

Title (en)

Enzyme stabilizing composition and stabilized enzyme containing built detergent compositions.

Title (de)

Enzym-stabilisierende Zusammensetzung und stabilisiertes Enzym enthaltende verstärkte Waschmittelzusammensetzungen.

Title (fr)

Composition stabilisante d'enzyme et compositions détergentes renforcées contenant l'enzyme stabilisée.

Publication

EP 0451924 A2 19911016 (EN)

Application

EP 91200871 A 19910412

Priority

US 50954990 A 19900413

Abstract (en)

A three component enzyme stabilization system including boric acid, citric acid and calcium ions helps maintain the enzyme activity of aqueous built detergent compositions in accelerated aging (multiple freeze-thaw cycles). The preferred detergent compositions are "softergents" and also include a clay softener, a mixture of anionic, nonionic and amphoteric surfactants, and detergent builder(s).

IPC 1-7

C11D 3/386

IPC 8 full level

C11D 3/386 (2006.01)

CPC (source: EP)

C11D 3/38663 (2013.01)

Cited by

US6153576A; US5904736A; EP2430195A4; EP1585817A4; EP0580245A3; TR28471A; DE102014218507A1; DE102008014760A1; US9999217B2; US9133424B2; US9845489B2; US7119054B2; DE102008010429A1; US7785618B2; DE102007041754A1; WO2013090559A1; WO0202727A1; WO9621716A1; WO0224851A1; DE102007011236A1; US9725703B2; US6624132B1; US7553806B2; EP0583420B1; US6537958B1; US7795199B2; US7951767B2; US8211849B2; US10064404B2; US10772319B2; US11672247B2; US10568317B2; US11116205B2

Designated contracting state (EPC)

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

DOCDB simple family (publication)

EP 0451924 A2 19911016; EP 0451924 A3 19920311; EP 0451924 B1 19990210; AT E176682 T1 19990215; AU 651090 B2 19940714; AU 7400791 A 19911017; BR 9101486 A 19911203; CA 2040202 A1 19911014; DE 69130880 D1 19990325; DK 0451924 T3 19990920; ES 2130131 T3 19990701; FI 911800 A0 19910412; FI 911800 A 19911014; GR 1001040 B 19930331; GR 910100154 A 19920730; HK 1014026 A1 19990917; IE 911245 A1 19911023; MX 173751 B 19940325; MY 105503 A 19941031; NO 911448 D0 19910412; NO 911448 L 19911014; NZ 237570 A 19930927; PT 97325 A 19920131; TR 25788 A 19930901; ZA 912598 B 19921230

DOCDB simple family (application)

EP 91200871 A 19910412; AT 91200871 T 19910412; AU 7400791 A 19910328; BR 9101486 A 19910412; CA 2040202 A 19910410; DE 69130880 T 19910412; DK 91200871 T 19910412; ES 91200871 T 19910412; FI 911800 A 19910412; GR 910100154 A 19910412; HK 98115361 A 19981224; IE 124591 A 19910412; MX 2528191 A 19910409; MY PI19910556 A 19910404; NO 911448 A 19910412; NZ 23757091 A 19910325; PT 9732591 A 19910411; TR 41591 A 19910415; ZA 912598 A 19910408