

Title (en)
UNIT DOSE FABRIC TREATMENT PRODUCT

Title (de)
EINHEITSDOSISPRODUKT ZUR BEHANDLUNG VON TEXTILIEN

Title (fr)
PRODUIT DE TRAITEMENT DE TISSU EN DOSE UNITAIRE

Publication
EP 4349946 A1 20240410 (EN)

Application
EP 22199749 A 20221005

Priority
EP 22199749 A 20221005

Abstract (en)
A unit dose fabric treatment product comprising a liquid detergent composition contained inside a capsule formed by a water-soluble film, said detergent composition comprising an alcohol ethoxylate of formula $R-O-(CH_2)_q-H$ where q is the mole average degree of ethoxylation of the total alcohol ethoxylate, said total alcohol ethoxylate comprising greater than 70 wt.% of the alcohol ethoxylate in the range $R-O-(CH_2)_q-H$ to $R-O-(CH_2)_x-O-(CH_2)_y-H$ and x and y are absolute numbers, where $x=q-q/2$ and $y=q+q/2$, R is C12-15 alkyl.

IPC 8 full level
C11D 1/722 (2006.01); **C11D 3/50** (2006.01); **C11D 17/04** (2006.01)

CPC (source: EP)
C11D 1/722 (2013.01); **C11D 3/50** (2013.01); **C11D 17/043** (2013.01)

Citation (applicant)

- EP 3289790 A1 20180307 - GEMALTO SA [FR]
- EP 1747183 A2 20070131 - HARCROS CHEMICALS INC [US]
- US 4239917 A 19801216 - YANG KANG [US]
- WO 2022129374 A1 20220623 - UNILEVER IP HOLDINGS B V [NL], et al
- WO 2007147866 A1 20071227 - AKZO NOBEL NV [NL], et al
- WO 2011031940 A1 20110317 - PROCTER & GAMBLE [US], et al
- US 5340390 A 19940823 - MAGAURAN EDWARD D [US], et al
- WO 2021239547 A1 20211202 - BASF SE [DE]
- WO 2021165468 A1 20210826 - BASF SE [DE]
- US 5574179 A 19961112 - WAHL ERROL H [US], et al
- US 4956447 A 19900911 - GOSSELINK EUGENE P [US], et al
- US 4861512 A 19890829 - GOSSELINK EUGENE P [US]
- US 4702857 A 19871027 - GOSSELINK EUGENE P [US]
- WO 2007079850 A1 20070719 - CLARIANT PRODUKTE DEUTSCHLAND [DE], et al
- WO 2016005271 A1 20160114 - UNILEVER PLC [GB], et al
- WO 2011047987 A1 20110428 - UNILEVER PLC [GB], et al
- WO 2012119859 A1 20120913 - UNILEVER PLC [GB], et al
- WO 2013142495 A1 20130926 - MILLIKEN & CO [US], et al
- WO 2008087497 A1 20080724 - PROCTER & GAMBLE [US], et al
- WO 2020186028 A1 20200917 - PROCTER & GAMBLE [US]
- WO 2020200600 A1 20201008 - HENKEL AG & CO KGAA [DE]
- WO 2020070249 A1 20200409 - NOVOZYMES AS [DK]
- WO 2021001244 A1 20210107 - BASF SE [DE]
- WO 2020259949 A1 20201230 - UNILEVER PLC [GB], et al
- US 7262042 B2 20070828 - WEBER ANGRIT [DE], et al
- WO 2009021867 A2 20090219 - HENKEL AG & CO KGAA [DE], et al
- WO 8906279 A1 19890713 - NOVO INDUSTRI AS [DK]
- WO 9318140 A1 19930916 - NOVO NORDISK AS [DK]
- WO 9217517 A1 19921015 - MINNESOTA MINING & MFG [US]
- WO 0116285 A2 20010308 - NOVOZYMES AS [DK]
- WO 0226024 A1 20020404 - LI HAIQUAN [CN]
- WO 0216547 A2 20020228 - NOVOZYMES AS [DK]
- WO 8906270 A1 19890713 - NOVO INDUSTRI AS [DK]
- WO 9425583 A1 19941110 - NOVO NORDISK AS [DK], et al
- WO 2005040372 A1 20050506 - NOVOZYMES AS [DK], et al
- WO 2005052161 A2 20050609 - GENENCOR INT [US], et al
- WO 2005052146 A2 20050609 - GENENCOR INT [US], 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
- GB 1296839 A 19721122
- WO 9526397 A1 19951005 - NOVO NORDISK AS [DK], et al
- WO 0060060 A2 20001012 - NOVO NORDISK AS [DK]
- US 4435307 A 19840306 - BARBESGAARD PEDER O [DK], et al
- US 5648263 A 19970715 - SCHUELEIN MARTIN [DK], et al
- US 5691178 A 19971125 - SCHUELEIN MARTIN [DK], et al
- US 5776757 A 19980707 - SCHUELEIN MARTIN [DK], et al
- WO 8909259 A1 19891005 - NOVO INDUSTRI AS [DK]
- WO 9629397 A1 19960926 - NOVO NORDISK AS [DK], et al
- WO 9812307 A1 19980326 - NOVO NORDISK AS [DK], et al
- EP 0218272 A1 19870415 - GIST BROCADES NV [NL]

- EP 0331376 A2 19890906 - AMANO PHARMA CO LTD [JP]
- GB 1372034 A 19741030 - UNILEVER LTD
- WO 9506720 A1 19950309 - SHOWA DENKO KK [JP], et al
- WO 9627002 A1 19960906 - SHOWA DENKO KK [JP], et al
- WO 9612012 A1 19960425 - SOLVAY [BE], et al
- JP S6474992 A 19890320 - FUJI OIL CO LTD
- WO 9116422 A1 19911031 - KALI CHEMIE AG [DE]
- WO 03076580 A2 20030918 - GENENCOR INT [US], et al
- WO 2009007510 A1 20090115 - VALTION TEKNILLINEN [FI], et al
- WO 9613580 A1 19960509 - NOVO NORDISK AS [DK], et al
- WO 0034450 A1 20000615 - NOVO NORDISK AS [DK], et al
- WO 0192502 A1 20011206 - NOVOZYMES AS [DK]
- WO 0060063 A1 20001012 - NOVO NORDISK AS [DK], et al
- WO 9942566 A1 19990826 - NOVO NORDISK AS [DK], et al
- WO 02062973 A2 20020815 - NOVOZYMES AS [DK], et al
- WO 9704078 A1 19970206 - NOVO NORDISK AS [DK], et al
- WO 9704079 A1 19970206 - NOVO NORDISK AS [DK], et al
- US 5869438 A 19990209 - SVENDSEN ALLAN [DK], et al
- WO 2004101759 A2 20041125 - GENENCOR INT [US], et al
- WO 2004101760 A2 20041125 - GENENCOR INT [US], et al
- WO 2004101763 A2 20041125 - GENENCOR INT [US], et al
- US 6939702 B1 20050906 - VIND JESPER [DK], et al
- WO 2007087243 A2 20070802 - PROCTER & GAMBLE [US], et al
- WO 2012028435 A1 20120308 - KOLB DISTRIB LTD [CH], et al
- SANTACESATIA ET AL., IND. ENG. CHEM. RES., vol. 31, 1992, pages 2419 - 2421
- LI ET AL., ACS OMEGA, vol. 6, no. 44, 9 November 2021 (2021-11-09), pages 29774 - 29780
- HRECZUCH ET AL., J. AM. OIL CHEM. SOC, vol. 73, 1996, pages 73 - 78
- A.HAMA, J.AM.OIL. CHEM.SOC., vol. 72, 1995, pages 781 - 784
- "Surfactant Science Series", vol. 72, 1998, MARCEL DEKKER, article "Non-Ionic Surfactant Organic Chemistry"
- KREUTZER, U. R., JOURNAL OF THE AMERICAN OIL CHEMISTS' SOCIETY, vol. 61, no. 2, pages 343 - 348
- SANCHEZ M.A. ET AL., J.CHEM.TECHNOL.BIOTECHNOL, vol. 92, 2017, pages 27 - 92
- GUPTA M.K: "Ullmann's Encyclopaedia der technischen Chemie", vol. 11, 2017, ACADEMIC PRESS, pages: 436
- G.A. SMITH: "Biobased Surfactants", 2019, AOCs PRESS, article "Synthesis, Properties, and Applications", pages: 287 - 301
- COX M.EWEERASOORIVA U, J.AM.OIL. CHEM.SOC., vol. 74, 1997, pages 847 - 859
- HRECZUCH ET AL., TENSIDE SURF.DET., vol. 28, 2001, pages 72 - 80
- C. KOLANO, HOUSEHOLD AND PERSONAL CARE TODAY, 2012, pages 52 - 55
- FATTAH ET AL., FRONT. ENERGY RES, vol. 8, June 2020 (2020-06-01)
- SAAD M.G: "Algal Biofuels: Current Status and Key Challenges", ENERGIES, vol. 12, 2019, pages 1920
- MASRI M.A: "A sustainable, high-performance process for the economic production of waste-free microbial oils that can replace plant-based equivalents", ENERGY ENVIRON. SCI., vol. 12, 2019, pages 2717
- CAS, no. 27344-41 -8
- SIEZEN ET AL., PROTEIN ENGNG, vol. 4, 1991, pages 719 - 737
- SIEZEN ET AL., PROTEIN SCIENCE, vol. 6, 1997, pages 501 - 523
- "Enzymes in Detergency", 1997, MARCEL DEKKER
- DARTOIS ET AL., BIOCHEMICA ET BIOPHYSICA ACTA, vol. 1131, 1993, pages 253 - 360
- H. KONTKANEN ET AL., APP. ENVIRON. MICROBIOLOGY, 2009, pages 2148 - 2157
- H. KONTKANEN ET AL., ENZYME MICROB TECHNOL, vol. 39, 2006, pages 265 - 273

Citation (search report)

- [XY] US 4886615 A 19891212 - DEHAN LOUIS [BE]
- [IY] WO 2022072587 A1 20220407 - PROCTER & GAMBLE [US]
- [Y] WO 2022063707 A1 20220331 - UNILEVER IP HOLDINGS B V [NL], et al
- [Y] DE 20222102611 U1 20220809 - UNILEVER GLOBAL IP LTD [GB]
- [Y] WO 2022122474 A1 20220616 - UNILEVER IP HOLDINGS B V [NL], 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 ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

EP 4349946 A1 20240410

DOCDB simple family (application)

EP 22199749 A 20221005