Title (en)

BIODEGRADABLE QUATERNARY ESTERS USED AS FLOTATION AIDS

Title (de)

BIOLOGISCH ABBAUBARE ESTERQUATS ALS FLOTATIONSHILFSMITTEL

Title (fr)

COMPOSES QUATERNAIRES D'ESTERS BIODEGRADABLES UTILISES COMME ADJUVANTS DE FLOTTATION

Publication

EP 0876222 B1 20040825 (DE)

Application

EP 97901048 A 19970117

Priority

- DE 19602856 A 19960126
- EP 9700186 W 19970117

Abstract (en)

[origin: EP1025908A1] The flotation process for removing mineral impurities, especially silicates, from ores comprises passing air through an aqueous suspension of the ground ore in the presence of a flotation aid and separating off the foam plus the impurities. The collector components used in the flotation aid comprise quaternised ester compounds (esterquats) of formula (I), (II) and/or (III), optionally with other anionic, cationic, amphoteric and/or non-ionic substances. In the formulae: R1CO, R5CO and R9CO = 6-24C acyl; R2, R3, R6 and R10 = H or 6-24C acyl; R4 = 1-4C alkyl or -(CH2CH2O)qH, where q = 1-12; R7, R8, R11, R12 and R13 = 1-4C alkyl; (m + n + p) or (m + n) = 0 or 1-12; and X = halide, alkylsulphate or alkylphosphate.

IPC 1-7

B03D 1/01

IPC 8 full level

B03D 1/01 (2006.01); **C09K 23/18** (2022.01)

CPC (source: EP KR)

B03D 1/001 (2013.01 - KR); **B03D 1/0043** (2013.01 - EP); **B03D 1/008** (2013.01 - EP); **B03D 1/011** (2013.01 - EP); **B03D 1/025** (2013.01 - KR); B03D 2201/02 (2013.01 - EP); B03D 2203/02 (2013.01 - KR); B03D 2203/04 (2013.01 - EP)

Cited by

DE102008056338A1; DE102009055379A1

Designated contracting state (EPC)

AT DE ES FI FR GB GR IE IT NL SE

DOCDB simple family (publication)

EP 1025908 A1 20000809; **EP 1025908 B1 20020403**; AT E215404 T1 20020415; AT E274377 T1 20040915; AU 1443197 A 19970820; AU 708335 B2 19990805; BR 9707082 A 19990413; DE 19602856 A1 19970731; DE 59706919 D1 20020508; DE 59711869 D1 20040930; EP 0876222 A1 19981111; EP 0876222 B1 20040825; ES 2174784 T3 20021116; ES 2227665 T3 20050401; KR 19990067053 A 19990816; MX 9805334 A 19981031; WO 9726995 A1 19970731; ZA 97573 B 19970728

DOCDB simple family (application)

EP 00107539 A 19970117; AT 00107539 T 19970117; AT 97901048 T 19970117; AU 1443197 A 19970117; BR 9707082 A 19970117; DE 19602856 A 19960126; DE 59706919 T 19970117; DE 59711869 T 19970117; EP 9700186 W 19970117; EP 97901048 A 19970117; ES 00107539 T 19970117; ES 97901048 T 19970117; KR 19980702991 A 19980424; MX 9805334 A 19980630; ZA 97573 A 19970123