Title (en)

Detergent composition

Title (de)

Wasch- und Reinigungsmittel

Title (fr)

Composition détergente

Publication

EP 2674476 A1 20131218 (EN)

Application

EP 13171413 A 20130611

Priority

- EP 12171551 A 20120611
- EP 13171413 A 20130611

Abstract (en)

Detergent compositions are described having more than one enzyme, in particular having a multi-enzyme co-particle as well as methods of making and using such detergents. The compositions also have low levels of zeolite and phosphate builders and a moisture sink to minimize interaction between enzymes.

IPC 8 full level

C11D 3/04 (2006.01); **C11D 3/386** (2006.01); **C11D 3/12** (2006.01); **C11D 3/382** (2006.01); **D06L 4/40** (2017.01)

CPC (source: EP RU)

C11D 3/046 (2013.01 - EP); **C11D 3/126** (2013.01 - EP); **C11D 3/382** (2013.01 - EP); **C11D 3/38672** (2013.01 - EP); C11D 3/04 (2013.01 - RU); C11D 3/06 (2013.01 - RU); C11D 3/08 (2013.01 - RU); C11D 3/386 (2013.01 - RU); C11D 3/395 (2013.01 - RU)

Citation (applicant)

- WO 2007147698 A1 20071227 - UNILEVER PLC [GB], et al
- WO 9723606 A1 19970703 - GENENCOR INT [US]
- WO 9739116 A1 19971023 - NOVO NORDISK AS [DK], et al
- US 4016040 A 19770405 - WIN MAUNG HLA, et al
- US 4713245 A 19871215 - ANDO SHINJI [JP], et al
- US 4106991 A 19780815 - MARKUSSEN ERIK KJAER, et al
- EP 0170360 B1 19890809
- EP 0304332 B1 19930714
- EP 0304331 A2 19890222 - NOVO INDUSTRI AS [DK]
- WO 9009440 A1 19900823 - NOVO NORDISK AS [DK]
- WO 9009428 A1 19900823 - NOVO NORDISK AS [DK]
- US 5324649 A 19940628 - ARNOLD RAYMOND E [US], et al
- US 6602841 B1 20030805 - BECKER NATHANIEL T [US], et al
- US 2008206830 A1 20080828 - BECKER NATHANIEL T [US], et al
- US 6348442 B2 20020219 - MARKUSSEN ERIK KJ AELIG R [DK]
- US 2004033927 A1 20040219 - SIMONSEN OLE [DK], et al
- US 7273736 B2 20070925 - BACH POUL [DK]
- WO 0001793 A1 20000113 - NOVO NORDISK AS [DK]
- US 6268329 B1 20010731 - MARKUSSEN ERIK KJ AELIG R [DK]
- US 5576282 A 19961119 - MIRACLE GREGORY S [US], et al
- US 6306812 B1 20011023 - PERKINS CHRISTOPHER MARK [US], et al
- US 6326348 B1 20011204 - VINSON PHILLIP KYLE [US], et al
- US 7208459 B2 20070424 - SADLOWSKI EUGENE STEVEN [US], et al
- US 2008305982 A1 20081211 - SMETS JOHAN [BE], et al
- US 2009247449 A1 20091001 - BURDIS JOHN ALLEN [GB], et al
- US 6312936 B1 20011106 - POULOSE AYROOKARAN J [US], et al
- US 5679630 A 19971021 - BAECK ANDRE [BE], et al
- US 4760025 A 19880726 - ESTELL DAVID A [US], et al
- US 7262042 B2 20070828 - WEBER ANGRIT [DE], et al
- WO 2009021867 A2 20090219 - HENKEL AG & CO KGAA [DE], et al
- WO 8906270 A1 19890713 - NOVO INDUSTRI AS [DK]
- WO 2005052161 A2 20050609 - GENENCOR INT [US], et al
- WO 2005052146 A2 20050609 - GENENCOR INT [US], et al
- WO 2007044993 A2 20070419 - GENENCOR INT [US], et al
- US 5352604 A 19941004 - WILSON CHARLES R [US], et al
- US 7153818 B2 20061226 - BREVES ROLAND [DE], et al
- WO 9700324 A1 19970103 - KAO CORP [JP], et al
- EP 1022334 A2 20000726 - KAO CORP [JP]
- WO 9402597 A1 19940203 - NOVO NORDISK AS [DK], et al
- WO 9418314 A1 19940818 - GENENCOR INT [US]
- WO 9623874 A1 19960808 - NOVO NORDISK AS [DK], et al
- WO 9743424 A1 19971120 - GENENCOR INT [US]
- US 5856164 A 19990105 - OUTTRUP HELLE [DK], et al
- WO 9923211 A1 19990514 - NOVO NORDISK AS [DK]
- WO 9623873 A1 19960808 - NOVO NORDISK AS [DK], et al
- WO 0060060 A2 20001012 - NOVO NORDISK AS [DK]
- WO 2006002643 A2 20060112 - NOVOZYMES AS [DK], et al
- US 6093562 A 20000725 - BISGAARD-FRANTZEN HENRIK [DK], et al
- US 6939702 B1 20050906 - VIND JESPER [DK], et al
- US 2009217464 A1 20090903 - SOUTER PHILIP FRANK [GB], et al
- WO 9817767 A1 19980430 - PROCTER & GAMBLE [US], et al

- US 2007173430 A1 20070726 - SOUTER PHILIP F [GB], et al
- US 4430243 A 19840207 - BRAGG CHARLES D [GB]
- WO 9839406 A1 19980911 - PROCTER & GAMBLE [US], et al
- US 6218351 B1 20010417 - BUSCH DARYLE HADLEY [US], et al
- WO 0012667 A1 20000309 - UNILEVER PLC [GB], et al
- US 5597936 A 19970128 - PERKINS CHRISTOPHER M [US], et al
- US 5595967 A 19970121 - MIRACLE GREGORY SCOT [US], et al
- US 7501389 B2 20090310 - HAGE RONALD [NL], et al
- US 6225464 B1 20010501 - HILER II GEORGE DOUGLAS [US], et al
- WO 0032601 A2 20000608 - PROCTER & GAMBLE [US], et al
- US 6020303 A 20000201 - CRIPE THOMAS ANTHONY [US], et al
- US 6060443 A 20000509 - CRIPE THOMAS ANTHONY [US], et al
- MICHAEL S. SHOWELL: "Surfactant Science Series", vol. 71, 1998, MARCEL DEKKER, article "Powdered detergents", pages: 140 - 142

Citation (search report)

- [Y] WO 9416064 A1 19940721 - NOVO NORDISK AS [DK], et al
- [Y] WO 9009440 A1 19900823 - NOVO NORDISK AS [DK]
- [A] US 3451935 A 19690624 - ROALD ARNVID SVERRE [BE], et al
- [AD] US 2008206830 A1 20080828 - BECKER NATHANIEL T [US], et al
- [Y] GB 2085937 A 19820506 - KAO CORP
- [A] US 5318714 A 19940607 - MARKUSSEN ERIK K [DK], et al

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)

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EP 2674475 A1 20131218; BR 112014030417 A2 20170627; BR 112014030417 A8 20210413; BR 112014030417 B1 20240227; CN 104364364 A 20150218; CN 111205939 A 20200529; DK 2674476 T3 20180716; DK 2674476 T4 20220103; EP 2674476 A1 20131218; EP 2674476 B1 20180418; EP 2674476 B2 20211110; ES 2674940 T3 20180705; ES 2674940 T5 20220317; HU E038095 T2 20181029; IN 10427DEN2014 A 20150821; JP 2015528828 A 20151001; MX 2014015172 A 20150217; MX 370587 B 20191217; PL 2674476 T3 20180928; PL 2674476 T5 20211227; RU 2014149582 A 20160710; RU 2612142 C2 20170302; TR 201809430 T4 20180723; WO 2013188331 A1 20131219; ZA 201408580 B 20170426

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