORBATY MARTIN L, et al
- US 4450261 A 19840522 - CHIAO WEN B [US], et al
- US 4640211 A 19870203 - NAMUR MARC [DE]
- US 4709091 A 19871124 - FUKUMOTO YASUHASHI [JP], et al
- AU 7778187 A 19880310 - EXXON RESEARCH ENGINEERING CO
- WO 9117189 A1 19911114 - TNO [NL]
- US 5135677 A 19920804 - YAMAGUCHI SHIGERU [JP], et al
- US 2002035224 A1 20020321 - YAMAGUCHI SHIGERU [JP], et al
- US 2004014623 A1 20040122 - KUZEE HENDRIKA CORNELIA [NL], et al
- WO 2005000020 A2 20050106 - COGNIS CORP [US], et al
- WO 2011000020 A1 20110106 - SBC RES PTY LTD [AU], et al

Citation (search report)

- [XII] WO 2008017620 A1 20080214 - BASF AG [DE], et al
- [I] WO 2009123322 A1 20091008 - NIPPON CATALYTIC CHEM IND [JP], et al
- [I] DE 3320864 A1 19841213 - BASF AG [DE]
- [I] WO 9635728 A1 19961114 - STOCKHAUSEN CHEM FAB GMBH [DE]
- [I] WO 9401477 A1 19940120 - STOCKHAUSEN CHEM FAB GMBH [DE], et al
- [AD] WO 2011061655 A2 20110526 - ECOLAB INC [US], et al
- [AD] EP 0985690 A2 20000315 - NIPPON CATALYTIC CHEM IND [JP]

Cited by

US10144906B2; US10253280B2

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 2657329 A1 20131030; EP 2657329 B1 20171018**

DOCDB simple family (application)

**EP 13164735 A 20130422**