

Search query (2): [SP]: field of applicationthe present invention relates to a laminar body for making greenhouse roofs and method of greenhouse cultivation.state of the artas is known, in greenhouse cultivation it is fundamental to reduce the daytime temperature inside the greenhouses, depending on the luminous transmittance of the roof (film or sheet) and the current state of the cultivation.up to today, the lowering of temperatures exceeding the limits of physiological tolerance has been achieved by inserting dispersion or filtering agents in the roofs.in all cases, the additives used de facto reduce the solar radiation available to the plants and therefore their photosynthesis with an evident negative effect on the plants themselves. at moments of greatest insolation and irradiation in fact the opposite effect should be encouraged (i.e. an increase in photosynthesis) so as to have increased productivity and healthiness of the cultivation.within this framework multilayer films have been proposed for making greenhouse roofs, designed with a multilayer structure and a chemical composition of the individual layers such as to increase the "photoluminescence" of the film with the transformation of radiant bands from the uv field to the visible field. the beneficial effects on the plants are however limited.the use of additives must, in addition, be assessed bearing in mind the effects on the mechanical and chemical resistance of the laminar body to be used for the roof.this is even more important in the case of roofs made with flexible films, as against roofs made with rigid or semi-rigid sheets. flexible films are cheaper than rigid sheets, require less sturdy support structures and are easier to apply but, at the same time, are generally less mechanically and chemically resistant.the choice of roof material and additives is therefore very important since different, sometimes contrasting, requirements need to be catered to. for example, mechanical resistance can be increased by increasing the thickness, but this reduces the luminous transmission of the laminar body. moreover, for the same thickness, the thermic effect (understood as the ability to maintain the temperature in the greenhouses at night) for example of a material such as plasticised pvc (widely used to make rigid sheets) is over twice that of another material such as polyethylene (used to make flexible films).in such regard examples may be cited of films made from ldpe, eva/c, pp with the addition of additives, generally silicates or carbonates, which prevent or limit the direct transmission of solar radiation (uva, visible or short ir) on the plants preventing scorching resulting from the refraction or diffraction of solar rays.these films, known as "diffused light" contain mineral charges or other solutions which have an effect of reflecting all the luminous radiation, including uva rays, partially inside the green house and partially outside. the various rebounds of the luminous rays determine a reduction of incoming energy, but, at the same time, a lowering of the radiant level for the plants, despite guaranteeing a positive and certain luminous uniformity. the final effect is that of a total lowering of radiation which, often, may be insufficient for physiological requirements.the additives used further weaken the structure of the film and, for the same thickness, reduce its mechanical resistance.a film based on a polymer material containing dispersed bubbles of gas is also mentioned. this film has an average lower mechanical resistance than its counterparts produced with same base polymer. in addition, the high absorption of solar radiation in the short infrared field (due to the presence of the bubbles which cause a particular physical and chemical structure), reduces the input of direct light inside the greenhouse, determining situations of low radiation sometimes incompatible with the requirements of many crops. the same observation also applies as regards the almost total absorbance in the uv field.as is known, another problem typical of greenhouse cultivation is the formation of condensation on the inner surface of the roofs. this phenomenon is extremely damaging to the crops, given that it provides an ideal environment for the proliferation of parasites, as well as direct and irreparable damage resulting from the dripping of drops of condensation onto the leaves or fruits.generally, the electrostatic charge present on the surface of normal films used for making roofs is unable to resolve this serious problem of condensation. currently, the phenomenon is therefore attenuated by adding surfactants to the film so as to reduce the surface tension, which have however a limited efficacy and relatively short duration.presentation of the inventionconsequently, the purpose of the present invention is to eliminate the drawbacks of the prior art mentioned above by making available a laminar body for making greenhouse roofs which makes it possible to increase the photosynthesis activity of the crops without reducing the screening effect.a further purpose of the present invention is to make available a laminar body for making greenhouse roofs which permits a reduction of the formation of condensation inside the greenhouse without the use of surfactants.a further purpose of the present invention is to make available a laminar body to make greenhouse roofs which is mechanically and chemically resistant.a further purpose of the present invention is to make available a laminar body to make greenhouse roofs which is easy and economical to produce.a further purpose of the present invention is to make available a greenhouse cultivation method which makes it possible to increase the photosynthesis activity of the plants without reducing its protective effect.the technical characteristics of the invention according to the aforesaid purposes can be clearly seen from the contents of the claims below and the advantages of the same will be more clearly evident from the detailed description which follows.detailed descriptionaccording to a general embodiment of the invention the laminar body for making greenhouse roofs comprises at least one laminar layer, which defines at least one main surface of the laminar body and comprises a polymer matrix and nano-particles of titanium dioxide tio2 in the anatase and/or rutilium form, dispersed in the polymer matrix.as will be explained further and more clearly below, for the purposes of the invention, in a condition of use the laminar body is oriented with the main surface, defined by the aforesaid at least one laminar layer with nano-particles, facing directly inside the greenhouse.the nano-particles of titanium dioxide tio2 have dimensions not greater than 100 nm (nanometers).the titanium dioxide is present in a concentration in weight of between 30 and 1500 ppm in relation to the polymer matrix (i.e. between 0.003 percent and 0.15 percent in weight). it has in fact been observed that concentrations of titanium dioxide in the form of nano-particles over 1500 ppm in weight (in particular if over 1 percent in weight) become essentially harmful because of their violent oxidising effect of the molecular bonds, destroying the film in a very short time and lowering the luminous transmittance of the film to unacceptable values for cultivation. other negative effects will be pointed out further on in the descriptionpreferably, the titanium dioxide is present in a concentration in weight of between 300 and 1500 ppm (i.e. between 0.03 percent and 0.15 percent in weight) in relation to the polymer matrix.preferably, the nano-particles of titanium dioxide tio2 have dimensions not greater than 20 nm, and even more preferably not more than 10 nm.advantageously the nano-particles of titanium dioxide are evenly dispersed in the polymer matrix.preferably, the titanium dioxide tio2 has a purity of not less than 99.5 percent. preferably, the titanium dioxide is free of contaminant elements which could have negative effects on the polymer matrix.according to a preferred embodiment solution, the titanium dioxide tio2 is in the anatase form.it is possible to envisage the use of a mixture of titanium dioxide in the anatase form and in the rutilium form.preferably, the polymer matrix is made from polyolefins and thermoplastic copolymers of polyolefins.in particular, the polymer matrix of the aforesaid layer with nano-particles comprises one or more polymers, taken singly or mixed with each other, chosen from the group consisting of polyethylene (pe), linear low density polyethylene (lldpe), polypropylene (pp), copolymer propylene, ethylene vinyl acetate (eva), ethylene butyl acrylate (eba), ethylene methyl acrylate (ema), poly methyl methacrylate (pmma), polycarbonate (pc), polyamide (pa), ethylene tetra fluoroethylene (etfe) and polyvinylidene fluoride (pvdf). the use of other polymers is not excluded.preferably, the aforesaid at least one laminar layer is additives by extrusion or co-extrusion. in the same way, even in the case in which the laminar layer comprises two or more of such laminar layers (as will be described further on in the description), such layers are obtained singly by extrusion (and then joined to each other), or are obtained already joined together by co-extrusion.advantageously, the polymer matrix comprises within it photo-stabilising additives.preferably, photo-stabilisers are used which do not have screening properties against uv rays. in particular, such stabilisers are stereo-hindered amine stabilizers, either hals (hindered amine light stabilisers) (hals) or nor_hals (monomeric n-alkoxy hindered amine light stabilisers).

Results: 31

Search history

Search FT=(Laminar body and greenhouse cultivation and nano-particles and TiO2) (Results 1)

1:

Search [SP]: field of applicationthe present invention relates to a laminar body for making greenhouse roofs and method of greenhouse cultivation.state of the artas is known, in greenhouse cultivation it is fundamental to reduce the daytime temperature inside the greenhouses, depending on the luminous transmittance of the roof (film or sheet) and the current state of the cultivation.up to today, the lowering of temperatures exceeding the limits of physiological tolerance has been achieved by inserting dispersion or filtering agents in the roofs.in all cases, the additives used de facto reduce the solar radiation available to the plants and therefore their photosynthesis with an evident negative effect on the plants themselves. at moments of greatest insolation and irradiation in fact the opposite effect should be encouraged (i.e. an increase in photosynthesis) so as to have increased productivity and healthiness of the cultivation.within this framework multilayer films have been proposed for making greenhouse roofs, designed with a multilayer structure and a chemical composition of the individual layers such as to increase the "photoluminescence" of the film with the transformation of radiant bands from the uv field to the visible field. the beneficial effects on the plants are however limited.the use of additives must, in addition, be assessed bearing in mind the effects on the mechanical and chemical resistance of the laminar body to be used for the roof.this is even more important in the case of roofs made with flexible films, as against roofs made with rigid or semi-rigid sheets. flexible films are cheaper than rigid sheets, require less sturdy support structures and are easier to apply but, at the same time, are generally less mechanically and chemically resistant.the choice of roof material and additives is therefore very important since different, sometimes contrasting, requirements need to be catered to. for example, mechanical resistance can be increased by increasing the thickness, but this reduces the luminous transmission of the laminar body. moreover, for the same thickness, the thermic effect (understood as the ability to maintain the temperature in the greenhouses at night) for example of a material such as plasticised pvc (widely used to make rigid sheets) is over twice that of another material such as polyethylene (used to make flexible films).in such regard examples may be cited of films made from ldpe, eva/c, pp with the addition of additives, generally silicates or carbonates, which prevent or limit the direct transmission of solar radiation (uva, visible or short ir) on the plants preventing scorching resulting from the refraction or diffraction of solar rays.these films, known as "diffused light" contain mineral charges or other solutions which have an effect of reflecting all the luminous radiation, including uva rays, partially inside the green house and partially outside. the various rebounds of the luminous rays determine a reduction of incoming energy, but, at the same time, a lowering of the radiant level for the plants, despite guaranteeing a positive and certain luminous uniformity. the final effect is that of a total lowering of radiation which, often, may be insufficient for physiological requirements.the additives used further weaken the structure of the film and, for the same thickness, reduce its mechanical resistance.a film based on a polymer material containing dispersed bubbles of gas is also mentioned. this film has an average lower mechanical resistance than its counterparts produced with same base polymer. in

addition, the high absorption of solar radiation in the short infrared field (due to the presence of the bubbles which cause a particular physical and chemical structure), reduces the input of direct light inside the greenhouse, determining situations of low radiation sometimes incompatible with the requirements of many crops. the same observation also applies as regards the almost total absorbance in the uv field.as is known, another problem typical of greenhouse cultivation is the formation of condensation on the inner surface of the roofs. this phenomenon is extremely damaging to the crops, given that it provides an ideal environment for the proliferation of parasites, as well as direct and irreparable damage resulting from the dripping of drops of condensation onto the leaves or fruits.generally, the electrostatic charge present on the surface of normal films used for making roofs is unable to resolve this serious problem of condensation. currently, the phenomenon is therefore 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purpose of the present invention is to make available a greenhouse cultivation method which makes it possible to increase the photosynthesis activity of the plants without reducing its protective effect.the technical characteristics of the invention according to the aforesaid purposes can be clearly seen from the contents of the claims below and the advantages of the same will be more clearly evident from the detailed description which follows.detailed descriptionaccording to a general embodiment of the invention the laminar body for making greenhouse roofs comprises at least one laminar layer, which defines at least one main surface of the laminar body and comprises a polymer matrix and nano-particles of titanium dioxide tio2 in the anatase and/or rutilium form, dispersed in the polymer matrix.as will be explained further and more clearly below, for the purposes of the invention, in a condition of use the laminar body is oriented with the main surface, defined by the aforesaid at least one laminar layer with nano-particles, facing directly inside the greenhouse.the nano-particles of titanium dioxide tio2 have dimensions not greater than 100 nm (nanometers).the titanium dioxide is present in a concentration in weight of between 30 and 1500 ppm in relation to the polymer matrix (i.e. between 0.003 percent and 0.15 percent in weight). it has in fact been observed that concentrations of titanium dioxide in the form of nano-particles over 1500 ppm in weight (in particular if over 1 percent in weight) become essentially harmful because of their violent oxidising effect of the molecular bonds, destroying the film in a very short time and lowering the luminous transmittance of the film to unacceptable values for cultivation. other negative effects will be pointed out further on in the descriptionpreferably, the titanium dioxide is present in a concentration in weight of between 300 and 1500 ppm (i.e. between 0.03 percent and 0.15 percent in weight) in relation to the 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(lldpe), polypropylene (pp), copolymer propylene, ethylene vinyl acetate (eva), ethylene butyl acrylate (eba), ethylene methyl acrylate (ema), poly methyl methacrylate (pmma), polycarbonate (pc), polyamide (pa), ethylene tetra fluoroethylene (etfe) and polyvinylidene fluoride (pvdf). the use of other polymers is not excluded.preferably, the aforesaid at least one laminar layer is obtained by extrusion or co-extrusion. in the same way, even in the case in which the laminar layer comprises two or more of such laminar layers (as will be described further on in the description), such layers are obtained singly by extrusion (and then joined to each other), or are obtained already joined together by co-extrusion.advantageously, the polymer matrix comprises within it photo-stabilising additives.preferably, photo-stabilizers are used which do not have screening properties against uv rays. in particular, such stabilisers are stereo-hindered amine stabilizers, either hals (hindered amine light stabilisers) (hals) or nor_hals (monomeric n-alkoxy hindered amine light stabilisers). (Results 31)

1) Family number: 53699821 (US2014157663A)

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Title: LAMINAR BODY FOR MAKING GREENHOUSE ROOFS AND METHODS OF GREENHOUSE CULTIVATION

Abstract: The invention relates to a laminar body for making greenhouse roofs, comprising at least one laminar layer, which defines at least one main surface of the laminar body and comprises a polymer matrix and nano-particles of titanium dioxide TiO2 in the anatase and/or rutilium form, dispersed in the polymer matrix. The nano-particles have dimensions not greater than 100 nm. The titanium dioxide is present with a concentration in weight of between '30 and 1500 ppm in relation to the polymer matrix. The invention also relates to a method of greenhouse cultivation and the use of the laminar body according to the invention for making greenhouse roofs. The invention also relates to a greenhouse having a roof comprising at least one laminar body according to the invention and to a masterbatch for making a laminar layer of a laminar body according to the invention.

Classifications:

International (IPC 8-9): A01G A01G9/14 B32B27/18 B32B27/20 B32B27/30 C08J3/22 C08K3/18 C08K3/22 C08K3/34 C08K5/10 C08K5/1535 C08L101/00 (Advanced/Invention); C08L23/12 C08L31/04 (Advanced/Non-invention)

International (IPC 1-7): A01G9/14 B32B27/20 B32B27/30 C08J3/22 C08K3/22

CPC: C08K5/1535 C08K5/10 C08K3/34 C08K3/22 A01G9/1438 B32B27/306 B32B2264/102 C08J3/226 C08K2003/2241 C08K2201/011 C08L23/12 C08L31/04 A01G9/14 B32B27/20 Y02A40/252 Y10T428/256

US: 428/328 47/17 524/111 524/315 524/492 524/497

Family:

Publication number	Publication date	Application number	Application date
BR112014001233 A2	20170613	BR20141101233	20121030
BR112014001233 A2	20171121	BR20141101233	20121030
BR112014001233 A2	20170613	BR20141101233	20121030
BR112014001233 A2	20171121	BR20141101233	20121030
CA2841718 AA	20140114	CA20122841718	20121030
CL2014001059 A1	20141114	CL20140001059	20140425
CN103957692 A	20140730	CN201280053865	20121030
CN103957692 B	20170711	CN201280053865	20121030
CO7010819 A2	20140731	CO20140090511	20140428
DE602012009676 D1	20150924	DE201260009676T	20121030
EP2747549 A1	20140702	EP20120799302	20121030
EP2747549 B1	20150812	EP20120799302	20121030
ES2552003 T3	20151125	ES20120799302T	20121030
IL229964 A0	20140227	IL20120229964	20121030
IL229964 A1	20180430	IL20120229964	20121030
ITPD20110341 A1	20130501	IT2011PD00341	20111031
JP2015502143 T2	20150122	JP20140537804T	20121030
JP6291639 B2	20180314	JP20140537804T	20121030
KR20140085478 A	20140707	KR20147011618	20121030
MX2014005044 A1	20150305	MX20140005044	20121030
TR201514261 T4	20151123	TR20150014261T	20121030
US2014157663 AA	20140612	US20120233702	20121030

US10015933 BB	20180710	US20120233702	20121030
WO13064970 A1	20130510	WO20121B56005	20121030

Priority:

IT2011PD00341 20111031 EP20120799302 20121030 WO20121B56005 20121030

Probable Assignee: CYTEC IND INC

Assignee(s): (std): CYTEC IND INC ; ULTRABATCH S R L

Assignee(s): ULTRABATCH SRL ; ULTRABATCH SRL CASTANO PRIMO ; BOLDRIN LANFRANCO

Inventor(s): (std): BOLDRIN LANFRANCO ; LANFRANCO BOLDRIN

Agent(s): SMART AND BIGGAR; ESTUDIO FEDERICO VILLASECA Y COMPANIA; WITTMANN HERNANDEZ PATENTANWALTE PARTNERSCHAFT MBB; ZANETTIN GIANLUIGI; LINAGE RAFAEL; LUZZATTO AND LUZZATTO; ZELIHA OEZSOY; CHARLES E; BLANK ROME LLP; ZANETTIN GIANLUIGI ET AL

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

2) Family number: 11269630 (JP6155659A)

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Title: SHADING FILM

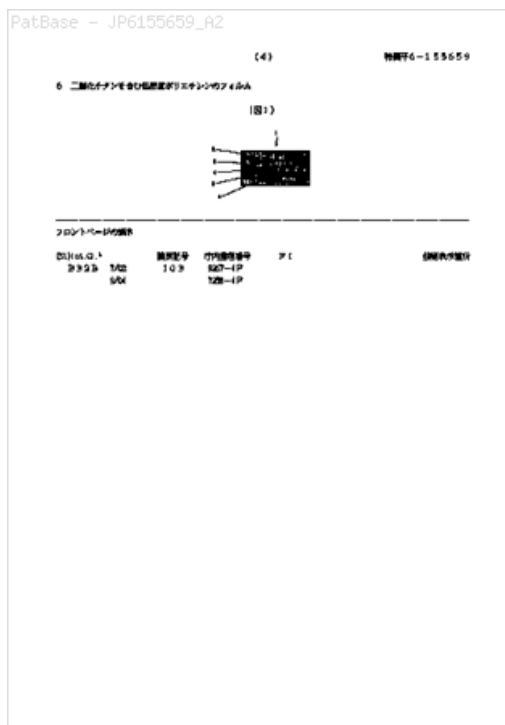
Abstract: PURPOSE:To provide a shading film hardly decomposed by the long-time irradiation with ultraviolet rays. CONSTITUTION:A low density polyethylene film 2 containing titanium dioxide is formed on one surface of a base film 3 and an aluminum vapor deposition film 4 is formed on the other surface of the base film and a low density polyethylene film 6 containing titanium dioxide is bonded to the surface on the opposite side of the base film 3 of the aluminum vapor deposition layer 4 through a primer layer 5.

Classifications:

International (ipc 8-9): A01G13/02 A01G9/14 A01G9/22 B32B15/08 B32B15/085 B32B7/02 B32B9/00 B32B9/04 (Advanced/Invention); A01G13/02 A01G9/14 A01G9/22 B32B15/08 B32B7/02 B32B9/00 B32B9/04 (Core/Invention)

International (ipc 1-7): A01G13/02 A01G9/14 A01G9/22 B32B15/08 B32B7/02 B32B9/00 B32B9/04

CPC: Y02A40/252 Y02A40/258



Family:

Publication number	Publication date	Application number	Application date
JP2816402 B2	19981027	JP19920312098	19921120
JP6155659 A2	19940603	JP19920312098	19921120

Priority:

JP19920312098 19921120

Probable Assignee: MITSUBISHI CHEMICAL CORP

Assignee(s): (std): MITSUBISHI CHEM IND ; TOPPAN PRINTING CO LTD

Assignee(s): MITSUBISHI CHEMICAL CORP ; MITSUBISHI KASEI CORP

Inventor(s): (std): YOSHIDA YOSHIKATSU ; IWASE HIROSHI

3) Family number: 12289943 (JP11010803A)

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Title: AGRICULTURAL MATERIAL

Abstract: PROBLEM TO BE SOLVED: To provide an agricultural material capable of retaining good drip proofness for an extended period by providing a coating layer having hydrophilic groups, and containing particles having photocatalytic effect, on at least one surface of a plastic film. SOLUTION: Agricultural material can be obtained by coating a coating layer containing inorganic hydrophilic colloid substance, lithium silicate and/or silane derivative, and particles having photocatalytic effect on at least one surface of a plastic film composed of a fluoro resin film, which can utilize incident ultraviolet light, has good weathering properties, and generates almost no deterioration caused by redox reaction through photocatalyst. For

example, colloidal silica loses a hydroxyl groups, and at the same time, hydrophilic nature by running water, or sunlight. However, when the photocatalytic particles are exposed to a specified wavelength, which starts photocatalytic reaction, oxygen and/or water in the air is decomposed, and the oxygen on the colloidal silica surface is oxidized, or a hydroxyl group is combined with a radical part, thereby, hydrophilic nature is shown again.

Classifications:

International (IPC 8-9): A01G13/02 A01G9/14
B32B27/20 (Advanced/Invention);
A01G13/02 A01G9/14 B32B27/20 (Core/Invention)
International (IPC 1-7): A01G13/02 A01G9/14 B32B27/20
CPC: Y02A40/252

表1

	防湿寿命					耐水性促進試験(時間)				
	30℃/5日目	50℃/10日目	60℃/10日目	70℃/10日目	70℃/30日目	250	500	750	1000	1500
実施例1	○	○	○	○	△	○	○	○	○	△
実施例2	○	○	○	○	△	○	○	○	○	△
実施例3	○	○	○	○	△	○	○	○	○	○
比較例1	○	○	○	○	△	○	△	×		

Family:

Publication number	Publication date	Application number	Application date
JP11010803 A2	19990119	JP19970170484	19970626

Priority:

JP19970170484 19970626

Probable Assignee: TORAY IND

Assignee(s): (std): TORAY IND ; TORAY INDUSTRIES

Assignee(s): TORAY INDUSTRIES INC ; TORAY IND INC

Inventor(s): (std): IKEDA MIKITO ; NAKAHARA KATSUJI ; SHIMIZU KUNIMITSU

4) Family number: 12581712 (FR2773100A)

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Title: ANTI-MOISTURE LAMINATED FILM FOR AGRICULTURAL USE

Abstract: Films resistant to formation of droplets of condensed moisture comprise a substrate layer, an external layer (A) comprising a resin and very fine particles of an inorganic compound, and a layer (B), on the same side of the substrate as the layer (A), consisting predominantly of very fine particles of an inorganic compound.

Classifications:

International (IPC 8-9): B32B27/18 B32B27/32 C03C17/00
C03C17/34 C08K9/08 C09K17/52 C09K3/18 (Advanced/Invention);
B32B27/18 (Advanced/Non-invention);
B32B27/18 B32B27/32 C03C17/00 C03C17/34 C08K9/00 C09K17/00
C09K3/18 (Core/Invention)
International (IPC 1-7): A01G9/14 B32B27/14 B32B27/18
B32B27/20 B32B27/32 B32B5/22 C03C17/28 C09K3/18
CPC: C09K3/18 C09K17/52 B32B27/18 C03C17/007 C03C17/34
C03C2217/445 C03C2217/475 C08K9/08
European: B32B27/18 C03C17/00D2 C03C17/34 C08K9/08 C09K17/52 C09K3/18 M03C217/445 M03C217/475

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	試験 (g/cm)	試験 (g/cm)	耐湿保管後の防曇性試験 (60℃、90%RH、10日間保管後)				耐射線 透過率 (%)
			2日後	7日後	10日後	14日後	
実施例1	3.20	○	○	○	○	○	1.5
実施例2	3.20	○	○	○	○	○	1.5
実施例3	3.20	○	○	○	○	○	1.5
実施例4	3.20	○	○	○	○	○	1.5
比較例1	3.10	○	○	△	×	×	1.5

Family:

Publication number	Publication date	Application number	Application date
CN1211202 C	20050720	CN19981027129	19981224
CN1229026 A	19990922	CN19981027129	19981224
FR2773100 A1	19990702	FR19980016439	19981224
JP11240112 A2	19990907	JP19980367067	19981224
KR100740055 B1	20071018	KR19980057709	19981223
KR19990063384 A	19990726	KR19980057709	19981223

Priority:

JP19970357891 19971225 KR19980057709 19981223 JP19980367067 19981224

Probable Assignee: SUMIKA PLASTECH KK

Assignee(s): (std): SUMIKA PLASTECH CO LTD ; SUMIKA PLASTECH KK

Assignee(s): SANZEN KAKO CO LTD ; SUMIKA PLASTECH CO

Inventor(s): (std): NAKANISHI MITSUKO ; SAKAYA TAIICHI ; SAKATANI TAIICHI ; FUJITA TSUTOMU

Inventor(s): MITSUKO NAKANISHI ; TAIICHI SAKAYA ; TSUTOMU FUJITA

5) Family number: 12869042 (JP11137097A)

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Title: SYNTHETIC RESIN FILM FOR AGRICULTURE

Abstract: PROBLEM TO BE SOLVED: To obtain the subject film permitting the formation of a coating film having excellent weather resistance and the like and consequently capable of being spread over a long period by mixing an aqueous coating material, colloidal silica having particle diameters in a specific range and a specific emulsion, further adding a silicone surfactant to the mixture, and subsequently coating the obtained coating material on the surface of the film. SOLUTION: This resin film for agriculture is obtained by coating a coating material on at least one surface of a base film comprising a synthetic resin. Therein, the coating material coated on the base film is obtained by mixing an aqueous coating material, colloidal silica having an average particle diameter of 1-200 nm and the emulsion of a hindered amine compound and further adding a silicone surfactant to the mixture. The aqueous coating material is preferably a urethane resin emulsion.

Classifications:

International (IPC 8-9): A01G13/02 A01G9/14 B05D7/24 B32B27/30
C09D201/00 C09D7/12 (Advanced/Invention);
B05D7/24 (Advanced/Non-invention);

A01G13/02 A01G9/14 B05D7/24 B32B27/30 C09D201/00
C09D7/12 (Core/Invention);
B05D7/24 (Core/Non-invention)
International (IPC 1-7): A01G13/02 A01G9/14 B05D7/24 B32B27/30
C09D201/00 C09D7/12
CPC: Y02A40/252



Family:

Publication number	Publication date	Application number	Application date
JP11137097 A2	19990525	JP19970330968	19971114

Priority:

JP19970330968 19971114

Probable Assignee: ACHILLES CORP

Assignee(s): (std): ACHILLES CORP

Inventor(s): (std): TAKANO TADAHIRO ; MACHIDA TOSHIMI

6) Family number: 13355156 (JP11292993A)

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Title: AGRICULTURAL FILM

Abstract: PROBLEM TO BE SOLVED: To prepare an agricultural film capable of manifesting excellent anti- fogging persistence, transparency, tear strength and tensile strength, useful for covering materials for forcing cultivation in agriculture by including a specific filler and an anti-fogging agent in specific ratios into a specific ethylene based copolymer. SOLUTION: This agricultural film includes (A) 100 parts by weight of an ethylene-a- olefin copolymer [e.g.; obtained by polymerizaing ethylene and an a-3 to 18C olefin copolymer using a metallocene catalyst, having a melt flow rate of 0.1 to 50 g/10 minutes, a density (D1) of 0.88 to 0.928 g/cm<3>, an extrapolated end of melting temperature of the melting peak obtained by differential scanning calorimetry (Tem) of 50 to 130, and satisfies the relation of Tem less than or equal to 286D1 -137], (B) 0.05 to 1 pt.wt. of a basic magnesium carbonate of the formula: nMgCO3.Mg(OH)2.mH2 O ((m) is 0 to 3; (n) is 3 to 5), and 0.1 to 5 pts. of an anti-fogging agent (e.g.; a nonionic, an anionic or a cationic surfactant).

Classifications:

International (IPC 8-9): A01G13/02 A01G9/14 B32B27/18 B32B27/32 C08J5/18 C08K3/10 C08K3/26 C08L23/08 (Advanced/Invention);
A01G13/02 A01G9/14 B32B27/18 B32B27/32 C08J5/18 C08K3/00 C08L23/00 (Core/Invention)

International (IPC 1-7): A01G13/02 A01G9/14 B32B27/18 B32B27/32 C08J5/18 C08K3/10 C08K3/26 C08L23/08

CPC: Y02A40/252

PatBase - JP11292993A

	1	2	3	4	1	2	3	4	5
発明の名称 (漢字)									
成分A	100				100	100			
B		100							
C			100						
D				100					
E							100		
発明の名称 (ローマ字)									100
発明の名称 (ローマ字)	0.2	0.2	0.2	0.2	0.05	0.2			
数量例	1.5	1.5	1.5	1.5	1.5	0.05	1.5	1.5	1.5
数値特性									
MFR(g/10分)	2.2	2.2	2.2	2.0	2.2	2.2	2.0	0.5	0.5
密度(g/cm ³)	0.91	0.905	0.905	0.915	0.913	0.910	0.905	0.924	0.933
透明度(%)	108	98	102	113	128	108	131		
組成	アクリル	アクリル	アクリル	アクリル	アクリル	アクリル	アクリル		
フィルム厚(μm)	100	100	100	100	100	100	100	100	100
伸び(%)	6.7	9.2	6.0	7.2	6.6	6.5	10.1	20.0	7.8
気密性(気体透過率)	500	500	500	500	500	500	400	200	270
気密性(気体透過率)	90	130	100	80	90	90	40	30	54
打撃衝撃強度	破れず	破れず	破れず	破れず	破れず	破れず	2,000	1,000	1,300
耐曇性									
2ヶ月	○	○	○	○	○	△	○	○	○
4ヶ月	○	○	○	○	○	×	△	△	△
6ヶ月	○	○	○	○	×		×	×	×
8ヶ月	△	△	△	△					

Family:

Publication number	Publication date	Application number	Application date
JP11292993 A2	19991026	JP19980110187	19980406
JP3933297 B2	20070620	JP19980110187	19980406

Priority:

JP19980110187 19980406

Probable Assignee: JAPAN POLYCHEM CORP

Assignee(s): (std): JAPAN POLYCHEM CORP

Inventor(s): (std): SUDO KIYOMARO ; IKENO HAJIME

7) Family number: 13355159 (JP11292996A)

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Title: THERMOPLASTIC RESIN FILM AND ITS USE

Abstract: PROBLEM TO BE SOLVED: To prepare a thermoplastic resin film keeping excellent weather and light discoloration resistances over a long period, essentially inhibiting the transmission of light of ultraviolet range and essentially not inhibiting light of visible range. SOLUTION: This resin film contains a metal oxide containing other metals having an oxidation number

not larger than that of the metal constituting the metal oxide in the crystal structure of the metal oxide in the form of a solid solution and coated with at least one kind of oxide or hydrous oxide of a metal selected from aluminum, silicon, zirconium, titanium, zinc and tin. The coated metal oxide is preferably subjected to hydrophobicizing surface treatment with at least one kind of organic compound selected from higher fatty acid, higher alcohol, tertiary amine, organic fluorine compound and organic silicon compound.

Classifications:

International (IPC 8-9): A01G13/02 A01G9/14 C08J5/18 C08K9/02 (Advanced/Invention); C08K9/02 (Advanced/Non-invention); A01G13/02 A01G9/14 C08J5/18 C08K9/00 (Core/Invention); C08K9/00 (Core/Non-invention)
International (IPC 1-7): A01G13/02 A01G9/14 C08J5/18 C08K9/02 C08L27/12
CPC: Y02A40/252

促進育成時間 (hrs)		0.0	158.5	300.0	630.8	942.2
暴 露 (%)	実施例 1	6.69	7.33	7.81	8.30	8.08
	実施例 2	4.88	6.13	6.81	7.83	8.58
	比較例 1	8.01	18.42	44.75	73.36	85.12
	比較例 2	7.84	8.52	19.80	44.77	36.25
	比較例 3	19.76	18.12	17.05	35.76	36.25
促進育成時間 (hrs)		0.0	158.5	300.0	630.8	942.2
全 光 線 (%)	実施例 1	90.57	87.48	85.44	83.33	81.28
	実施例 2	90.10	87.01	85.32	82.49	81.59
	比較例 1	90.25	83.15	71.47	56.49	49.20
	比較例 2	91.25	87.35	77.60	70.03	64.08
	比較例 3	87.45	83.22	76.61	71.51	68.95

Family:

Publication number	Publication date	Application number	Application date
JP11292996 A2	19991026	JP19980095761	19980408

Priority:

JP19980095761 19980408

Probable Assignee: DAIKIN IND
Assignee(s): (std): DAIKIN IND ; DAIKIN IND LTD
Assignee(s): DAIKIN INDUSTRIES LTD
Inventor(s): (std): SHIMADA KAZUHIKO ; NAKADA YUTAKA

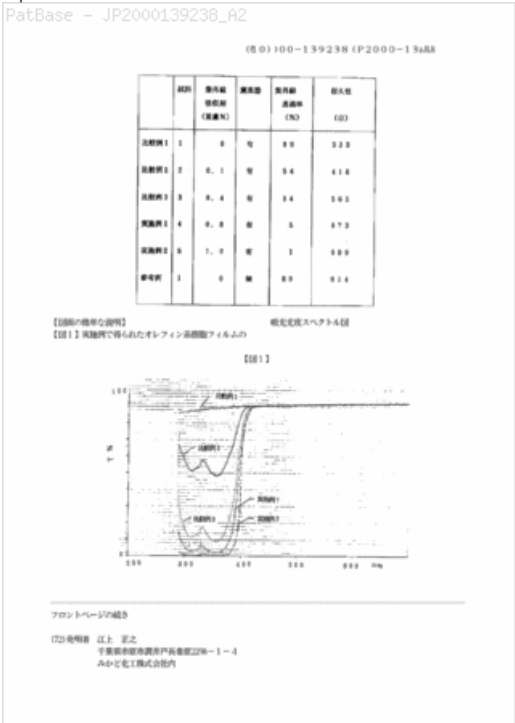
8) Family number: 13942597 (JP2000139238A) © PatBase

Title: FUMIGATION IN PROTECTED PLANT CULTIVATION

Abstract: PROBLEM TO BE SOLVED: To reduce the deterioration of a covering film with a fumigant, carry out fumigation in plant protected cultivation by covering a cultivated plant with a specific olefinic resin film, then fumigating the interior with sulfur and making the apparatus usable for a long period. SOLUTION: (A) A cultivated plant is covered with (D) an olefinic resin film containing (B) a light stabilizer and (C) an ultraviolet light absorber and having less than or equal to 10 percent, preferably less than or equal to 5 percent, more preferably less than or equal to 1 percent ultraviolet light transmittance at 300-370 nm and the interior thereof is then fumigated with sulfur. An ethylenic polymer is preferred as the resin used in the component D and low-density polyethylene and an ethylene-vinyl acetate copolymer are especially preferred. A hindered amine-based compound is preferred as the component B and a benzophenone-based, a benzotriazole-based, a benzoate-based and a cyanoacrylate-based compounds are preferred as the component C.

Classifications:

International (IPC 8-9): A01G9/14 A01G9/24 A01M13/00 A01N59/02 C06D3/00 (Advanced/Invention); A01G9/14 A01G9/24 A01M13/00 A01N59/02 C06D3/00 (Core/Invention)
International (IPC 1-7): A01G9/14 A01G9/24 A01M13/00 A01N59/02 C06D3/00
CPC: Y02A40/252 Y02A40/264



Family:

Publication number	Publication date	Application number	Application date
JP2000139238 A2	20000523	JP19980315801	19981106

Priority:

JP19980315801 19981106

Probable Assignee: MIKADO KAKO KK
Assignee(s): (std): MIKADO KAKO KK
Inventor(s): (std): EGAMI MASAYUKI ; TSUJIMOTO JUNZO ; TSUNODA KUNIIHIKO

Title: AGRICULTURAL FILM

Abstract: PROBLEM TO BE SOLVED: To obtain an agricultural film as a multi-layer film composed of polyplefin resins on which a specific anti-fogging layer is laminated and which has excellent abrasion resistance and long-term anti-fogging property, and useful for hothouse cultivation. SOLUTION: This agricultural film of multi-layer type comprises an outside layer formed of a resin composition, such as low-density polyethylene(PE), an interlayer formed of a resin composition compounded of 100 parts by weight of ethylene-vinyl acetate copolymer resin, 10-100 parts by weight polypropylene-based resin (PP) and furthermore 0.5-5 weight percent anti-fogging agent to the weight of the whole of the interlayer, and an inside layer formed of 100 parts by weight of a resin composition composed of PE, etc., 10-100 parts by weight of PP, furthermore 0.5-5 weight percent of an anti-fogging agent, in such a way that the surface of the inside layer is laminated with an anti-fogging layer composed of inorganic colloidal sol in which colloidal alumina and colloidal silica gel are mixed at a solid content ratio of (80-20)/(20-80), nonionic surfactant, etc. PP has a weight-average molecular weight ranging from 80,000 to 500,000, and elution determined by cross discrimination of 5 weight percent or less at 0-20 deg.C, 8-30 weight percent at 20-70 deg.C and 70-95 weight percent at 70-110 deg.C.

Classifications:**International (IPC 8-9):** A01G9/14 B32B27/28

B32B27/32 (Advanced/Invention);

A01G9/14 B32B27/28 B32B27/32 (Core/Invention)

International (IPC 1-7): A01G9/14 B32B27/28 B32B27/32**CPC:** Y02A40/252

PatBase	内層・内層の 防曇剤濃度 (%)	内層表面の コロナ放電 処理	内層の表面 張力 (dy/cm)	透明性 (目視)	防曇 防曇性	内層と 防曇剤との 接着性	防曇部分の 耐曇防曇性
実施例1	2. 25	有り	42	○	5	○	5
実施例2	2. 25	有り	38	○	5	△~○	5
比較例1	0	有り	36	○	5	△	1
比較例2	6. 0	有り	42	×	5	△	5

Family:

Publication number	Publication date	Application number	Application date
JP9298954 A2	19971125	JP19960121710	19960516

Priority:

JP19960121710 19960516

Probable Assignee:

SEKISUI CHEMICAL CO LTD

Assignee(s): (std):

SEKISUI CHEMICAL CO LTD

Assignee(s):

SEKISUI CHEM CO LTD

Inventor(s): (std):

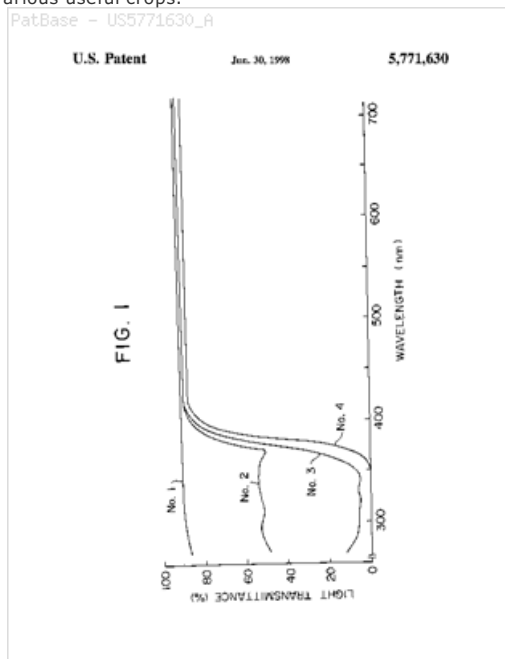
TOKUOKA KENJI ; WATANABE SEICHI

Title: AGRICULTURAL COVERING MATERIAL

Abstract: PCT No. PCT/JP94/00258 Sec. 371 Date Aug. 20, 1996 Sec. 102(e) Date Aug. 20, 1996 PCT Filed Feb. 21, 1994 PCT Pub. No. WO95/22244 PCT Pub. Date Aug. 24, 1995The present invention provides an agricultural covering material comprising a fluororesin film which intercepts the transmission of the ultraviolet rays having a wavelength range of at least 300-330 nm, by at least 40 percent and which transmits at least 70 percent of the visible rays having a wavelength range of 400-800 nm. The covering material can be used outdoors in a spread state over a long period of time and is useful as a covering material for greenhouse to replace glass, for cultivation of various useful crops.

Classifications:**International (IPC 8-9):** A01G9/14 (Advanced/Invention);

A01G9/14 (Core/Invention)

International (IPC 1-7): A01G13/02 A01G9/14**CPC:** Y02A40/252 A01G9/1438**European:** A01G9/14E**US:** 47/17 47/26 47/29.4**Family:**

Publication number	Publication date	Application number	Application date
DE69425446 D1	20000907	DE19946025446	19940221
DE69425446 T2	20010125	DE19946025446T	19940221
EP0746973 A1	19961211	EP19940907079	19940221
EP0746973 A4	19970528	EP19940907079	19940221
EP0746973 B1	20000802	EP19940907079	19940221
US5771630 A	19980630	US19960696818	19960820

Priority:

WO1994JP00258 19940221

Probable Assignee: NIPPON CARBIDE KOGYO KK**Assignee(s):** (std): ASAHI GLASS GREEN TECH CO ; ASAHI GLASS GREEN TECH COMPANY ; HARASAWA ISAMU ;
ISHIZAKI YOSHIAKI ; NIPPON CARBIDE KOGYO KK ; ONISHI YASUAKI**Assignee(s):** NIPPON CARBIDE KOGYO KABUSHIKI KAISHA ; ASAHI GLASS GREEN TECH COMPANY LIMITED ;
ASAHI GLASS GREEN TECH CO LTD**Inventor(s):** (std): HARASAWA ISAMU ; ISHIZAKI YOSHIAKI ; ONISHI YASUAKI ; OONISHI YASUAKI ; ISHISAKI
YOSHIAKI**Designated states:** AT BE CH DE DK ES FR GB GR IE IT JP LU MC NL PT SE US