

Search history

Search PN=(WO2017006029) (Results 1)

1:

Search [SP]: [0001] the invention relates to a material comprising a transparent substrate coated with a stack of thin layers comprising several functional layers which can influence solar radiation and/or infrared radiation. the invention also relates to the glazings comprising these materials and also to the use of such materials for manufacturing thermal insulation and/or solar protection glazings.[0002] these glazings may be intended to equip both buildings and vehicles, in particular with a view to reducing the air-conditioning load and/or preventing excessive overheating, known as "solar control" glazings, and/or reducing the amount of energy dissipated toward the outside, known as "low-e" glazings, driven by the ever increasing prevalence of glazed surfaces in buildings and vehicle passenger compartments.[0003] glazings comprising transparent substrates coated with a stack of thin layers comprising three functional metal layers, each positioned between two dielectric coatings, have been provided in order to improve solar protection while retaining a high light transmission. these stacks are generally obtained by a sequence of depositions carried out by cathode sputtering, optionally assisted by a magnetic field. these glazings are described as selective as they make it possible: to reduce the amount of solar energy penetrating inside the buildings while exhibiting a low solar factor (sf or g), to guarantee a high light transmission.[0006] according to the invention: solar factor "g" is understood to mean the ratio, as percentage, of the total energy entering the premises through the glazing to the incident solar energy, selectivity "s" is understood to mean the ratio of the light transmission to the solar factor It/g.[0009] the patent application ep 0 645 352 discloses, for example, a transparent substrate comprising a stack of thin layers comprising at least three silver-based functional metal layers (hereinafter silver layer). the thicknesses of the silver layers increase as a function of the distance from the substrate. the glazings comprising these substrates, although exhibiting a pleasant esthetic appearance, do not exhibit a selectivity of greater than 2.0 and/or a solar factor of less than 35 percent for a light transmission of approximately 70 percent. in point of fact, it is extremely difficult to retain both a good selectivity and esthetically acceptable colors in transmission and in reflection with in particular an appearance of the glazing seen from the inside of neutral color.[0010] the object of the invention is to develop a material exhibiting improved solar control properties and in particular solar factor values of less than or equal to 34 percent for a light transmission of at least 65 percent. according to the invention, the aim is thus to minimize the solar factor and to increase the selectivity, while retaining a high light transmission, in order to make possible good insulation and good viewing.[0011] the complexity of the stacks comprising three functional layers makes it difficult to improve these thermal performance results and the properties in transmission without harming the other properties of the stack.[0012] the aim of the invention is thus to overcome these disadvantages by developing a substrate comprising a stack comprising at least three silver layers which exhibits a high selectivity, that is to say an It/g ratio which is as high as possible for a given It value, while guaranteeing an appearance, in particular in external reflection, in internal reflection and in transmission, which is pleasant to the eye. the appearance pleasant to the eye is expressed by colors being obtained, both from the outside and from the inside, which are more neutral, in the blue-green range, and which in addition vary little according to the angle of observation.[0013] the applicant has discovered, surprisingly, that, by combining the use of three silver layers of increasing thickness and of high-index dielectric materials in each dielectric coating in high proportions, the selectivity is considerably increased while retaining neutral colors for the stacks, in comparison with the existing solutions. [0014] a subject matter of the invention is a material as defined in claim 1. this material a transparent substrate coated with a stack of thin layers successively comprising, starting from the substrate, an alternation of three silver-based functional metal layers denoted, starting from the substrate, first, second and third functional layers, the thicknesses of the functional metal layers, starting from the substrate, increase as a function of the distance from the substrate, and of four dielectric coatings denoted, starting from the substrate, m1, m2, m3 and m4, each dielectric coating comprising at least one dielectric layer, so that each functional metal layer is positioned between two dielectric coatings, characterized in that: the dielectric coatings m1, m2, m3 and m4 each have an optical thickness to1, to2, to3 and to4, each dielectric coating comprises at least one high-index dielectric layer, the refractive index of which is at least 2.15 and the optical thickness of which is greater than 20 nm, the sum of the optical thicknesses of all the high-index dielectric layers of one and the same dielectric coating is denoted, according to the dielectric coating concerned, tohi1, tohi2, tohi3 or tohi4, each dielectric coating satisfies the following relationship: tohi1/to1.30, tohi2/to2.30, tohi3/to3.30, tohi4/to4.30. [0019] the solution of the invention represents an excellent compromise between the optical and thermal performance results, the transparency and the esthetic appearance. [0020] the invention also relates: to the process for obtaining a material according to the invention, to the glazing comprising at least one material according to the invention, to the use of a glazing according to the invention as solar control glazing for the building, to a building comprising a glazing according to the invention. [0025] by modulating the thicknesses of the functional layers and of the dielectric coatings, the transparency of the glazing can be controlled so as to obtain It values of the order of 65 percent. however, the major advantage of the invention is that the satisfactory visual appearance with in particular specific colors in external reflection and also external reflection values which are sufficiently low are not obtained to the detriment of the solar protection performance results. excellent energy performance results are obtained without requiring substantial modifications to the other parameters of the stack, such as the nature, the thickness and the sequence of the layers constituting it. [0026] the preferred characteristics which appear in the continuation of the description are applicable both to the process according to the invention and, if appropriate, to the products, that is to say to the materials or to the glazings comprising the material. [0027] all the light characteristics presented in the description are obtained according to the principles and methods described in the european standard en 410 relating to the determination of the light and solar characteristics of the glazings used in the glass for the construction industry. [0028] conventionally, the refractive indices are measured at a wavelength of 550 nm. the light transmission It and light reflection Ir factors are measured under the illuminant d65 with a field of vision of 2 degrees. [0029] unless otherwise indicated, all the values and ranges of values for the optical and thermal characteristics are given for a double glazing consisting of a 6-mm substrate of ordinary soda-lime glass type carrying the stack of thin layers, of a 16-mm interlayer space filled with argon in a proportion of 90 percent and with air in a proportion of 10 percent, and of another uncoated substrate of soda-lime glass type with a thickness of 4 mm. the coated substrate is placed so that the stack of thin layers occurs on face 2 of the glazing. the external reflection rext. is observed from the side of the substrate comprising the stack, while the reflection observed from the side of the substrate not comprising the stack is denoted as the internal reflection. the light transmission (It) of the substrates of ordinary soda-lime glass type, without stack, is greater than 89 percent, preferably of 90 percent [0030] unless otherwise mentioned, the thicknesses touched on in the present document, without other information, are real or geometrical physical thicknesses denoted tp and are expressed in nanometers (and not optical thicknesses). the optical thickness to is defined as the physical thickness of the layer under consideration multiplied by its refractive index at the wavelength of 550 nm: to=n*tp. as the refractive index is a dimensionless value, it may be considered that the unit of the optical thickness is that chosen for the physical thickness. [0031] if a dielectric coating is composed of several dielectric layers, the optical thickness of the dielectric coating corresponds to the sum of the optical thicknesses of the different dielectric layers constituting the dielectric coating. [0032] throughout the description, the substrate according to the invention is regarded as being positioned horizontally. the stack of thin layers is deposited above the substrate. the meaning of the expressions "above" and "below" and "lower" and "upper" is to be considered with respect to this orientation. unless specifically stipul (Results 9)

Search SFT=(coating and thermal properties) and PN=(WO2017006029) (Results 1)

3:

Search SFT=(coating and thermal properties) (Results 17220)

4:

Search SFT=(heated glaz*) (Results 193)

5:

Search SFT=(4 and 5) (Results 20)

6:

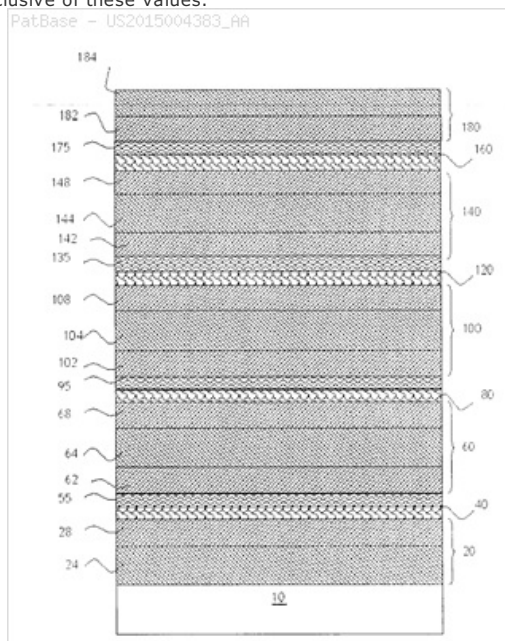
Abstract: A substrate, or a transparent glass substrate, including a thin-film multilayer including an alternation of four functional metallic layers, or functional layers based on silver or on a metal alloy containing silver, and five antireflection coatings, each antireflection coating including at least one antireflection layer, so that each functional metallic layer is positioned between two antireflection coatings. The thickness of the second, third, and fourth functional metallic layers starting from the substrate is substantially identical, with a ratio of the thickness of one layer to the thickness of the preceding layer between 0.9 and 1.1 inclusive of these values, and the thickness of the first functional metallic layer is about half the thickness of the second functional metallic layer, with a ratio of the thickness of the second metallic layer to the thickness of the first functional metallic layer between 1.9 and 2.2 inclusive of these values.

Classifications:

International (IPC 8-9): B32B17/06 B60J3/00 C03C17/36 C03C27/06 C03C27/12 E06B3/67 G02B1/11 H01L31/0216 H01L31/0224 H01L51/44 H01L51/52 (Advanced/Invention); C03C17/36 (Core/Invention)

CPC: C03C17/3618 C03C17/366 G02B1/116 E06B3/6715 B60J3/007 H01L31/022466 H01L31/02168 H01L51/442 H01L51/5203 C03C17/361 C03C17/3626 C03C17/3657 C03C17/3671 C03C17/3678 C03C17/3681 C03C17/3655 C03C2217/73 C03C17/3639 Y10T428/2495 C03C17/36

US: 428/213



Family:

Publication number	Publication date	Application number	Application date
BR112014014359 A2	20170613	BR20141114359	20130116
BR112014014359 A8	20170613	BR20141114359	20130116
BR112014014359 A8	20170627	BR20141114359	20130116
CA2858182 AA	20140604	CA20132858182	20130116
CN104039732 A	20140910	CN201380005544	20130116
CN104039732 B	20170426	CN201380005544	20130116
DE602013024317 D1	20170914	DE201360024317T	20130116
EA027007 B1	20170630	EA20140091381	20130116
EA201491381 A1	20141030	EA20140091381	20130116
EP2804843 A1	20141126	EP20130704165	20130116
EP2804843 B1	20170802	EP20130704165	20130116
ES2645615 T3	20171207	ES20130704165T	20130116
FR2985724 A1	20130719	FR20120050407	20120116
FR2985724 B1	20140307	FR20120050407	20120116
IN04796DN2014 A	20150220	IN2014DN04796	20140612
JP2015506331 T2	20150302	JP20140551668T	20130116
JP6231494 B2	20171115	JP20140551668T	20130116
KR20140124772 A	20141027	KR20147022483	20130116
MX2014008572 A1	20140822	MX20140008572	20130116
PT2804843 T	20171031	PT20130704165T	20130116
TH146372 A	20160229	TH20141004038	20130116
TR201715896 T4	20171221	TR20170015896T	20130116
US2015004383 AA	20150101	US20130372563	20130116
WO13107983 A1	20130725	WO2013FR50100	20130116

Priority:

FR20120050407 20120116 EP20130704165 20130116 WO2013FR50100 20130116

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Assignee(s): SANDRE CHARDONNAL ETIENNE ; SAINT GOBAIN GLASS FRANCE18 AVENUE D'ALSACEF-92400COURBEVOIEFR

Inventor(s): (std): SANDRE CHARDONNAL ETIENNE ; ETIENNE SANDRE CHARDONNAL

Inventor(s): SANDRE CHARDONNAL ETIENNEFR

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP; JAMET VINCENT; SAINT GOBAIN RECHERCHE; ELZABURU SLP ELZABURU SLP; AOKI ATSUSHI; KOGA TETSUJI; ISHIDA TAKASHI; FULYA SUEMERALP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: HEATED GLAZING

Abstract: The present invention relates to a laminated glazing for a motor vehicle, the light transmission of which is no less than 70 percent, including two sheets of glass assembled together by means of an intermediate thermoplastic sheet; the glazing further comprises a system of electrically conductive thin functional layers applied to a surface of one of the glass sheets, and arranged between said sheet and the intermediate sheet, the system of conductive layers being supplied by means of conductive strips arranged on said layers and on either side of the glazing, wherein the total thickness of the sheets of glass of the glazing is equal to a maximum of 3.8 mm.

Classifications:

International (IPC 8-9): B32B17/10 B60J1/00 C03C17/36

H05B3/86 (Advanced/Invention)

International (IPC 1-7): B32B17/10 C03C17/36 H05B3/86

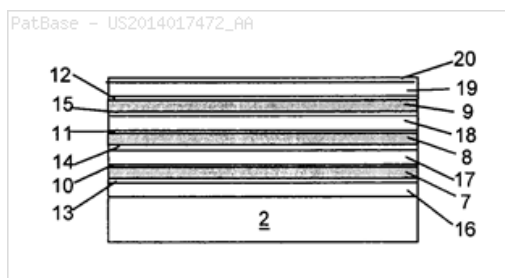
CPC: B32B17/10229 B32B17/10761 C03C17/36 C03C17/3668

C03C17/3681 H05B3/86 H05B2203/013 B60J1/002 B32B17/10036

European: B32B17/10C4 B32B17/10E10M2 B32B17/10G28

T05B203/013

US: 428/219 428/220

**Family:**

Publication number	Publication date	Application number	Application date
BE1019905 AD	20130205	BE20110000218	20110412
CN103476584 A	20131225	CN201280018106	20120412
EA028252 B1	20171031	EA20130091506	20120412
EA201391506 A1	20140331	EA20130091506	20120412
EP2697058 A1	20140219	EP20120713161	20120412
US2014017472 AA	20140116	US20120009553	20120412
WO12140098 A1	20121018	WO2012EP56599	20120412

Priority:

BE20110000218 20110412 WO2012EP56599 20120412

Probable Assignee: AGC GLASS EUROPE

Assignee(s): (std): AGC GLASS EUROPE ; COSTER DOMINIQUE ; DEPAUW JEAN MICHEL

Inventor(s): (std): DEPAUW JEAN MICHEL ; COSTER DOMINIQUE

Agent(s): LE VAGUERES SYLVAIN JACQUES; LE VAGUERES SYLVAIN

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT HW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

3) Family number: 64636232 (US2018208503A)

© PatBase

Title: GLASS COMPRISING A FUNCTIONAL COATING CONTAINING SILVER AND INDIUM

Abstract: A material includes a transparent substrate coated with a stack of thin layers including at least one silver-based functional metal coating, at least two dielectric coatings including at least one dielectric layer, so that each functional metal coating is positioned between two dielectric coatings, wherein the functional metal coating includes at least 1 percent by weight of indium relative to the weight of silver and indium in the functional metal coating.

Classifications:

International (IPC 8-9): B32B15/04 B32B15/08 C03C17/36 C23C14/06 C23C14/18 C23C14/35 (Advanced/Invention)

CPC: C03C17/3668 C23C14/0652 C23C14/185 C23C14/35 C03C17/3618 C03C17/3626 C03C17/3639 C03C17/3644

C03C17/3647 C03C17/3649 C03C17/366 C03C2217/27

Family:

Publication number	Publication date	Application number	Application date
BR112017027149 A2	20180814	BR20171127149	20160630
CN107709264 A	20180216	CN201680039907	20160630
CO20170012949 A2	20180320	CO20170012949	20171215
EP3319918 A1	20180516	EP20160750912	20160630
FR3038595 A1	20170113	FR20150056369	20150706
ID201807144 A	20180720	ID2018P0000116	20160630
IN201817003547 A	20180511	IN201817003547	20180131
JP2018528140 T2	20180927	JP20180500305T	20160630
KR20180026440 A	20180312	KR20187000103	20160630
MX2017016707 A1	20180309	MX20170016707	20160630
US2018208503 AA	20180726	US20160741962	20160630
WO17006026 A1	20170112	WO2016FR51644	20160630

Priority:

FR20150056369 20150706 WO2016FR51644 20160630

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Inventor(s): (std): NORBERT HUHNE ; JAN HAGEN ; HAGEN JAN ; HUHNE NORBERT

Agent(s): MARGARITA CASTELLANOS ABONDANO; SAINT GOBAIN RECHERCHE; IRMIGNI MYRIASANDRA
NOERHADI MIP MSEL; AOKI ATSUSHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT HW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: PROCESS FOR MANUFACTURING SUBSTRATES PROVIDED WITH A MULTILAYER HAVING THERMAL PROPERTIES, IN PARTICULAR FOR PRODUCING HEATED GLAZING UNITS

Abstract: A process for manufacturing at least one substrate, especially transparent glass substrates, each provided with a thin-film multilayer comprising an alternation of "n" metallic functional layers especially of functional layers based on silver or a metal alloy containing silver, and of "(n+1)" antireflection coatings, with n being an integer ≥ 3 , each antireflection coating comprising at least one antireflection layer, so that each functional layer is positioned between two antireflection coatings, said thin-film multilayer being deposited by a vacuum technique, said multilayer being such that the thicknesses of two functional layers at least are different and the thicknesses of the functional layers have a symmetry within the multilayer relative to the center of the multilayer.

Classifications:

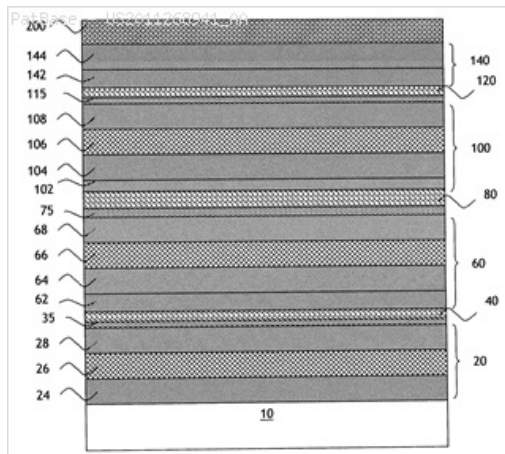
International (IPC 8-9): B32B B32B15/04 B32B17/00 B32B17/10 B32B7/02 C03C C03C17/36 C03C27/06 C23C14/06 C23C14/08 C23C14/14 C23C14/34 G02B G02B5/28 H01L H01L31/00 H05B H05B3/02 H05B3/84 H05B3/86 (Advanced/Invention); B32B17/00 C03C17/36 H01L31/00 H05B3/86 (Advanced/Non-invention); B32B17/06 C03C17/36 G02B5/28 H01L31/00 H05B3/02 H05B3/84 (Core/Invention); B32B C03C G02B H01L H05B (Subclass/Invention)

International (IPC 1-7): B32B17/10

CPC: B32B17/10229 G02B5/282 B32B17/10036 B32B17/10174 C03C17/36 C03C17/3618 C03C17/3626 C03C17/3639 C03C17/366 C03C17/3671 C03C17/3681 H05B3/86 H05B2203/013 Y10T428/2495

European: B32B17/10C4 B32B17/10E10 C03C17/36 C03C17/36B320 C03C17/36B332 C03C17/36B339 C03C17/36B352L C03C17/36B354E C03C17/36B356 G02B5/28A1 H05B3/86 T05B203/013

US: 204/192.1 204/192.100S 428/213 428/213P



Family:

Publication number	Publication date	Application number	Application date
BRPI0919445 A2	20151215	BR2009PI19445	20090930
CA2738225 AA	20100408	CA20092738225	20090930
CN102171034 A	20110831	CN200980138573	20090930
CN102171034 B	20150114	CN200980138573	20090930
EA201170518 A1	20111031	EA20110070518	20090930
EP2334495 A1	20110622	EP20090752430	20090930
FR2936510 A1	20100402	FR20080056575	20080930
IN01052KN2011 A	20110708	IN2011KN01052	20110310
JP2012504104 T2	20120216	JP20110529602T	20090930
JP5832896 B2	20151216	JP20110529602T	20090930
KR101654259 B1	20160905	KR20117006833	20090930
KR20110066921 A	20110617	KR20117006833	20090930
MX2011003220 A1	20110421	MX20110003220	20090930
US2011268941 AA	20111103	US20090121688	20090930
WO10037968 A1	20100408	WO2009FR51854	20090930
ZA201102305 A	20111228	ZA20110002305	20110329

Priority:

FR20080056575 20080930 WO2009FR51854 20090930

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): BLANCHARD ARIANE ; DRESE ROBERT ; FISCHER KLAUS ; JANZYK SEBASTIAN ; SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Inventor(s): (std): ARIANE BLANCHARD ; ROBERT DRESE ; SEBASTIAN JANZYK ; KLAUS FISCHER ; ARIANE WEISSLER ; BLANCHARD ARIANE ; JANZYK SEBASTIAN ; FISCHER KLAUS ; DRESE ROBERT

Inventor(s): WEISSLER ARIANE

Agent(s): GOUDREAU GAGE DUBUC ; JAMET VINCENT ; SAINT GOBAIN RECHERCHE ; KAWAGUTI AND PARTNERS

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Title: Pneumatic powder ejector

Abstract: The invention is in a pneumatic powder ejector comprising a suction stage and an injection stage. The suction stage includes a suction chamber (16), a venturi (14) communicating a primary gas to the suction chamber and a lateral suction input (18) offset in relation to the downstream end of the venturi. The injection stage includes a nozzle (22), an injection chamber (36) and a diffuser (38). The stages are located within a coaxially of the body of a tubular ejector. The nozzle includes a path for powder and primary gas between the suction chamber and diffuser, and is formed to provide a flow path of reduced dimension to communicate a secondary or entrainment gas between the diffuser and injection station.

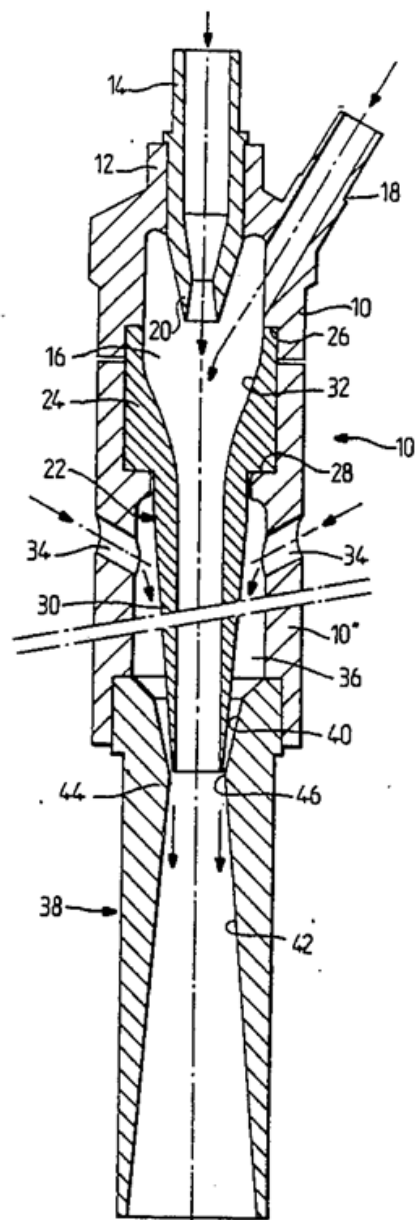
Classifications:

International (IPC 8-9): B05B7/14 B65G53/42 F04F5/22 F04F5/46 (Advanced/Invention); B05B7/14 B65G53/40 F04F5/00 (Core/Invention)

International (IPC 1-7): B05B7/00 B05B7/04 B05B7/14 B05B7/28

B05C11/06 B05C11/06 B05C11/6 B05C19/00 B05D5/00 B65G53/42
F04F5/00 F04F5/14 F04F5/22 F04F5/46
CPC: B05B7/1486 F04F5/22 F04F5/467
European: B05B7/14B2 F04F5/22 F04F5/46S
US: 239/428 406/153 417/174

PatBase - US4807814_R



Family:

Publication number	Publication date	Application number	Application date
AT40959 E	19890315	AT19850402604T	19851223
CA1302981 A1	19920609	CA19860498967	19860103
CN85109727 A	19860723	CN19851009727	19851230
CN85109727 B	19881214	CN19851009727	19851230
DE3568405 D1	19890406	DE19853568405	19851223
EP0189709 A1	19860806	EP19850402604	19851223
EP0189709 B1	19890301	EP19850402604	19851223
ES550495 A0	19870301	ES19850550495	19851227
ES550495 A2	19870331	ES19850550495	19851227
ES8703754 A1	19870301	ES19850550495	19851227
FR2575678 A1	19860711	FR19850000072	19850104
FR2575678 B1	19880603	FR19850000072	19850104
JP1691253 C3	19920827	JP19850297294	19851226
JP3059743 B4	19910911	JP19850297294	19851226
JP61181559 A2	19860814	JP19850297294	19851226
KR930000398 B1	19930118	KR19850010106	19851231
US4807814 A	19890228	US19860815973	19860103

Priority:

FR19850000072 19850104 EP19850402604 19851223 CA19860498967 19860103

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): DOUCHE JEAN PIERRE ; NIPPON SHEET GLASS CO LTD ; NIPPON ITTA GLASS CO LTD ; SAINT GOBAIN VITRAGE

Assignee(s): SAINT GOBAIN VITRAGE LES MIROIRS ; SAINT GOBAIN VITRAGE LES MIROIRS 18 AVENUE D'ALSAC ; SAINT GOBAIN VITRAGE INT ; SAINT GOBAIN SA ; NIPPON ITTA GLASS CO ; BERNARD CLAUDE ; COULON JEAN CLAUDE

Inventor(s): (std): BERNARD CLAUDE ; BERUNAARU KUROODO ; DOUCHE JEAN PIERRE ; COULON JEAN CLAUDE ;

Inventor(s): CLAUDE BERNARD ; JEAN PIERRE DOUCHE ; JEAN CLAUDE COULON ; KUROON JAN KUROODO ; DOUSHIYU JIYAN PIERU ; KUROON JIYAN KUROODO ; JEAN PIERRE DOUCHE JEAN CLAUDE COULON ET CLAUDE BE
Agent(s): JEAN PIERRE DOUCHE JEAN CLAUDE COULON ET CLAUDE BERNARD ; DOSHU JAN PIERU
Designated states: AT BE CH DE FR GB IT LI LU NL SE

6) Family number: 30172320 (US2005181219A)

© PatBase

Title: METHOD OF MANUFACTURING A COATED GLAZING PANEL AND GLAZING PANEL

Abstract: A protective coating is used in heat treating a coated glazing panel.

Classifications:

International (IPC 8-9): C03C17/38 C03C17/42 (Advanced/Invention)
International (IPC 1-7): B05D3/02 B05D5/06 B32B17/06 C03C17/38 C03C17/42

CPC: C03C17/38 C03C17/42 C03C2218/355

European: C03C17/38 C03C17/42 M03C218/355

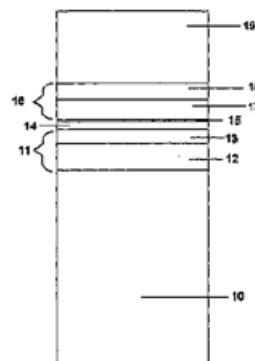
US: 427/165 427/165S 427/384 427/384S 428/426 428/426P

PatBase - US2005181219_AA

Patent Application Publication Aug. 18, 2005

US 2005/0181219 A1

Fig 1



Family:

Publication number	Publication date	Application number	Application date
AU2003252608 AA	20040202	AU20030252608	20030630
EP1380553 A1	20040114	EP20020015343	20020710
EP1521726 A1	20050413	EP20030763900	20030630
US2005181219 AA	20050818	US20030520413	20030630
WO04007387 A1	20040122	WO2003EP50278	20030630

Priority:

EP20020015343 20020710 EP20030763900 20030630 WO2003EP50278 20030630

Probable Assignee: GLAVERBEL

Assignee(s): (std): DEPAUW JEAN MICHEL ; GLAVERBEL ; LAMBERT EMMANUEL

Inventor(s): (std): DEPAUW JEAN MICHEL ; LAMBERT EMMANUEL

Inventor(s): JEAN MICHEL DEPAUW ; EMMANUEL LAMBERT

Agent(s): DLA PIPER RUDNICK GRAY CARY US, SUPERVISOR PATENT PROSECUTION SERVICES; DLA PIPER RUDNICK GRAY CARY US SUPERVISOR PATENT PROSECUTION SERVICES

Designated states: AE AG AL AM AT AU AZ BA BB BE BG BR BY BZ CA CH CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GB GD GE GH GM GR HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK MN MW MX MZ NI NL NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

7) Family number: 9976353 (US5418025A)

© PatBase

Title: WINDOW GLASS WITH AN ELECTROCONDUCTIVE LAYER, OBTAINED BY PYROLYSIS OF POWDERED COMPONENTS, WHICH CAN BE USED AS A WINDSHIELD FOR AN AUTOMOBILE

Abstract: A window glass comprising at least one sheet of glass coated with an electroconductive ITO layer, pyrolyzed from powdered components, combined with a flexible plastic material of the PVB, PU, PVC type, with an index approaching more the index of the ITO layer than the index of air, with which the said layer is coated, and a sheet of glass dyed in the mass, with the same color as the ITO layer, and with properties of reduced energy transmission also entering advantageously into the composition of the window glass is provided. The invention particularly applies to the production of heated windshields for automobiles.

Classifications:

International (IPC 8-9): B32B17/06 B32B17/10 C03C17/42

C03C27/12 C03C3/087 C03C4/02 (Advanced/Invention)

International (IPC 1-7): B32B1/00 B32B17/06 B32B17/10

B32B27/12 B60J1/00 B60J3/00 C03B C03C17/22 C03C17/23

C03C17/42 C03C27/12 C03C3/087 C03C4/02

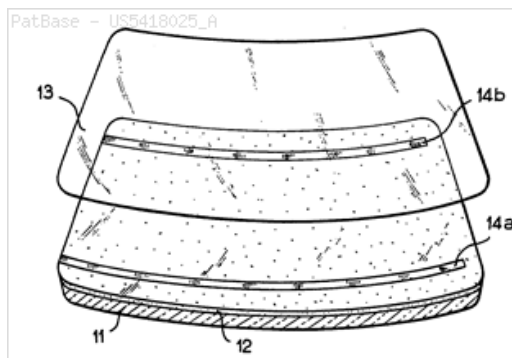
CPC: Y10S428/913 Y10S501/904 Y10S501/905 B32B17/10761

B32B17/10036 B32B17/10174 B32B17/10293 B32B17/10339

B32B17/1077 B32B17/10788 B32B17/10935 C03C3/087 C03C4/02

C03C17/42 Y10T428/24975 Y10T428/31551 Y10T428/31601

Y10T428/3163 Y10T428/31649 Y10T428/31688
European: B32B17/10C4 B32B17/10E10 B32B17/10E16
 B32B17/10E26 B32B17/10G28 B32B17/10G30 B32B17/10G36
 B32B17/10L16F C03C17/42 C03C3/087 C03C4/02
US: 219/203 219/522 219/543 425/195 425/210 425/336 425/76
 428/195 428/210 428/216 428/336 428/38 428/423.1 428/425.6
 428/426 428/432 428/437 428/442 428/460 428/697 428/699
 428/701 428/702 428/76 428/913 501/70 501/71 501/904 501/905



Family:

Publication number	Publication date	Application number	Application date
AT119471 E	19950315	AT19890402097T	19890725
AT158229 E	19971015	AT19890109000T	19890725
BRPI8903659 A	19900313	BR1989PI03659	19890724
CA1340654 A1	19990713	CA19890606816	19890727
DE68921519 D1	19950413	DE19896021519	19890725
DE68921519 T2	19951109	DE19896021519T	19890725
DE68928329 D1	19971023	DE19896028329	19890725
DE68928329 T2	19980409	DE19896028329T	19890725
EP0353140 A1	19900131	EP19890402097	19890725
EP0353140 B1	19950308	EP19890402097	19890725
EP0616883 A2	19940928	EP19940109000	19890725
EP0616883 A3	19941130	EP19940109000	19890725
EP0616883 B1	19970917	EP19940109000	19890725
ES2072310 T3	19950716	ES19890402097T	19890725
ES2109550 T3	19980116	ES19940109000T	19890725
FI102257 B	19981113	FI19890003581	19890726
FI893581 A	19900128	FI19890003581	19890726
FI893581 A0	19890726	FI19890003581	19890726
FR2634753 A1	19900202	FR19880010138	19880727
FR2634753 B1	19920821	FR19880010138	19880727
JP2080353 A2	19900320	JP19890191574	19890726
JP2788294 B2	19980820	JP19890191574	19890726
KR19900001613 A	19900227	KR19890010619	19890727
KR970007318 B1	19970507	KR19890010619	19890727
PT91284 A	19900208	PT19890091284	19890726
PT91284 B	19950301	PT19890091284	19890726
US5418025 A	19950523	US19940239929	19940509
US5786289 A	19980728	US19940178655	19940107

Priority:

FR19880010138 19880727 US19890383523 19890724 EP19890402097 19890725
 CA19890606816 19890727 US19910811907 19911223 US19940178655 19940107
 US19940239929 19940509

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN VITRAGR INTERNATI ; SAINT GOBAIN VITRAGE

Assignee(s): SAINT GOBAIN VITRAGE COURBEVOIE FR ; SAINT GOBAIN VITRAGE INT ; HARMAND HELENE ; SAINT GOBAIN SA ; SAINT GOBAIN VITRAGR INT ; SAN GOBAN BITORAAJU ; SAINT GOBAIN VITRAGE INTERNATIONAL ; SAINT GOBAIN VITRAGE INTERNATIONAL COURBEVOIE FR ; SAINT GOBAIN VITRAGR INTERNATIONAL ; SAUVINET VINCENT ; TROUVE MAURICE ; SAINT GOBAIN VITRAGE INT COURBEVOIE FR

Inventor(s): (std): HARMAND HELENE ; TROUVE MAURICE ; SAUVINET VINCENT ; TROUVE MAURICE ; SANVINET VINCENT ; EREN ARUMAN ; BANSAN SOBINE ; MOORISU TORUUBU ; HAMAND HELENE

Inventor(s): SAUVINET VINCENT F 75009 PARIS FR ; HARMAND HELENE COOGIE NSW 2034 AU ; SAUVINET VINCENT F 60950 ERMENONVILLE FR ; TROUVE MAURICE F 77140 NEMOURS FR ; HARMAND HELENE F 75011 PARIS FR ; VINCENT SAUVINET ; HELENE HARMAND ; MAURICE TROUVE ; HELENE HAMAND

Agent(s): GOUDREAU GAGE DUBUC

Designated states: AT BE CH DE ES FR GB IT LI LU NL SE

8) Family number: 32680493 (US2009233121A)

© PatBase

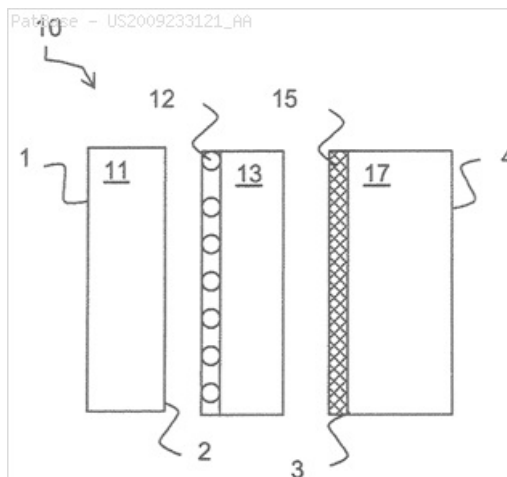
Title: LAMINATED GLAZING COMPRISING A STACK OF THIN LAYERS REFLECTING THE INFRARED RAYS AND/OR THE SOLAR RADIATION, AND A HEATING MEANS

Abstract: The invention relates to a laminated glazing (10, 10') for vehicles, comprising at least one interlayer sheet (13, 16) of thermoplastic polymer positioned between two substrates (11, 17), each substrate thus having a respective face (2, 3) turned toward said interlayer sheet (13, 16), said glazing having reflection properties in the infrared and/or in solar radiation, characterized in that a heating means (12) having a power density of at least 400 W/m², or even at least 500 W/m², is associated with the face (2), in that a means (15) having reflection properties in the infrared and/or in solar radiation is associated with the face (3) and in that said glazing has a light transmission of at least 70 percent, or even at least 75 percent.

Classifications:

International (IPC 8-9): B32B15/04 B32B17/06 B32B17/10 B60J1/00
 C03B23/023 C03C17/36 C03C27/12 G02B1/10 (Advanced/Invention);
 B32B15/04 B32B17/06 B60J1/00 C03B23/02 C03C17/00 C03C17/36

C03C27/00 C03C27/12 G02B1/10 (Core/Invention)
International (IPC 1-7): B32B17/10 C03C17/36 C03C27/12
CPC: B32B17/10385 B32B17/10935 B32B17/10 B32B17/10036
B32B17/10174 B32B17/10807 H05B2203/013 H05B2203/014
Y10T428/12569
European: B32B17/10 B32B17/10C4 B32B17/10E10 B32B17/10E32
B32B17/10L B32B17/10L16F T05B203/013 T05B203/014
US: 428/626 428/626P



Family:

Publication number	Publication date	Application number	Application date
AU2005279031 AA	20060309	AU20050279031	20050831
AU2005279031 BB	20110602	AU20050279031	20050831
BRPI0514698 A	20080617	BR2005PI14698	20050831
BRPI0514698 B1	20161011	BR2005PI14698	20050831
CA2578126 AA	20070226	CA20052578126	20050831
CA2578126 C	20140128	CA20052578126	20050831
CN101048279 A	20071003	CN200580037283	20050831
CN101048279 B	20120711	CN200580037283	20050831
EP1789255 A1	20070530	EP20050797605	20050831
EP1789255 B1	20180321	EP20050797605	20050831
ES2667525 T3	20180511	ES20050797605T	20050831
FR2874607 A1	20060303	FR20040051947	20040831
FR2874607 B1	20080502	FR20040051947	20040831
IN00717KN2007 A	20070713	IN2007KN00717	20070227
IN272021 B	20160318	IN2007KN00717	20070227
JP2008511529 T2	20080417	JP20070528948T	20050831
KR101329599 B1	20131115	KR20077004791	20050831
KR20070047331 A	20070504	KR20077004791	20050831
MX2007002493 A1	20070504	MX20070002493	20050831
PL1789255 T3	20180831	PL20050797605T	20050831
PT1789255 T	20180516	PT20050797605T	20050831
TR201808151 T4	20180723	TR20180008151T	20050831
US2009233121 AA	20090917	US20050574421	20050831
WO06024809 A1	20060309	WO2005FR50693	20050831

Priority:

FR20040051947 20040831 EP20050797605 20050831 WO2005FR50693 20050831

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): LECONTE JEAN GERARD ; SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE SA ; SAINT GOBAIN SA

Assignee(s): SAINT GOBAIN GLASS FRANCE SOC ANONYME ; SAINT GOBAIN GLASS FRANCE SOCIETE ANONYME ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN GLASS FRANCE S A

Inventor(s): (std): LECONTE JEAN GERARD ; JEAN GERARD LECONTE

Agent(s): GRIFFITH HACK; GOUDREAU GAGE DUBUC; LAVERY DE BILLY LLP; SAINT GOBAIN RECHERCHE; ELZABURU SLP ELZABURU SLP; OSAKI KATSUMASA; TSUBOKURA MICHIAKI; KANAYAMA MASATAKA; KAWAGUCHI YOSHIO; ONO MAKOTO; FULYA SUEMERALP; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

9) Family number: 62008581 (US2017218685A)

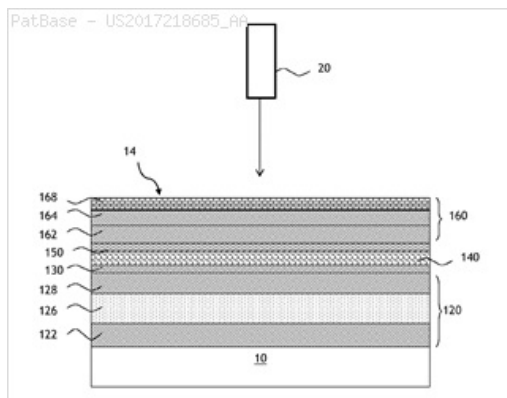
© PatBase

Title: SUBSTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES AND A SUPERSTOICHIOMETRIC INTERMEDIATE LAYER

Abstract: A substrate is coated on one face with a thin-films stack having reflection properties in the infrared and/or in solar radiation including a single metallic functional layer, based on silver or on a metal alloy containing silver, and two antireflection coatings. The coatings each include at least one dielectric layer. The functional layer is positioned between the two antireflection coatings. At least one of the antireflection coatings includes an intermediate layer including zinc oxide $Zn_{1-x}O_x$ with $0.05 < x < 0.3$ and having a physical thickness of between 0.5 nm and 20 nm, or between 2.5 nm and 10 nm.

Classifications:

International (IPC 8-9): B32B15/04 B32B9/00 C03C17/36
C03C27/06 E06B3/66 E06B3/67 (Advanced/Invention)
CPC: C03C2218/154 E06B3/6715 C03C2217/212 C03C2217/216
C03C2217/281 C03C2217/256 C03C2217/73 C03C17/36
C03C17/3626 C03C17/3644 C03C17/3652 C03C17/366
C03C17/3681



Family:

Publication number	Publication date	Application number	Application date
BR112017006220 A2	20180313	BR20171106220	20150929
CN106715351 A	20170524	CN201580053115	20150929
CO20170004368 A2	20170920	CO20170004368	20170428
EA201790761 A1	20170929	EA20170090761	20150929
EP3201152 A1	20170809	EP20150787258	20150929
FR3026403 A1	20160401	FR20140059255	20140930
FR3026403 B1	20161125	FR20140059255	20140930
IN201717011425 A	20170915	IN201717011425	20170330
JP2017537044 T2	20171214	JP20170517090T	20150929
KR20170063706 A	20170608	KR20177009867	20150929
MX2017004159 A1	20170530	MX20170004159	20150929
US2017218685 AA	20170803	US20150515354	20150929
WO16051066 A1	20160407	WO2015FR52587	20150929

Priority:

FR20140059255 20140930 WO2015FR52587 20150929

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Inventor(s): (std): NICOLAS MERCADIER ; BENOIT GEORGES ; BERTRAND KUHN ; KUHN BERTRAND ; GEORGES BENOIT ; MERCADIER NICOLAS

Agent(s): MARGARITA CASTELLANOS ABONDANO; SAINT GOBAIN RECHERCHE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

10) Family number: 62008583 (US2017240463A)

© PatBase

Title: SUBSTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES AND A SUBSTOICHIOMETRIC INTERMEDIATE LAYER

Abstract: A substrate is coated on one face with a thin-films stack having reflection properties in the infrared and/or in solar radiation including a single metallic functional layer, based on silver or on a metal alloy containing silver, and two antireflection coatings. The coatings each include at least one dielectric layer. The functional layer is positioned between the two antireflection coatings. At least one of the antireflection coatings includes an intermediate layer including zinc tin oxide $\text{Sn}_x\text{Zn}_y\text{O}_z$ with a ratio of $0.1 \leq x/y \leq 2.4$, with $0.75(2x+y) \leq z \leq 0.95(2x+y)$ and having a physical thickness of between 2 nm and 25 nm, or even between 2 nm and 12 nm.

Classifications:

International (IPC 8-9): B32B17/06 B32B3/08 C03C17/36

C03C27/06 E06B3/66 E06B3/677 G02B1/115

G02B5/08 (Advanced/Invention)

CPC: B32B17/06 B32B3/08 C03C17/3618 C03C17/3639

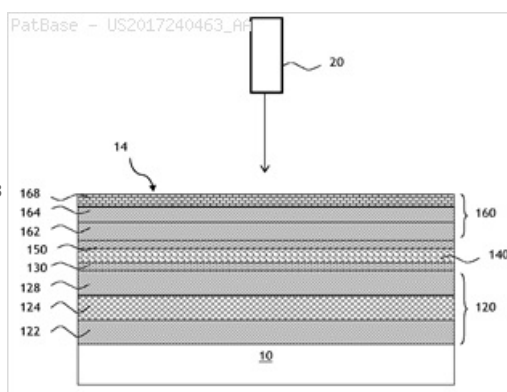
C03C17/3642 C03C17/3649 C03C17/3681 G02B5/0808 G02B1/115

B32B2255/205 B32B2255/28 B32B2307/412 B32B2419/00

C03C2217/281 C03C2217/73 C03C2218/15 C03C17/366

C03C17/3626 C03C17/3644 C03C17/36 C03C17/3652 C03C17/3673

C03C2218/322



Family:

Publication number	Publication date	Application number	Application date
BR112017006212 A2	20180306	BR20171106212	20150929
CN107074636 A	20170818	CN201580053011	20150929
CO20170004365 A2	20170929	CO20170004365	20170428
EA201790760 A1	20170831	EA20170090760	20150929
EP3201150 A1	20170809	EP20150781126	20150929

FR3026404 A1	20160401	FR20140059256	20140930
FR3026404 B1	20161125	FR20140059256	20140930
IN201717011414 A	20170915	IN201717011414	20170330
JP2017536315 T2	20171207	JP20170517091T	20150929
KR20170061690 A	20170605	KR20177010454	20150929
MX2017004160 A1	20170530	MX20170004160	20150929
US2017240463 AA	20170824	US20150515453	20150929
US10167225 BB	20190101	US20150515453	20150929
WO16051068 A1	20160407	WO2015FR52589	20150929

Priority:

FR20140059256 20140930 WO2015FR52589 20150929

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Inventor(s): (std): NICOLAS MERCADIER ; MERCADIER NICOLAS

Agent(s): MARGARITA CASTELLANOS ABONDANO; SAINT GOBAIN RECHERCHE; OBLON MCCLELLAND MAIER AND NEUSTADT LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

11) Family number: 31969629 (US2007082219A)

© PatBase

Title: TRANSPARENT SUBSTRATE WHICH CAN BE USED ALTERNATIVELY OR CUMULATIVELY FOR THERMAL CONTROL, ELECTROMAGNETIC ARMOUR AND HEATED GLAZING

Abstract: The subject of the invention is a transparent substrate, especially made of glass, provided with a thin-film stack comprising a plurality of functional layers, characterized in that said thin-film stack comprises at least three silver-based functional layers, in that said stack has a resistance $R_7 < 1.5 \Omega$ per square and in that said substrate may undergo at least one transformation operation involving a heat treatment at a temperature of at least 500 degrees centigrade, so as to make it possible to achieve, using the substrate, alternatively or cumulatively, thermal control and/or electromagnetic shielding and/or heating.

Classifications:

International (IPC 8-9): B32B15/00 B32B15/04 B32B17/00 B32B17/06 B32B17/10 B32B7/02 B32B9/04 B60S1/02 C03C17/34 C03C17/36 C03C27/00 E06B5/00 H05B3/84

H05K9/00 (Advanced/Invention);

C03C17/34 C03C17/36 (Advanced/Non-invention);

C03C (Subclass/Invention)

International (IPC 1-7): B32B17/00 C03C17/34 C03C17/36

H05B3/84 H05K9/00

CPC: B32B17/10229 C03C17/3618 B32B17/10018 B32B17/10036

B32B17/10174 B32B17/10761 B32B2367/00 C03C17/3626

C03C17/3639 C03C17/3644 C03C17/3652 C03C17/366

C03C17/3673 C03C17/3676 C03C17/3681 H01J2211/446

Y10T428/12576 Y10T428/12611 Y10T428/12778 Y10T428/2495

Y10T428/24975 Y10T428/265 C03C17/36

European: B32B17/10C2 B32B17/10C4 B32B17/10E10

B32B17/10G28 C03C17/36 C03C17/36B320 C03C17/36B332

C03C17/36B339 C03C17/36B342 C03C17/36B346 C03C17/36B352L

C03C17/36B354H C03C17/36B354M C03C17/36B356 L32B367/00

T01J211/44F

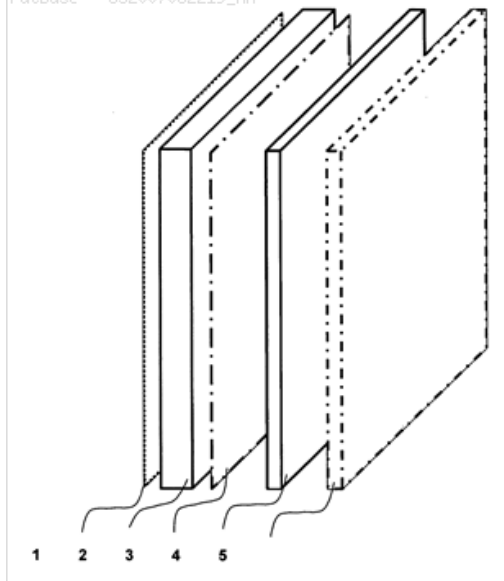
US: 427/402 427/419.7 428/213 428/213S 428/216 428/216P

428/336 428/336S 428/426 428/428 428/428S 428/432 428/432S

428/433 428/433S 428/434 428/434S 428/627 428/627S 428/632

428/632S 428/656 428/656P 428/698 428/699 428/701 428/702

PatBase - US2007082219_AA



Family:

Publication number	Publication date	Application number	Application date
BRPI0416963 A	20070221	BR2004PI16963	20041124
BRPI0416963 B1	20140624	BR2004PI16963	20041124
CA2547465 AA	20060526	CA20042547465	20041124
CA2547465 C	20130611	CA20042547465	20041124
CN101921066 A	20101222	CN201010266942	20041124
CN101921066 B	20121128	CN201010266942	20041124
CN1906136 A	20070131	CN200480041103	20041124
CN1906136 B	20101020	CN200480041103	20041124
EA015109 B1	20110630	EA20060001058	20041124
EA200601058 A1	20061027	EA20060001058	20041124
EP1689690 A1	20060816	EP20040805856	20041124
EP1689690 B1	20180905	EP20040805856	20041124
ES2693034 T3	20181207	ES20040805856T	20041124
FR2862961 A1	20050603	FR20030013966	20031128
FR2862961 B1	20060217	FR20030013966	20031128
IN01546KN2006 A	20070504	IN2006KN01546	20060606
IN252932 B	20120615	IN2006KN01546	20060606
JP2007512218 T2	20070517	JP20060540561T	20041124
JP5096001 B2	20121212	JP20060540561T	20041124
KR101150874 B1	20120613	KR20067010333	20041124

KR20060109921 A	20061023	KR20067010333	20041124
MXPA06005860 A1	20060627	MX2006PA05860	20041124
PL1689690 T3	20190329	PL20040805856T	20041124
TR201815776 T4	20181121	TR20180015776T	20041124
TW200526534 A	20050816	TW20040136324	20041125
US2007082219 AA	20070412	US20040581056	20041124
US2011236663 AA	20110929	US20110156028	20110608
US7972713 BB	20110705	US20040581056	20041124
US8440329 BB	20130514	US20110156028	20110608
WO05051858 A1	20050609	WO2004FR50614	20041124
ZA200605287 A	20071227	ZA20060005287	20060627

Priority:

FR20030013966 20031128 EP20040805856 20041124 US20040581056 20041124
WO2004FR50614 20041124 US20110156028 20110608

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): BELLIOT SYLVAIN ; FLEURY CARINNE ; NADAUD NICOLAS ; SAINT GOBAIN ; SAINT GOBAIN GLASS PRANCE ; SAINT GOBAIN SA

Assignee(s): SAINT GOBAIN GLASS FRANCE

Inventor(s): (std): NICOLAS FLEURY CARINNE BELLIOT ; NICOLAS NADAUD ; SYLVAIN BELLIOT ; CARINNE FLEURY ; NADAUD NICOLAS ; FLEURY CARINNE ; BELLIOT SYLVAIN ; NADO N ; PELEOTT S ; FLEURY C

Inventor(s): N NADO ; S PELEOTT ; C FLEURY ; FLEURY CARINNE BELLIOT SYLVAIN NADAUD NICOLAS ; NNADO ; SPELEOTT ; CFLEURY ; NADAUD NICOLAS SAINT GOBAIN RECHERCHE ; BELLIOT SYLVAIN SAINT GOBAIN RECHERCHE ; FLEURY CARINNE SAINT GOBAIN RECHERCHE

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP ; SAINT GOBAIN RECHERCHE; ELZABURU SLP
ELZABURU SLP; OSAKI KATSUMASA; TSUBOKURA MICHIAKI; KANAYAMA MASATAKA; KAWAGUCHI YOSHIO; ONO MAKOTO; FULYA SUEMERALP; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC;
OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT LLP; OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT L L P

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

12) Family number: 68505687 (US2019218140A)

© PatBase

Title: SUBSTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES COMPRISING AT LEAST ONE LAYER COMPRISING SILICON-ZIRCONIUM NITRIDE ENRICHED IN ZIRCONIUM, ITS USE AND ITS MANUFACTURE

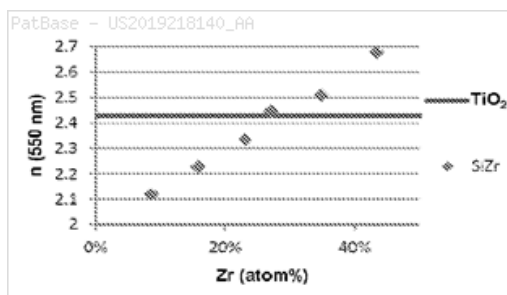
Abstract: A transparent substrate is provided on a main face with a stack of thin layers including a single metallic functional layer having properties of reflection in the infrared region and/or in the solar radiation region, in particular based on silver or on silver-containing metal alloy, and two antireflective coatings. The antireflective coatings each include at least one dielectric layer. The functional layer is positioned between the two antireflective coatings. At least the antireflective coating located between the substrate and the functional layer, indeed even both antireflective coatings, include(s) a layer including silicon-zirconium nitride, $\text{Si}_x\text{Zr}_y\text{N}_z$, with an atomic ratio of Zr to the sum Si+Zr, $y/(x+y)$, which is between 25.0 percent and 40.0 percent, these values being incorporated, indeed even between 27.0 percent and 37.0 percent, these values being incorporated.

Classifications:

International (IPC 8-9): C03C17/36 G02B1/10 G02B1/11 G02B5/08 G02B5/26 G02B5/28 (Advanced/Invention)

International (IPC 1-7): G02B5/08 G02B5/26 G02B5/28

CPC: G02B5/0808 G02B5/26 C03C17/366 G02B1/11 C03C17/3626 G02F1/155 C03C17/3644 C03C17/3649 C03C17/3681 C03C17/3642 C03C2217/216 C03C2217/256 C03C2217/261 C03C2217/281 C03C2217/734 C03C2218/154 G02B5/282 H01L31/02168 H01L31/022466



Family:

Publication number	Publication date	Application number	Application date
BR112018077209 A2	20190409	BR20181177209	20170802
CA3032330 AA	20190129	CA20173032330	20170802
CN109564305 A	20190402	CN201780048501	20170802
CO20190000614 A2	20190208	CO20190000614	20190122
EP3494420 A1	20190612	EP20170764873	20170802
FR3054892 A1	20180209	FR20160057497	20160802
IN201917003677 A	20190531	IN201917003677	20190130
KR20190032570 A	20190327	KR20197006045	20170802
US2019218140 AA	20190718	US20170318968	20170802
WO18024985 A1	20180208	WO2017FR52166	20170802

Priority:

FR20160057497 20160802 WO2017FR52166 20170802

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN ; SAINT GOBAIN SA

Assignee(s): BILLIERES DOMINIQUE ; CAILLET XAVIER ; MERCADIER NICOLAS ; ORVEN MATTHIEU

Inventor(s): (std): MERCADIER NICOLAS ; ORVEN MATTHIEU ; CAILLET XAVIER ; BILLIERES DOMINIQUE

Inventor(s): MATTHIEU ORVEN ; NICOLAS MERCADIER ; XAVIER CAILLET ; DOMINIQUE BILLIERES

Agent(s): LAVERY DE BILLY LLP; SAINT GOBAIN RECHERCHE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

13) Family number: 65976717 (US2018282206A)

© PatBase

Title: SUBSTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES COMPRISING AT LEAST ONE NICKEL OXIDE LAYER

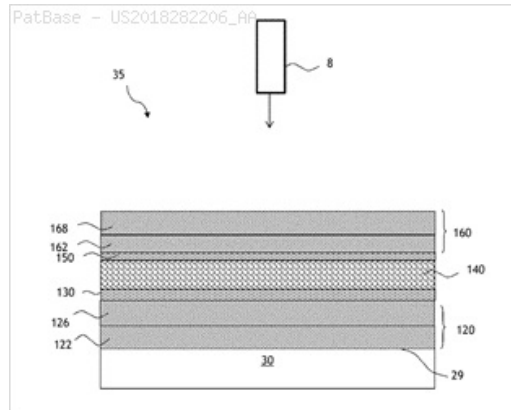
Abstract: A transparent substrate is provided, on a main face, with a stack of thin layers including at least one metallic functional layer having properties of reflection in the infrared region and/or in the solar radiation region, based on silver or on silver-containing metal alloy, and two antireflective coating. The antireflective coatings each include at least one dielectric layer. The functional layer is positioned between the two antireflective coatings. Additionally, at least one nickel oxide Ni_xO layer is located on and in contact with the functional layer starting with the substrate. A physical thickness of the nickel oxide Ni_xO layer is at least 0.3 nm.

Classifications:

International (IPC 8-9): B32B7/023 B32B9/00 C03C17/23 C03C17/36 C03C27/06 C03C27/12 C23C14/06 C23C14/08 C23C14/14 F21K9/90 H01L31/0224 H05B3/84 (Advanced/Invention)

International (IPC 1-7): C03C17/36

CPC: C03C17/3649 F21K9/90 H01L31/022466 G02F1/13439 C03C2217/73 C03C2218/154 C03C2218/155 H05B3/84 C03C17/3644 C03C17/36 C03C17/3652 C03C17/366 G02F1/155 H01L31/02168



Family:

Publication number	Publication date	Application number	Application date
BR112018011069 A2	20181121	BR20181111069	20161201
CA3006870 AA	20180524	CA20163006870	20161201
CN108602716 A	20180928	CN201680080883	20161201
CO20180006931 A2	20180719	CO20180006931	20180629
EP3383812 A1	20181010	EP20160819143	20161201
FR3044657 A1	20170609	FR20150061721	20151202
FR3044657 B1	20171215	FR20150061721	20151202
IN201817019835 A	20180928	IN201817019835	20180528
JP2019503895 T2	20190214	JP20180528768T	20161201
KR20180090839 A	20180813	KR20187018223	20161201
MX2018006763 A1	20180801	MX20180006763	20161201
US2018282206 AA	20181004	US20160780884	20161201
WO17093676 A1	20170608	WO2016FR53171	20161201

Priority:

FR20150061721 20151202 WO2016FR53171 20161201

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Assignee(s): GUIMARD DENIS ; MARIANI SILVIA

Inventor(s): (std): DENIS GUIMARD ; SILVIA MARIANI ; GUIMARD DENIS ; MARIANI SILVIA

Agent(s): GOUDREAU GAGE DUBUC; LAVERY DE BILLY LLP; CAROLINA MERCEDES DAZA MONTALVO; SAINT GOBAIN RECHERCHE; AOKI ATSUSHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

14) Family number: 65976718 (US2018362397A)

© PatBase

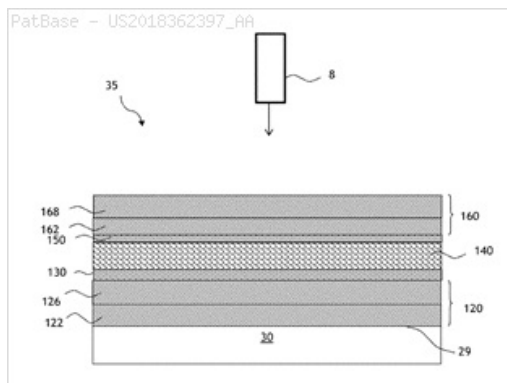
Title: SUBSTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES COMPRISING AT LEAST ONE NICKEL OXIDE LAYER

Abstract: A transparent substrate is provided, on a main face, with a stack of thin layers including at least one, metallic functional layer having properties of reflection in the infrared region and/or in the solar radiation region, based on silver or on silver-containing metal alloy, and two antireflective coatings. The antireflective coatings each include at least one dielectric layer. The functional layer is positioned between the two antireflective coatings. At least one nickel oxide Ni_xO layer is located under the functional layer in the direction of the substrate and/or above the functional layer, with interposition of at least one layer or of just one layer made of a different material between the or each nickel oxide Ni_xO layer and the functional layer.

Classifications:

International (IPC 8-9): B32B15/08 C03C17/23 C03C17/36

C03C17/40 C03C27/06 C03C27/12 H01L31/049 (Advanced/Invention)
International (IPC 1-7): C03C17/36
CPC: C03C2217/73 C03C2217/217 C03C2217/216 C03C2217/256
C03C17/3681 C03C17/3652 C03C17/36 C03C17/3644 C03C17/366



Family:

Publication number	Publication date	Application number	Application date
BR112018011066 A2	20181121	BR20181111066	20161201
CA3006338 AA	20180524	CA20163006338	20161201
CN108602718 A	20180928	CN201680080931	20161201
CO20180006939 A2	20180719	CO20180006939	20180702
EP3383811 A1	20181010	EP20160819142	20161201
FR3044656 A1	20170609	FR20150061720	20151202
FR3044656 B1	20171215	FR20150061720	20151202
IN201817019832 A	20180928	IN201817019832	20180528
JP2019500304 T2	20190110	JP20180528605T	20161201
KR20180088431 A	20180803	KR20187018222	20161201
MX2018006762 A1	20180801	MX20180006762	20161201
US2018362397 AA	20181220	US20160780858	20161201
WO17093675 A1	20170608	WO2016FR53170	20161201

Priority:

FR20150061720 20151202 WO2016FR53170 20161201

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Assignee(s): GUIMARD DENIS ; MARIANI SILVIA

Inventor(s): (std): MARIANI SILVIA ; GUIMARD DENIS ; DENIS GUIMARD ; SILVIA MARIANI

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP ; CAROLINA MERCEDES DAZA MONTALVO ; SAINT GOBAIN RECHERCHE ; AOKI ATSUSHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

15) Family number: 65976719 (WO17093677A1)

© PatBase

Title: SUBSTRATE PROVIDED WITH A STACK HAVING THERMAL PROPERTIES, COMPRISING AT LEAST ONE NICKEL OXIDE LAYER

Abstract: 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 (140) is disposed between the two anti-reflection coatings (120, 160). The substrate is characterised in that at least one nickel oxide layer NixO is located under or in contact with the functional layer (140) in the direction of the substrate (30), the physical thickness of said nickel oxide layer NixO being at least 0.3 nm, or between 0.6 and 8.0 nm, or even between 1.0 and 5.0 nm.

Classifications:

International (IPC 8-9): B32B7/023 B32B9/00 C03C17/23
C03C17/36 C03C27/06 C03C27/12 C23C14/06 C23C14/08
C23C14/14 (Advanced/Invention)

International (IPC 1-7): C03C17/36

CPC: C03C17/366 C03C17/36 C03C17/3644 C03C17/3652

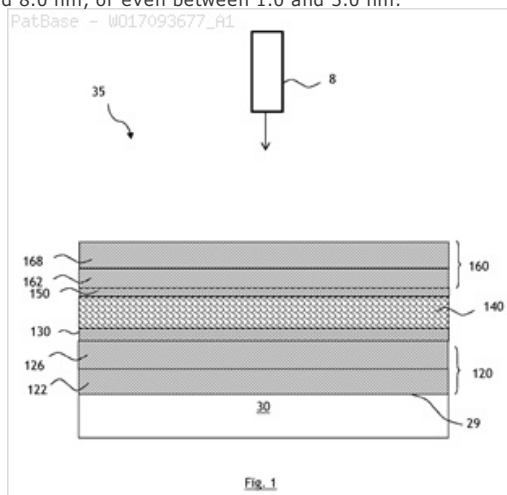


Fig. 1

Family:

Publication number	Publication date	Application number	Application date
BR112018011070 A2	20181121	BR20181111070	20161201
CA3006339 AA	20180524	CA20163006339	20161201
CN108602717 A	20180928	CN201680080901	20161201
CO20180006932 A2	20180719	CO20180006932	20180629
EP3383813 A1	20181010	EP20160819144	20161201
FR3044658 A1	20170609	FR20150061722	20151202
FR3044658 B1	20171215	FR20150061722	20151202
IN201817019979 A	20180928	IN201817019979	20180529
JP2019503894 T2	20190214	JP20180528682T	20161201
KR20180088432 A	20180803	KR20187018225	20161201
MX2018006764 A1	20180801	MX20180006764	20161201
WO17093677 A1	20170608	WO2016FR53172	20161201

Priority:

FR20150061722 20151202 WO2016FR53172 20161201

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Assignee(s): GUIMARD DENIS ; MARIANI SILVIA

Inventor(s): (std): MARIANI SILVIA ; GUIMARD DENIS ; SILVIA MARIANI ; DENIS GUIMARD ; BRETON CARINE

Inventor(s): CARINE BRETON

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP; CAROLINA MERCEDES DAZA MONTALVO; SAINT GOBAIN RECHERCHE; AOKI ATSUSHI

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KW KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

16) Family number: 65174796 (US2018244567A)

© PatBase

Title: GLAZING COMPRISING A FUNCTIONAL COATING

Abstract: A material includes a transparent substrate coated with a stack of thin layers including at least one functional coating including at least one silver-based metal functional layer, and at least one niobium-based metal or nitride functional layer.

Classifications:

International (IPC 8-9): C03C17/36 C08L23/06 C08L67/02 (Advanced/Invention)

International (IPC 1-7): C03C17/36

CPC: C03C17/3668 C08L23/06 C08L67/02 C03C2218/154 C03C17/3618 C03C2218/156 C03C2217/212 C03C2217/261 C03C2217/281 C03C2217/256 C03C2217/259 C03C17/366 C03C17/36 C03C17/3626 C03C17/3639 C03C17/3644 C03C17/3649 C03C17/3652 C03C17/3681

Family:

Publication number	Publication date	Application number	Application date
BR112018003342 A2	20180925	BR20181103342	20160905
CA2995476 AA	20180212	CA20162995476	20160905
CO20180001872 A2	20180521	CO20180001872	20180222
EP3347321 A1	20180718	EP20160775779	20160905
EP3347321 B1	20190612	EP20160775779	20160905
IN201817008309 A	20180601	IN201817008309	20180307
KR20180050385 A	20180514	KR20187009680	20160905
MX2018002860 A1	20180615	MX20180002860	20160905
US2018244567 AA	20180830	US20160758227	20160905
WO17042462 A1	20170316	WO2016FR52196	20160905

Priority:

FR20150058307 20150908 WO2016FR52196 20160905

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA

Assignee(s): SINGH LAURA ; DODET REMY

Inventor(s): (std): DODET REMY ; SINGH LAURA ; REMY DODET ; LAURA SINGH

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP; MARGARITA CASTELLANOS ABONDANO; SAINT GOBAIN RECHERCHE

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

17) Family number: 65174798 (US2018244570A)

© PatBase

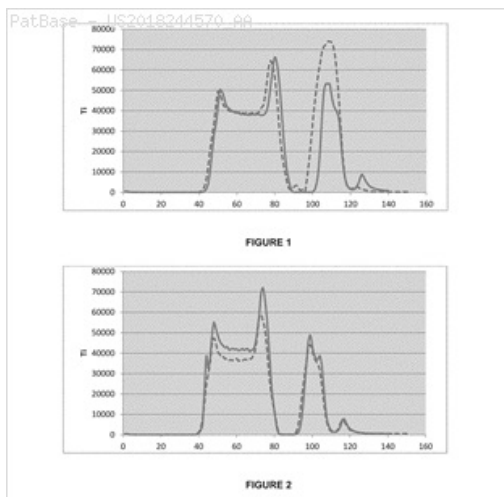
Title: GLAZING INCLUDING A STACK OF THIN LAYERS

Abstract: A material includes a transparent substrate coated with a stack of thin layers including a silver-based functional metal layer and two dielectric coatings, wherein a lower dielectric coating located below a silver-based functional layer includes a high-index layer based on metal oxide, an antidiffusion layer based on silicon and/or on aluminum, at least one oxide-based layer located above the antidiffusion layer and exhibiting a different composition from the antidiffusion layer, such as a smoothing layer and/or a wetting layer.

Classifications:**International (IPC 8-9):** C03C17/36 C23C14/35 (Advanced/Invention)**CPC:** C03C17/36 C03C17/3644 C03C17/3668 C23C14/35

C03C2218/154 C03C17/3681 C03C17/361 C03C17/3626

C03C17/3636 C03C17/366 C03C2217/734

**Family:**

Publication number	Publication date	Application number	Application date
CA2995471 AA	20180212	CA20162995471	20160905
CO20180002214 A2	20180620	CO20180002214	20180227
EP3347322 A1	20180718	EP20160775780	20160905
IN201817006130 A	20180622	IN201817006130	20180219
KR20180050716 A	20180515	KR20187009681	20160905
MX2018002861 A1	20180615	MX20180002861	20160905
US2018244570 AA	20180830	US20160758256	20160905
WO17042463 A1	20170316	WO2016FR52198	20160905

Priority:

FR20150058308 20150908 WO2016FR52198 20160905

Probable Assignee: SAINT GOBAIN SA**Assignee(s):** (std): SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA**Assignee(s):** CAILLET XAVIER ; KHARCHENKO ANDRIY**Inventor(s):** (std): KHARCHENKO ANDRIY ; CAILLET XAVIER ; XAVIER CAILLET ; ANDRIY KHARCHENKO**Agent(s):** GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP ; MARGARITA CASTELLANOS ABONDANO; SAINT GOBAIN RECHERCHE**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW**18) Family number: 48345906 (US2012177900A)**

© PatBase

Title: SUBSTRATE PROVIDED WITH A MULTILAYER HAVING THERMAL PROPERTIES, IN PARTICULAR FOR PRODUCING A HEATED GLAZING UNIT

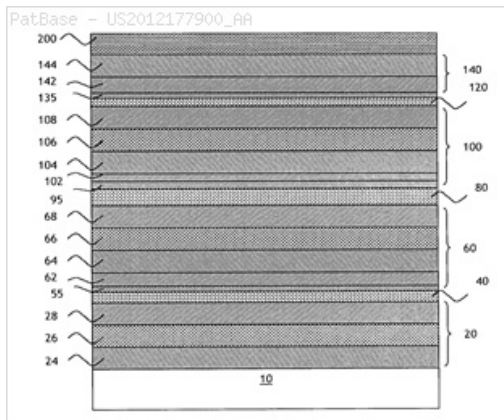
Abstract: The invention relates to a substrate (10), especially a transparent glass substrate, provided with a thin-film multilayer comprising an alternation of "n" metallic functional layers (40, 80, 120) especially of functional layers based on silver or a metal alloy containing silver, and of "(n+1)" antireflection coatings (20, 60, 100, 140), with n being an integer ≥ 3 , each antireflection coating comprising at least one antireflection layer (24, 64, 104, 144), so that each functional layer (40, 80, 120) is positioned between two antireflection coatings (20, 60, 100, 140), characterized in that the thickness e_x of each functional layer (80, 120) is less than the thickness of the preceding functional layer in the direction of the substrate (10) and is such that: $e_x = a \cdot e_{x-1}$, with: x which is the row of the functional layer starting from the substrate (10), x-1 which is the row of the preceding functional layer in the direction of the substrate (10), a which is a number such that $0.5 \leq a < 1$, and preferably $0.5 \leq a \leq 0.95$, or even $0.6 \leq a \leq 0.95$, and the thickness of the first metallic functional layer starting from the substrate is such that: $10 \leq e_1 \leq 18$ in nm, and preferably $11 \leq e_1 \leq 15$ in nm.

Classifications:**International (IPC 8-9):** B32B17/10 B32B7/02 B32B9/00 C03C17/36 C03C27/12 (Advanced/Invention)**CPC:** Y10T428/2495 C03C17/36 B32B17/10036 B32B17/10174

C03C17/3613 C03C17/3639 C03C17/366 C03C17/3681

European: B32B17/10C4 B32B17/10E10 C03C17/36

C03C17/36B316 C03C17/36B339 C03C17/36B352L C03C17/36B356

US: 428/213 428/213P**Family:**

Publication number	Publication date	Application number	Application date
--------------------	------------------	--------------------	------------------

BR112012003798 A2	20160419	BR20121103798	20100818
CA2772129 AA	20110224	CA20102772129	20100818
CA2772129 C	20171107	CA20102772129	20100818
CN102574738 A	20120711	CN201080047691	20100818
CN102574738 B	20160518	CN201080047691	20100818
EA022722 B1	20160229	EA20120070297	20100818
EA201270297 A1	20120928	EA20120070297	20100818
EP2470483 A1	20120704	EP20100762736	20100818
EP2470483 B1	20190313	EP20100762736	20100818
FR2949226 A1	20110225	FR20090055744	20090821
FR2949226 B1	20110909	FR20090055744	20090821
IN00444MN2012 A	20130111	IN2012MN00444	20120221
JP2013502366 T2	20130124	JP20120525193T	20100818
JP5744026 B2	20150701	JP20120525193T	20100818
KR101783810 B1	20171023	KR20127004408	20100818
KR20120094898 A	20120827	KR20127004408	20100818
MX2012002138 A1	20120522	MX20120002138	20100818
TR201907928 T4	20190621	TR20190007928T	20100818
US2012177900 AA	20120712	US20100391466	20100818
WO11020974 A1	20110224	WO2010FR51732	20100818

Priority:

FR20090055744 20090821 EP20100762736 20100818 WO2010FR51732 20100818

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): BILLERT ULRICH ; DRESE ROBERT ; LAURENT STEPHANE ; SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA ; SAINT GOBAIN GLASS FRANCE

Inventor(s): (std): DRESE ROBERT ; BILLERT ULRICH ; LAURENT STEPHANE ; STEPHANE LAURENT ; ROBERT DRESE ; ULRICH BILLERT

Inventor(s): LAURENT STPHANE

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP ; JAMET VINCENT ; SAINT GOBAIN RECHERCHE ; KAWAGUTI AND PARTNERS ; FULYA SUEMERALP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

19) Family number: 51446922 (US2014198389A)

© PatBase

Title: SUBSTRATE PROVIDED WITH A MULTILAYER COATING HAVING THERMAL PROPERTIES, IN PARTICULAR FOR PRODUCTION OF A HEATED GLAZING UNIT

Abstract: The invention relates to a substrate (10), especially a transparent glass substrate, equipped with a thin-film multilayer comprising, in alternation, "n" metallic functional films (40, 80, 120), in particular functional films based on silver or a metal alloy containing silver, and "(n+1)" antireflection coatings (20, 60, 100, 140), where n is an integer ≥ 3, each antireflection coating comprising at least one antireflection film, so that each functional film (40, 80, 120) is located between two antireflection coatings (20, 60, 100, 140), characterized in that said multilayer comprises at least two high-refractive-index antireflection films (25, 145), each having a refractive index > 2.15 such that the antireflection coating (20) located under the first, starting from the substrate, functional film (40) and the antireflection coating located on the last, starting from the substrate, functional film each comprise at least one high-refractive-index antireflection film (25, 145) and each antireflection coating (60, 100) located between two functional films does not comprise a high-refractive-index film.

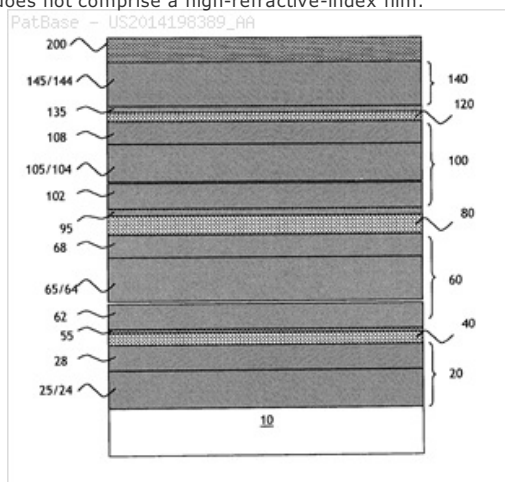
Classifications:

International (IPC 8-9): B32B17/10 C03C17/34 C03C17/36 G02B1/11 G02B1/16 G02B5/20 G02B5/26 G02F1/15 (Advanced/Invention)

CPC: G02B1/11 C03C17/366 C03C17/3681 C03C2217/73 C03C2217/734 C03C17/3618 C03C17/3626 C03C17/3639 C03C17/3644 C03C17/3652 C03C17/36

European: C03C17/36 C03C17/36B320 C03C17/36B332 C03C17/36B339 C03C17/36B342 C03C17/36B346

US: 359/585



Family:

Publication number	Publication date	Application number	Application date
CA2822399 AA	20130619	CA20122822399	20120106
CN102803175 A	20121128	CN201280000676	20120106
CN102803175 B	20160803	CN201280000676	20120106
DE202012102879 U1	20121018	DE201220102879U	20120106
DE602012032201 D1	20170622	DE201260032201T	20120106
EA029169 B1	20180228	EA20130091010	20120106
EA201391010 A1	20131129	EA20130091010	20120106
EP2661417 A1	20131113	EP20120702304	20120106

EP2661417 B1	20170510	EP20120702304	20120106
ES2634515 T3	20170928	ES20120702304T	20120106
FR2970248 A1	20120713	FR20110050087	20110106
HU034237 T2	20180228	HU20120702304T	20120106
IN06189DN2013 A	20141212	IN2013DN06189	20130710
IN299254 B	20180727	IN2013DN06189	20130710
JP2014504583 A2	20140224	JP20130547898	20120106
JP2014504583 T2	20140224	JP20130547898T	20120106
JP6054881 B2	20161227	JP20130547898T	20120106
KR101949297 B1	20190218	KR20137016820	20120106
KR20140003460 A	20140109	KR20137016820	20120106
MX2013007748 A1	20130815	MX20130007748	20120106
MX348052 B	20170525	MX20130007748	20120106
PT2661417 T	20170814	PT20120702304T	20120106
TR201711364 T4	20171121	TR20170011364T	20120106
US2014198389 AA	20140717	US20120978042	20120106
US9599752 BB	20170321	US20120978042	20120106
WO12093238 A1	20120712	WO2012FR50041	20120106

Priority:

FR20110050087 20110106 EP20120702304 20120106 WO2012FR50041 20120106

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): DRESE ROBERT ; LAURENT STEPHANE ; SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ; SAINT GOBAIN SA ; SKANTZE RUTH VERENA

Inventor(s): (std): DRESE ROBERT ; LAURENT STEPHANE ; STEPHANE LAURENT ; ROBERT DRESE

Inventor(s): LAURENT STPHANE ; RUTH VERENA SKANTZE ; NEE DRESE

Agent(s): GOUDREAU GAGE DUBUC ; LAVERY DE BILLY LLP ; JAMET VINCENT ; SAINT GOBAIN RECHERCHE ; ELZABURU SLP ELZABURU SLP ; AOKI ATSUSHI ; KOGA TETSUJI ; ISHIDA TAKASHI ; FULYA SUEMERALP ; OBLON MCCLELLAND MAIER AND NEUSTADT LLP

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

20) Family number: 30189922 (US2003235719A)

© PatBase

Title: TRANSPARENT SUBSTRATE COATED WITH AT LEAST ONE THIN LAYER

Abstract: A transparent glass substrate (1, 1', 1'') coated with one or more thin layers (6, 16, 28) is disclosed, wherein the thin layer most distant from the glass substrate is a composition comprising silicon nitride, carbonitride, oxynitride or oxycarbonitride, said thin layer most distant from the glass substrate being covered by a second layer (7, 17) which protects against high-temperature corrosion. --

Classifications:

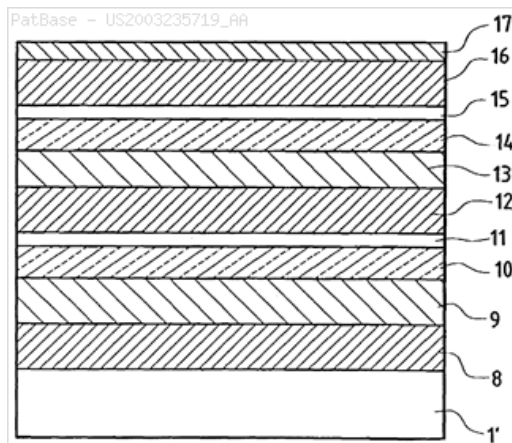
International (IPC 8-9): B32B15/04 B32B17/06 B32B5/00 B32B9/00 C03C17/22 C03C17/34 C03C17/36 G02B1/10 G02B1/11 G02B1/115 G02B1/14 G02B5/28 (Advanced/Invention)

International (IPC 1-7): B32B15/04 B32B9/00 B60J1/00 C03C17/06 C03C17/22 C03C17/34 C03C17/36 G02B1/10 G02B1/11 G02B5/28

CPC: Y10T428/265 C03C17/3618 C03C17/3435 C03C17/36 C03C17/3626 C03C17/3639 C03C17/3642 C03C17/3644 C03C17/3652 C03C17/366 C03C17/3681 Y10T428/31612

European: C03C17/34D4B C03C17/36 C03C17/36B320 C03C17/36B332 C03C17/36B339 C03C17/36B340 C03C17/36B342 C03C17/36B346 C03C17/36B352L C03C17/36B356

US: 428/336 428/336P 428/336S 428/426 428/426S 428/429 428/429S 428/432 428/432S 428/469 428/469S 428/697 428/698 428/698P 428/701 428/702



Family:

Publication number	Publication date	Application number	Application date
AT227698 E	20021115	AT19980940291T	19980721
CZ299869 B6	20081217	CZ19990001009	19980721
CZ9901009 A3	19991117	CZ19990001009	19980721
DE69809385 D1	20021219	DE19986009385	19980721
DE69809385 D1	20021219	DE19986009385T	19980721
DE69809385 T2	20030911	DE19986009385T	19980721
EP0937013 A1	19990825	EP19980940291	19980721
EP0937013 B1	20021113	EP19980940291	19980721
ES2187052 T3	20030516	ES19980940291T	19980721
FR2766174 A1	19990122	FR19970009223	19970721
FR2766174 B1	19990820	FR19970009223	19970721
JP2001500813 T2	20010123	JP19990509416T	19980721
PL189624 B1	20050831	PL19980332285	19980721
PL332285 A1	19990830	PL19980332285	19980721
PT937013 T	20030331	PT19980940291T	19980721
US2003235719 AA	20031225	US20030354081	20030130

US2008261035 AA	20081023	US20080132762	20080604
US7527868 BB	20090505	US20030354081	20030130
WO9905072 A1	19990204	WO1998FR01598	19980721

Priority:

FR19970009223 19970721 US19980269077 19980721 WO1998FR01598 19980721
 US19990269077 19991119 US20030354081 20030130 US20080132762 20080604

Probable Assignee: SAINT GOBAIN SA

Assignee(s): (std): BARRIERES FREDERIC ; GRIMAL JEAN MICHEL ; SAINT GOBAIN ; SAINT GOBAIN GLASS FRANCE ;
 SAINT GOBAIN VITRAGE ; SAINT GOBAIN VITRAGE OF COURBE ; SAINT GOBAIN SA

Assignee(s): SAINT GOBAIN VITRAGE INTERNATIONAL ; SAINT GOBAIN VITRAGE OF COURBEVOIE ; SAINT GOBAIN
 VITRAGE INT ; SAINT GOBAIN GLASS FRANCE COURBEVOIE ; SAINT GOBAIN GLASS FRANCE S A ;
 SAINT GOBAIN GLASS FRANCE S A COURBEVOIE ; SAINT GOBAIN GLASS FRANCE SA

Inventor(s): (std): GRIMAL JEAN MICHEL ; BARRIERES FREDERIC ; BARRIERES FRUDURIC

Inventor(s): FREDERIC BARRIERES ; JEAN MICHEL GRIMAL

Agent(s): OBLON SPIVAK MCCLELLAND MAIER AND NEUSTADT PC

Designated states: AT BE CH CY CZ DE DK ES FI FR GB GR IE IT JP LI LU MC MX NL PL PT SE US