

Title (en)

SUSBTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES, COMPRISING AT LEAST ONE NICKEL OXIDE LAYER

Title (de)

SUBSTRAT MIT EINEM STAPEL MIT THERMISCHEN EIGENSCHAFTEN MIT MINDESTENS EINER NICKELOXIDSCHICHT

Title (fr)

SUBSTRAT MUNI D'UN EMPILEMENT A PROPRIETES THERMIQUES COMPORTANT AU MOINS UNE COUCHE EN OXYDE DE NICKEL

Publication

**EP 3383811 A1 20181010 (FR)**

Application

**EP 16819142 A 20161201**

Priority

- FR 1561720 A 20151202
- FR 2016053170 W 20161201

Abstract (en)

[origin: WO2017093675A1] The invention relates to a transparent substrate (30), the main face of which is provided with a stack of thin layers including at least one, or a single, functional metal layer (140) having reflection properties in the infrared and/or solar radiation ranges, in particular based on silver or metal alloy containing silver, and two anti-reflection coatings (120, 160), each comprising at least one dielectric layer (122, 126; 162, 168). The above-mentioned functional layer (40) is disposed between the two anti-reflection coatings (20, 60). The substrate is characterised in that at least one nickel oxide layer NixO is located below the functional layer (140) in the direction of the substrate (30) and/or above the functional layer (140), with at least one layer or a single layer of a different material being inserted between the nickel oxide layer NixO, or each nickel oxide layer, and the functional layer (140).

IPC 8 full level

**C03C 17/36** (2006.01)

CPC (source: EP KR RU US)

**C03C 17/002** (2013.01 - RU); **C03C 17/36** (2013.01 - EP RU US); **C03C 17/3607** (2013.01 - RU); **C03C 17/3613** (2013.01 - RU);  
**C03C 17/3642** (2013.01 - RU); **C03C 17/3644** (2013.01 - EP KR RU US); **C03C 17/3652** (2013.01 - EP KR US);  
**C03C 17/366** (2013.01 - EP KR RU US); **C03C 17/3681** (2013.01 - US); **C03C 2217/216** (2013.01 - US); **C03C 2217/217** (2013.01 - US);  
**C03C 2217/256** (2013.01 - US); **C03C 2217/73** (2013.01 - US)

Citation (search report)

See references of WO 2017093675A1

Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**WO 2017093675 A1 20170608**; BR 112018011066 A2 20181121; CA 3006338 A1 20170608; CN 108602718 A 20180928;  
CO 2018006939 A2 20180719; EP 3383811 A1 20181010; FR 3044656 A1 20170609; FR 3044656 B1 20171215; JP 2019500304 A 20190110;  
KR 20180088431 A 20180803; MX 2018006762 A 20180801; RU 2018123716 A 20200113; RU 2018123716 A3 20200408;  
RU 2721608 C2 20200521; US 10457591 B2 20191029; US 2018362397 A1 20181220

DOCDB simple family (application)

**FR 2016053170 W 20161201**; BR 112018011066 A 20161201; CA 3006338 A 20161201; CN 201680080931 A 20161201;  
CO 2018006939 A 20180702; EP 16819142 A 20161201; FR 1561720 A 20151202; JP 2018528605 A 20161201; KR 20187018222 A 20161201;  
MX 2018006762 A 20161201; RU 2018123716 A 20161201; US 201615780858 A 20161201