

Title (en)  
SECURITY ELEMENT HAVING A VARIABLE OPTICAL EFFECT AND SECURITY SHEET OR DOCUMENT OR ARTICLE COMPRISING IT

Title (de)  
SICHERHEITSELEMENT MIT VARIABLEM OPTISCHEM EFFEKT UND ES ENTHALTENDE SICHERHEITSFOLIE ODER SCHRIFT ODER ERZEUGNIS

Title (fr)  
ELEMENT DE SECURITE A EFFET OPTIQUE VARIABLE ET FEUILLE OU DOCUMENT DE SECURITE OU ARTICLE LE COMPRENANT

Publication  
**EP 2307615 B1 20120905 (FR)**

Application  
**EP 09772742 A 20090702**

Priority  
• FR 2009051290 W 20090702  
• FR 0803772 A 20080703

Abstract (en)  
[origin: WO2010001060A2] The present invention relates to a security element having a variable optical effect, characterized in that it comprises at least one quasi-spherical particle (10) having at least one external part (11) and at least one internal part (12), said external part (11) comprising at least one cholesteric liquid crystal and said internal part (12) comprising at least one thermochromic compound and/or at least one photochromic compound undergoing a reversible transition from a colourless state to a dark colour or from a dark colour to a colourless state when said compound is subjected to an activation temperature or to activation radiation respectively, the dark colour making it possible to see the interference effect of said liquid crystal, and the colourless state making this interference effect no longer visible.

IPC 8 full level  
**D21H 21/48** (2006.01); **D21H 21/54** (2006.01); **G07D 7/06** (2006.01); **G07D 7/12** (2006.01)

CPC (source: EP US)  
**D21H 21/16** (2013.01 - EP US); **D21H 21/48** (2013.01 - EP US); **D21H 21/54** (2013.01 - EP US)

Cited by  
FR3105087A1; WO2021123136A1

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)  
**WO 2010001060 A2 20100107**; **WO 2010001060 A3 20100225**; BR PI0913871 A2 20151027; CA 2729624 A1 20100107;  
EP 2307615 A2 20110413; EP 2307615 B1 20120905; ES 2394764 T3 20130205; FR 2933428 A1 20100108; FR 2933428 B1 20100827;  
US 2011157539 A1 20110630

DOCDB simple family (application)  
**FR 2009051290 W 20090702**; BR PI0913871 A 20090702; CA 2729624 A 20090702; EP 09772742 A 20090702; ES 09772742 T 20090702;  
FR 0803772 A 20080703; US 200913001220 A 20090702