

Title (en)

Formation of discrete, high active detergent granules using a continuous neutralization system.

Title (de)

Bildung von diskreten hochaktiven Detergenskörnern bei einem kontinuierlichen Neutralisationssystem.

Title (fr)

Formation de granules de détergent discrets à haute activité utilisant un système de neutralisation continu.

Publication

EP 0402112 A2 19901212 (EN)

Application

EP 90306139 A 19900606

Priority

US 36472189 A 19890609

Abstract (en)

A process for making discrete, high active detergent particles by: (a) reacting in a continuous neutralization system alkyl sulfuric acid and/or alkyl benzene sulfonic acid with an alkali metal hydroxide solution, (b) adding to the system polyethylene glycol of molecular weight about 4,000-50,000 and/or certain ethoxylated nonionic surfactants, and (c) forming detergent particles. The alkali metal hydroxide solution is greater than or equal to about 62% by weight of the hydroxide, and the neutralized product has less than or equal to about 12% by weight of water. Granular detergent compositions containing the detergent granules are also described.

IPC 1-7

C11D 1/831; C11D 11/04

IPC 8 full level

C11D 10/02 (2006.01); **C11D 3/37** (2006.01); **C11D 11/00** (2006.01); **C11D 11/02** (2006.01); **C11D 11/04** (2006.01); **C11D 17/06** (2006.01)

CPC (source: EP KR)

C11D 3/3707 (2013.01 - EP); **C11D 11/04** (2013.01 - EP); **C11D 17/00** (2013.01 - KR); **C11D 17/06** (2013.01 - EP); **C11D 17/065** (2013.01 - EP)

Cited by

US5665692A; US5574005A; US5723433A; US5451354A; US5935923A; US6140302A; US5486317A; JP2016536411A; US5703037A; US5516447A; US6058623A; US5641741A; US5637560A; US5739097A; CN1042746C; US5998357A; US6025320A; US6077820A; US5646107A; USRE37949E; WO9840461A1; WO9302176A1; US7186677B2; US6468957B1; EP1163318A1; EP0403148B1; WO9629390A1; WO9302168A1; WO9201778A1; WO9831780A1; WO9529215A1; EP0777720B2; EP0682691B2

Designated contracting state (EPC)

AT BE CH DE DK ES FR GB GR IT LI LU NL SE

DOCDB simple family (publication)

EP 0402112 A2 19901212; EP 0402112 A3 19910313; EP 0402112 B1 19960814; AR 242985 A1 19930630; AU 5696590 A 19901213; AU 643440 B2 19931118; BR 9002720 A 19910820; CA 2017922 A1 19901209; CA 2017922 C 19950711; CN 1026596 C 19941116; CN 1048408 A 19910109; DE 69028043 D1 19960919; DE 69028043 T2 19970306; EG 19507 A 19950629; ES 2090102 T3 19961016; FI 902874 A0 19900609; IE 902074 L 19901209; JP 2807048 B2 19980930; JP H0372600 A 19910327; KR 910001028 A 19910130; MA 21868 A1 19901231; MX 171874 B 19931122; NZ 234000 A 19911223; PT 94312 A 19910208; TR 26363 A 19950315

DOCDB simple family (application)

EP 90306139 A 19900606; AR 31702890 A 19900605; AU 5696590 A 19900608; BR 9002720 A 19900608; CA 2017922 A 19900530; CN 90104554 A 19900609; DE 69028043 T 19900606; EG 33890 A 19900607; ES 90306139 T 19900606; FI 902874 A 19900609; IE 207490 A 19900608; JP 15249190 A 19900611; KR 900008447 A 19900609; MA 22136 A 19900608; MX 2107090 A 19900608; NZ 23400090 A 19900608; PT 9431290 A 19900608; TR 55690 A 19900607