

Title (en)  
CAST MULTILAYERED DETERGENTS

Publication  
**EP 0224136 B1 19910306 (DE)**

Application  
**EP 86115766 A 19861113**

Priority  
DE 3541153 A 19851121

Abstract (en)  
[origin: US4828745A] A block-form detergent composition for dishwashing machines based on alkali metal metasilicates, pentaalkali metal triphosphates, active chlorine compound, and surfactant. The block-form detergent composition comprises a cold water-soluble layer (1) comprising alkali metal metasilicates, and a warm water-soluble layer (2) comprising alkali metal metasilicates and pentaalkali metal triphosphate. The layer (1) and layer (2) are formed as separate melts, one melt is poured into a mold to cool and partially solidify, and the other melt added to the mold whereby the layers fuse to each other. In use, the layer (1) and layer (2) have different dissolving rates in the time-temperature program of the dishwashing machines.

IPC 1-7  
**C11D 3/06**; **C11D 3/08**; **C11D 17/00**

IPC 8 full level  
**C11D 7/14** (2006.01); **C11D 3/06** (2006.01); **C11D 3/08** (2006.01); **C11D 7/16** (2006.01); **C11D 7/54** (2006.01); **C11D 7/60** (2006.01); **C11D 17/00** (2006.01); **C11D 17/06** (2006.01)

CPC (source: EP US)  
**C11D 3/06** (2013.01 - EP US); **C11D 3/08** (2013.01 - EP US); **C11D 17/0052** (2013.01 - EP US)

Cited by  
US5900395A; EP0361380A3; EP0851023A3; EP0245760A3; GB2358405A; GB2358405B; EP2754708A1; EP3275991A1; WO2009021784A1; WO9935230A1

Designated contracting state (EPC)  
AT BE CH DE FR GB IT LI NL

DOCDB simple family (publication)  
**EP 0224136 A2 19870603**; **EP 0224136 A3 19880309**; **EP 0224136 B1 19910306**; AT E61400 T1 19910315; CA 1277888 C 19901218; DE 3541153 A1 19870527; DE 3677903 D1 19910411; JP H0455638 B2 19920903; JP S62129393 A 19870611; US 4828745 A 19890509

DOCDB simple family (application)  
**EP 86115766 A 19861113**; AT 86115766 T 19861113; CA 523263 A 19861118; DE 3541153 A 19851121; DE 3677903 T 19861113; JP 27953386 A 19861121; US 93150286 A 19861117