

Search query (3): [SP]: cross reference to related application [0001] this application claims the benefit of u.s. provisional patent application no. 62/011,296, filed on jun. 12, 2014, application which is incorporated herein in its entirety for all purposes. technical field [0002] the present invention relates to polymeric material technology and the manufacture of polymeric articles, wherein the integration of foam is desirable in order to reduce weight and to improve the mechanical, thermal insulation and acoustical insulation properties, among others, without compromising the functionality of the product, with low investment requirements, and allowing the reuse and/or recycling of the product. background [0003] currently, some structures are industrially manufactured without foaming, for example, crates for bottled beverages, which then have foam integrated into existing cavities in order to reduce the weight of the structure, compared to a solid structure, and improve its impact resistance, without damaging the functionality, stack-ability and mechanical stability.[0004] for said process of filling structures with foam, the steps defined in wo2010008264 are followed. this document refers to a process for producing molded plastic articles with thickened and reinforced walls, where the process combines conventional plastic molding techniques and comprises the steps of: designing a plastic article with at least one cavity or hollow area to be filled with a thermoplastic reinforcing material and which should have at least one injection gate pre-molding the plastic article using a conventional molding process injecting a thermoplastic material with a foaming agent through the injection gate using a low pressure injection machine removing the product or plastic article from the low pressure injection machine and, cooling the manufactured product in a storage area.[0005] following the steps indicated in the document wo2010008264, a high density polyethylene (hdpe) is used, with a melt flow index (mfi) of 8 grams per 10 minutes at a temperature of 190 degrees centigrade with a weight of 2.16 kg which is injection molded. after manufacturing the un-foamed structure, a foamed polymer material, linear low density polyethylene (lldpe), with a mfi of approximately 65 g/10 min (190/2.16), is injected into the structure. the injection molding processing temperature of the foamed material is approximately 150 degrees centigrade the foam is generated with an endothermic chemical foaming agent, commercially available as microcell(r) 303 from momentum international gmbh.[0006] the process defined in the document wo2010008264, features the problem that the injection of the foamed material must be done at an elevated temperature (more than 130 degrees centigrade for the lldpe) which liberates the residual stresses in the un-foamed structure, deforming said structure, which is an undesirable effect because it compromises the stack-ability, the mechanical stability, and the functionality of said structure. this problem is currently addressed by modifying the injection mold geometry to compensate for the deformations. however, this solution is inadequate, since it implies a process of trial and error of offsetting the deformations of the final structure to the mold cavity shape, increasing cost and time of development.[0007] currently, there exist many known processes and methods in the state of the art for the foaming of a polymer and its later application within another polymeric material.[0008] one such solution in the state of the art is filling the cavities of the structure with chemical components in order to obtain thermoset foam that reacts at a temperature sufficiently low such that deformations in the structure are not produced. the document u.s. pat. no. 3,389,824a discloses an example of the use of this solution for the construction of a cooler utilizing polyurethane as the foamed material. this method is commonly used in current fabrication techniques, but it creates enormous difficulties with the recycling of the polymeric structure because the thermoset foam cannot be melted. other examples are presented in the documents u.s. pat. no. 6,093,358 and u.s. pat. no. 6,295,787 where a thermoset expandable material is used to fill the cavities of a plastic part.[0009] another solution available in the state of the art is integrating the foamed material with the un-foamed structure in the same mold wherein the structure is manufactured, said process being known in the art as foam overmolding. an example of this solution is disclosed in the document ep 2318282 a1, in which a rigid preform is overmolded with polymeric foam to later obtain, through a blow molding process, a container with a foamed layer. the pressurized mixing of the melted polymer to be foamed with a gas in the supercritical state is a technique commonly used to obtain thermoplastic foams that can be used to fabricate mono-component or overmolded multicomponent structures. said mixture generates the foam when it is submitted to a low pressure condition. one example of this foaming technology is presented in the document us 20100198133. the principle disadvantage of the use of these overmolding and foaming technologies is the high investment cost in processing equipment and in mold technology.[0010] another solution available in the state of the art is the filling of part cavities with expandable polymeric beads. an example of this solution is described in the document us 20140110491, where a plastic structural article cavity is filled with a steam expandable thermoplastic polymer beads, when they are expanded, the cavity is filled. the materials of the beads and the structural article are of a similar polymer, enabling the recycling. however, the adhesion between the materials may be compromised, constraining the invention to closed cavity geometries. a similar solution is presented in the document ep 0647513. another example is presented in the document u.s. pat. no. 5,665,285, where a molded foam article is integrating with a polymeric skin using the blow molding method and expandable beads for foaming. this solution requires that the expandable beads are introduced in the hollow cavity prior to cooling.[0011] one of the steps of the invention described in the present document is exposing the polymer which will be foamed in its solid state to a high pressure gas. this technique has been a part of various disclosures, but they are not intended for the low temperature integration of polymeric foam with polymeric bodies for obtaining a final structure with improved properties, without deforming the polymeric body, in order to guarantee the functionality and other properties of the final structure.[0012] one of said disclosures is the document u.s. pat. no. 7,107,601 which divulges a method for manufacturing an anti-vibration device which comprises the steps of: saturating a resin material with an inert gas through adjusting the pressure and the quantity of inert gas molding a product in which the number, form, and shape of the gas cells are adjusted by controlling the injection pressure, injection velocity, shot size, holding pressure, cooling gradient and the cooling time.[0013] another document related to this technology is u.s. pat. no. 7,182,897 which teaches a method for storing a material after it has been saturated, wherein the material is saturated at a pressure not less than 4 mpa and a defined temperature. depending on the type of material, the time, the pressure and the saturation temperatures, the storage conditions are defined.[0014] the document ep0765724 discloses a method for extruding plastic foams while reducing the viscosity by means of a gas. in this process, the material in granule or powder form is fed to a gas absorption apparatus, where it is charged with gas under a defined pressure and temperature and later passes through an extrusion process.[0015] the state of the art is plenty of documents that describe the contact of polymer pellets with a gas in order to produce bead foams. for example, li et al use a high pressure vessel to impregnate ipp polymer with n2 and co2. the vessel is heated in order to foam the material. chen et al. use a foaming chamber to prepare eva foam samples using co2 as blowing agent. when the material is heated in the vessel and the pressure is released, the foaming process occurs.[0016] the state of the art reports several studies of foam morphology and mechanical properties using injection molding to produce the foamed sampled test, where the polymer pellets were previously impregnated with a physical agent. an example is presented by florez, where polycarbonate pellets are placed in contact with co2 at high pressures for more than 20 hours, then, the material is injected to obtain the samples.[0017] finally, the pct application wo2006100517 discloses a process for introducing a gas into a polymer which comprises the steps of exposing a first polymer to a gas at a temperature greater than the room temperature, where this step is carried out at a temperature from the glass transition temperature to the crystal melting temperature for a semicrystalline material or below the glass transition temperature for an amorphous material. the polymer is melted to produce a foamed article.[0018] in accordance with the previous information, it is clear to those skilled in the art that the existing documents do not offer an adequate solution to the problem raised in the present invention, since in most of the cases, the process for integrating the foam is carried out at a temperature greater than the temperature at which residual stresses are liberated in the un-foamed polymeric body, which in turn causes the fi

Results: 21

Search history

Search PN=(WO2015189806) (Results 1)

1:

Search [SP]: 1. a low temperature process for integrating a polymeric foam with at least one polymeric body which comprises the steps of: a. selecting at least one material for at least one polymeric body b. selecting at least one polymeric material to be foamed, wherein the polymeric foam material has a crystal melting temperature for a crystallizing material, or a glass temperature for a non-crystallizing material c. which is lower than the temperature at which residual stresses are liberated from the at least one polymeric body d. providing at least one polymeric body e. providing the polymeric material to be foamed at a temperature between the glass transition temperature and the crystal melting temperature for a material that crystallizes, or at a temperature below the glass transition temperature for a material that does not crystallize f. contacting the polymeric material to be foamed with a gas at a pressure greater than atmospheric pressure for a time sufficient such that the polymeric material to be foamed incorporates at least 0.1 percent gas by weight g. exposing the polymeric material to be foamed to a pressure less than the pressure used in the previous step for a time so that the stability of the following steps is not affected h. exposing the polymeric material to be foamed to a pressure greater than the pressure used in the previous step and a temperature greater than the crystal melting temperature for a material that crystallizes, or the glass transition temperature for a material that does not crystallize, and lower than the temperature at which residual stresses are liberated from the polymeric body and i. contacting the foamed polymeric material with the at least one polymeric body at a pressure lower than that used in the previous step. 2. the process of claim 1, wherein the polymeric material to be foamed and the material of the at least one polymeric body of steps a) and b) are compatible. 3. the process of claim 2, wherein both materials are suitable for recycling together and exhibit good adhesion to each other. 4. the process of claim 1, wherein the polymeric material to be foamed of step b) is selected from the group consisting of ethylene-vinyl acetate (eva), ethylene-butyl acrylate (eba), low density polyethylene(lldpe), linear low density polyethylene (lldpe), high density polyethylene(hdpe), medium density polyethylene (mdpe), polypropylene (pp) and their copolymers, ionomers, or blends containing one or more of the aforementioned. 5. the process of claim 4, wherein the polymeric material to be foamed further includes nucleating agents. 6. the process of claim 1, wherein the gas contains carbon dioxide (co2) and/or nitrogen (n2). 7. the process of claim 1, wherein the steps g) and h) are performed through extrusion, injection molding, or any other related polymer transformation process.

8. the process of claim 1, wherein steps c) and h) are performed simultaneously after the other steps have been performed. 9. the process of claim 1, wherein the time range of the step f) is between 0 and 90 minutes, preferably between 20 min and 70 min, at atmospheric pressure. (Results 0)

Search 3: [SP]: cross reference to related application [0001] this application claims the benefit of u.s. provisional patent application no. 62/011,296, filed on jun. 12, 2014, application which is incorporated herein in its entirety for all purposes. technical field [0002] the present invention relates to polymeric material technology and the manufacture of polymeric articles, wherein the integration of foam is desirable in order to reduce weight and to improve the mechanical, thermal insulation and acoustical insulation properties, among others, without compromising the functionality of the product, with low investment requirements, and allowing the reuse and/or recycling of the product. background [0003] currently, some structures are industrially manufactured without foaming, for example, crates for bottled beverages, which then have foam integrated into existing cavities in order to reduce the weight of the structure, compared to a solid structure, and improve its impact resistance, without damaging the functionality, stack-ability and mechanical stability.[0004] for said process of filling structures with foam, the steps defined in wo2010008264 are followed. this document refers to a process for producing molded plastic articles with thickened and reinforced walls, where the process combines conventional plastic molding techniques and comprises the steps of: designing a plastic article with at least one cavity or hollow area to be filled with a thermoplastic reinforcing material and which should have at least one injection gate pre-molding the plastic article using a conventional molding process injecting a thermoplastic material with a foaming agent through the injection gate using a low pressure injection machine removing the product or plastic article from the low pressure injection machine and, cooling the manufactured product in a storage area. [0005] following the steps indicated in the document wo2010008264, a high density polyethylene (hdpe) is used, with a melt flow index (mfi) of 8 grams per 10 minutes at a temperature of 190 degrees centigrade with a weight of 2.16 kg which is injection molded. after manufacturing the un-foamed structure, a foamed polymer material, linear low density polyethylene (lldpe), with a mfi of approximately 65 g/10 min (190/2.16), is injected into the structure. the injection molding processing temperature of the foamed material is approximately 150 degrees centigrade the foam is generated with an endothermic chemical foaming agent, commercially available as microcell(r) 303 from momentum international gmbh. 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[0011] one of the steps of the invention described in the present document is exposing the polymer which will be foamed in its solid state to a high pressure gas. this technique has been a part of various disclosures, but they are not intended for the low temperature integration of polymeric foam with polymeric bodies for obtaining a final structure with improved properties, without deforming the polymeric body, in order to guarantee the functionality and other properties of the final structure.[0012] one of said disclosures is the document u.s. pat. no. 7,107,601 which divulges a method for manufacturing an anti-vibration device which comprises the steps of: saturating a resin material with an inert gas through adjusting the pressure and the quantity of inert gas molding a product in which the number, form, and shape of the gas cells are adjusted by controlling the injection pressure, injection velocity, shot size, holding pressure, cooling gradient and the cooling time.[0013] another document related to this technology is u.s. pat. no. 7,182,897 which teaches a method for storing a material after it has been saturated, wherein the material is saturated at a pressure not less than 4 mpa and a defined temperature. depending on the type of material, the time, the pressure and the saturation temperatures, the storage conditions are defined.[0014] the document ep0765724 discloses a method for extruding plastic foams while reducing the viscosity by means of a gas. in this process, the material in granule or powder form is fed to a gas absorption apparatus, where it is charged with gas under a defined pressure and temperature and later passes through an extrusion process.[0015] the state of the art is plenty of documents that describe the contact of polymer pellets with a gas in order to produce bead foams. for example, li et al use a high pressure vessel to impregnate ipp polymer with n2 and co2. the vessel is heated in order to foam the material. chen et al. use a foaming chamber to prepare eva foam samples using co2. as blowing agent. when the material is heated in the vessel and the pressure is released, the foaming process occurs.[0016] the state of the art reports several studies of foam morphology and mechanical properties using injection molding to produce the foamed sampled test, where the polymer pellets were previously impregnated with a physical agent. an example is presented by flore, where polycarbonate pellets are placed in contact with co2 at high pressures for more than 20 hours, then, the material is injected to obtain the samples.[0017] finally, the pct application wo2006100517 discloses a process for introducing a gas into a polymer which comprises the steps of exposing a first polymer to a gas at a temperature greater than the room temperature, where this step is carried out at a temperature from the glass transition temperature to the crystal melting temperature for a semicrystalline material or below the glass transition temperature for an amorphous material. the polymer is melted to produce a foamed article.[0018] in accordance with the previous information, it is clear to those skilled in the art that the existing documents do not offer an adequate solution to the problem raised in the present invention, since in most of the cases, the process for integrating the foam is carried out at a temperature greater than the temperature at which residual stresses are liberated in the un-foamed polymeric body, which in turn causes the fi (Results 21)

Title: LOW TEMPERATURE PROCESS FOR INTEGRATING A POLYMERIC FOAM WITH A POLYMERIC BODY

Abstract: Source: US2015361239A [EN] A low temperature process which comprises several steps to integrate polymeric foams with at least one polymeric body in order to obtain a final body with improved properties is provided; the process being performed at a low temperature in order to avoid deformations in the polymeric body which compromise the functionality and other properties of the final body. The process comprises the steps of selecting the materials involved to guarantee the adhesion between them, the processability, their use and/or recycling, among other properties; impregnating the polymeric material to be foamed with a gas; generating the foam; and integrating the foam with the at least one polymeric body.

Classifications:

International (IPC 8-9): B29C44/34 B29C47/04

C08J9/12 (Advanced/Invention);

B29C47/04 (Advanced/Non-invention)

CPC: C08J9/122 C08J2323/08 B29C44/3453 C08J9/35 C08J9/365

C08J2323/04 C08J2323/10

US: 521/97

PatBase - US2015361239_HH

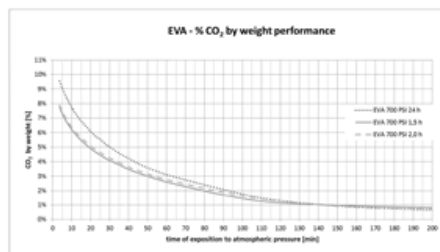


Figure 1

Family:

Publication number	Publication date	Application number	Application date
CO20170000221 A2	20170331	CO20170000221	20170111
EP3154762 A1	20170419	EP20150732054	20150611
PE02182017 A1	20170412	PE20160002710	20150611
US2015361239 AA	20151217	US20150730960	20150604
WO15189806 A1	20151217	WO20151B54437	20150611

Priority:

US20140011296P 20140612 US20150730960 20150604 WO20151B54437 20150611

Probable Assignee: INSTITUTO DE CAPACITACION E INVESTIGACION DEL PLASTICO Y DEL CAUCHO

Assignee(s): (std): INST DE CAPACITACION E INVESTIG DEL PLASTICO Y DEL CAUCHO ; INST DE CAPACITACION E INVESTIG DEL PLASTICO Y DEL CAUCHO ICIPC ; INST DE CAPACITACION E INVESTIGACION DEL PLASTICO Y DEL CAUCHO ; PLASTICOS TECNICOS MEXICANOS S A DE C V

Assignee(s): INSTITUTO DE CAPACITACION E INVESTIGACION DEL PLASTICO Y DEL CAUCHO ICIPC ; INSTITUTO DE CAPACITACION E INVESTIGACION DEL PLASTICO Y DEL CAUCHO ; PLASTICOS TECNICOS MEXICANOS DE CV SA

Inventor(s): (std): HERNANDEZ ALEXANDER ; LOPEZ IVAN DARIO ; MULHOLLAND THOMAS COLLIN ; NARANJO CARVAJAL ALBERTO ; PENA JOSE RICARDO

Inventor(s): THOMAS COLLIN MULHOLLAND ; IVAN DARIO LOPEZ ; JOSE RICARDO PENA ; ALBERTO NARANJO CARVAJAL ; ALEXANDER HERNANDEZ

Agent(s): CAROLINA MERCEDES DAZA MONTALVO; CARVAJAL Y URQUIJO ISABEL; DAZA MONTALVO CAROLINA

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

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
CO20170000221 A2	20170331	LSPB	+	published / reissued	
EP3154762 A1	20170419	LSPB	+	published / reissued	
EP3154762 A1	20170419	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20170104
PE02182017 A1	20170412	LSPB	+	published / reissued	
US2015361239 AA	20151217	LSPB	+	published / reissued	
US2015361239 AA	20150604	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : INSTITUTO DE CAPACITACION E INVESTIGACION DEL PLAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:NARANJO CARVAJAL, ALBERTO; LOPEZ, IVAN DARIO;

					HERNANDEZ, ALEXANDER; AND OTHERS; SIGNING DATES FROM 20150520 TO 20150529; REEL/FRAME:035789/0376
US2015361239 AA	20150604	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTICOS TECNICOS MEXICANOS S.A. DE C.V., MEXICO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:NARANJO CARVAJAL, ALBERTO; LOPEZ, IVAN DARIO; HERNANDEZ, ALEXANDER; AND OTHERS; SIGNING DATES FROM 20150520 TO 20150529; REEL/FRAME:035789/0376
US2015361239 AA	20171213	LSES	NFA1	Non Final Action Mailed	
WO15189806 A1	20151217	LSPB	+	published / reissued	
WO15189806 A1	20161212	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: MOLDED PRODUCTS REINFORCED WITH FOAM AND MANUFACTURING METHOD FOR THEM.

Abstract: Source: EP0647513A2 [EN] Molded products with improved rigidity and a manufacturing method in which hollow moldings formed from highly heat-resistant functional resin are filled with highly heat-resistant expandable thermoplastic resin particles which are then expanded and fused are provided. The invention is characterized by a manufacturing method for foam-reinforced molded products wherein a tubular body for introducing steam is inserted in a hollow molding of highly heat-resistant resin, the molding is packed with highly heat-resistant expandable thermoplastic resin particles and fitted in a jig with an internal structure corresponding to the mold cavity, and large amounts of steam are introduced through the tubular body, thereby expanding and fusing the expandable thermoplastic resin particles packed in the molding. The invention is also characterized by molded products obtained by this manufacturing method in which the expandable thermoplastic resin particles are expanded and fused until they contact the inner walls of the hollow molding.

Classifications:

International (IPC 8-9): B29C44/00 B29C44/18 (Advanced/Invention); B29K105/04 B29K105/06 B29K71/00 (Advanced/Non-invention);

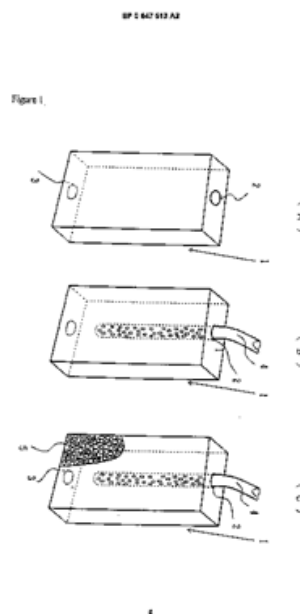
B29C44/00 B29C44/02 (Core/Invention)

International (IPC 1-7): B29C44/00 B29C44/02 B29C44/18 B29C44/44 B29K105/04

CPC: B29C44/18 B29C44/343

European: B29C44/18 B29C44/34D4B

PatBase - EP0647513_A2



Family:

Publication number	Publication date	Application number	Application date
DE69420349 D1	19991007	DE19946020349	19940930
DE69420349 T2	20000511	DE19946020349T	19940930
EP0647513 A2	19950412	EP19940307174	19940930
EP0647513 A3	19960320	EP19940307174	19940930
EP0647513 B1	19990901	EP19940307174	19940930
ES2137331 T3	19991216	ES19940307174T	19940930
JP3413257 B2	20030603	JP19930279020	19931012
JP7108555 A2	19950425	JP19930279020	19931012

Priority:

JP19930279020 19931012

Probable Assignee: SEKISUI PLASTICS

Assignee(s): (std): GE PLASTICS JAPAN LTD ; SEKISUI PLASTICS

Assignee(s): SEKISUI PLASTICS CO LTD ; GE PLASTICS JAPAN LTD TOKIO TOKYO ; NIPPON G II PLAST KK ; GE PLASTICS JAPAN LIMITED

Inventor(s): (std): ANDO MOTONARI ; EGUCHI TATSUYA ; HARAO MASARU ; KUMAGAI KATSUHISA ; MORIOKA KIYOSHI ; TAKAMATSU HIDEO

Designated states: DE ES FR GB IT NL

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE69420349 D1	20000921	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69420349 D1	20100722	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE69420349 T2	20000511	LSGT	+	granted / extensions (spc, cpc, pte)	

DE69420349 T2	20140930	PEXP		Calculated Patent Term Expiry	
EP0647513 A2	19950412	LSPB	+	published / reissued	
EP0647513 A3	19961120	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19960920
EP0647513 A3	19981223	LSSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 19981104
EP0647513 A3	19990825	LSRE	RTI1	TITLE (CORRECTION)	TEXT : MOLDED PRODUCTS REINFORCED WITH FOAM AND MANUFACTURING METHOD FOR THEM
EP0647513 B1	19990901	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0647513 B1	19991216	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2137331 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
EP0647513 B1	20000816	LSGT	+26N	NO OPPOSITION FILED	
EP0647513 B1	20081128	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20080926 YEAR OF FEE PAYMENT : 15
EP0647513 B1	20081128	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20080903 YEAR OF FEE PAYMENT : 15
EP0647513 B1	20081128	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20080915 YEAR OF FEE PAYMENT : 15
EP0647513 B1	20090130	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20081014 YEAR OF FEE PAYMENT : 15
EP0647513 B1	20090227	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20081021 YEAR OF FEE PAYMENT : 15
EP0647513 B1	20090630	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20081001 YEAR OF FEE PAYMENT : 15
EP0647513 B1	20100421	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : V1 EFFECTIVE DATE : 20100401
EP0647513 B1	20100526	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20090930
EP0647513 B1	20100625	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20100531
EP0647513 B1	20100730	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20100401
EP0647513 B1	20100730	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090930
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				NAT. OFFICE TO EPO	LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20100401
EP0647513 B1	20101130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090930
EP0647513 B1	20110331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090930
EP0647513 B1	20110715	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20110715
EP0647513 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110705
EP0647513 B1	20110930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20091001
EP0647513 B1	20140930	PEXP		Calculated Patent Term Expiry	
ES2137331 T3	19991216	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2137331 T3	19991216	LSGT	+FG2A	DEFINITIVE PROTECTION	REF DOCUMENT NUMBER : 647513 COUNTRY OF REF DOCUMENT : ES
ES2137331 T3	20140930	PEXP		Calculated Patent Term Expiry	
JP3413257 B2	20030603	LSGT	+	granted / extensions (spc, cpc, pte)	
JP3413257 B2	20060221	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3413257 B2	20061213	LSAS	R350	WRITTEN NOTIFICATION OF REGISTRATION OF TRANSFER	TEXT : JAPANESE INTERMEDIATE CODE: R350
JP3413257 B2	20070220	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3413257 B2	20071109	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3413257 B2	20071109	LSAS	S533	WRITTEN REQUEST FOR REGISTRATION OF CHANGE OF NAME	TEXT : JAPANESE INTERMEDIATE CODE: R313533
JP3413257 B2	20071121	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3413257 B2	20080104	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3413257 B2	20080109	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3413257 B2	20080213	LSAS	S533	WRITTEN REQUEST FOR REGISTRATION OF CHANGE OF NAME	TEXT : JAPANESE INTERMEDIATE CODE: R313533
JP3413257 B2	20080214	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5

JP3413257 B2	20080227	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 6
JP3413257 B2	20080227	LSAS	R350	WRITTEN NOTIFICATION OF REGISTRATION OF TRANSFER	TEXT : JAPANESE INTERMEDIATE CODE: R350
JP3413257 B2	20090219	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 6
JP3413257 B2	20090224	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7
JP3413257 B2	20091015	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7
JP3413257 B2	20091015	LSAS	R350	WRITTEN NOTIFICATION OF REGISTRATION OF TRANSFER	TEXT : JAPANESE INTERMEDIATE CODE: R350
JP3413257 B2	20100212	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7
JP3413257 B2	20100216	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 8
JP3413257 B2	20110217	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 8
JP3413257 B2	20110222	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 9
JP3413257 B2	20120216	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 9
JP3413257 B2	20120221	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 10
JP3413257 B2	20130328	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP3413257 B2	20131012	PEXP		Calculated Patent Term Expiry	
JP7108555 A2	19950425	LSPB	+	published / reissued	

Title: Method for extruding thermoplastic polymeric foams

Abstract: A process for the extrusion of plastic foam from thermoplastic polymers (I) comprises placing amorphous or partly crystalline (I) in a gasifier, loading with CO₂ (blowing agent) under pressure at a temp. below the T_g or m.pt. of (I) and then extruding. The T_g or m.pt. of (I), and therefore also the viscosity, is lowered by sorption of the gas so that the polymer can be extruded at appreciably lower temps.

Classifications:

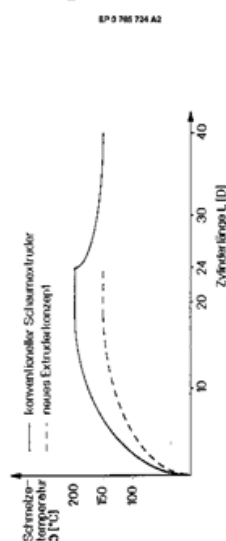
International (IPC 8-9): B29C44/34 B29C44/50
C08J9/12 (Advanced/Invention)

International (IPC 1-7): B29C44/50 C08J9/12

CPC: B29C44/3446 B29C44/3453 B29C44/348 C08J9/122

European: B29C44/34F2 B29C44/34F2C B29C44/34J6 C08J9/12B

PatBase - EP0765724_A2



Family:

Publication number	Publication date	Application number	Application date
AT251019 E	20031015	AT19960113789T	19960829
DE19536711 A1	19970403	DE19951036711	19950930
DE59610746 D1	20031106	DE19965010746	19960829
EP0765724 A2	19970402	EP19960113789	19960829
EP0765724 A3	19971119	EP19960113789	19960829
EP0765724 B1	20031001	EP19960113789	19960829

Priority:

DE19951036711 19950930 DE19965010746 19960829

Probable Assignee: BERSTORFF GMBH

Assignee(s): (std): BERSTORFF GMBH ; BERSTORFF GMBH MASCH HERMANN

Assignee(s): HERMANN BERSTORFF MASCHINENBAU GMBH ; HERMANN BERSTORFF MASCHINENBAU GMBH 30627 HANNOVER ; HERMANN BERSTORFF MASCHINENBAU GMBH 30627 HANNOVER DE

Inventor(s): (std): KROPP DIPL ING ; KROPP DIRK ; KROPP DIRK DIPL ING

Inventor(s): KROPP DIRK 52070 AACHEN DE

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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT251019 E	20031015	LSGT	+	granted / extensions (spc, cpc, pte)	
AT251019 E	20100515	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT251019 E	20160829	PEXP		Calculated Patent Term Expiry	
DE19536711 A1	19970403	LSPB	+	published / reissued	
DE19536711 A1	19970403	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	

DE19536711 A1	19980115	LSRV	-8131	REJECTION	
DE19536711 A1	19980507	LSRV	-8131	REJECTION	
DE59610746 D1	20041028	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE59610746 D1	20080131	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : KRAUSSMAFFEI BERSTORFF GMBH, 30625 HANNOVER, DE
EP0765724 A2	19970402	LSPB	+	published / reissued	
EP0765724 A3	19980610	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19980416
EP0765724 A3	19991027	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 19990914
EP0765724 A3	20000308	LSAS	RAP1	TRANSFER OF RIGHTS OF AN APPLICATION	PARTYTYPE : OWNER OWNER : BERSTORFF GMBH.
EP0765724 B1	20031001	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0765724 B1	20031001	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D TEXT : NOT ENGLISH
EP0765724 B1	20031015	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP0765724 B1	20040922	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20040702
EP0765724 B1	20071015	LSAS	REG	REFERENCE TO A NATIONAL CODE	PARTYTYPE : OWNER REF COUNTRY CODE : CH OWNER : BERSTORFF GMBH REF LEGAL EVENT CODE : PFA OLDPARTY : BERSTORFF GMBH#AN DER BREITEN WIESE 3-5#30625 HANNOVER (DE) -TRANSFER TO- BERSTORFF GMBH#AN DER BREITEN WIESE 3-5#30625 HANNOVER (DE)
EP0765724 B1	20081128	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20080814 YEAR OF FEE PAYMENT : 13
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EP0765724 B1	20081231	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20080821 YEAR OF FEE PAYMENT : 13
EP0765724 B1	20090227	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20080815 YEAR OF FEE PAYMENT : 13
EP0765724 B1	20091130	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20090825 YEAR OF FEE PAYMENT : 14
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EP0765724 B1	20091130	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 20090814 YEAR OF FEE PAYMENT : 14
EP0765724 B1	20100226	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20090915 YEAR OF FEE PAYMENT : 14
EP0765724 B1	20100428	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20090829
EP0765724 B1	20100430	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20090821 YEAR OF FEE PAYMENT : 14

EP0765724 B1	20100521	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20100430
EP0765724 B1	20100630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090829
EP0765724 B1	20100730	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FR NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090831
EP0765724 B1	20101130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090829
EP0765724 B1	20110228	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : *BERSTORFF G.M.B.H. EFFECTIVE DATE : 20100831
EP0765724 B1	20110316	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : V1 EFFECTIVE DATE : 20110301
EP0765724 B1	20110331	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0765724 B1	20110429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20100831
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EP0765724 B1	20110531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090830
EP0765724 B1	20110622	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 59610746 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20110301
EP0765724 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110301
EP0765724 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20100831
EP0765724 B1	20160829	PEXP		Calculated Patent Term Expiry	

Title: Method of making an expandable gap filling product

Abstract: Source: US6093358A [EN] An expandable gap filling product, such as a gasket or baffle, including a plastic support structure formed with at least one aperture and an expandable material molded together with the plastic support structure such that a portion of the expandable material enters the aperture to assist in holding the expandable material to the plastic support structure. The expandable material may be a conventional expandable rubber product that expands under heat to fill a defined space, such as an automotive body interior space. Apertures in the support structure may have converging side walls to further assist in holding the expandable material in place. The support structure may be molded as a mesh material with a plurality of apertures. Methods of molding the expandable gap filling product include injection molding and overmolding or insertion molding methods.

Classifications:

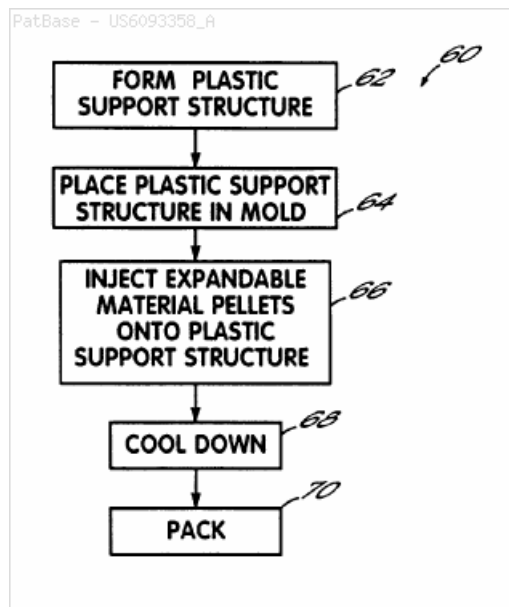
International (IPC 8-9): B29C39/10 (Advanced/Invention)

International (IPC 1-7): B29C39/10

CPC: B29C44/1214 B29C44/18 B62D29/002

European: B29C44/12D B29C44/18 B62D29/00A1

US: 264/250 264/259 264/273 264/45.4 264/46.5



Family:

Publication number	Publication date	Application number	Application date
■ US6093358 A	20000725	US19980014134	19980127

Priority:

US19980014134 19980127

Probable Assignee: ACOUSTISEAL INC

Assignee(s): (std): LEAR CORP

Assignee(s): ACOUSTISEAL INC

Inventor(s): (std): RAINES RICK ; SCHIEWE JULIE A

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US6093358 A	20000725	LSGT	+	granted / extensions (spc, cpc, pte)	
US6093358 A	19980127	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : LEAR CORPORATION, MICHIGAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SCHIEWE, JULIE A.; RAINES, RICK; REEL/FRAME:009006/0183 EFFECTIVE DATE : 19980123
US6093358 A	20000714	LSGT	PAT1	Patented Case	
US6093358 A	20001020	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ACOUSTISEAL, INC., MISSOURI OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:LEAR CORPORATION; REEL/FRAME:011190/0497 EFFECTIVE DATE : 20000926
US6093358 A	20040126	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6093358 A	20080721	LSFE	+FPAY	FEE	YEAR OF FEE PAYMENT : 8

				PAYMENT	
US6093358 A	20120118	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6093358 A	20180127	PEXP		Calculated Patent Term Expiry	

Title: Method for producing a molded foam article with an integral skin

Abstract: Source: US5665285A [EN] A molded foam article with an integral skin is produced by blow-molding a parison in a cavity of a metal mold to form a hollow member, filling the hollow member with pre-expanded thermoplastic resin besides before cooling and solidification of the hollow member, and heating the pre-expanded beads to cause the beads to expand further and fuse together. A filler for the pre-expanded thermoplastic resin beads is provided with a cutter for making a hole in the hollow member before introducing the resin beads into the hollow member.

Classifications:

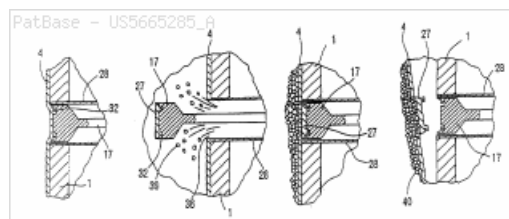
International (IPC 8-9): B29C44/18 (Advanced/Invention); B29C49/04 (Advanced/Non-invention)

International (IPC 1-7): B29C44/06 B29C44/18

CPC: B29C44/18 B29C49/04 B29C2793/009 B29K2105/043

European: B29C44/18 L29C49/04 L29C793/00J L29K105/04C

US: 264/126 264/155 264/161 264/45.4 264/46.6 264/510 264/536



Family:

Publication number	Publication date	Application number	Application date
US5665285 A	19970909	US19950377157	19950124

Priority:

US19950377157 19950124

Probable Assignee: JSP CORP

Assignee(s): (std): ARON KASEI KK ; MITSUBISHI YUKA BADISCHE ; SANKO SOGYO CO LTD

Assignee(s): ARON KASEI CO ; ARON KASEI CO LTD ; MITSUBISHI YUKA BADISCHE CO ; SANKO SOGYO CO ; MITSUBISHI YUKA BADISCHE CO LTD ; JSP CORP ; MCB CORP ; MITSUBISHI CHEMICAL CORP

Inventor(s): (std): HATAKEYAMA YOSHIKAZU ; HATTORI KAZUhide ; KITAOKA TAKUMI ; KOHAMA TAKASHI ; SHIDA YOSHIYUKI ; TAMURA ATSUSHI ; YAMAJI HIROYUKI

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US5665285 A	19970909	LSGT	+	granted / extensions (spc, cpc, pte)	
US5665285 A	19950809	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MITSUBISHI YUKA BADISCHE CO., LTD., JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HATTORI, KAZUhide; YAMAJI, HIROYUKI; REEL/FRAME:007579/0691 EFFECTIVE DATE : 19950114
US5665285 A	19950809	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SANKO SOGYO CO., LTD., JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HATAKEYAMA, YOSHIKAZU; SHIDA, YOSHIYUKI; REEL/FRAME:007579/0721 EFFECTIVE DATE : 19950114
US5665285 A	19950809	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ARON KASEI CO., LTD., JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TAMURA, ATSUSHI; KITAOKA, TAKUMI; KOHAMA, TAKASHI; REEL/FRAME:007579/0735 EFFECTIVE DATE : 19950114
US5665285 A	19970708	LSGT	PAT1	Patented Case	
US5665285 A	20010227	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5665285 A	20050209	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5665285 A	20060706	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MCB CORPORATION, JAPAN OLDPARTY : CHANGE OF NAME; ASSIGNOR:MITSUBISHI YUKA BADISCHE CO., LTD.; REEL/FRAME:017882/0333 EFFECTIVE DATE : 19990414

US5665285 A	20060706	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MITSUBISHI CHEMICAL CORPORATION, JAPAN OLDPARTY : MERGER; ASSIGNOR:MCB CORPORATION; REEL/FRAME:017882/0346 EFFECTIVE DATE : 20030324
US5665285 A	20060706	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : JSP CORPORATION, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MITSUBISHI CHEMICAL CORPORATION; REEL/FRAME:017882/0395 EFFECTIVE DATE : 20060322
US5665285 A	20090211	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5665285 A	20150124	PEXP		Calculated Patent Term Expiry	

Title: Insulated outer structure for refrigerated food storage apparatus and foam injection method using the same

Abstract: Source: US6295787B [EN] An outer structure for a refrigerated food storage apparatus includes an outer shell forming a visible exterior of the apparatus; and an inner liner made of molded plastic and coupled to the outer shell, to form an inter-panel space to be filled with a body of foam insulation. The inner liner includes bosses of a predetermined length, integrally formed with the inner liner at regular intervals and extending toward the outer shell, to support and maintain a constant spacing between the outer shell and inner liner; a foam-injection inlet for injecting foam; and vents for exhausting air and gases generated during a foam injection process. A reactive foam completely fills the inter-panel space, to form a consistent body of insulation. The force of the reactive foam filling the inter-panel space closes a hinged first flap for covering the foam-injection inlet and a plurality of hinged second flaps for covering the vents. The foam-injection inlet is formed in the bottom of a container centrally installed on the inner liner, to communicate with the inter-panel space.

Classifications:

International (IPC 8-9): B29C44/58 F25D23/00 F25D23/06

F25D23/08 (Advanced/Invention);

F25D17/04 (Advanced/Non-invention);

B29C44/34 F25D23/00 F25D23/06 F25D23/08 (Core/Invention);

F25D17/04 (Core/Non-invention)

International (IPC 1-7): F25D11/00 F25D23/02 F25D23/06 F25D23/08

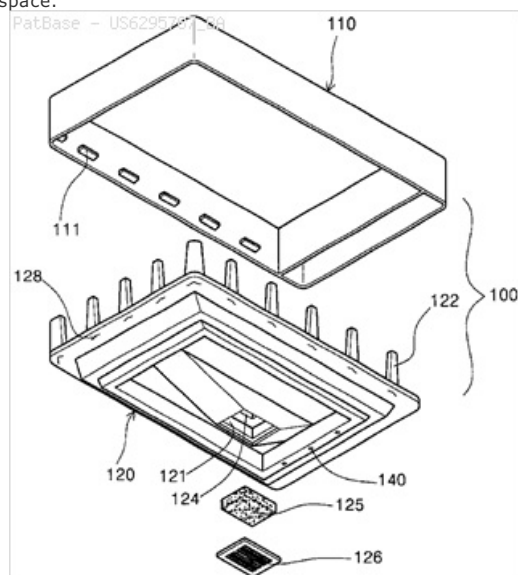
CPC: B29C44/581 F25D17/042 F25D23/064 F25D23/066

European: B29C44/58B F25D23/06B2 F25D23/06C1 R25D17/04A

US: 220/592.01 220/592.02 220/592.1 312/405 312/405.1 312/408

52/309.7 52/758.1 52/783.19 52/784.13 52/784.15 52/792.1 52/794.1

52/801.12



Family:

Publication number	Publication date	Application number	Application date
■ CN1287257 A	20010314	CN19991021765	19990903
■ JP2001066050 A2	20010316	JP19990248077	19990901
■ JP3197258 B2	20010813	JP19990248077	19990901
■ US6295787 BA	20011002	US19990390471	19990903

Priority:

CN19991021765 19990903 JP19990248077 19990901 US19990390471 19990903

Probable Assignee: MANDO CLIMATE CONTROL CORP

Assignee(s): (std): MANDA AIR CONDITIONER CO LTD ; MANDO CLIMATE CONTROL CORP

Assignee(s): MANDO MACHINERY CORP

Inventor(s): (std): LEE YOUNG KIL ; LEE YOUNGKIL ; RII YON KIRU ; YOUNGKIL LEE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN1287257 A	20010314	LSPB	+	published / reissued	
CN1287257 A	20010314	LSPB	+C06	PUBLICATION	
CN1287257 A	20040714	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
JP2001066050 A2	20010316	LSPB	+	published / reissued	
JP3197258 B2	20010813	LSGT	+	granted / extensions (spc, cpc, pte)	
JP3197258 B2	20040601	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3197258 B2	20050607	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3197258 B2	20060606	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250

JP3197258 B2	20070605	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3197258 B2	20080605	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7
JP3197258 B2	20080610	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 8
JP3197258 B2	20090602	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 9
JP3197258 B2	20100608	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 10
JP3197258 B2	20110602	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 10
JP3197258 B2	20110607	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 11
JP3197258 B2	20120412	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 11
JP3197258 B2	20120417	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 12
JP3197258 B2	20130528	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP3197258 B2	20140608	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP3197258 B2	20190901	PEXP		Calculated Patent Term Expiry	
US6295787 BA	20011002	LSGT	+	granted / extensions (spc, cpc, pte)	
US6295787 BA	19990903	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MANDO MACHINERY CORPORATION, REPUBLIC OF KOREA, KO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:LEE, YOUNG-KIL; REEL/FRAME:010227/0669 EFFECTIVE DATE : 19990825
US6295787 BA	20010914	LSGT	PAT1	Patented Case	
US6295787 BA	20050315	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6295787 BA	20090304	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6295787 BA	20130315	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6295787 BA	20190903	PEXP		Calculated Patent Term Expiry	

Title: Microcellular polymer foams and method for their production

Abstract: Source: US6232354B [EN] An environmentally friendly, commercially practicable process for the production of microcellular polymer foams from amorphous, semi-crystalline and crystalline polymers that comprises consolidating the polymer into a polymer shape, saturating the polymer shape with an inert gas at elevated temperature, above the T_g of the polymer, and under elevated pressure, releasing the pressure and cooling, i.e. quenching, the saturated polymer polymer shape under controlled temperature and pressure conditions to produce either a closed or open celled, low to medium density microcellular foam or a closed cell, high density microcellular foam.

Classifications:

International (IPC 8-9): B29C43/00 B29C44/34

C08J9/18 (Advanced/Invention);

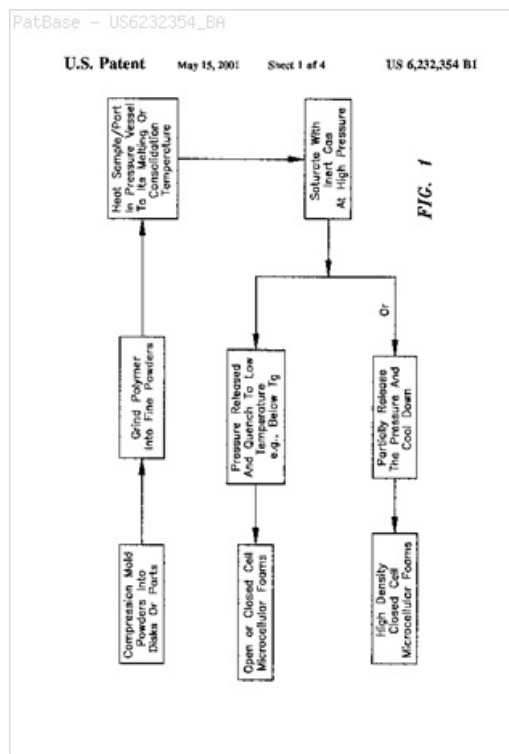
B29C44/34 C08J9/00 (Core/Invention)

International (IPC 1-7): B29C43/00 B29C44/34 B29D9/00 C08J9/18

CPC: B29C44/3446 B29C44/3453 B29C44/348 C08J9/18 C08J2201/032

European: B29C44/34F2 B29C44/34F2C B29C44/34J6 C08J9/18 M08J201/032

US: 264/51 521/60 521/82



Family:

Publication number	Publication date	Application number	Application date
AU200028538 A1	20000807	AU20000028538	20000119
AU200028538 A5	20000807	AU20000028538	20000119
CA2359956 AA	20010724	CA20002359956	20000119
EP1163105 A1	20011219	EP20000906964	20000119
EP1163105 A4	20040407	EP20000906964	20000119
US6232354 BA	20010515	US19990236179	19990125
WO0043193 A1	20000727	WO2000US01324	20000119

Priority:

US19990236179 19990125 WO2000US01324 20000119

Probable Assignee: TAN SENG C

Assignee(s): (std): SENG C TAN ; TAN SENG C

Inventor(s): (std): TAN SENG C

Inventor(s): SENG C TAN

Agent(s): GOWLING LAFLEUR HENDERSON LLP

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CY CZ DE DK EE ES FI FR GA GB GD GE GH GM GN GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG ML MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU200028538 A1	20000807	LSPB	+	published / reissued	
CA2359956 AA	20010724	LSPB	+	published / reissued	
CA2359956 AA	20050119	LSSES	+EEER	EXAMINATION REQUEST	
CA2359956 AA	20070119	LSLE	-FZDE	DEAD	

EP1163105 A1	20011219	LSPB	+	published / reissued	
EP1163105 A1	20011219	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20010731
EP1163105 A4	20040407	LSES	+A4	DESPATCH OF SUPPLEMENTARY SEARCH REPORT	EFFECTIVE DATE : 20040225
EP1163105 A4	20040407	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : 7B 29D 9/00 A
EP1163105 A4	20040407	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : 7C 08J 9/18 B
EP1163105 A4	20040407	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : 7B 29C 44/34 B
EP1163105 A4	20040804	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20040616
EP1163105 A4	20061018	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20060419
US6232354 BA	20010515	LSGT	+	granted / extensions (spc, cpc, pte)	
US6232354 BA	20010427	LSGT	PAT1	Patented Case	
US6232354 BA	20040901	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6232354 BA	20080530	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6232354 BA	20120808	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6232354 BA	20190125	PEXP		Calculated Patent Term Expiry	
WO0043193 A1	20000727	LSPB	+	published / reissued	
WO0043193 A1	20010724	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2359956 COUNTRY OF REF DOCUMENT : CA
WO0043193 A1	20010724	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2359956 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO0043193 A1	20010731	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2000906964 COUNTRY OF REF DOCUMENT : EP
WO0043193 A1	20011219	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2000906964 COUNTRY OF REF DOCUMENT : EP
WO0043193 A1	20060419	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2000906964 COUNTRY OF REF DOCUMENT : EP

Title: HEAT-RESISTANT POLYMER FOAM, PROCESS FOR PRODUCING THE SAME, AND FOAM SUBSTRATE

Abstract: Source: US2001031794A [EN] A heat-resistant polymer foam is disclosed which has excellent heat resistance, a fine cellular structure, and a low apparent density. The heat-resistant polymer foam comprises a heat-resistant polymer having a glass transition point of 120 degrees centigrade or higher, e.g., a polyimide or polyether imide, and has an average cell diameter of from 0.01 μm to less than 10 μm . This heat-resistant polymer foam can be produced by, for example, impregnating a heat-resistant polymer under pressure with a non-reactive gas such as carbon dioxide, which is in, e.g., a supercritical state, reducing the pressure, and then heating the polymer at a temperature exceeding 120 degrees centigrade to foam the polymer.

Classifications:

International (IPC 8-9): B29C44/34 B32B15/08 B32B15/088 C08J9/00 C08J9/12 H02G1/08 (Advanced/Invention);

C08J9/00 (Advanced/Non-invention);

H02G1/08 (Core/Invention)

International (IPC 1-7): B32B15/08 C08J9/00 C08J9/12 C08J9/14 C08L79/08

CPC: Y10T428/31681 C08J9/12 B29C44/348 C08J2201/032 C08J2203/06 C08J2203/08 C08J2379/08

European: B29C44/34J6 C08J9/12 M08J201/032 M08J203/06 M08J203/08 M08J379/08

US: 264/51 264/53 428/458 521/183 521/183S 521/50 521/50P 521/79 521/79S

PatBase - US2001031794_RH

Patent Application Publication Oct. 18, 2001 Sheet 1 of 2 US 2001/0031794 A1

FIG. 1



FIG. 2



Family:

Publication number	Publication date	Application number	Application date
DE60018844 D1	20050428	DE20006018844	20000606
DE60018844 T2	20050811	DE20006018844T	20000606
EP1059327 A1	20001213	EP20000112155	20000606
EP1059327 B1	20050323	EP20000112155	20000606
JP2001055464 A2	20010227	JP19990293019	19991014
JP4117986 B2	20080716	JP19990293019	19991014
KR100665410 B1	20070104	KR20000030561	20000603
KR20010007220 A	20010126	KR20000030561	20000603
TWI280254 B	20070501	TW20000111031	20000607
US2001031794 AA	20011018	US20010826867	20010406
US6503427 BA	20030107	US20000588240	20000606

Priority:

JP19990159831 19990607 JP19990293019 19991014 US20010826867 20010406
US20000588240 20000606

Probable Assignee: NITTO DENKO CORP

Assignee(s): (std): NITTO DENKO CORP

Assignee(s): NITTO DENKO CORP IBARAKI ; YAMAMOTO TAKAYUKI ; TARUNO TOMOHIRO ; BANBA TOMOHIDE ; HIKITA TAKAMI ; KANADA MITSUHIRO ; MOCHIZUKI AMANE

Inventor(s): (std): BABA NORIHIDE ; BANBA TOMOHIDE ; HIKITA TAKAMI ; KANEDA MITSUHIRO ; MOCHIZUKI AMANE ; MOCHIZUKI SHU ; KANADA MITSUHIRO ; TARUNO TOMOHIRO ; YAMAMOTO TAKAYUKI

Inventor(s): BANBA TOMOHIDE AND ; TOMOHIDE BANBA ; TOMOHIRO, TARUNO

Designated states: DE FR GB IT

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE60018844 D1	20060511	LSGT	+8364	NO OPPOSITION DURING TERM OF	

DE60018844 T2	20050811	LSGT	+	OPPOSITION granted / extensions (spc, cpc, pte)	
DE60018844 T2	20200606	PEXP		Calculated Patent Term Expiry	
EP1059327 A1	20001213	LSPB	+	published / reissued	
EP1059327 A1	20010704	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20010508
EP1059327 A1	20010905	LSFE	+AKX	PAYMENT OF DESIGNATION FEES	TEXT : DE FR GB IT
EP1059327 A1	20040519	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20040408
EP1059327 B1	20050323	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1059327 B1	20050323	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1059327 B1	20060315	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20051227
EP1059327 B1	20120731	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20120530 YEAR OF FEE PAYMENT : 13
EP1059327 B1	20120831	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20120606 YEAR OF FEE PAYMENT : 13
EP1059327 B1	20120831	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20120619 YEAR OF FEE PAYMENT : 13
EP1059327 B1	20120928	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20120618 YEAR OF FEE PAYMENT : 13
EP1059327 B1	20140226	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20130606
EP1059327 B1	20140327	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 60018844 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140101
EP1059327 B1	20140328	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20140228
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EP1059327 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20130606
EP1059327 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20130701
EP1059327 B1	20200606	PEXP		Calculated Patent Term Expiry	
JP2001055464 A2	20010227	LSPB	+	published / reissued	
JP4117986 B2	20080716	LSGT	+	granted / extensions (spc, cpc, pte)	

JP4117986 B2	20051115	LSSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20051114
JP4117986 B2	20080109	LSSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20080108
JP4117986 B2	20080308	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20080307
JP4117986 B2	20080417	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP4117986 B2	20080423	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20080422
JP4117986 B2	20080501	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20080422
JP4117986 B2	20080502	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
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JP4117986 B2	20100914	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 6
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JP4117986 B2	20150303	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4117986 B2	20160301	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4117986 B2	20170404	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4117986 B2	20191014	PEXP		Calculated Patent Term Expiry	
KR100665410 B1	20070104	LSGT	+	granted / extensions (spc, cpc, pte)	
KR100665410 B1	20121130	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20121130 YEAR OF FEE PAYMENT : 7
KR100665410 B1	20131210	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20131210 YEAR OF FEE PAYMENT : 8
KR100665410 B1	20141205	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20141205 YEAR OF FEE PAYMENT : 9
KR100665410 B1	20151201	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20151201 YEAR OF FEE PAYMENT : 10
KR100665410 B1	20161129	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20161129 YEAR OF FEE PAYMENT : 11
KR100665410 B1	20171219	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20171219 YEAR OF FEE PAYMENT : 12
KR100665410 B1	20200603	PEXP		Calculated Patent Term Expiry	
KR20010007220 A	20010126	LSPB	+	published / reissued	
KR20010007220 A	20050131	LSSES	A201	REQUEST FOR EXAMINATION	
KR20010007220 A	20060329	LSSES	-E902	NOTIFICATION OF REASON FOR	

KR20010007220 A	20060614	LSES	-E902	REFUSAL NOTIFICATION OF REASON FOR REFUSAL	
KR20010007220 A	20061025	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR20010007220 A	20061228	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
TWI280254 B	20070501	LSGT	+	granted / extensions (spc, cpc, pte)	
TWI280254 B	20200607	PEXP		Calculated Patent Term Expiry	
US2001031794 AA	20011018	LSPB	+	published / reissued	
US2001031794 AA	20020405	LSWD	-EAB1	Expressly Abandoned -- During Examination	
US6503427 BA	20030107	LSGT	+	granted / extensions (spc, cpc, pte)	
US6503427 BA	20000606	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NITTO DENKO CORPORATION, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:YAMAMOTO, TAKAYUKI; MOCHIZUKI, AMANE; HIKITA, TAKAMI; AND OTHERS; REEL/FRAME:010862/0524 EFFECTIVE DATE : 20000526
US6503427 BA	20021219	LSGT	PAT1	Patented Case	
US6503427 BA	20060609	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6503427 BA	20100609	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6503427 BA	20140611	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6503427 BA	20200606	PEXP		Calculated Patent Term Expiry	

Title: FOAM MOLDING METHOD AND APPARATUS

Abstract: Source: US2002014709A [EN] According to this invention, there is provided a molding method and apparatus which increase the gas permeation speed in obtaining a foamed resin molded product by letting a gas permeate a molten resin material. To achieve this object, a chip- or pellet-like resin material is evacuated and subjected to dehumidifying/drying processing, and replacement processing in an inert gas in a pre-processing unit, the resin material is then held in an inert gas of a predetermined temperature and pressure in an inert gas permeation unit for a predetermined period of time, the temperature and pressure are decreased, the material is fed to a material hopper whose temperature and pressure are controlled, the material is fed to a plasticizing unit to which a gas of a predetermined temperature and pressure is fed, the resin material is melted in the plasticizing unit, the resin material is injected/charged into a mold which is evacuated in advance to a pressure not more than atmospheric pressure, the pressure is restored to atmospheric pressure after the resin material is cooled for a predetermined period of time, and a foamed product is extracted by opening the mold.

Classifications:

International (IPC 8-9): B29B13/08 B29C44/02 B29C44/04 B29C44/34 B29C45/00 B29C45/17 B29C45/18 B29C45/26 B29C45/28 B29C45/34 B29C45/46 B29C45/78 B29L31/00 F16F15/08 G10K11/16 G11B33/08 G11B45/00 (Advanced/Invention);

B29K105/04 B29L31/00 (Advanced/Non-invention);

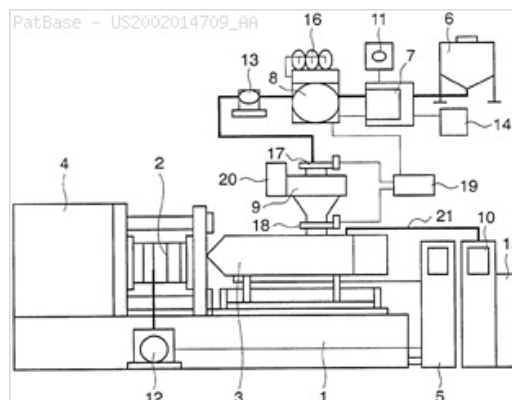
B29B13/00 B29C44/02 B29C44/34 B29C45/00 B29C45/17 B29C45/18 B29C45/26 B29C45/27 B29C45/34 B29C45/46 B29C45/78 F16F15/08 G10K11/00 G11B33/00 G11B33/08 (Core/Invention)

International (IPC 1-7): B29B13/08 B29C31/02 B29C44/02 B29C45/00 B29C45/17 B29C45/18 B29C45/26 B29C45/28 B29C45/34 B29C45/46 B29C45/78 B29C67/20 B29K105/04 B29L31/00 B29L31/34 C08J9/00 F16F15/08 G10K11/16 G11B33/08

CPC: B29C44/04 B29C44/3453 B29C44/3461

European: B29C44/04 B29C44/34F2C B29C44/34H

US: 264/102 264/102S 264/40.6 264/40.600P 264/40.7 264/40.700S 264/51 264/51S 264/85 264/85S 425/135 425/135S 425/143 425/143S 425/145 425/145S 425/146 425/146S 521/5 521/50 521/50S 720/651

**Family:**

Publication number	Publication date	Application number	Application date
■ CN1325244 C	20070711	CN20011021277	20010614
■ CN1332076 A	20020123	CN20011021277	20010614
■ JP2001353743 A2	20011225	JP20000178222	20000614
■ JP2001353744 A2	20011225	JP20000178296	20000614
■ JP2001353750 A2	20011225	JP20000178297	20000614
■ JP3697144 B2	20050921	JP20000178297	20000614
■ TH32490 B	20120425	TH20011002289	20010612
■ TH55964 A	20030325	TH20011002289	20010612
■ US2002014709 AA	20020207	US20010877092	20010611
■ US7107601 BB	20060912	US20010877092	20010611

Priority:

JP20000178222 20000614 JP20000178296 20000614 JP20000178297 20000614

Probable Assignee: CANON KK

Assignee(s): (std): CANON INC ; CANON KK

Assignee(s): CANON K K ; CANON KABUSHIKI KAISHA ; ARAI TAKASHI

Inventor(s): (std): ARAI TAKASHI ; TAKASHI ARAI

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
CN1325244 C	20070711	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1325244 C	20070711	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1325244 C	20210614	PEXP		Calculated Patent Term Expiry	
CN1332076 A	20020123	LSPB	+	published / reissued	
CN1332076 A	20020123	LSPB	+C06	PUBLICATION	
JP2001353743 A2	20011225	LSPB	+	published / reissued	
JP2001353743 A2	20031211	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20031210
JP2001353743 A2	20050202	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20050201

JP2001353743 A2	20050405	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20050404
JP2001353743 A2	20060315	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20060314
JP2001353743 A2	20060516	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20060515
JP2001353743 A2	20060615	LSRV	-A02	DECISION OF REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20060614
JP2001353744 A2	20011225	LSPB	+	published / reissued	
JP2001353744 A2	20031210	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20031209
JP2001353744 A2	20050202	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20050201
JP2001353744 A2	20050608	LSRV	-A02	DECISION OF REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20050607
JP2001353750 A2	20011225	LSPB	+	published / reissued	
JP3697144 B2	20050921	LSGT	+	granted / extensions (spc, cpc, pte)	
JP3697144 B2	20050316	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20050315
JP3697144 B2	20050517	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20050516
JP3697144 B2	20050603	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP3697144 B2	20050615	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20050614
JP3697144 B2	20050707	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20050701
JP3697144 B2	20050708	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP3697144 B2	20080703	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP3697144 B2	20080708	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 4
JP3697144 B2	20090618	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 4
JP3697144 B2	20090623	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3697144 B2	20100624	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3697144 B2	20100629	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 6
JP3697144 B2	20110628	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7
JP3697144 B2	20120628	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7

JP3697144 B2	20120703	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 8
JP3697144 B2	20160708	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP3697144 B2	20200614	PEXP		Calculated Patent Term Expiry	
TH32490 B	20120425	LSGT	+	granted / extensions (spc, cpc, pte)	
TH32490 B	20210612	PEXP		Calculated Patent Term Expiry	
TH55964 A	20030325	LSPB	+	published / reissued	
US2002014709 AA	20020207	LSPB	+	published / reissued	
US2002014709 AA	20011004	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CANON KABUSHIKI KAISHA, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ARAI, TAKASHI; REEL/FRAME:012231/0433 EFFECTIVE DATE : 20010921
US7107601 BB	20060912	LSGT	+	granted / extensions (spc, cpc, pte)	
US7107601 BB	20060823	LSGT	PAT1	Patented Case	
US7107601 BB	20070320	LSRE	CC	CERTIFICATE OF CORRECTION	
US7107601 BB	20100129	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7107601 BB	20140212	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7107601 BB	20240401	PEXP		Calculated Patent Term Expiry (PTA 1025 days)	

Title: MANUFACTURING FOAMS BY STRESS-INDUCED NUCLEATION

Abstract: Source: US6080798A [EN] The invention disclosed provides a method for inducing nucleation in a polymer by subjecting the polymer containing dissolved gas to an external stress generated, for example, by applying hydrostatic or mechanical pressure. The applied stress restricts the bubble growth so that the foamed materials have small cells and high cell density. Such microcellular foams can be produced over a wide low temperature range, i.e. from the temperature at which the polymer is conditioned with the blowing agent up to about the glass transition temperature of the polymer-blowing agent system. Stress induced nucleation can also be conducted at higher temperatures i.e. up to about the T_g of the neat polymer, leading to foams with larger cells. A variety of homogeneous and heterogeneous foams can be produced by this technique.

Classifications:

International (IPC 8-9): B29C44/04 B29C44/34 B29C44/56 C08J9/14 C08J9/36 (Advanced/Invention); B29C44/02 B29C44/34 C08J9/00 (Core/Invention)

International (IPC 1-7): B29C44/56 C08J9/00 C08J9/14 C08J9/36

CPC: B29C44/3453 C08J9/14 B29C44/04 B29C44/3476 C08J9/36

European: B29C44/04 B29C44/34J4 C08J9/14 C08J9/36

US: 264/45.9 264/50 264/51 264/53 521/149 521/180 521/181 521/79

PatBase - US6080798_A

U.S. Patent Jun. 27, 2000 Sheet 1 of 12 6,080,798

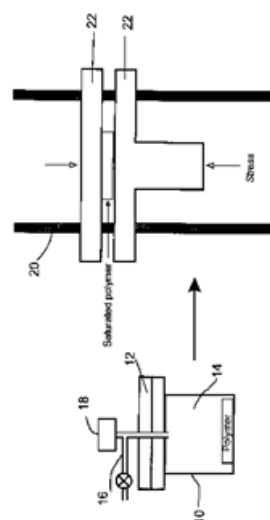


Figure 1

Family:

Publication number	Publication date	Application number	Application date
AT239601 E	20030515	AT19990945797T	19990928
AU199958439 A1	20000417	AU19990058439	19990928
AU199958439 A5	20000417	AU19990058439	19990928
CA2343197 AA	20010306	CA19992343197	19990928
DE69907728 D1	20030612	DE19996007728	19990928
DE69907728 T2	20040219	DE19996007728T	19990928
EP1137524 A1	20011004	EP19990945797	19990928
EP1137524 B1	20030507	EP19990945797	19990928
US6080798 A	20000627	US19980161448	19980928
US6391934 BA	20020521	US19990458983	19991210
WO0018557 A1	20000406	WO1999CA00883	19990928

Priority:

US19980161448 19980928 US19990458983 19991210 WO1999CA00883 19990928

Probable Assignee: NATIONAL RESEARCH COUNCIL OF CANADA

Assignee(s): (std): CA NAT RESEARCH COUNCIL ; CANADA NAT RES COUNCIL ; NAT RES COUNCIL CANADA OTTAWA ; NAT RES COUNCIL OF CANADA OTTA

Assignee(s): HANDA Y PAUL ; NATIONAL RESEARCH COUNCIL OF CANADA INTELLECTUAL P ; NATIONAL RESEARCH COUNCIL OF CANADA MONTREAL ROAD ; NATIONAL RESEARCH COUNCIL OF CANADA ; ZHANG ZHIYI ; NATIONAL RESEARCH COUNCIL OF CANADA OTTAWA ; HANDA PAUL

Inventor(s): (std): ZHANG ZHIYI ; HANDA Y PAUL ; HANDA PAUL

Inventor(s): ZHIYI ZHANG ; HANDA Y ; Y PAUL HANDA

Agent(s): ANDERSON J WAYNE

Designated states: AT AU BE CA CH CY DE DK ES FI FR GB GR IE IT JP LI LU MC MX NL NZ PT SE ZA

Legal status (INPADOC)

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Patent **Date recorded** **Event group** **Code** **Event** **Details**

AT239601 E	20030515	LSGT	+	granted / extensions (spc, cpc, pte)	
AT239601 E	20031015	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	REF DOCUMENT NUMBER : 1137524 COUNTRY OF REF DOCUMENT : EP
AT239601 E	20041215	LSLE	-REN	CEASED DUE TO NON- PAYMENT OF THE ANNUAL FEE	
AT239601 E	20190928	PEXP		Calculated Patent Term Expiry	
AU199958439 A1	20000417	LSPB	+	published / reissued	
AU199958439 A1	20010628	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2)(F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
CA2343197 AA	20010306	LSPB	+	published / reissued	
CA2343197 AA	20040928	LSLE	-FZDE	DEAD	
DE69907728 D1	20040603	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69907728 D1	20040708	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE69907728 T2	20040219	LSGT	+	granted / extensions (spc, cpc, pte)	
DE69907728 T2	20190928	PEXP		Calculated Patent Term Expiry	
EP1137524 A1	20011004	LSPB	+	published / reissued	
EP1137524 A1	20011004	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20010330
EP1137524 B1	20030507	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1137524 B1	20030507	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030507
EP1137524 B1	20030507	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030507
EP1137524 B1	20030507	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030507
EP1137524 B1	20030507	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1137524 B1	20030515	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1137524 B1	20030611	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1137524 B1	20030807	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030807
EP1137524 B1	20030807	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : GR

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EP1137524 B1	20030807	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030807
EP1137524 B1	20030818	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030818
EP1137524 B1	20030928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030928
EP1137524 B1	20030928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030928
EP1137524 B1	20030928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030928
EP1137524 B1	20030928	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20030928
EP1137524 B1	20030929	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030929
EP1137524 B1	20030930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : BE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030930
EP1137524 B1	20030930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030930
EP1137524 B1	20030930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030930
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				ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030930
EP1137524 B1	20031001	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	REF COUNTRY CODE : EP
EP1137524 B1	20040331	LSLE	-BERE	BE: LAPSED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : *NATIONAL RESEARCH COUNCIL OF CANADA EFFECTIVE DATE : 20030930
EP1137524 B1	20040401	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : DE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20040401
EP1137524 B1	20040428	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20040210
EP1137524 B1	20040514	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1137524 B1	20040519	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20030928
EP1137524 B1	20040630	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1137524 B1	20080930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20030930
EP1137524 B1	20111125	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20111021
EP1137524 B1	20190928	PEXP		Calculated Patent Term Expiry	
US6080798 A	20000627	LSGT	+	granted / extensions (spc, cpc, pte)	
US6080798 A	19980928	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NATIONAL RESEARCH COUNCIL OF CANADA, CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HANDA, PAUL; ZHANG, ZHIYI; REEL/FRAME:009508/0954 EFFECTIVE DATE : 19980916
US6080798 A	20000609	LSGT	PAT1	Patented Case	
US6080798 A	20040628	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6080798 A	20040824	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20040627
US6080798 A	20180928	PEXP		Calculated Patent Term Expiry	
US6391934 BA	20020521	LSGT	+	granted / extensions (spc, cpc, pte)	
US6391934 BA	19991210	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NATIONAL RESEARCH COUNCIL OF CANADA, CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HANDA, PAUL; ZHANG, ZHIYI; REEL/FRAME:010474/0608 EFFECTIVE DATE : 19990201
US6391934 BA	20060522	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6391934 BA	20060621	LSLE	-PEX1	Patent Expired Due to	

US6391934 BA	20060718	LSLE	-FP	NonPayment of Maintenance Fees Under 37 CFR 1.362 EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20060521
US6391934 BA	20191210	PEXP		Calculated Patent Term Expiry	
WO0018557 A1	20000406	LSPB	+	published / reissued	
WO0018557 A1	20010306	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2343197 COUNTRY OF REF DOCUMENT : CA
WO0018557 A1	20010306	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2343197 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO0018557 A1	20010329	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1999945797 COUNTRY OF REF DOCUMENT : EP
WO0018557 A1	20011004	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1999945797 COUNTRY OF REF DOCUMENT : EP
WO0018557 A1	20030507	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1999945797 COUNTRY OF REF DOCUMENT : EP

Title: METHOD OF STORING MATERIAL INTO WHICH GAS SATURATES

Abstract: Source: US2004070098A [EN] It is an object of this invention to obtain a high-accuracy foamed product with high productivity. To achieve this object, a method of storing a material into which a gas saturates, before the material is foamed in a metal foam, while maintaining the gas saturated state is disclosed. This method stores a material into which a gas saturates at a predetermined ambient pressure and predetermined ambient temperature, thereby preventing escape of the gas from the material into which the gas saturates.

Classifications:

International (IPC 8-9): B29B13/00 B29C44/34 B29K105/04

C08J9/18 (Advanced/Invention);

B29K105/04 (Advanced/Non-invention);

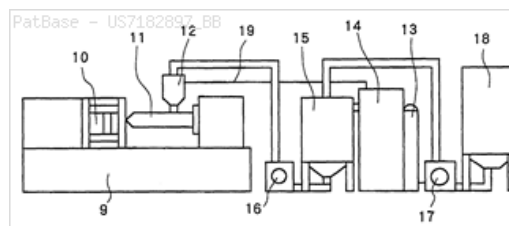
B29B13/00 B29C44/34 (Core/Invention)

International (IPC 1-7): B29B13/00 B29C44/00 B29C44/02 B29C44/34 B29K105/04 C08J9/18

CPC: B29C44/3446 B29C44/3453 B29C44/348

European: B29C44/34F2 B29C44/34F2C B29C44/34J6

US: 264/232 264/51 264/51P 264/85 264/85S 521/50



Family:

Publication number	Publication date	Application number	Application date
CN100364750 C	20080130	CN20031052544	20030801
CN1485193 A	20040331	CN20031052544	20030801
EP1407868 A2	20040414	EP20030016627	20030730
EP1407868 A3	20040630	EP20030016627	20030730
JP2004066680 A2	20040304	JP20020230323	20020807
JP3780236 B2	20060531	JP20020230323	20020807
TH65289 A	20041203	TH20031002889	20030804
US2004070098 AA	20040415	US20030634860	20030806
US7182897 BB	20070227	US20030634860	20030806

Priority:

JP20020230323 20020807

Probable Assignee: CANON KK

Assignee(s): (std): CANON KK

Assignee(s): CANON INC ; CANON KABUSHIKI KAISHA

Inventor(s): (std): ARAI TAKASHI ; TAKASHI ARAI

Agent(s): FITZPATRICK CELLA HARPER AND SCINTO

Designated states: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CN100364750 C	20080130	LSGT	+	granted / extensions (spc, cpc, pte)	
CN100364750 C	20080130	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN100364750 C	20230801	PEXP		Calculated Patent Term Expiry	
CN1485193 A	20040331	LSPB	+	published / reissued	
CN1485193 A	20040331	LSPB	+C06	PUBLICATION	
EP1407868 A2	20040414	LSPB	+	published / reissued	
EP1407868 A2	20040428	LSRE	RT11	TITLE (CORRECTION)	TEXT : METHOD OF STORING A GAS SATURATED MATERIAL
EP1407868 A3	20040707	LSRE	RT11	TITLE (CORRECTION)	TEXT : METHOD FOR DIFFUSING GAS INTO A MATERIAL
EP1407868 A3	20050309	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20041230
EP1407868 A3	20050323	LSFE	+AKX	PAYMENT OF DESIGNATION FEES	COUNTRY OF REF DOCUMENT : DE COUNTRY OF REF DOCUMENT : FR COUNTRY OF REF DOCUMENT : GB
EP1407868 A3	20050608	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20050421

EP1407868 A3	20061025	LSSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20050421
EP1407868 A3	20070509	LSSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20050421
EP1407868 A3	20070919	LSWD	-18W	APPLICATION WITHDRAWN	EFFECTIVE DATE : 20070807
JP2004066680 A2	20040304	LSPB	+	published / reissued	
JP2004066680 A2	20050906	LSSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20050905
JP2004066680 A2	20051105	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20051104
JP2004066680 A2	20051205	LSSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20051202
JP2004066680 A2	20060126	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20060125
JP2004066680 A2	20060210	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2004066680 A2	20060220	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20060217
JP2004066680 A2	20060309	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20060306
JP2004066680 A2	20060310	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP3780236 B2	20060531	LSGT	+	granted / extensions (spc, cpc, pte)	
JP3780236 B2	20031219	LSSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20031218
JP3780236 B2	20060223	LSGT	+A01	特許査定書 Decision of patent grant	
JP3780236 B2	20060307	LSFE	R100	特許料納付書 Patent fee payment form	
JP3780236 B2	20090226	LSFE	R20	特許料納付書 Patent fee payment form	
JP3780236 B2	20090303	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 4
JP3780236 B2	20100225	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 4
JP3780236 B2	20100302	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 5
JP3780236 B2	20110224	LSFE	R20	特許料納付書 Patent fee payment form	
JP3780236 B2	20110301	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 6
JP3780236 B2	20120223	LSFE	R20	特許料納付書 Patent fee payment form	
JP3780236 B2	20120228	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 7
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JP3780236 B2	20130226	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 8
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JP3780236 B2	20140304	LSFE	R2501	年金領収書 (一括) Pension receipt (bulk)	
JP3780236 B2	20150226	LSFE	R20	特許料納付書 Patent fee payment form	
JP3780236 B2	20150303	LSFE	R2501	年金領収書 (一括) Pension receipt (bulk)	
JP3780236 B2	20160225	LSFE	R20	特許料納付書 Patent fee payment form	
JP3780236 B2	20160301	LSFE	R2501	年金領収書 (一括) Pension receipt (bulk)	
JP3780236 B2	20170310	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP3780236 B2	20220807	PEXP		Calculated Patent Term Expiry	
TH65289 A	20041203	LSPB	+	published / reissued	
US2004070098 AA	20040415	LSPB	+	published / reissued	
US2004070098 AA	20030806	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CANON KABUSHIKI KAISHA, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ARAI, TAKASHI; REEL/FRAME:014382/0686 EFFECTIVE DATE : 20030731
US7182897 BB	20070227	LSGT	+	granted / extensions (spc, cpc, pte)	
US7182897 BB	20070207	LSGT	PAT1	Patented Case	
US7182897 BB	20070918	LSRE	CC	CERTIFICATE OF CORRECTION	
US7182897 BB	20100728	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7182897 BB	20140730	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7182897 BB	20250321	PEXP		Calculated Patent Term Expiry (PTA 593 days)	

Title: CONTAINER HAVING FOAM LAYER

Abstract: Source: US2004086703A [EN] A container, comprises a first layer of plastic and a second layer of plastic contacting said first layer, the second layer of plastic being formed as a foam wherein the foam cells contain carbon dioxide.

Classifications:

International (ipc 8-9): B29B11/14 B29C44/02 B29C44/04 B29C44/08 B29C45/00 B29C45/16 B29C45/17 B29C49/02 B29C49/04 B29C49/06 B29C49/18 B29C49/22 B29C49/64 B29D22/00 B29K105/00 B29K105/04 B29L31/00 B32B1/02 B32B27/06 B32B27/30 B32B27/32 B32B27/34 B32B27/36 B32B3/26 B32B5/18 B32B5/20 B32B7/04 B65D B65D1/00 B65D1/02 B65D1/40 B65D23/08 B65D39/08 B65D6/28 B65D65/02 B65D65/40 B65D81/38 C08J9/00 C08J9/04 C08J9/08 (Advanced/Invention); B29B11/08 B29B11/10 B29C35/08 B29C45/17 B29C49/02 B29C49/06 B29C49/22 B29C49/64 B29K105/00 B29K105/04 B29K23/00 B29K27/06 B29K33/20 B29K67/00 B29K77/00 B29L22/00 B29L31/00 B29L9/00 B32B1/02 B65D1/40 B65D81/38 (Advanced/Non-invention); B29C44/02 B29C45/00 B29C45/16 B29C45/17 B29C49/00 B29C49/02 B29C49/04 B29C49/06 B29C49/22 B29C49/64 B29D22/00 B32B1/00 B32B27/06 B32B3/26 B32B5/18 B65D1/00 B65D1/02 B65D23/00 B65D39/00 B65D6/00 B65D65/02 B65D65/40 C08J9/00 (Core/Invention); B29C49/06 (Core/Non-invention); B65D (Subclass/Invention)

International (ipc 1-7): B29C45/00 B29C49/06 B32B3/26 B65D1/00 D02G1/02

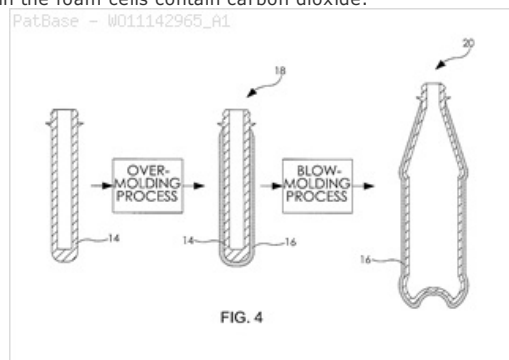
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European: B29B11/14 B29C44/04K B29C44/08 B29C45/16P B29C45/17B2 B29C49/22 B29C49/22B B32B1/02 B32B27/06 B32B27/36 B32B5/18 B32B5/32 B65D1/02B B65D1/02B1 B65D1/02D1 B65D81/38F4 L29B11/08 L29B11/10 L29B11/14 L29B911/14B2B L29B911/14B2D L29B911/14B2F L29B911/14B2H L29B911/14B4B L29B911/14B4D L29B911/14B4F L29B911/14B4H L29B911/14B4L L29B911/14B4L2 L29B911/14B4L2B L29B911/14B4L2B2 L29B911/14B4N L29B911/14B4N2 L29B911/14B4N2B L29B911/14B4N2B2 L29B911/14B4P L29B911/14B4P2 L29B911/14D10D4D2 L29B911/14D2 L29B911/14D4 L29B911/14H8 L29C35/04C L29C35/08B3 L29C35/16C L29C45/17B2 L29C45/17B2L L29C49/02B L29C49/04 L29C49/06 L29C49/64B2 L29K105/04 L29K105/04D L29K105/25C6 L29K23/12 L29K27/06 L29K67/00 L29K77/00 L29K995/00D4 L29K995/00F16B L29L31/7158

US: 215/12.1 215/12.100P 264/250 264/250S 264/45.1 264/45.100S 264/51 264/51S 264/535 264/535S 264/537 264/537S 264/85 264/85S 428/316.6 428/318.4 428/319.3 428/319.7 428/319.9 428/36.5 428/36.500P 428/36.500S 428/36.9 428/36.91 428/542.8 428/542.800S

Family:

Publication number	Publication date	Application number	Application date
AU2005215986 AA	20050909	AU20050215986	20050121
AU2005215986 BB	20100204	AU20050215986	20050121
AU2009262245 AA	20091230	AU20090262245	20090624
AU2010281542 AA	20110210	AU20100281542	20100726
AU2010281542 BB	20150723	AU20100281542	20100726
BR112012001585 A2	20170613	BR20121101585	20100726
BRPI0507759 A	20071016	BR2005PI07759	20050121
BRPI0507759 B1	20151124	BR2005PI07759	20050121
BRPI0924570 A2	20160524	BR2009PI24570	20090624
CA2556432 AA	20060815	CA20052556432	20050121
CA2728359 AA	20091230	CA20092728359	20090624
CN102119107 A	20110706	CN200980124131	20090624
CN1925969 A	20070307	CN200580005092	20050121
DE602005044986 D1	20141204	DE200560044986T	20050121
EP1727658 A2	20061206	EP20050705934	20050121
EP1727658 A4	20090909	EP20050705934	20050121
EP1727658 B1	20141022	EP20050705934	20050121
EP2318282 A1	20110511	EP20090770930	20090624
EP2461969 A1	20120613	EP20100806861	20100726
IN03002CN2006 A	20070608	IN2006CN03002	20060817
IN08454CN2010 A	20110826	IN2010CN08454	20101224
IN249098 B	20111007	IN2006CN03002	20060817
JP2007527335 T2	20070927	JP20060554098T	20050121
JP2011525880 T2	20110929	JP20110516579T	20090624
JP4823076 B2	20111124	JP20060554098T	20050121
KR20060132725 A	20061221	KR20067018939	20050121
KR20110033843 A	20110331	KR20117001633	20090624
MX2010013990 A1	20110225	MX20100013990	20090624
RU2006129811 A	20080410	RU20060129811	20050121
RU2010150987 A	20120727	RU20100150987	20090624
RU2376328 C2	20091220	RU20060129811	20050121



US2004086703 AA	20040506	US20030684611	20031014
US2005181161 AA	20050818	US20040015360	20041217
US2008251487 AA	20081016	US20080144885	20080624
US2009297748 AA	20091203	US20090536768	20090806
US2010227092 AA	20100909	US20100778291	20100512
US7588810 BB	20090915	US20030684611	20031014
US8124203 BB	20120228	US20090536768	20090806
US9694515 BB	20170704	US20100778291	20100512
WO05081756 A2	20050909	WO2005US01774	20050121
WO05081756 A3	20061019	WO2005US01774	20050121
WO09158397 A1	20091230	WO2009US48436	20090624
WO11017048 A1	20110210	WO2010US43227	20100726
WO11142965 A1	20111117	WO2011US34054	20110427
ZA200606811 A	20080130	ZA20060006811	20060816
ZA201100509 A	20111026	ZA20110000509	20110120

Priority:

EP20050705934	20050121	US20020422223P	20021030	US20030684611	20031014
US20040545049P	20040217	US20040015360	20041217	US20040545049	20040217
WO2005US01774	20050121	US20080144885	20080624	US20090536768	20090806
US20100778291	20100512	WO2009US48436	20090624	WO2010US43227	20100726

Probable Assignee: PLASTIC TECHNOLOGIES INC

Assignee(s): (std): INC ; PLASTIC TECH INC ; PLASTIC TECHN INC ; SEMERSKY FRANK E ; VOYLES WILLIAM D ; SADZEWICZ EUGENE M ; PLASTIK TEKNOLODZHIZ INK

Assignee(s): PLASTIC TECHNOLOGIES INC ; PLASTIC TECHNOLOGIES INC HOLLAND

Inventor(s): (std): FRANK E SEMERSKY ; SEMERSKY FRANK E VOYLES WILLIA ; WILLIAM D VOYLES ; VOYLES WILLIAM D ; SEMERSKY FRANK E ; SADZEWICZ EUGENE M ; VOJLES VILLIAM D ; SEMERSKI FREHNK E ; SADZEVICH JUDZHIN M

Inventor(s): SEMERSKY FRANK E VOYLES WILLIAM D SADZEWICZ EUGENE ; VOYLES WILLIAM ; VOYLES WILLIAM D TOLEDO ; SADZEWICZ EUGENE ; SADZEWICZ EUGENE M TOLEDO ; SEMERSKY FRANK ; SEMERSKY FRANK E HOLLAND ; EUGENE M SADZEWICZ

Agent(s): SHELSTON IP PTY LTD; SHELSTON IP; LESPERANCE AND MARTINEAU SENC; ANDRAE WESTENDORP PATENTANWALTE PARTNERSCHAFT; BARTON RUSSELL GLEN; RUPPRECHT KAY; FRASER MARTIN BUCHANAN MILLER LLC; FRASER CLEMENS MARTIN AND MILLER LLC; DONALD R; J DOUGLAS; SHUMAKER LOOP AND KENDRICK LLP; MICHAEL E; FRASER DONALD R; DOCKINS MICHAEL E

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 YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2005215986 AA	20050909	LSPB	+	published / reissued	
AU2005215986 BB	20100204	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2005215986 BB	20100603	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2005215986 BB	20160818	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2005215986 BB	20250121	PEXP		Calculated Patent Term Expiry	
AU2009262245 AA	20091230	LSPB	+	published / reissued	
AU2009262245 AA	20150122	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	
AU2010281542 AA	20110210	LSPB	+	published / reissued	
AU2010281542 AA	20150219	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	

AU2010281542 BB	20150723	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2010281542 BB	20151119	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2010281542 BB	20180222	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2010281542 BB	20300726	PEXP		Calculated Patent Term Expiry	
BR112012001585 A2	20170620	LSRV	-B11A	DISMISSAL ACC. ART.33 OF IPL - EXAMINATION NOT REQUESTED WITHIN 36 MONTHS OF FILING	
BR112012001585 A2	20170905	LSRV	-B11Y	DEFINITIVE DISMISSAL ACC. ARTICLE 33 OF IPL - EXTENSION OF TIME LIMIT FOR REQUEST OF EXAMINATION EXPIRED	
BRPI0507759 A	20071016	LSPB	+	published / reissued	
BRPI0507759 A	20140923	LSES	B07A	TECHNICAL EXAMINATION (OPINION): PUBLICATION OF TECHNICAL EXAMINATION (OPINION)	
BRPI0507759 A	20150915	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI0507759 B1	20151124	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	TEXT : PRAZO DE VALIDADE: 10 (DEZ) ANOS CONTADOS A PARTIR DE 24/11/2015, OBSERVADAS AS CONDICoes LEGAIS.
BRPI0507759 B1	20171121	LSLE	-B21F	LAPSE ACC. ART. 78, ITEM IV - ON NON-PAYMENT OF THE ANNUAL FEES IN TIME	
BRPI0507759 B1	20180313	LSLE	-B24J	LAPSE BECAUSE OF NON-PAYMENT OF ANNUAL FEES (DEFINITIVELY: ART 78 IV LPI, RESOLUTION 113/2013 ART. 12)	
BRPI0507759 B1	20250121	PEXP		Calculated Patent Term Expiry	
BRPI0924570 A2	20160913	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE AS 4A, 5A, 6A E 7A ANUIDADES.
BRPI0924570 A2	20170110	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2384 DE 13-09-2016 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
CA2556432 AA	20060815	LSPB	+	published / reissued	
CA2556432 AA	20091210	LSES	+EEER	EXAMINATION REQUEST	
CA2556432 AA	20131015	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20130820
CA2728359 AA	20091230	LSPB	+	published / reissued	

CA2728359 AA	20130821	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20130626
CN102119107 A	20110706	LSPB	+	published / reissued	
CN102119107 A	20110706	LSPB	+C06	PUBLICATION	
CN102119107 A	20130710	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
CN1925969 A	20070307	LSPB	+	published / reissued	
CN1925969 A	20070307	LSPB	+C06	PUBLICATION	
CN1925969 A	20130213	LSDW	-C20	PATENT RIGHT OR UTILITY MODEL DEEMED TO BE ABANDONED OR IS ABANDONED	
EP1727658 A2	20061206	LSPB	+	published / reissued	
EP1727658 A2	20061206	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20060913
EP1727658 A2	20090909	LSES	+A4	DESPATCH OF SUPPLEMENTARY SEARCH REPORT	EFFECTIVE DATE : 20090810
EP1727658 A2	20090909	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29C 45/00 20060101AFI20061027BHEP
EP1727658 A2	20090909	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29C 49/06 20060101ALI20090803BHEP
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EP1727658 A2	20100303	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20100127
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29C 49/64 20060101ALI20140407BHEP
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29C 49/06 20060101ALI20140407BHEP
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EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29K 105/04 20060101ALI20140407BHEP
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B65D 1/02 20060101ALI20140407BHEP
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29L 31/00 20060101ALI20140407BHEP
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29K 105/00 20060101ALI20140407BHEP
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION	CLASSIFICATIONSCHEME : IPC

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EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSCHEME : B29C 49/22 20060101ALI20140407BHEP
EP1727658 A2	20140514	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSCHEME : B29C 44/08 20060101ALI20140407BHEP
EP1727658 A2	20140604	LSGT	+INTG	ANNOUNCEMENT OF INTENTION TO GRANT	EFFECTIVE DATE : 20140509
EP1727658 A2	20141022	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1727658 A2	20141031	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1727658 A2	20141115	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 692397 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20141115
EP1727658 A2	20141119	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1727658 A2	20141204	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602005044986 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20141204
EP1727658 A2	20150311	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20141022
EP1727658 A2	20150315	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 692397 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20141022
EP1727658 A2	20150325	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : LT REF LEGAL EVENT CODE : MG4D
EP1727658 A2	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20150222
EP1727658 A2	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-

				EPO	LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20150223
EP1727658 A2	20150430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20150123
EP1727658 A2	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150529	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150723	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602005044986 COUNTRY OF REF DOCUMENT : DE
EP1727658 A2	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : DK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022

EP1727658 A2	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : EE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SK NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150828	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1727658 A2	20150831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20150121
EP1727658 A2	20150831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141022
EP1727658 A2	20150930	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20150723
EP1727658 A2	20150930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20141022
EP1727658 A2	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150131
EP1727658 A2	20151030	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150131
EP1727658 A2	20151104	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1727658 A2	20160108	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 12
EP1727658 A2	20160129	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150121
EP1727658 A2	20160229	LSLE	-PG25	LAPSED IN A	COUNTRY OF REF DOCUMENT : SI

				CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20160429	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20160112 YEAR OF FEE PAYMENT : 12
EP1727658 A2	20160531	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20160108 YEAR OF FEE PAYMENT : 12
EP1727658 A2	20160531	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20160120 YEAR OF FEE PAYMENT : 12
EP1727658 A2	20170126	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 13
EP1727658 A2	20170428	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170125 YEAR OF FEE PAYMENT : 13
EP1727658 A2	20170428	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170126 YEAR OF FEE PAYMENT : 13
EP1727658 A2	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : HU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT; INVALID AB INITIO LAPSED DATE : 20050121
EP1727658 A2	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : BG NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20170531	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170125 YEAR OF FEE PAYMENT : 13
EP1727658 A2	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : TR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 A2	20170929	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 20141022
EP1727658 B1	20141022	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1727658 B1	20250121	PEXP		Calculated Patent Term Expiry	
EP2318282 A1	20110511	LSPB	+	published / reissued	
EP2318282 A1	20110511	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20110118
EP2318282 A1	20130522	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20130102

EP2461969 A1	20120613	LSPB	+	published / reissued	
EP2461969 A1	20120613	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120302
EP2461969 A1	20130807	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20130201
IN03002CN2006 A	20070608	LSPB	+	published / reissued	
IN08454CN2010 A	20110826	LSPB	+	published / reissued	
IN249098 B	20111007	LSGT	+	granted / extensions (spc, cpc, pte)	
IN249098 B	20260817	PEXP		Calculated Patent Term Expiry	
JP2007527335 T2	20070927	LSPB	+	published / reissued	
JP2007527335 T2	20080122	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20080121
JP2007527335 T2	20100629	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20100628
JP2007527335 T2	20100928	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20100927
JP2007527335 T2	20110819	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2007527335 T2	20110830	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20110829
JP2007527335 T2	20110901	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01
JP2007527335 T2	20110915	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20110906
JP2007527335 T2	20110916	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP2007527335 T2	20110922	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP2011525880 T2	20110929	LSPB	+	published / reissued	
JP4823076 B2	20111124	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4823076 B2	20110913	LSFE	R100	特許料納付書 Patent fee payment form	
JP4823076 B2	20140828	LSFE	R20	特許料納付書 Patent fee payment form	
JP4823076 B2	20140902	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4823076 B2	20150903	LSFE	R20	特許料納付書 Patent fee payment form	
JP4823076 B2	20150908	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250

JP4823076 B2	20160901	LSFE	R20	特許料納付書 Patent fee payment form	
JP4823076 B2	20160906	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4823076 B2	20170831	LSFE	R20	特許料納付書 Patent fee payment form	
JP4823076 B2	20170905	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4823076 B2	20250121	PEXP		Calculated Patent Term Expiry	
KR20060132725 A	20061221	LSPB	+	published / reissued	
KR20060132725 A	20091230	LSES	A201	REQUEST FOR EXAMINATION	
KR20060132725 A	20120309	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR20110033843 A	20110331	LSPB	+	published / reissued	
KR20110033843 A	20140725	LSDW	-WITN	WITHDRAWAL DUE TO NO REQUEST FOR EXAMINATION	
MX2010013990 A1	20110225	LSPB	+	published / reissued	
RU2006129811 A	20080410	LSPB	+	published / reissued	
RU2010150987 A	20120727	LSPB	+	published / reissued	
RU2010150987 A	20120910	LSWD	-FA93	ACKNOWLEDGEMENT OF APPLICATION WITHDRAWN (NO REQUEST FOR EXAMINATION)	EFFECTIVE DATE : 20120625
RU2376328 C2	20091220	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2376328 C2	20171003	LSLE	-MM4A	THE PATENT IS INVALID DUE TO NON-PAYMENT OF FEES	EFFECTIVE DATE : 20170122
RU2376328 C2	20250121	PEXP		Calculated Patent Term Expiry	
US2004086703 AA	20040506	LSPB	+	published / reissued	
US2005181161 AA	20050818	LSPB	+	published / reissued	
US2005181161 AA	20050204	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TECHNOLOGIES, INCORPORATED, OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SEMERSKY, FRANK E.; VOYLES, WILLIAM D.; SADZEWICZ, EUGENE M.; REEL/FRAME:015648/0357; SIGNING DATES FROM 20050201 TO 20050202
US2005181161 AA	20140724	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2008251487 AA	20081016	LSPB	+	published / reissued	
US2008251487 AA	20090323	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TECHNOLOGIES, INC., OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SEMERSKY, FRANK E.; VOYLES, WILLIAM D.; REEL/FRAME:022433/0930 EFFECTIVE DATE : 20081212
US2008251487 AA	20160623	LSAL	APL5	On Appeal -- Awaiting Decision by the Board of	

US2008251487 AA	20170710	LSAL	BDR1	Appeals Board of Appeals Decision Rendered	
US2008251487 AA	20170913	LSWD	-ABD1	Abandoned -- After Examiner's Answer or Board of Appeals Decision	
US2009297748 AA	20091203	LSPB	+	published / reissued	
US2009297748 AA	20100122	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TECHNOLOGIES, INC., OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SEMERSKY, FRANK E.; VOYLES, WILLIAM D.; REEL/FRAME:023830/0195; SIGNING DATES FROM 20100106 TO 20100111
US2009297748 AA	20100122	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TECHNOLOGIES, INC., OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SEMERSKY, FRANK E.; VOYLES, WILLIAM D.; SIGNING DATES FROM 20100106 TO 20100111; REEL/FRAME:023830/0195
US2010227092 AA	20100909	LSPB	+	published / reissued	
US2010227092 AA	20101102	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TECHNOLOGIES, INC., OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:SEMERSKY, FRANK E.; VOYLES, WILLIAM D.; SIGNING DATES FROM 20101015 TO 20101023; REEL/FRAME:025232/0063
US2010227092 AA	20170306	LSSE	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2010227092 AA	20170601	LSFE	+PPR1	Publications -- Issue Fee Payment Received	
US2010227092 AA	20170602	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US7588810 BB	20090915	LSGT	+	granted / extensions (spc, cpc, pte)	
US7588810 BB	20031014	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLASTIC TECHNOLOGIES, INC., OHIO OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SEMERSKY, FRANK E.; REEL/FRAME:014614/0718 EFFECTIVE DATE : 20031009
US7588810 BB	20090826	LSGT	PAT1	Patented Case	
US7588810 BB	20100921	LSRE	CC	CERTIFICATE OF CORRECTION	
US7588810 BB	20130315	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7588810 BB	20170302	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7588810 BB	20231014	PEXP		Calculated Patent Term Expiry	
US8124203 BB	20120228	LSGT	+	granted / extensions (spc, cpc, pte)	
US8124203 BB	20120208	LSGT	PAT1	Patented Case	
US8124203 BB	20150812	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4

US8124203 BB	20291221	PEXP		Calculated Patent Term Expiry (PTA 137 days)	
US9694515 BB	20170704	LSGT	+	granted / extensions (spc, cpc, pte)	
US9694515 BB	20151015	LSAL	ABE1	Appeal Brief (or Supplemental Brief) Entered and Forwarded to Examiner	
US9694515 BB	20151106	LSAL	EAA1	Examiner's Answer to Appeal Brief Mailed	
US9694515 BB	20151204	LSAL	APL3	Appeal Ready for Review	
US9694515 BB	20170614	LSGT	PAT1	Patented Case	
US9694515 BB	20320806	PEXP		Calculated Patent Term Expiry (PTA 817 days)	
WO05081756 A2	20050909	LSPB	+	published / reissued	
WO05081756 A2	20060809	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12006501552 COUNTRY OF REF DOCUMENT : PH
WO05081756 A2	20060815	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2556432 COUNTRY OF REF DOCUMENT : CA
WO05081756 A2	20060816	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005215986 COUNTRY OF REF DOCUMENT : AU
WO05081756 A2	20060816	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200580005092.1 COUNTRY OF REF DOCUMENT : CN
WO05081756 A2	20060816	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PA/A/2006/009293 COUNTRY OF REF DOCUMENT : MX
WO05081756 A2	20060816	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200606811 COUNTRY OF REF DOCUMENT : ZA
WO05081756 A2	20060817	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2006554098 COUNTRY OF REF DOCUMENT : JP
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NATIONAL PHASE					
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WO05081756 A3	20061221	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1020067018939 COUNTRY OF REF DOCUMENT : KR
WO05081756 A3	20071016	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI0507759 COUNTRY OF REF DOCUMENT : BR
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WO09158397 A1	20101210	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2009262245 COUNTRY OF REF DOCUMENT : AU
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WO09158397 A1	20160524	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI0924570 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20101223
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WO11017048 A1	20120202	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2010281542 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20100726 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
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WO11017048 A1	20170613	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112012001585 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20120124
WO11142965 A1	20111117	LSPB	+	published /	

				reissued	
WO11142965 A1	20121112	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO11142965 A1	20130605	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 11781007 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
ZA200606811 A	20080130	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA200606811 A	20260815	PEXP		Calculated Patent Term Expiry	
ZA201100509 A	20111026	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA201100509 A	20310119	PEXP		Calculated Patent Term Expiry	

Title: PROCESS FOR PROCESSING EXPANDABLE POLYMER PARTICLES AND FOAM ARTICLE THEREOF

Abstract: Source: US2005059747A [EN] Process for processing expandable polymer particles e.g. polystyrene (EPS) that eliminates the maturing step between the pre-expander and molding steps. The expandable particles are first over pressurized with gas, e.g. air, carbon dioxide, nitrogen, and mixtures thereof, at a pressure between 500 and 8000 kPa and a temperature between -20 degrees centigrade and 130 degrees centigrade for 15 to 7200 minutes to create a gas pressure in the particles. Using the gas pressure in the particles, pre-expanding the particles with a heating medium, e.g. steam at a temperature between 100 degrees centigrade and 120 degrees centigrade and at a pressure ranging above atmospheric pressure and below the gas pressure in said particles, i.e. 50 to 200 kPa for 5 to 120 seconds. The pre-expanded particles are air dried in the pre-expander while holding a positive pressure in the particles; are optionally transferred to a pressure silo; and then are transferred to a molding machine where the gas pressure in the particles is used to form a foam article.

Classifications:

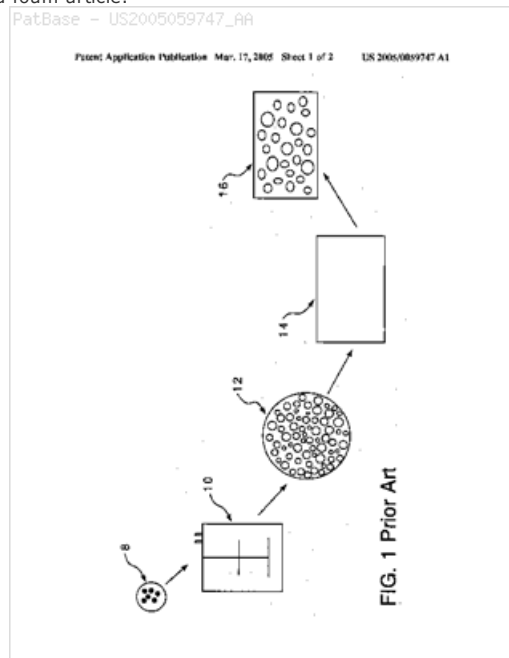
International (IPC 8-9): B29C44/00 B29C44/08 B29C44/34 B29C44/44 B29C44/56 C08J9/00 C08J9/12 C08J9/18 C08J9/22 C08J9/228 C08J9/232 C08L25/04 (Advanced/Invention); B29C44/00 B29C44/34 C08J9/22 (Advanced/Non-invention); C08J (Subclass/Invention)

International (IPC 1-7): C08J3/00 C08J9/00

CPC: B29C44/3453 B29C44/3461 B29C44/445 C08J9/228 C08J9/232 C08J9/22

European: B29C44/34F2C B29C44/34H B29C44/44B C08J9/22 C08J9/228 C08J9/232

US: 521/146 521/50 521/50P 521/56 521/58 521/60



Family:

Publication number	Publication date	Application number	Application date
AU2004267408 AA	20050303	AU20040267408	20040810
AU2004267408 BB	20090108	AU20040267408	20040810
BRPI0411569 A	20060801	BR2004PI11569	20040810
CA2534846 AA	20060206	CA20042534846	20040810
CN101014651 A	20070808	CN200480020081	20040810
EP1654304 A2	20060510	EP20040780581	20040810
EP1654304 A4	20111130	EP20040780581	20040810
HK1110614 A3	20080718	HK20080101192	20080131
JP2007503324 T2	20070222	JP20060523282T	20040810
KR20060065664 A	20060614	KR20067002235	20040810
NO20055920 A	20060124	NO20050005920	20051213
US2005059747 AA	20050317	US20040915141	20040810
US7358280 BB	20080415	US20040915141	20040810
WO05019310 A2	20050303	WO2004US25772	20040810
WO05019310 A3	20070201	WO2004US25772	20040810

Priority:

US20030495458P 20030815 US20040915141 20040810 WO2004US25772 20040810

Probable Assignee: NOVA CHEMICALS (INTERNATIONAL) SA

Assignee(s): (std): BERGHMANS MICHEL FLORENTINE JO ; BERGHMANS MICHEL FLORENTINE JO ; BLEIJENBERG KAREL CORNELIS ; METSAARS ALPHONSUS CATHARINA G ; NOVA CHEM INT SA ; TEUBERT JOACHIM ; NOVA CHEMICALS INT S A ; NOVA CHEMICALS INT SA ; NOVA CHEMICALS INTERNAT S A

Assignee(s): NOVA CHEMICALS INTERNATIONAL S A ; NOVA CHEMICALS INTERNATIONAL SA ; NOVA CHEMICALS (INTERNATIONAL) SA ; NOVA CHEMICALS S A ; NOVA CHEMICALS SA ; METSAARS ALPHONSUS CATHARINA GERARDUS ; BERGHMANS MICHEL FLORENTINE JOZEF ; BERGHMANS MICHEL FLORENTINE JOZEF

Inventor(s): (std): ALPHONSUS CATHARINA GERARDUS METSAARS ; BERGHMANS MICHEL FLORENTINE JO ; BERGHMANS MICHEL FLORENTINE JOZEF ; BERGHMANS MICHEL FLORENTINE JO ; BERGHMANS MICHEL FLORENTINE JOZEF ; BLEIJENBERG KAREL CORNELIS ; CATHAR BERGHMANS MICHEL FLOREN ; JOACHIM TEUBERT ; KAREL CORNELIS BLEIJENBERG ; METSAARS ALPHONSUS CATHARINA G ; METSAARS ALPHONSUS CATHARINA GERARDUS ; MICHEL FLORENTINE JOZEF BERGHMANS ; MICHEL FLORENTINE JOZEF BERGHMANS ; TEUBERT JOACHIM

Inventor(s): METSAARS ALPHONSUS CATHARINA ; BLEIJENBERG KAREL ; BERGHMANS MICHEL FLORENTINE JO BLEIJENBERG ; BERGHMANS MICHEL FLORENTINE

Agent(s): DAVIES COLLISON CAVE ; DAVIES COLLISON CAVE PTY LTD ; TROTT TREVOR ; KANAYAMA MASATAKA ;

TSUBOKURA MICHIAKI; OSAKI KATSUMASA; KAWAGUCHI YOSHIO; ONO MAKOTO; SUZANNE KIKEL NOVA
CHEMICALS INC; KIKEL SUZANNE; MATZ GARY F; SUZANNE; GARY F

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

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
AU2004267408 AA	20050303	LSPB	+	published / reissued	
AU2004267408 BB	20090108	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2004267408 BB	20090507	LSLE	-MK25	APPLICATION LAPSED REG. 22.21(2) - FAILURE TO PAY ACCEPTANCE FEE	
AU2004267408 BB	20240810	PEXP		Calculated Patent Term Expiry	
BRPI0411569 A	20060801	LSPB	+	published / reissued	
BRPI0411569 A	20120522	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE AS 6A E 7A ANUIDADES.
BRPI0411569 A	20121016	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : REFERENTE AO DESPACHO 8.6 PUBLICADO NA RPI 2159 DE 22/05/2012.
CA2534846 AA	20060206	LSPB	+	published / reissued	
CA2534846 AA	20090714	LSES	+EEER	EXAMINATION REQUEST	
CA2534846 AA	20130529	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20130403
CN101014651 A	20070808	LSPB	+	published / reissued	
CN101014651 A	20070808	LSPB	+C06	PUBLICATION	
CN101014651 A	20100818	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
CN101014651 A	20140307	LSWD	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : HK REF LEGAL EVENT CODE : WD REF DOCUMENT NUMBER : 1110614 COUNTRY OF REF DOCUMENT : HK
EP1654304 A2	20060510	LSPB	+	published / reissued	
EP1654304 A2	20060510	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20051222
EP1654304 A2	20070321	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08J 9/18 20060101AFI20070214BHEP
EP1654304 A4	20111130	LSES	+A4	DESPATCH OF SUPPLEMENTARY SEARCH REPORT	EFFECTIVE DATE : 20111103
EP1654304 A4	20111130	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08J 9/18 20060101AFI20111027BHEP

EP1654304 A4	20111130	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08J 9/22 20060101ALI20111027BHEP
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EP1654304 A4	20121114	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20121010
EP1654304 A4	20130821	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20130221
HK1110614 A3	20080718	LSPB	+	published / reissued	
JP2007503324 T2	20070222	LSPB	+	published / reissued	
JP2007503324 T2	20070802	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20070801
JP2007503324 T2	20090303	LSWD	-A761	WRITTEN WITHDRAWAL OF APPLICATION	TEXT : JAPANESE INTERMEDIATE CODE: A761 EFFECTIVE DATE : 20090302
JP2007503324 T2	20090326	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20090302
KR20060065664 A	20060614	LSPB	+	published / reissued	
KR20060065664 A	20100105	LSDW	-WITN	WITHDRAWAL DUE TO NO REQUEST FOR EXAMINATION	
NO20055920 A	20060124	LSPB	+	published / reissued	
NO20055920 A	20100322	LSRV	-FC2A	WITHDRAWAL, REJECTION OR DISMISSAL OF LAID OPEN PATENT APPLICATION	
US2005059747 AA	20050317	LSPB	+	published / reissued	
US2005059747 AA	20050113	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : NOVA CHEMICALS (INTERNATIONAL) S.A., SWITZERLAND OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:BERGHMANS, MICHEL FLORENTINE JOZEF; BLEIJENBERG, KAREL CORNELIS; TEUBERT, JOACHIM; AND OTHERS; REEL/FRAME:016732/0389; SIGNING DATES FROM 20041012 TO 20041208
US7358280 BB	20080415	LSGT	+	granted / extensions (spc, cpc, pte)	
US7358280 BB	20080326	LSGT	PAT1	Patented Case	
US7358280 BB	20110802	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7358280 BB	20160415	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE	

FEES					
US7358280 BB	20160516	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US7358280 BB	20160607	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20160415
US7358280 BB	20250729	PEXP		Calculated Patent Term Expiry (PTA 353 days)	
WO05019310 A2	20050303	LSPB	+	published / reissued	
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WO05019310 A2	20051212	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2004267408 COUNTRY OF REF DOCUMENT : AU
WO05019310 A2	20051213	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2004780581 COUNTRY OF REF DOCUMENT : EP
WO05019310 A2	20060105	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2004267408 COUNTRY OF REF DOCUMENT : AU
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WO05019310 A2	20060614	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1020067002235 COUNTRY OF REF DOCUMENT : KR
WO05019310 A2	20060801	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI0411569 COUNTRY OF REF DOCUMENT : BR

Title: PROCESS FOR INTRODUCING A GAS INTO A POLYMER

Abstract: Source: US2009048356A [EN] A first polymer (preferably in granular form) is exposed to a gas at a pressure higher than atmospheric pressure to introduce the gas into the polymer. This occurs at a temperature from the glass transition temperature to the melting temperature when the first polymer is crystalline or semi-crystalline in nature, or at a temperature below the glass transition temperature when the first polymer is amorphous in nature. Optionally, the gas-laden polymer may then be mixed with a second polymer. The polymer is then melted to produce a foamed article.

Classifications:

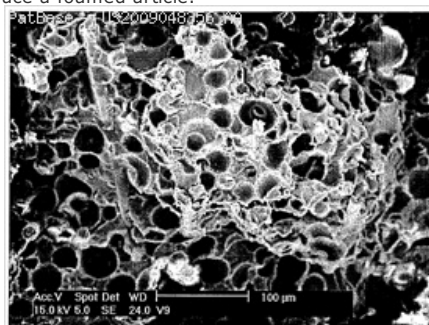
International (IPC 8-9): B29C44/00 B29C44/34 C08J9/00 C08J9/12 C08J9/16 C08J9/30 (Advanced/Invention);

B29C44/34 C08J9/00 (Core/Invention)

CPC: B29C44/3453 B29C44/3446 C08J9/12 C08J2201/032 B29C44/34 C08J9/12

European: B29C44/34 B29C44/34F2 B29C44/34F2C C08J9/12 C08J9/12B M08J201/032

US: 264/50 521/54 521/54P 521/79



SEM of fracture surface for PEEK150GL30 moulding showing cellular structure.

Family:

Publication number	Publication date	Application number	Application date
GB200506146 A0	20050504	GB20050006146	20050324
GB200720893 A0	20071205	GB20070020893	20060324
GB2439697 A1	20080102	GB20070020893	20060324
GB2439697 B2	20091104	GB20070020893	20060324
US2009048356 AA	20090219	US20060909563	20060324
US8871823 BB	20141028	US20060909563	20060324
WO06100517 A1	20060928	WO2006GB01116	20060324

Priority:

GB20050006146 20050324 WO2006GB01116 20060324

Probable Assignee: ZOTEFOAMS PLC

Assignee(s): (std): JACOBS PAUL ; WITTEN NEIL ; ZOTEFOAMS PLC

Inventor(s): (std): WITTEN NEIL ; JACOBS PAUL

Inventor(s): NEIL WITTEN ; PAUL JACOBS

Agent(s): INTELLECTUAL PROPERTY DEPARTMENT DEWITT ROSS AND STEVENS SC; JOSEPH T; DEWITT ROSS AND STEVENS SC; DANIEL A

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 KM KN KP KR KZ LC LK LR LS LT LU LV LY 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB200506146 A0	20070221	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB2439697 A1	20080102	LSPB	+	published / reissued	
GB2439697 B2	20091104	LSGT	+	granted / extensions (spc, cpc, pte)	
GB2439697 B2	20260324	PEXP		Calculated Patent Term Expiry	
US2009048356 AA	20090219	LSPB	+	published / reissued	
US2009048356 AA	20080305	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ZOTEFOAMS PLC., UNITED KINGDOM OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:JACOBS, PAUL; WITTEN, NEIL; REEL/FRAME:020604/0033 EFFECTIVE DATE : 20071026

US8871823 BB	20141028	LSGT	+	granted / extensions (spc, cpc, pte)	
US8871823 BB	20141008	LSGT	PAT1	Patented Case	
US8871823 BB	20261216	PEXP		Calculated Patent Term Expiry (PTA 267 days)	
WO06100517 A1	20060928	LSPB	+	published / reissued	
WO06100517 A1	20070925	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO06100517 A1	20071024	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20060324 REF DOCUMENT NUMBER : 0720893 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO06100517 A1	20071024	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : RU
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WO06100517 A1	20071024	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : RU
WO06100517 A1	20080411	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 11909563 COUNTRY OF REF DOCUMENT : US
WO06100517 A1	20080618	LSNE	-122	EP: PCT APPLICATION NON- ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 06726525 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: EXPANDED AND EXTRUDED POLYOLEFIN FOAMS MADE WITH METHYL FORMATE-BASED BLOWING AGENTS

Abstract: Source: US2007213416A [EN] Expanded and extruded polyolefin foams are obtained using environmentally benign non-VOC methyl formate as a blowing agent. The blowing agent can be a blend further including at least one co-blowing agent, preferably an environmentally friendly species (e.g., non-VOC), which is either a physical co-blowing agent (e.g. an inorganic agent, a hydrocarbon, a halogenated hydrocarbon, a hydrocarbon with polar, functional group(s) or any combination thereof), or a chemical co-blowing agent, or combinations thereof. The blowing agent blend can include any combination of methyl formate and one or more co-blowing agents. The polymer foam can include polyethylene, polypropylene or a combination thereof. The methyl formate-based blowing agent blends produce stable foams for various applications, including containers, packaging systems, as well as for insulation and protective cushioning. Processes for the preparation of such foams are also provided.

Classifications:

International (IPC 8-9): B29C44/34 C08F110/00 C08F36/00 C08J9/00 C08J9/12 C08J9/14 C08J9/16 C08J9/18 C08J9/228 C08K3/02 C08K3/20 C08K5/00 C08K5/01 C08K5/101 C08L23/02 C08L23/04 C08L23/06 C08L23/10 C08L23/12 (Advanced/Invention); C08J9/00 C08K3/00 C08K5/00 C08L23/00 (Core/Invention)

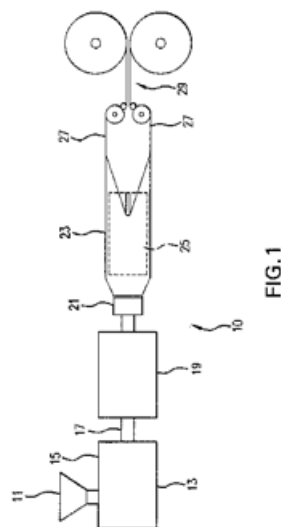
CPC: C08J9/127 C08J9/142 C08J9/149 C08J9/16 C08J2201/03 C08J2203/04 C08J2203/06 C08J2203/12 C08J2203/14 C08J2203/142 C08J2205/052 C08J2323/02

European: C08J9/12F C08J9/14D C08J9/14P C08J9/16 M08J201/030 M08J203/04 M08J203/06 M08J203/12 M08J203/14 M08J203/142 M08J205/052 M08J323/02

US: 521/142 521/143 521/150 521/56 521/56P 521/60 521/79 521/79S

PatBase - US2007213416_AA

Patent Application Publication Sep. 13, 2007 Sheet 1 of 4 US 2007/0213416 A1



Family:

Publication number	Publication date	Application number	Application date
CA2634484 AA	20080619	CA20072634484	20070221
EP1994086 A2	20081126	EP20070757271	20070221
JP2009527634 T2	20090730	JP20080556523T	20070221
JP2013231198 A2	20131114	JP20130155498	20130726
JP5388584 B2	20140115	JP20080556523T	20070221
MX2008010781 A1	20090302	MX20080010781	20070221
US2007213416 AA	20070913	US20070677371	20070221
US8026291 BB	20110927	US20070677371	20070221
WO07101034 A2	20070907	WO2007US62492	20070221
WO07101034 A3	20081106	WO2007US62492	20070221

Priority:

JP20080556523 20070221 JP20080556523T 20070221 US20060775962P 20060222
US20070677371 20070221 WO2007US62492 20070221

Probable Assignee: PACTIV LLC

Assignee(s): (std): HANDA Y P ; HANDA Y PAUL ; PACTIV CORP ; FRANCIS GARY A ; PACTIV LLC

Assignee(s): KINGSPAN INSULATION LLC ; HANDA Y ; BANK OF NEW YORK MELLON COLLATERAL AGENT AS

Inventor(s): (std): FRANCIS GARY A ; HANDA Y P ; HANDA Y PAUL

Inventor(s): HANDA Y ; FRANCIS GARY

Agent(s): MARKS AND CLERK; LJUNGBERG ROBERT; BAKER BOTTS LLP

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 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 MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent Date recorded Event group Code Event Details

CA2634484 AA	20080619	LSPB	+	published / reissued
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CA2634484 AA	20081201	LSES	+EEER	EXAMINATION REQUEST	
CA2634484 AA	20131030	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20130904
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EP1994086 A2	20081217	LSES	R17D	SEARCH REPORT (CORRECTION)	EFFECTIVE DATE : 20081106
EP1994086 A2	20151223	LSWD	-18W	APPLICATION WITHDRAWN	EFFECTIVE DATE : 20151113
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US8026291 BB	20110907	LSGT	PAT1	Patented Case	
US8026291 BB	20130123	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER

OWNER : PACTIV LLC, ILLINOIS
 OLDPARTY : CHANGE OF NAME;
 ASSIGNOR:PACTIV CORPORATION;
 REEL/FRAME:029682/0044
 EFFECTIVE DATE : 20111214

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WO07101034 A2	20080821	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2008556523 COUNTRY OF REF DOCUMENT : JP
WO07101034 A2	20080823	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: PROCESS FOR PRODUCING MOLDED PLASTIC ARTICLES HAVING REINFORCED WALLS, THROUGH FOAMED THERMOPLASTIC INJECTION

Abstract: Source: US2011148010A [EN] The present invention relates to a hybrid process for producing molded plastic articles by reinforcing the walls thereof through the injection of a foamed thermoplastic material, thus increasing the thickness of the wall in previously determined zones in order to improve the mechanical characteristics thereof. According to the invention, said hybrid process comprises to strengthen previously defined zones of the plastic articles formed by any of the already known processes, such as: injection, extrusion, extrusion-blowing, injection-blowing, thermoforming, roto-molding, or any combination thereof; and afterwards the injection of a foamable thermoplastic material to fill up said strengthening predesigned zones.

Classifications:

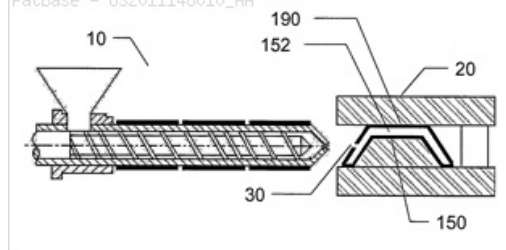
International (IPC 8-9): B29C44/02 B29C44/08 B29C44/18 B29C45/00 B29C45/14 B29C45/16 B29C67/00 (Advanced/Invention); B29C44/02 (Core/Invention)

CPC: B29C44/18 B29C44/027 B29C44/08 B29C45/0062 B29C45/14344 B29C45/14467

European: B29C44/18 B29C45/00J3B B29C45/14F2 B29C45/14G

US: 1/1 264/510 264/510P

PatBase - US2011148010_AA



Family:

Publication number	Publication date	Application number	Application date
BRPI0822493 A2	20150825	BR2008PI22493	20080715
CA2734282 AA	20100121	CA20082734282	20080715
CO6351763 A2	20111220	CO20110017938	20110215
EP2316631 A1	20110504	EP20080778980	20080715
EP2316631 A4	20141008	EP20080778980	20080715
IN00304MN2011 A	20110826	IN2011MN00304	20110215
MX2011000524 A1	20110315	MX20110000524	20110114
US2011148010 AA	20110623	US20080000207	20080715
US9242398 BB	20160126	US20080000207	20080715
WO10008264 A1	20100121	WO2008MX00090	20080715

Priority:

CO20110017938 20110215 MX20110000524 20110114 WO2008MX00090 20080715

Probable Assignee: SOSA BRAVO SERGIO

Assignee(s): (std): BRAVO SERGIO SOSA ; SOSA BRAVO SERGIO

Assignee(s): SERGIO SOSA BRAVO

Inventor(s): (std): BRAVO SERGIO SOSA ; BRAVO SOSA ; SERGIO ; SOSA BRAVO SERGIO

Inventor(s): SERGIO SOSA BRAVO ; SOSA BRAVO

Agent(s): BLAKE CASSELS AND GRAYDON LLP; JAIME EDUARDO DELGADO VILLEGAS; ABG PATENTES S L; WEBB LAW FIRM; ALVAREZ Y DELUCIO ALMA SOFIA

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 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2734282 AA	20100121	LSPB	+	published / reissued	
CA2734282 AA	20130515	LSSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20130509
CA2734282 AA	20160828	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160715
CO6351763 A2	20111220	LSPB	+	published / reissued	
CO6351763 A2	20130528	LSGT	+FG	APPLICATION GRANTED	
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EP2316631 A1	20110504	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20110210
EP2316631 A4	20141008	LSSES	+A4	DESPATCH OF SUPPLEMENTARY	EFFECTIVE DATE : 20140905

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IN00304MN2011 A	20110826	LSPB	+	published / reissued		
MX2011000524 A1	20110315	LSPB	+	published / reissued		
MX2011000524 A1	20150720	LSGT	+FG	GRANT OR REGISTRATION		
US2011148010 AA	20110623	LSPB	+	published / reissued		
US9242398 BB	20160126	LSGT	+	granted / extensions (spc, cpc, pte)		
US9242398 BB	20151215	LSFE	+PPR1	Publications -- Issue Fee Payment Received		
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US9242398 BB	20160106	LSGT	PAT1	Patented Case		
US9242398 BB	20280715	PEXP		Calculated Patent Term Expiry		
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IN:

KIND CODE OF REF DOCUMENT : A2
DESIGNATED STATE(S) :
EFFECTIVE DATE : 20110114



Title: MICROCELLULAR INJECTION MOLDING PROCESSES FOR PERSONAL AND CONSUMER CARE PRODUCTS AND PACKAGING

Abstract: Source: US2010198133A [EN] A method of injection molding produces a microcellular material. In this method, a polymer is melted and blended with a supercritical fluid to produce a single-phase polymer-gas solution. This solution is injected through a nozzle and into a mold. When injected through the nozzle, gas in the solution (from the supercritical fluid) emerges from the polymer, which then solidifies. In emerging from the solution, the gas causes the nucleation of cells that result in a microcellular structure. A foam material comprises a polymer having a microcellular structure formed by the nucleation of micro-cells. The micro-cells are formed by the dispersing of a supercritical fluid in a liquid solution of the polymer when the polymer is subjected to a pressure drop. A feminine hygiene device is fabricated from a foamed polymer.

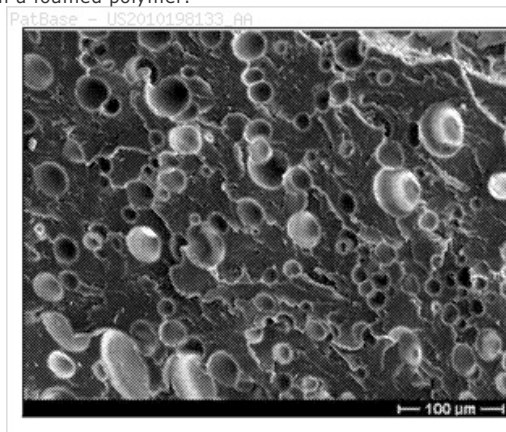
Classifications:

International (IPC 8-9): A61F13/20 A61F13/26 A61L15/24 A61L15/60 B29C44/34 B29C44/42 B29C44/46 B29C45/00 B29C45/18 B32B3/26 C08J9/12 C08K5/20 C08L23/06 (Advanced/Invention); A61F13/20 C08J9/12 (Advanced/Non-invention); A61F13/20 B29C44/34 B32B3/26 C08K5/00 (Core/Invention); A61L15/24 A61L15/60 B29C44/42 B29C45/18 C08J9/12 C08L23/06 (Core/Non-invention)

CPC: Y10T428/268 B29C44/348 A61F13/2082 A61F13/266 B29L2031/753 C08J9/122 C08J2203/08

European: A61F13/20M A61F13/26B B29C44/34J6 C08J9/12B L29L31/753 M08J203/08

US: 264/51 264/51S 428/338 428/338S 523/113 523/113S 604/15 604/15P 604/385.17 604/385.170S



Family:

Publication number	Publication date	Application number	Application date
CA2751643 AA	20100812	CA20102751643	20100128
DE602010012173 D1	20140130	DE201060012173T	20100128
EP2393644 A2	20111214	EP20100703729	20100128
EP2393644 B1	20131204	EP20100703729	20100128
JP2012516796 T2	20120726	JP20110549188T	20100128
KR20120001723 A	20120104	KR20117019417	20100128
TW201034833 A	20101001	TW20100103299	20100204
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WO10090929 A2	20100812	WO2010US22314	20100128
WO10090929 A3	20110623	WO2010US22314	20100128

Priority:

EP20100703729 20100128 US20090366318 20090205 WO2010US22314 20100128

Probable Assignee: WISCONSIN ALUMNI RESEARCH FOUNDATION

Assignee(s): (std): DOUGHERTY JR EUGENE P ; EDGETT KEITH ; GORTON PATRICK ; PLAYTEX PRODUCTS INC ; LEE JUNGJOO ; LACEY CHRIS ; KRAMSCHUSTER ADAM J ; PLAYTEX PRODUCTS LLC ; TURNG LIH SHENG TOM ; WISCONSIN ALUMNI RES FOUND ; UNIV WISCONSIN WISCONSIN ALUMNI RES FOUNDATION

Assignee(s): UNIVERSITY OF WISCONSIN WISCONSIN ALUMNI RESEARCH FOUNDATION ; DOUGHERTY EUGENE P JR ; PLAYTEX PRODUCTS LLCUS ; WISCONSIN ALUMNI RESEARCH FOUNDATION ; OF WISCONSIN WISCONSIN ALUMNI RESEARCH FOUNDATION ; OF WISCONSIN WISCONSIN ALUMNI RESEARCH FOUNDATION UNIV ; PLAYTEX PRODUCTS LLC SHELTON ; WISCONSIN ALUMNI RESEARCH FOUNDATION WARF

Inventor(s): (std): DOUGHERTY EUGENE ; DOUGHERTY EUGENE P JR ; DOUGHERTY JR EUGENE P ; EDGETT KEITH ; GORTON PATRICK ; KRAMSCHUSTER ADAM J ; LACEY CHRIS ; LEE JUNG JOO ; LEE JUNGJOO ; TURNG LIH SHENG ; TURNG LIH SHENG TOM

Inventor(s): TURNG, LIH-SHENG ; TURNG LIH SHENG (TOM) ; LEE JUNGJOO HILLSBORO ; KRAMSCHUSTER ADAM J MENOMONIE ; DOUGHERTY EUGENE P

Agent(s): SIM AND MCBURNEY; BARDEHLE PAGENBERG PARTNERSCHAFT MBB PATENTANWAELTE RECHTSANWAELTE; NEELISSEN SUBNEL MARIANNE; WIHLSOON JOAKIM PER MAGNUS; MICHAUD-KINNEY GROUP LLP; MICHAUD KINNEY GROUP LLP; MICHAUD RICHARD R

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 LR LK 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

Legal status (INPADOC)

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CA2751643 AA	20110805	LSES	+EEER	EXAMINATION REQUEST	

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EP2393644 A2	20140326	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20131204
EP2393644 A2	20140415	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : MK05 REF DOCUMENT NUMBER : 643343 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20131204
EP2393644 A2	20140430	LSLE	-PG25	LAPSED IN A	COUNTRY OF REF DOCUMENT : LT

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EP2393644 A2	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
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EP2393644 A2	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CY NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : AT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
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EP2393644 A2	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : RO NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
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EP2393644 A2	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CZ NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20140829	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2393644 A2	20140905	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602010012173 COUNTRY OF REF DOCUMENT : DE
EP2393644 A2	20140930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20140930	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : PL PAYMENT DATE : 20140515 YEAR OF FEE PAYMENT : 5
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EP2393644 A2	20141031	LSLE	-PG25	NAT. OFFICE TO EPO LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	LAPSED DATE : 20131204 COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140131
EP2393644 A2	20141031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140131
EP2393644 A2	20141031	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20140724 YEAR OF FEE PAYMENT : 5
EP2393644 A2	20141031	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20140930
EP2393644 A2	20141105	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2393644 A2	20141112	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20140905
EP2393644 A2	20141128	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : FR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140204
EP2393644 A2	20141224	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602010012173 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140905
EP2393644 A2	20150130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20140128
EP2393644 A2	20150227	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20150801	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 602010012173 COUNTRY OF REF DOCUMENT : DE
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EP2393644 A2	20160229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : MT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20160429	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SM NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20160531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : PL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20150128
EP2393644 A2	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IT NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20140305
EP2393644 A2	20160630	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : BG NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 A2	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT; INVALID AB INITIO LAPSED DATE : 20100128
EP2393644 A2	20160729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20131204
EP2393644 B1	20131204	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2393644 B1	20300128	PEXP		Calculated Patent Term Expiry	
JP2012516796 T2	20120726	LSPB	+	published / reissued	
JP2012516796 T2	20130416	LSSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20130416
JP2012516796 T2	20140204	LSRV	-A02	DECISION OF REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20140204
KR20120001723 A	20120104	LSPB	+	published / reissued	
KR20120001723 A	20110822	LSSES	A201	REQUEST FOR	

KR20120001723 A	20130408	LSES	-E902	EXAMINATION NOTIFICATION OF REASON FOR REFUSAL	
KR20120001723 A	20131029	LSRV	-E90F	NOTIFICATION OF REASON FOR FINAL REFUSAL	
KR20120001723 A	20140528	LSRV	-E601	DECISION TO REFUSE APPLICATION	
TW201034833 A	20101001	LSPB	+	published / reissued	
US2010198133 AA	20100805	LSPB	+	published / reissued	
US2010198133 AA	20090716	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PLAYTEX PRODUCTS, LLC, CONNECTICUT OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:DOUGHERTY, EUGENE P., JR., DR.; EDGETT, KEITH; TURNG, LIH- SHENG; AND OTHERS; SIGNING DATES FROM 20090619 TO 20090629; REEL/FRA:022963/0475
US2010198133 AA	20090716	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UNIVERSITY OF WISCONSIN, WISCONSIN ALUMNI RESEARCH OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:DOUGHERTY, EUGENE P., JR., DR.; EDGETT, KEITH; TURNG, LIH- SHENG; AND OTHERS; SIGNING DATES FROM 20090619 TO 20090629; REEL/FRA:022963/0475
US2010198133 AA	20101207	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WISCONSIN ALUMNI RESEARCH FOUNDATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:TURNG, LIH-SHENG; LEE, JUNGJOO; LACEY, CHRIS; AND OTHERS; SIGNING DATES FROM 20101103 TO 20101115; REEL/FRA:025462/0162
US2010198133 AA	20140115	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO10090929 A2	20100812	LSPB	+	published / reissued	
WO10090929 A3	20110729	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2011549188 COUNTRY OF REF DOCUMENT : JP
WO10090929 A3	20110805	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO10090929 A3	20110805	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2751643 COUNTRY OF REF DOCUMENT : CA
WO10090929 A3	20110822	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 20117019417 COUNTRY OF REF DOCUMENT : KR KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :

Title: POLYPROPYLENE RESIN EXPANDED PARTICLES AND POLYPROPYLENE RESIN IN-MOLD FOAMING MOLDED BODY

Abstract: Source: US2012214890A [EN] Polypropylene resin expanded particles include polypropylene resin as base material resin having at least two melting peaks on a DSC curve, the at least two melting peaks including (i) a lowest-temperature melting peak of 100 degrees centigrade or more but 130 degrees centigrade or less and (ii) a highest-temperature melting peak of 140 degrees centigrade or more but 160 degrees centigrade or less, so that the expanded particles: produce an in-mold foaming molded product at a very low mold heating steam pressure; exhibit low distortion, low shrinkage, and a wide range of heating condition for molding, even if the mold heating steam pressure is increased; have satisfactory moldability when the expanded particles are molded by using a mold having a complicated shape or a large mold; and maintain properties such as compressive strength, substantially unimpaired, when the expanded particles make the in-mold foaming molded product.

Classifications:

International (IPC 8-9): B29C44/34 C08F10/06 C08F110/06 C08F2/00 C08F210/06 C08F4/659 C08F4/6592 C08J9/16 C08J9/18 C08J9/22 C08J9/228 (Advanced/Invention);

C08F4/659 C08F4/6592 (Advanced/Non-invention)

CPC: C08F210/06 B29C44/3465 C08F2/001 C08F4/659 C08F4/65912 C08F4/65916 C08F4/65927 C08J9/16 C08J2323/14 C08F210/08 C08F210/16 C08F2500/20

European: C08F210/06 M08F210/06 M08F4/6592B4 M08F4/659K M08F4/659L

US: 521/143

PatBase - US2012214890_AA

Patent Application Publication Aug. 23, 2012 Sheet 1 of 2 US 2012/0214890 A1

FIG. 1

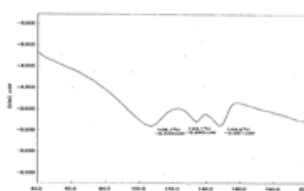
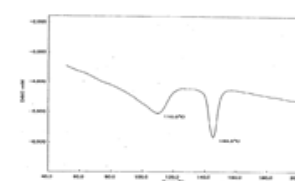


FIG. 2



Family:

Publication number	Publication date	Application number	Application date
BR112012008002 A2	20160329	BR20121108002	20100928
CN102575047 A	20120711	CN201080044804	20100928
CN102575047 B	20140326	CN201080044804	20100928
EP2487199 A1	20120815	EP20100821710	20100928
EP2487199 A4	20140507	EP20100821710	20100928
EP2487199 B1	20170125	EP20100821710	20100928
IN03291CN2012 A	20130705	IN2012CN03291	20120412
JP2011043032 A1	20130304	JP20110535271T	20100928
JP2015129313 A2	20150716	JP20150081987	20150413
JP2017082224 A2	20170518	JP20160235927	20161205
JP5732399 B1	20150610	JP20110535271T	20100928
JP6100302 B2	20170322	JP20150081987	20150413
US2012214890 AA	20120823	US20100500215	20100928
US9040599 BB	20150526	US20100500215	20100928
WO11043032 A1	20110414	WO2010JP05824	20100928

Priority:

JP20090232700 20091006 JP20110535271 20100928 JP20110535271T 20100928
 WO2010JP05824 20100928 JP20150081987 20150413 JP20150081987 20100928
 JP20160235927 20161205

Probable Assignee: KANEKA CORP

Assignee(s): (std): KANEKA CORP ; SENDA KENICHI

Inventor(s): (std): SENDA KENICHI ; KENICHI SENDA

Agent(s): TBK; HARAKENZO WORLD PATENT AND TRADEMARK; BIRCH STEWART KOLASCH AND BIRCH LLP; KANEKA CORP

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

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
BR112012008002 A2	20161011	LSAS	B25G	REQUESTED CHANGE OF HEADQUARTER APPROVED	PARTYTYPE : OWNER OWNER : KANEKA CORPORATION (JP)
CN102575047 A	20120711	LSPB	+	published / reissued	
CN102575047 A	20120711	LSPB	+C06	PUBLICATION	
CN102575047 B	20140326	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102575047 B	20300928	PEXP		Calculated Patent Term Expiry	
EP2487199 A1	20120815	LSPB	+	published / reissued	
EP2487199 A1	20120815	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120416
EP2487199 A1	20130306	LSAS	RAP1	TRANSFER OF RIGHTS OF AN APPLICATION	PARTYTYPE : OWNER OWNER : KANEKA CORPORATION
EP2487199 A4	20140507	LSES	+A4	DESPATCH OF SUPPLEMENTARY SEARCH REPORT	EFFECTIVE DATE : 20140409
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08F 4/6592 20060101ALI20140401BHEP
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08F 4/659 20060101ALI20140401BHEP
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29C 44/34 20060101ALI20140401BHEP
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08J 9/16 20060101ALI20140401BHEP
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08F 2/00 20060101ALI20140401BHEP
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08J 9/18 20060101AFI20140401BHEP
EP2487199 A4	20140507	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C08F 210/06 20060101ALI20140401BHEP
EP2487199 A4	20151021	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20150917
EP2487199 A4	20161019	LSGT	+INTG	ANNOUNCEMENT OF INTENTION TO GRANT	EFFECTIVE DATE : 20160921
EP2487199 B1	20170125	LSGT	+	granted / extensions (spc, cpc, pte)	
EP2487199 B1	20170125	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2487199 B1	20170131	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2487199 B1	20170215	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 864093 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20170215
EP2487199 B1	20170222	LSGT	REG	REFERENCE TO A	REF COUNTRY CODE : IE

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EP2487199 B1	20170302	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602010039864 COUNTRY OF REF DOCUMENT : DE
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				INFORM. FROM NAT. OFFICE TO EPO	DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170525
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EP2487199 B1	20171031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170125
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EP2487199 B1	20180228	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : SI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20170125
EP2487199 B1	20300928	PEXP		Calculated Patent Term Expiry	
IN03291CN2012 A	20130705	LSPB	+	published / reissued	
JP2011043032 A1	20130304	LSPB	+	published / reissued	
JP2015129313 A2	20150716	LSPB	+	published / reissued	
JP2015129313 A2	20150415	LSSE	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20150413
JP2015129313 A2	20160203	LSSE	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20160202
JP2015129313 A2	20160331	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20160331
JP2015129313 A2	20160906	LSRV	-A02	DECISION OF REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20160906

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JP2015129313 A2	20161213	LSAL	A911	TRANSFER OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	TEXT : JAPANESE INTERMEDIATE CODE: A911 EFFECTIVE DATE : 20161212
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JP2015129313 A2	20170131	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20170131
JP2015129313 A2	20170302	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20170222
JP2015129313 A2	20170303	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150 REF DOCUMENT NUMBER : 6100302 COUNTRY OF REF DOCUMENT : JP
JP2017082224 A2	20170518	LSPB	+	published / reissued	
JP5732399 B1	20150610	LSGT	+	granted / extensions (spc, cpc, pte)	
JP5732399 B1	20150319	LSGT	+A01	特許査定書 Decision of patent grant	
JP5732399 B1	20150414	LSFE	R100	特許料納付書 Patent fee payment form	
JP5732399 B1	20150417	LSGT	+R150	特許証 Patent certificate	
JP5732399 B1	20180301	LSFE	R20	特許料納付書 Patent fee payment form	
JP5732399 B1	20300928	PEXP		Calculated Patent Term Expiry	
JP6100302 B2	20170322	LSGT	+	granted / extensions (spc, cpc, pte)	
JP6100302 B2	20350413	PEXP		Calculated Patent Term Expiry	
US2012214890 AA	20120823	LSPB	+	published / reissued	
US2012214890 AA	20120405	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KANEKA CORPORATION, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:SENDA, KENICHI; REEL/FRAME:027995/0426 EFFECTIVE DATE : 20120305
US2012214890 AA	20130912	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KANEKA CORPORATION, JAPAN OLDPARTY : CHANGE OF ADDRESS; ASSIGNOR:KANEKA CORPORATION; REEL/FRAME:031207/0283 EFFECTIVE DATE : 20130107
US9040599 BB	20150526	LSGT	+	granted / extensions (spc, cpc, pte)	
US9040599 BB	20150506	LSGT	PAT1	Patented Case	
US9040599 BB	20320527	PEXP		Calculated Patent Term Expiry (PTA 607 days)	
WO11043032 A1	20110414	LSPB	+	published / reissued	
WO11043032 A1	20120222	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2011535271 COUNTRY OF REF DOCUMENT : JP

WO11043032 A1	20120404	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13500215 COUNTRY OF REF DOCUMENT : US
WO11043032 A1	20120410	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO11043032 A1	20160329	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112012008002 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20120405

Title: PACKAGING COMPONENT, METHOD OF USE, AND METHOD OF MANUFACTURE

Abstract: Source: US2012102884A [EN] A packaging component for use with an article includes a panel having a first shell with a first surface facing the exterior of the package and a first opposing, spaced apart inward-facing surface. The first shell defines a first cavity. The panel further includes a first core situated in the first cavity wherein the first core includes a plurality of in-situ expanded polymer particles.

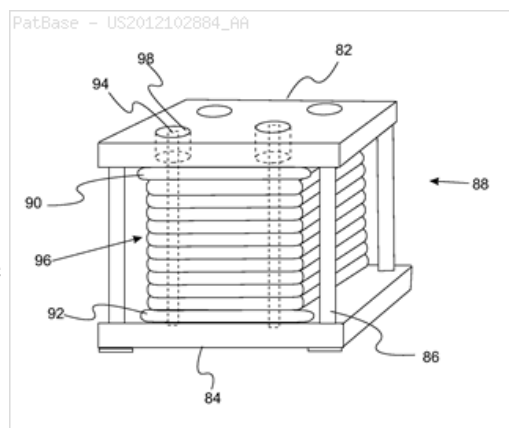
Classifications:

International (IPC 8-9): A47B13/08 A47B77/02 A63G21/02 B09B3/00 B29C33/40 B29C44/00 B29C44/08 B29C44/12 B29C44/14 B29C44/18 B29C44/34 B29C44/44 B29C49/00 B29C49/02 B29C49/04 B29C49/20 B29C49/28 B29C49/42 B29C49/58 B29C49/60 B29C49/78 B29C51/10 B29C70/58 B29C70/66 B32B1/08 B32B15/08 B32B27/06 B32B27/08 B32B27/32 B32B3/04 B32B5/18 B32B5/20 B32B7/10 B60N2/427 B60N2/56 B60N2/64 B60N2/70 B60P1/43 B60R13/02 B60R19/02 B60R19/03 B60R19/18 B60R19/22 B60R3/00 B62B3/00 B62D25/20 B62D35/00 B63B22/00 B65B63/02 B65D6/00 B65G69/30 D06F81/00 E01B3/44 E01B9/36 E01F13/00 E01F13/02 E01F15/14 E01F9/06 E01F9/087 E01F9/529 E02B15/06 E04B1/84 E04C1/40 E04F15/18 E04F19/02 E04G5/08 E04H1/12 E04H6/42 F25D23/06 (Advanced/Invention); B29C44/34 B29C49/04 B29C49/42 B29C49/60 B29C49/78 B29K101/00 B29K105/04 B29K23/00 B29K25/00 B29K501/00 B29L31/06 B29L31/30 B32B38/00 (Advanced/Non-invention)

CPC: B29C2791/001 B29K2105/04 B32B5/20 B60R19/03 B29C44/04 B29C44/343 F25D23/063 E04C1/40 B62D25/20 B60R13/0237 A47B13/08 A47B77/022 E01F13/02 E04G5/08 E04B1/8409 B29C45/1615 B29C45/1704 A47B96/202 B60R5/04 B60R13/013 E01F15/083 E01F15/086 E01F15/141 E01F15/143 E04G1/153 B29C44/146 F16L59/00 E01B9/36 B29C44/086 B60R19/18 B60R2019/1873 B32B266/025 B32B2509/10 B32B2605/00 B32B2307/102 B32B2419/00 B29C47/0023 B29C2049/4667 B29C2049/503 B29C2049/5837 B29C2793/0018 B29C49/46 E01B3/44 B29C49/0031 B29L2031/3044 B29C70/66 B60R19/023 B29C49/00 B60R19/22 B60N2/42709 B60N2/7017 G10K11/168 B29C49/28 B32B1/08 B29C49/4273 B29K2101/00 B29K2501/00 E01F8/0017 Y10T428/249984 Y10T428/249953 B29K2101/12 B29L2031/3017 B29L2031/771 B29C44/18 B29C44/3426 B29C44/445 B29C2049/6072 B29K2023/06 B29K2023/12 B29K2025/06 B29K2105/048 B29L2031/06 B32B3/04 B32B27/065 B32B27/08 B32B27/32 B32B2270/00 E01F9/06 E01F9/087 E01F9/588 Y10T428/1372 Y10T428/1376 B29C49/0005 B29C49/58 E01F9/529 B29C2949/78025 B29C2949/78294 B29L2031/10 B29C49/04 B29C49/78 B32B7/10 B29C44/14 B60R3/002 B62D35/007 E04F15/18 B65G69/30 E04F19/02 E04H1/1205 B63B22/00 B62B3/002 E01F15/14 E02B15/06 B60P1/43 B65D11/20 A63G21/02 D06F81/00 B29K2055/00 B29K2023/18 B29L2031/3005 B29L2031/3067 B29L2031/5209 B29L2031/712 B32B2439/00 B32B2605/12 B32B2307/56

European: B29C44/18 B29C49/42G B60R19/03 E01B3/44 L29C49/04 L29C791/00B L29K105/04 L60R19/18E2

US: 1/1 108/161 181/290 182/222 220/592.1 238/54 238/84 238/84P 256/13.1 264/155 264/255 264/45.2 264/45.4 264/45.5 264/46.4 264/46.6 264/500 264/500S 264/523 264/523S 293/109 293/110 293/120 296/191 296/37.14 296/37.14 297/180.1 297/216.1 297/216.13 297/452.18 404/7 425/4R 425/503 428/304.4 428/317.5 428/35.8 428/35.800S 428/36.4 428/36.5 428/36.500S 52/582.1 53/436 53/436P 53/523 53/523S



Family:

Publication number	Publication date	Application number	Application date
AU2013206032 AA	20130613	AU20130206032	20130527
AU2013238056 AA	20131003	AU20130238056	20130328
CA2816364 AA	20130426	CA20112816364	20111027
CA2868828 AA	20140926	CA20132868828	20130328
DE112011103628 T5	20130808	DE201111103628T	20111027
EP2830861 A1	20150204	EP20130769879	20130328
EP2830861 A4	20160608	EP20130769879	20130328
GB201308511 A0	20130619	GB20130008511	20111027
GB2498495 A1	20130717	GB20130008511	20111027
IN04452DN2013 A	20141121	IN2013DN04452	20130517
MX2013004732 A1	20131017	MX20130004732	20111027
MX339111 B	20160511	MX20130004732	20111027
US2012102884 AA	20120503	US20110005190	20110112
US2012104110 AA	20120503	US20100913132	20101027
US2013115399 AA	20130509	US20120463738	20120503
US2013255176 AA	20131003	US20120463705	20120503
US2013256317 AA	20131003	US20120463715	20120503
US2013257069 AA	20131003	US20120463700	20120503
US2013257119 AA	20131003	US20120463682	20120503
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US2015001864 AA	20150101	US20140491285	20140919
US2015064379 AA	20150305	US20130389021	20130328
US2015118426 AA	20150430	US20130389019	20130328
US2016229149 AA	20160811	US20160133929	20160420
US2017157892 AA	20170608	US20170441077	20170223
US8342420 BB	20130101	US20100913132	20101027
US8596027 BB	20131203	US20110005190	20110112
US8840819 BB	20140923	US20120463700	20120503
US9073462 BB	20150707	US20120463682	20120503
US9346237 BB	20160524	US20130840827	20130315
WO12058447 A2	20120503	WO2011US58119	20111027
WO12058447 A3	20120712	WO2011US58119	20111027
WO13148962 A1	20131003	WO2013US34295	20130328
WO13148977 A1	20131003	WO2013US34312	20130328

Priority:

US20100913132	20101027	US20110005190	20110112	US20120463705	20120503
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WO2013US34312	20130328	US20160133929	20160420	US20170441077	20170223

Probable Assignee: ROBERTS RICHARD

Assignee(s): (std): ROBERTS JR ; ROBERTS JR RICHARD ; ROBERTS JR RICHARD W ; ROBERTS RICHARD ; ROBERTS RICHARD W ; ROBERTS RICHARD W JR

Assignee(s): ROBERTS RICHARD W4320 DILLINGHAM DRIVETECUMSEHMI49286US ; RICHARD W ROBERTS JR

Inventor(s): (std): ROBERTS JR ; ROBERTS JR RICHARD W ; ROBERTS RICHARD W ; ROBERTS RICHARD W JR

Inventor(s): ROBERTS RICHARD W4320 DILLINGHAM DRIVETECUMSEHMI49286US ; RICHARD W ROBERTS JR

Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; BORDEN LADNER GERVAIS LLP; MILLER JAMES LIONEL WOOLVERTON; BROOKS KUSHMAN PC; TEMPLETON G DANIEL ET AL; NEMAZI JOHN E 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 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

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2013206032 AA	20130613	LSPB	+	published / reissued	
AU2013206032 AA	20161027	LSLE	-MK5	APPLICATION LAPSED SECTION 142(2)(E) - PATENT REQUEST AND COMPL. SPECIFICATION NOT ACCEPTED	
AU2013238056 AA	20131003	LSPB	+	published / reissued	
AU2013238056 AA	20160825	LSLE	-MK1	APPLICATION LAPSED SECTION 142(2)(A) - NO REQUEST FOR EXAMINATION IN RELEVANT PERIOD	
CA2816364 AA	20130426	LSPB	+	published / reissued	
CA2816364 AA	20161101	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20161026
CA2868828 AA	20140926	LSPB	+	published / reissued	
DE112011103628 T5	20130808	LSPB	+	published / reissued	
DE112011103628 T5	20150501	LSDW	-R119	APPLICATION DEEMED WITHDRAWN, OR IP RIGHT LAPSED, DUE TO NON-PAYMENT OF RENEWAL FEE	
EP2830861 A1	20150204	LSPB	+	published / reissued	
EP2830861 A1	20150204	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20141028
EP2830861 A1	20151223	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : B29L 31/06 20060101ALN20151119BHEP
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MX2013004732 A1	20131017	LSPB	+	published / reissued	
MX339111 B	20160511	LSGT	+	granted / extensions (spc, cpc, pte)	
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MX339111 B	20311027	PEXP		Calculated Patent Term Expiry	
US2012102884 AA	20120503	LSPB	+	published / reissued	
US2012104110 AA	20120503	LSPB	+	published / reissued	
US2013115399 AA	20130509	LSPB	+	published / reissued	
US2013115399 AA	20150901	LSES	NFA1	Non Final Action Mailed	
US2013115399 AA	20160921	LSES	NFA1	Non Final Action Mailed	
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US2013255176 AA	20140905	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
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US2013256317 AA	20140827	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2013257069 AA	20131003	LSPB	+	published / reissued	
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US2014110491 AA	20140424	LSPB	+	published / reissued	
US2015001864 AA	20150101	LSPB	+	published / reissued	
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US2015064379 AA	20150305	LSPB	+	published / reissued	
US2015064379 AA	20170710	LSES	NFA1	Non Final Action Mailed	
US2015118426 AA	20150430	LSPB	+	published / reissued	
US2015118426 AA	20170728	LSES	NFA1	Non Final Action Mailed	
US2016229149 AA	20160811	LSPB	+	published / reissued	
US2017157892 AA	20170608	LSPB	+	published / reissued	
US8342420 BB	20130101	LSGT	+	granted / extensions (spc, cpc, pte)	
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US8342420 BB	20161230	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
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37 CFR 1.362					
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US8840819 BB	20140903	LSGT	PAT1	Patented Case	
US8840819 BB	20320503	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
US9073462 BB	20150707	LSGT	+	granted / extensions (spc, cpc, pte)	
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US9073462 BB	20330325	PEXP		Calculated Patent Term Expiry (PTA 326 days)	
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WO12058447 A3	20130513	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	TEXT : PCT FILING DATE = 20111027 REF DOCUMENT NUMBER : 1308511 COUNTRY OF REF DOCUMENT : GB KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO12058447 A3	20130513	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1308511.3 COUNTRY OF REF DOCUMENT : GB
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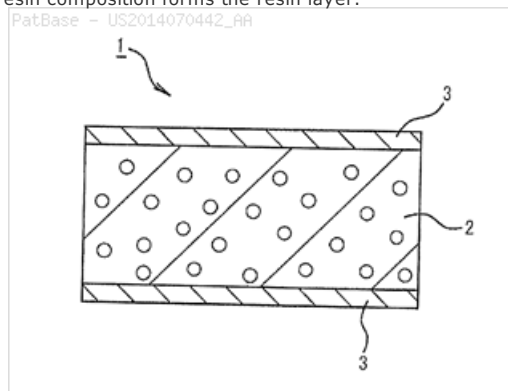
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WO14145670 A1	20140918	LSPB	+	published / reissued	
WO14145670 A1	20150915	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14145670 A1	20160406	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14764594 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: METHOD FOR PRODUCING MULTI-LAYER POLYETHYLENE RESIN FOAM SHEET

Abstract: Source: US2014070442A [EN] A method for producing a multi-layer foam sheet having a foam layer and a resin layer laminated on at least one side of the foam layer, includes coextruding a foamable molten resin composition which contains a low density polyethylene and a physical blowing agent and a molten resin composition which contains 80 to 20 percent by weight of a specific ethylene-propylene random copolymer and 20 to 80 percent by weight of a specific polyethylene resin so that the foamable molten resin composition forms the foam layer and the molten resin composition forms the resin layer.

Classifications:

International (IPC 8-9): B29C44/24 B29C47/06 B29D7/01 B32B27/06 B32B27/08 B32B27/32 B32B5/18 B32B5/20 B32B7/02 C08J9/00 C08J9/08 C08J9/12 C08J9/36 C08L23/06 C08L23/08 C08L23/14 C08L23/16 (Advanced/Invention); B29C47/00 B29C47/06 B29C47/56 B29K105/00 B29K23/00 B29L9/00 B32B27/08 B32B7/02 C08L23/08 C08L23/14 (Advanced/Non-invention)
CPC: B29D7/01 B29C44/24 B29C47/0021 B29C47/0026 B29C47/0066 B29C47/065 B29C47/56 B29K2023/0633 B29K2023/12 B29K2105/0094 B29L2009/00 B32B5/20 B32B7/02 B32B27/065 B32B27/08 B32B27/327 B32B2250/03 B32B2250/05 B32B2250/40 B32B2266/025 B32B2266/08 B32B2270/00 B32B2307/552 B32B2307/56 B32B2307/718 B32B2553/02 C08J9/0061 C08J9/08 C08J9/122 C08J2201/03 C08J2203/02 C08J2203/06 C08J2203/184 C08J2205/052 C08J2323/06 C08J2423/06 C08L23/06 C08L23/0815 C08L23/142
US: 264/46.4



Family:

Publication number	Publication date	Application number	Application date
DE602013005864 D1	20160512	DE201360005864T	20130829
EP2708344 A1	20140319	EP20130182194	20130829
EP2708344 B1	20160330	EP20130182194	20130829
JP2014055248 A2	20140327	JP20120201181	20120913
JP5918665 B2	20160518	JP20120201181	20120913
US2014070442 AA	20140313	US20130974738	20130823
US9592642 BB	20170314	US20130974738	20130823

Priority:

EP20130182194 20130829 JP20120201181 20120913

Probable Assignee: JSP CORP

Assignee(s): (std): JSP CORP

Inventor(s): (std): KAKUTA HIROTOSHI ; MORITA KAZUHIKO ; TANIGUCHI RYUICHI ; TSUNODA HIROTOSHI

Inventor(s): TANIGUCHI RYUICHI TOCHIGI ; MORITA KAZUHIKO TOCHIGI ; KAKUTA HIROTOSHI TOCHIGI

Agent(s): WAGNER ALBIGER AND PARTNER PATENTANWALTE MBB; WAGNER MATTHIAS; OLIFF PLC

Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
EP2708344 A1	20140319	LSPB	+	published / reissued	
EP2708344 A1	20141022	LSER	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20140910
EP2708344 A1	20150218	LSER	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20150120
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EP2708344 B1	20170103	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602013005864 COUNTRY OF REF DOCUMENT : DE
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EP2708344 B1	20170308	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20170103
EP2708344 B1	20170331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PREScribed TIME-LIMIT LAPSED DATE : 20160330
EP2708344 B1	20170331	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP2708344 B1	20170428	LSLE	-PG25	LAPSED IN A CONTRACTING STATE	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE

EP2708344 B1	20170428	LSLE	-PG25	ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160831
EP2708344 B1	20170531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160831
EP2708344 B1	20170531	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP2708344 B1	20170714	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 5
EP2708344 B1	20170731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160829
EP2708344 B1	20170831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE ANNOUNCED VIA POSTGRANT INFORM. FROM NAT. OFFICE TO EPO	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20160829
EP2708344 B1	20171031	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20170714 YEAR OF FEE PAYMENT : 5
EP2708344 B1	20171031	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20170822 YEAR OF FEE PAYMENT : 5
EP2708344 B1	20171031	LSFE	+PGFP	POSTGRANT: ANNUAL FEES PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20170823 YEAR OF FEE PAYMENT : 5
EP2708344 B1	20330829	PEXP		Calculated Patent Term Expiry	
JP2014055248 A2	20140327	LSPB	+	published / reissued	
JP2014055248 A2	20150702	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20150702
JP2014055248 A2	20150702	LSER	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20150702
JP2014055248 A2	20160318	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2014055248 A2	20160330	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20160330
JP2014055248 A2	20160414	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20160408
JP2014055248 A2	20160415	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150 REF DOCUMENT NUMBER : 5918665 COUNTRY OF REF DOCUMENT : JP
JP5918665 B2	20160518	LSGT	+	granted / extensions (spc, cpc, pte)	
JP5918665 B2	20320913	PEXP		Calculated Patent Term Expiry	
US2014070442 AA	20140313	LSPB	+	published / reissued	

US2014070442 AA	20130823	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : JSP CORPORATION, JAPAN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:MORITA, KAZUHIKO; KAKUTA, HIROTOSHI; TANIGUCHI, RYUICHI; REEL/FRAME:031228/0148 EFFECTIVE DATE : 20130820
US9592642 BB	20170314	LSGT	+	granted / extensions (spc, cpc, pte)	
US9592642 BB	20170222	LSGT	PAT1	Patented Case	
US9592642 BB	20350611	PEXP		Calculated Patent Term Expiry (PTA 657 days)	

Title: PICNIC CHEST CONSTRUCTION

Abstract: Source: US3389824A [EN] (Claim 1) 1. In a top opening picnic cooler chest having a plastic liner, an outer casing enclosing said liner in spaced relation thereto, and an insulating material in the space between said liner and said casing, the combination wherein: said liner is formed of a styrene plastic selected from polystyrene and styrene copolymers, said insulating material is a rigid polyurethane foam extending around the sides and bottom of said liner in supporting relation therewith, and a sheet of flexible fiberboard is interposed between the bottom of said liner and said polyurethane foam, said fiberboard sheet having its upper surface in contact with the underside of said liner bottom and its lower surface in contact with said polyurethane foam.

Classifications:

International (IPC 8-9): A45C 11/20 (Advanced/Invention);

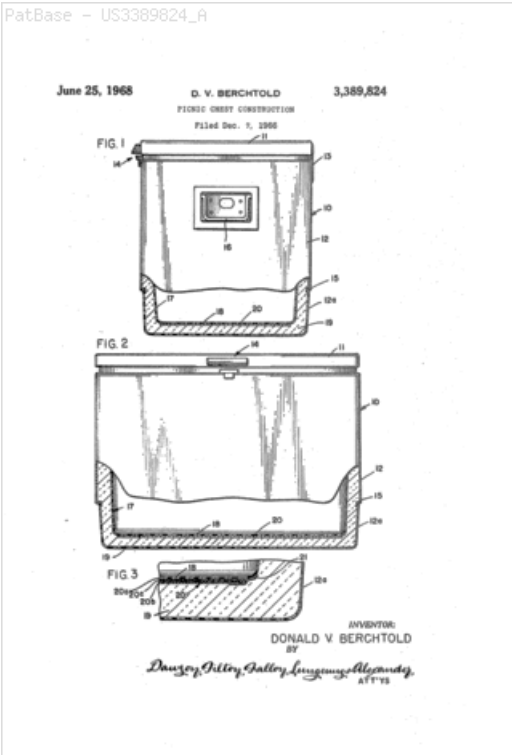
A45C 11/20 (Core/Invention)

International (IPC 1-7): B65D 81/38

CPC: Y10S 220/902 A45C 11/20

European: A45C 11/20

US: 220/592.25 220/9 220/902



Family:

Publication number	Publication date	Application number	Application date
US3389824 A	19680625	US19660599766	19661207

Priority:

US19660599766 19661207

Probable Assignee: COLEMAN CO

Assignee(s): (std): COLEMAN CO

Assignee(s): COLEMAN CO INC ; THE COLEMAN COMPANY INC

Inventor(s): (std): BERCHTOLD DONALD V

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US3389824 A	19680625	LSGT	+	granted / extensions (spc, cpc, pte)	