

Title (en)  
DECOPPERING AGENT

Title (de)  
ENTKUPFERUNGSMITTEL

Title (fr)  
AGENT DECUIVRANT

Publication  
**EP 1472199 B1 20100331 (EN)**

Application  
**EP 03700650 A 20030113**

Priority  
• SE 0300028 W 20030113  
• SE 0200366 A 20020208

Abstract (en)  
[origin: WO03066544A1] There is provided a decoppering agent that is incorporated into the propellant to remove copper from the rifling of the internal bore of a gun barrel. The decoppering agent consists essentially of a lead-free pulverized additive mixed together with the other propellant compounds. We have found that a mixture of tin and bismuth is a very good decoppering agent. Especially in the ratio 42% Sn/58%Bi, the melting point for this combination is 138 degree C. Much lower than each of the components. It can be all kinds of suitable tin and bismuth compounds. The bismuth and tin either vaporizes or liquefies when the propellant is ignited and either embrittles or dissolves the copper deposits facilitating removal.

IPC 8 full level  
**C06B 23/04** (2006.01); **C06B 23/00** (2006.01); **F42B 5/24** (2006.01); **F42B 5/16** (2006.01)

CPC (source: EP KR US)  
**C06B 23/00** (2013.01 - KR); **C06B 23/04** (2013.01 - EP US); **F42B 5/24** (2013.01 - EP US)

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT SE SI SK TR

DOCDB simple family (publication)  
**WO 03066544 A1 20030814**; AT E462680 T1 20100415; AU 2003201797 A1 20030902; BR 0307511 A 20041207; BR 0307511 B1 20111004; CA 2475497 A1 20030814; CN 1290803 C 20061220; CN 1628085 A 20050615; DE 60331890 D1 20100512; EA 006416 B1 20051229; EA 200401051 A1 20050224; EP 1472199 A1 20041103; EP 1472199 B1 20100331; HU 228870 B1 20130628; HU P0402655 A2 20050829; IL 163376 A 20091224; JP 2005517146 A 20050609; JP 4298512 B2 20090722; KR 100950907 B1 20100405; KR 20040102005 A 20041203; RO 122058 B1 20081128; SE 0200366 D0 20020208; SE 0200366 L 20030809; SE 523997 C2 20040615; US 2005115452 A1 20050602; ZA 200406262 B 20080130

DOCDB simple family (application)  
**SE 0300028 W 20030113**; AT 03700650 T 20030113; AU 2003201797 A 20030113; BR 0307511 A 20030113; CA 2475497 A 20030113; CN 03803366 A 20030113; DE 60331890 T 20030113; EA 200401051 A 20030113; EP 03700650 A 20030113; HU P0402655 A 20030113; IL 16337604 A 20040805; JP 2003565922 A 20030113; KR 20047012179 A 20030113; RO 200400705 A 20030113; SE 0200366 A 20020208; US 91342604 A 20040809; ZA 200406262 A 20040101