

Diego Gonzalez

1) Family number: 67135377 (US2017282092A)

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Title: NOZZLE/HEADER DESIGN FOR POLYSTYRENE

Abstract: A vessel header includes lateral flow tubes arranged in a parallel configuration. The lateral flow tubes enter the vessel header through alternating vessel header penetrations with a single vessel header penetration per lateral flow tube. Each lateral flow tube has a perforated section within the vessel header having a non-circular cross-section having the shape of a circular sector, an elliptical sector, or an irregular quadrilateral. A method includes passing a molten polymer through the lateral flow tubes of the vessel header. The molten polymer exits the lateral flow tubes as strands through perforations in the lateral flow tubes within the vessel header. The method includes obtaining devolatilized polymer.

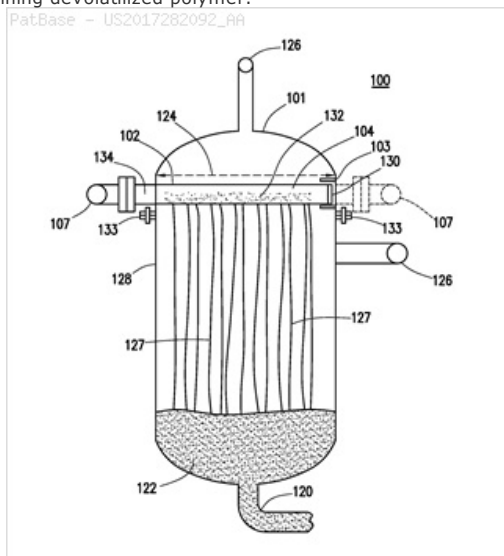
Classifications:

International (IPC 8-9): B01D1/00 B01D1/04 B01D1/06 B01D1/08 B01D1/18 B01D1/22 B01D1/30 B01D3/00 B01D3/06 B01J19/24 B01J4/00 B05B1/14 B29C39/14 B65D25/40 C08F112/08 C08F6/00 C08F6/10 C08L25/06 (Advanced/Invention); B01D1/00 C08F112/08 C08F6/00 (Advanced/Non-invention)

International (IPC 1-7): B01D1/04 B01D1/08 B01D1/30 B01D3/06 B01J19/24 B01J4/00 B29C39/14 B65D25/40

CPC: C08L25/06 B01D1/007 B01D1/06 B01D1/18 B01D1/22 B01D3/008 B01J4/002 C08F6/005 B01D1/04

US: 1/1 526/346



Family:

Publication number	Publication date	Application number	Application date
BR112018069531 A2	20190122	BR20181169531	20170310
CA3018061 AA	20180917	CA20173018061	20170310
CN109153157 A	20190104	CN201780032252	20170310
CO20180011283 A2	20190118	CO20180011283	20181022
EA201800540 A1	20190228	EA20180000540	20170310
EP3436228 A1	20190206	EP20170776278	20170310
EP3436228 A4	20190911	EP20170776278	20170310
IN201817035024 A	20181228	IN201817035024	20180917
JP2019513178 T2	20190523	JP20180551834T	20170310
KR20180124061 A	20181120	KR20187028670	20170310
MX2018011692 A1	20181219	MX20180011692	20170310
SG11201808416Q A1	20181030	SG20181108416	20170310
US2017282092 AA	20171005	US20160085464	20160330
US10058794 BB	20180828	US20160085464	20160330
WO17172327 A1	20171005	WO2017US21875	20170310

Priority:

US20160085464 20160330 WO2017US21875 20170310

Probable Assignee: FINA TECHNOLOGY

Assignee(s): (std): FINA TECH ; FINA TECH INC ; FINA TECHNOLOGY ; FINA TECHNOLOGY INC

Assignee(s): KENNEDY ROY ; SOSA JOSE ; TOMLINSON JOHN ; CORLETO CARLOS R

Inventor(s): (std): CORLETO CARLOS R ; TOMLINSON JOHN ; SOSA JOSE ; KENNEDY ROY ; CORLETO CARLOS ; JOHN TOMLINSON ; JOSE SOSA ; CARLOS R CORLETO ; ROY KENNEDY

Agent(s): GOWLING WLG CANADA LLP ; GARCIA MARTIN MARGARITA ; SHUNG ALBERT ; LOCKLAR MICHAEL

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

2) Family number: 31495176 (US2005022939A)

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Title: HEAT EXCHANGER AND PROCESS FOR DEVOLATILIZING POLYMERS USING SAME

Abstract: Disclosed is a process for devolatilizing a polymer comprising passing the polymer through a devolatilizer comprising a plate heat exchanger wherein the plates of the plate heat exchanger are heated by a plurality of heating tubes and wherein the heating tube comprises a return tube nested inside of a supply tube. The use of the disclosed invention allows for a comparatively small heat profile across heating plates as compared to prior art plate heat exchangers.

Classifications:

International (IPC 8-9): B01D1/00 B01D1/06 C08F6/00 F28F1/00 F28F1/10 F28F1/42 F28F7/00 (Advanced/Invention); B01D1/00 C08F6/00 F28F1/00 F28F1/10 F28F7/00 (Core/Invention); F28C (Subclass/Invention)

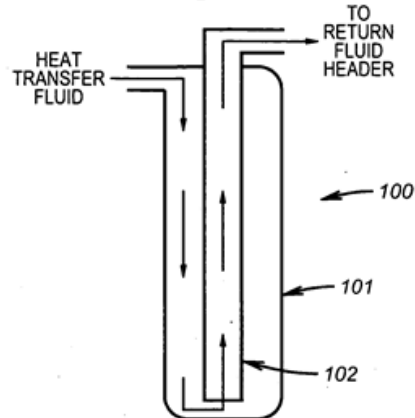
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European: B01D1/00B B01D1/06 C08F6/00B

US: 159/2.1 159/2.100P 159/23 159/27.1 159/27.3 159/28.6 159/28.600S 159/47.1 159/47.100S 159/DIG.1 159/DIG.10 159/DIG.15 159/DIG.32 165/142 165/165 165/166 165/167 165/179 165/181 528/501 528/501S

PatBase - US2005022939_AA



Family:

Publication number	Publication date	Application number	Application date
BRPI0412573 A	20060919	BR2004PI12573	20040727
CA2534036 AA	20060127	CA20042534036	20040727
CA2534036 C	20111018	CA20042534036	20040727
CN101068608 A	20071107	CN200480022197	20040727
CN101068608 B	20110202	CN200480022197	20040727
MXPA06001153 A1	20060411	MX2006PA01153	20040727
TW200523007 A	20050716	TW20040123022	20040730
TWI317645 B	20091201	TW20040123022	20040730
US2005022939 AA	20050203	US20030632213	20030731
US2008105421 AA	20080508	US20080970185	20080107
US7332058 BB	20080219	US20030632213	20030731
WO05012817 A2	20050210	WO2004US24122	20040727
WO05012817 A3	20070531	WO2004US24122	20040727

Priority:

US20030632213 20030731 WO2004US24122 20040727 US20080970185 20080107

Probable Assignee: FINA TECHNOLOGY INC

Assignee(s): (std): FINA TECHNOLOGY ; FINA TECHNOLOGY INC ; REIMERS JAY

Inventor(s): (std): JAY REIMERS ; REIMERS JAY

Agent(s): GOWLING LAFLEUR HENDERSON LLP; FINA TECHNOLOGY INC; KRUEGER TENLEY R; TENLEY R

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 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

3) Family number: 34503102 (US2007120285A)

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Title: DEVOLATILIZER NOZZLE

Abstract: A devolatilizer nozzle comprising at least one perforated flow tube having a non-circular cross-section. In an embodiment, the non-circular cross-section has equal to or greater than 3 sides. The non-circular cross-section of said nozzle may be a triangle, diamond, pentagon, hexagon, heptagon, or octagon. A majority of the perforations in the flow tube of said nozzle may have a maximum strand angle of equal to or less than 45 degrees. The nozzle may further comprise tapered holes, which may be formed by a water jet. The nozzle may further comprise a plurality of parallel flow tubes. The nozzle may comprise 304 stainless steel, AL-6XN stainless steel, or LDX 2101 stainless steel.

Classifications:

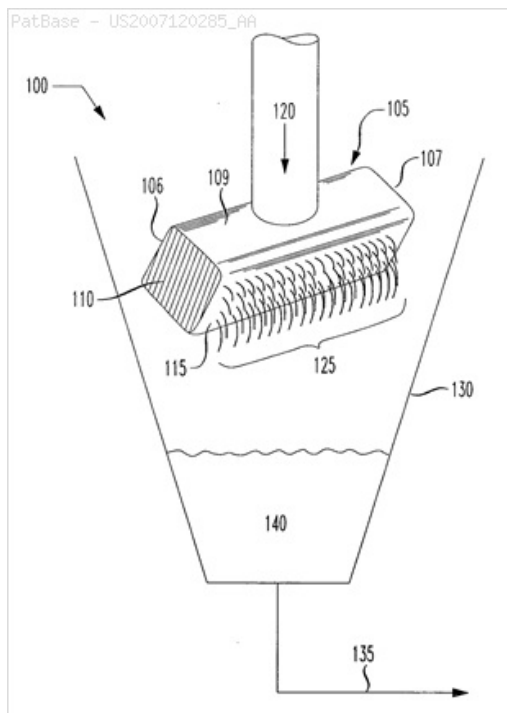
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C08F6/00 C08G4/00 (Advanced/Non-invention); B29C39/00 B65D25/38 C08F6/00 (Core/Invention)

CPC: B01D1/20 B01J4/002 B01J19/24 C08F6/005

European: B01D1/20 B01J19/24 B01J4/00B2 C08F6/00B4

US: 159/2.1 159/2.3 159/47.1 222/566 264/165 264/40.3 264/557 425/564 528/241 528/480



Family:

Publication number	Publication date	Application number	Application date
CA2618450 AA	20080207	CA20062618450	20061026
CN101316867 A	20081203	CN200680044052	20061026
CN101316867 B	20101208	CN200680044052	20061026
CN101837327 A	20100922	CN201010167351	20061026
CN101837327 B	20120704	CN201010167351	20061026
EA013914 B1	20100830	EA20080001289	20061026
EA200801289 A1	20081230	EA20080001289	20061026
EP1954723 A2	20080813	EP20060826722	20061026
EP1954723 A4	20110119	EP20060826722	20061026
US2007120285 AA	20070531	US20060345439	20060201
US7754849 BB	20100713	US20060345439	20060201
WO07064427 A2	20070607	WO2006US41762	20061026
WO07064427 A3	20070726	WO2006US41762	20061026

Priority:

US20050740407P 20051128 US20060345439 20060201 WO2006US41762 20061026

Probable Assignee: FINA TECHNOLOGY INC

Assignee(s): (std): CORLETO CARLOS B ; FINA TECHNOLOGY ; TOMLINSON JOHN

Assignee(s): FINA TECHNOLOGY INC ; CORLETO CARLOS R

Inventor(s): (std): CORLETO CARLOS B ; TOMLINSON JOHN ; CORLETO CARLOS R ; JOHN TOMLINSON

Inventor(s): CORLETO CARLOS

Agent(s): GOWLING LAFLEUR HENDERSON LLP; GOWLING WLG CANADA LLP; LEYDER FRANCIS; FINA TECHNOLOGY INC; TENLEY R

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

4) Family number: 41632057 (US2008075637A)

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Title: POLYMER MELT DISTRIBUTOR HEADER DESIGN

Abstract: A vessel header comprising a plurality of lateral flow tubes arranged in a parallel configuration and entering the vessel header through alternating header penetrations with a single header penetration per lateral flow tube. A method of increasing the throughput of a polymerization reaction comprising conducting the polymerization reaction in a reaction vessel comprising a plurality of lateral flow tubes arranged in a parallel configuration and entering the vessel header through alternating header penetrations with a single header penetration per lateral flow tube wherein the polymerization reaction displays an increase in throughput of 10 percent and a decrease in volatiles of from 5 percent to 10 percent when compared to a polymerization reaction carried out in a reaction vessel lacking a plurality of lateral flow tubes arranged in a parallel configuration and entering the vessel header through alternating header penetrations with a single header penetration per lateral flow tube.

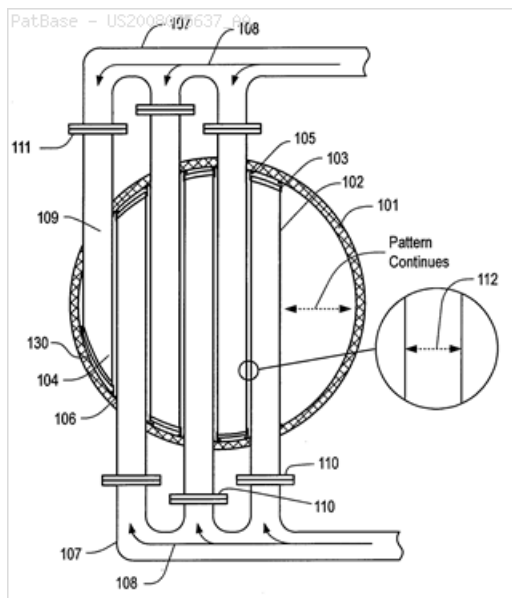
Classifications:

International (IPC 8-9): B01D1/00 B01D1/08 B01D19/00 B01D53/00 B01J19/00 B01J4/00 C08F6/00 (Advanced/Invention); B01D1/00 B01J19/00 (Core/Invention)

CPC: B01D1/08 B01J4/001 B01J4/002 C08F6/001

European: B01D1/08 B01J4/00B B01J4/00B2 C08F6/00B

US: 159/2.1 159/27.4 159/43.1 422/129 422/129P 528/501 528/502.00R 528/502R 96/200 96/203



Family:

Publication number	Publication date	Application number	Application date
CN101516461 A	20090826	CN200780035329	20070911
CN101516461 B	20130612	CN200780035329	20070911
DE602007028135 D1	20130314	DE200760028135T	20070911
EP2063968 A2	20090603	EP20070842190	20070911
EP2063968 A4	20091028	EP20070842190	20070911
EP2063968 B1	20130116	EP20070842190	20070911
PL2063968 T3	20130731	PL20070842190T	20070911
TW200817078 A	20080416	TW20070125105	20070710
US2008075637 AA	20080327	US20060533983	20060921
US2012247687 AA	20121004	US20120525431	20120618
US8241459 BB	20120814	US20060533983	20060921
WO08036523 A2	20080327	WO2007US78085	20070911
WO08036523 A3	20080703	WO2007US78085	20070911

Priority:

US20060533983 20060921 EP20070842190 20070911 WO2007US78085 20070911
US20120525431 20120618

Probable Assignee: FINA TECHNOLOGY INC

Assignee(s): (std): KENNEDY ROY ; TOMLINSON JOHN ; SOSA JOSE M ; FINA TECHNOLOGY

Assignee(s): FINA TECHNOLOGY INC ; FINA TECHNOLOGY INC HOUSTON

Inventor(s): (std): JOHN TOMLINSON ; ROY KENNEDY ; SOSA JOSE M ; TOMLINSON JOHN ; KENNEDY ROY

Inventor(s): SOSA JOSE M DEER PARK ; KENNEDY ROY PRAIRIEVILLE ; TOMLINSON JOHN PRAIRIEVILLE

Agent(s): NEEL HENRY; Neel Henry; FINA TECHNOLOGY INC; KOPECKY SHIRLEY A ET AL

Designated states: AE AG AL AM 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 SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

5) Family number: 47694036 (US2012108782A)

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Title: DEVICE AND METHOD FOR DEGASSING SOLVENT-CONTAINING POLYCARBONATE SOLUTIONS

Abstract: The invention relates to an apparatus and a process for devolatilizing solvent-containing polycarbonate solutions. By employing the inventive apparatus, polycarbonates with low residual values of volatile constituents are produced from solvent-containing polymer melts, which improved optical properties, especially yellowness index, with the aid of an apparatus combination of a heatable tubular devolatilizer and a vented extruder.

Classifications:

International (ipc 8-9): B01D1/06 B01D1/08 B01D1/10 B01D19/00 B29B13/00 B29C47/00 B29C47/10 B29C47/76 C08G64/00 C08G64/40 (Advanced/Invention); B29K105/00 B29K69/00 C08G63/02 (Advanced/Non-invention); F04D29/00 (Core/Invention)

International (ipc 1-7): F04D29/00

CPC: B01D19/0031 B01D19/0005 B01D19/0052 B29K2069/00

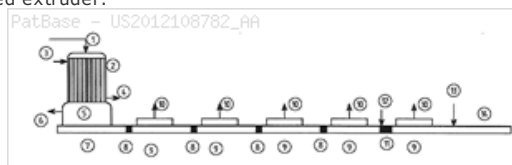
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B29K2105/06 B29K2105/16 B29C48/03 B29C48/285 B29C48/29 B29C48/767

European: B01D19/00B B01D19/00F B01D19/00P4 B29C47/10 B29C47/76Q2B L29C47/10L L29K105/00E L29K105/00E10

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US: 159/2.2 159/2.3 264/219 425/317 425/317S 528/196 528/196P 528/198 528/219 528/219S



Family:

Publication number	Publication date	Application number	Application date
CN102448568 A	20120509	CN201080023968	20100526
CN102448568 B	20160601	CN201080023968	20100526

DE502010011135 D1	20160407	DE201050011135T	20100526
EP2255859 A1	20101201	EP20090007268	20090530
EP2435150 A1	20120404	EP20100722008	20100526
EP2435150 B1	20160302	EP20100722008	20100526
IN09393DN2011 A	20130125	IN2011DN09393	20111130
JP2012528897 T2	20121115	JP20120512254T	20100526
JP5752680 B2	20150722	JP20120512254T	20100526
KR101693909 B1	20170106	KR20117028506	20100526
KR20120029407 A	20120326	KR20117028506	20100526
SG175772 A1	20111229	SG20110077591	20100526
TH116915 A	20121025	TH20111003332	20100526
TH68154 B	20190214	TH20111003332	20100526
US2012108782 AA	20120503	US20100318487	20100526
US8383757 BB	20130226	US20100318487	20100526
WO10139414 A1	20101209	WO2010EP03208	20100526

Priority:

EP20090007268 20090530 EP20100722008 20100526 WO2010EP03208 20100526

Probable Assignee: COVESTRO DEUTSCHLAND AG

Assignee(s): (std): BAYER MATERIAL SCIENCE LLC ; BAYER MATERIALSCIENCE AG ; COVESTRO DEUTSCHLAND AG ; VAES JOHAN ; KOENIG THOMAS ; DE CLEYN RENE ; VANDEN EYNDE JOHAN ; KOHLGRUEBER KLEMENS ; VAN MEIRVENNE DIRK

Inventor(s): (std): VAES JOHAN ; KOENIG THOMAS DR ; DE CLEYN RENE ; VANDEN EYNDE JOHAN ; VAN MEIRVENNE DIRK DR ; KOHLGRUEBER KLEMENS DR ; KOENIG THOMAS ; KOHLGRUEBER KLEMENS ; VAN MEIRVENNE DIRK ; RENE DE CLEYN ; DIRK MEIRVENNE VAN ; JOHAN VAES ; KLEMENS KOHLGRUEBER ; THOMAS KOENIG ; JOHAN VANDEN EYNDE

Inventor(s): DIRK VAN MEIR VENNE ; THOMAS KONIG ; KLEMENS KOHLGRUBER

Agent(s): LEVPAT; NOVAK DRUCE CONNOLLY BOVE AND QUIGG LLP; BAYER MATERIALSCIENCE AG

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

6) Family number: 28236958 (US2002026020A)

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Title: PROCESS FOR PRODUCING POLYMERS BY FREE RADICAL POLYMERIZATION AND CONDENSATION REACTION, AND APPARATUS AND PRODUCTS RELATED THERETO

Abstract: The present invention provides a high temperature continuous polymerization and condensation process for preparing a polymeric product. The process includes continuously charging into a reaction zone: at least one radically-polymerizable monomer having a radically polymerizable group and at least one condensation reactive functionality; and at least one modifying agent having a functional group capable of reacting with the condensation reactive functionality. The reaction zone includes at least one primary reactor, but may, and preferably does, contain a secondary reactor. The process further includes maintaining an effective temperature in the primary reactor to cause polymerization of the monomer and to allow at least a portion of the condensation reactive functionality to react with the functional group of the modifying agent.

Classifications:

International (IPC 8-9): C08F2/00 C08F2/02 C08F20/00 C08F20/04 C08F265/04 C08F287/00 C08F291/00 C08F293/00 C08F4/28 C08F8/00 C08G63/00 C08G63/78 C08G85/00 C09D133/04 C09D157/00 (Advanced/Invention); C08F20/00 C08F20/04 C08G63/78 C08G85/00 C09D157/00 (Advanced/Non-invention)
International (IPC 1-7): C08F2/00 C08F20/00 C08F20/04 C08F4/28 C08F8/00 C08G85/00 C09D133/04 C09D157/00
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PatBase - US2002026020_AA

Patent Application Publication Feb. 28, 2002 Sheet 1 of 2 US 2002/0026020 A1

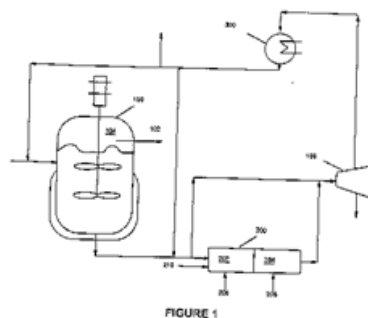


FIGURE 1

Family:

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AT297952 E	20050715	AT19990933687T	19990702
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TW446712 B	20010721	TW19990111602	19990918
TW585874 B	20040501	TW19990111601	19990918
US2002026020 AA	20020228	US19990347031D	19990702
US2002091207 AA	20020711	US20010016048	20011206
US6255403 BA	20010703	US19990347033	19990702
US6346590 BA	20020212	US19990347031	19990702
US6689853 BB	20040210	US20010016048	20011206
WO0002932 A1	20000120	WO1999US15151	19990702
WO0002933 A1	20000120	WO1999US15160	19990702

Priority:

US19980092433P 19980710 US19980092433P 19980710 US19990347033 19990702
WO1999US15151 19990702 US19990347031 19990702 WO1999US15160 19990702
US20010016048 20011206

Probable Assignee: BASF SE

Assignee(s): (std): JOHNSON S C COMM MARKETS INC ; JOHNSON POLYMER LLC ; JOHNSON DIVERSEY INC ; JOHNSON POLYMER INC ; SC JOHNSON COMMERCIAL MARKETS INC ; S C JOHNSON COMMERCIAL MARKETS

Assignee(s): SC JOHNSON COMMERCIAL MARKETS INC ; JOHNSON DIVERSEY INC ; ANDRIST KEVIN M ; BASF CORP ; CAMPBELL JOHN D ; CHYLLA RICHARD ; BASF SE ; S C JOHNSON COMMERCIAL MARKETS INC ; SCHATZ DAVID D ; TEYMOUR FOUAD ; VILLALOBOS MARCO A ; KIMURA TSUGIO ; KAAI MICHIOHRO ; WILSON DENNIS M ; DEYOUNG DOUGLAS J ; DEBLING JON A ; GIANNAKITSAS IOANNIS ; HELLWIG DEAN R

Inventor(s): (std): HELLWIG DEAN R ; GIANNAKITSAS IOANNIS ; FOUAD TEYMOUR ; HELLWIG DEAN R AND ; JON A DEBLING ; DOUGLAS J DEYOUNG ; JOHN D CAMPBELL ; DEYOUNG J ; HELLWIG R ; DEYOUNG DOUGLAS J AND ; ANDRIST KEVIN M ; ANDRIST M ; CAMPBELL JOHN D ; CHYLLA RICHARD ; DAVID D SCHATZ ; CAMPBELL D ; DEBLING JON A ; DEYOUNG DOUGLAS J ; DEAN R HELLWIG ; DENNIS M WILSON ; DEBLING A ; KAAI MICHIOHRO ; KIMURA TSUGIO ; WILSON DENNIS M ; SCHATZ DAVID D ; TEYMOUR FOUAD ; VILLALOBOS MARCO A ; MARCO A VILLALOBOS ; KEVIN M ANDRIST ; RICHARD CHYLLA ; MICHIOHRO KAAI ; TSUGIO KIMURA ; WILSON M ; VILLALOBOS A ; SCHATZ D

Inventor(s): MARCO VILLALOBOS ; DAVID SCHATZ ; DOUGLAS DEYOUNG ; IOANNIS GIANNAKITSAS ; JOHN D. CAMPELL

Agent(s): BERESKIN AND PARR LLP SENCRL SRL; FUJINO IKUO; TAKANASHI NORIMICHI; UBUKATA KAZUO; KATO NOBUAKI; OCHI TAKAO; OKABE MASAO; USUI SHINICHI; OKABE YUZURU

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 MK ML MN 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 UA UG UZ VN YU ZW

7) Family number: 31986695 (US6350813B)

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Title: High impact monovinylidene aromatic polymers

Abstract: The present invention refers to a rubber modified monovinylidene aromatic polymer composition wherein the rubber is in the form of discrete, dispersed rubber particles and comprises: a) from 75 to 25 weight percent based on the total weight of rubber, of a star branched diene rubber, having a cis 1,4 structure content of less than 75 percent; and b) from 25 to 75 weight percent, based on the total weight of rubber, of a linear diene rubber, having a cis 1,4 structure content of less than 50 percent.

Classifications:

International (IPC 8-9): C08F C08F257/02 C08F279/02 C08L C08L25/00 C08L25/02 C08L25/06 C08L51/00 C08L51/04 C08L9/00 (Advanced/Invention);
C08L9/00 (Advanced/Non-invention);
C08F257/00 C08F279/00 C08L25/00 C08L51/00 (Core/Invention);
C08L9/00 (Core/Non-invention);
C08F C08L (Subclass/Invention)
International (IPC 1-7): C08F279/02 C08L25/00 C08L25/02 C08L25/06 C08L51/04 C08L9/00
CPC: C08F257/02 C08F279/02 C08L9/00 C08L25/06 C08L51/003 C08L51/04
European: C08F257/02 C08F279/02 C08L25/06 C08L51/00B C08L51/04 M08L9/00
US: 525/89 525/98 525/99

Family:

Publication number	Publication date	Application number	Application date
AR022154 AA	20020904	AR1999P106839	19991229
AT430170 E	20090515	AT19990961809T	19991124
AU200018314 A1	20000829	AU20000018314	19991124
AU200018314 A5	20000829	AU20000018314	19991124
AU771477 B2	20040325	AU20000018314	19991124
BRPI9917207 A	20011030	BR1999PI17207	19991124
BRPI9917207 B1	20101116	BR1999PI17207	19991124
CA2356995 AA	20010628	CA19992356995	19991124
CA2356995 C	20090106	CA19992356995	19991124
CN1135244 C	20040121	CN19998016109	19991124
CN1348474 A	20020508	CN19998016109	19991124
CO5111036 A1	20011226	CO19990081619	19991230
DE69940831 D1	20090610	DE19996040831	19991124
EP1159322 A1	20011205	EP19990961809	19991124
EP1159322 B1	20090429	EP19990961809	19991124
ES2323484 T3	20090716	ES19990961809T	19991124
HK1044160 A1	20091002	HK20020104188	20020531
HK1044160 B	20091002	HK20020104188	20020531
ID29814 A	20011011	ID20010001627	19991124
JP2002536515 T2	20021029	JP20000598560T	19991124
TH57761 A	20030820	TH19991004915	19991227
TW568934 B	20040101	TW19990121296	19991206
US6350813 BA	20020226	US19990448818	19991124
WO0047645 A1	20000817	WO1999US27970	19991124

Priority:

US19990119232P 19990209 US19990448818 19991124 WO1999US27970 19991124
US19990119232P 19999209

Probable Assignee: STYRON EUROPE GMBH

Assignee(s): (std): DOW CHEMICAL CO ; DOW GLOBAL TECHNOLOGIES INC ; THE DOW CHEMICAL COMPANY

Assignee(s): STYRON EUROPE GMBH ; STYRON LLC ; SCHRADER DAVID ; TRINSEO EUROPE GMBH ; DOW GLOBE TECHNOLOGIES INC ; THE DOW GLOBE TECHNOLOGIES INC ; BLACK STEVEN M ; DEUTSCHE BANK NEW YORK BRANCH AG ; DEUTSCHE BANK NEW YORK BRANCH COLLATERAL AGENT AG AS

Inventor(s): (std): SCHRADER DAVID ; BLACK STEVEN M ; D SCHRADER ; DAVID SCHRADER ; SM BLACK ; STEVEN M BLACK

Inventor(s): BLACK STEVEN ; S M BLACK

Agent(s): PHILLIPS ORMONDE FITZPATRICK; SMART AND BIGGAR; ERNESTO CAVELIER; RAYNOR JOHN ET AL; MARKS AND CLERK

Designated states: AE AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CR CU CY CZ DE DK DM 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 LV MA MC MD MG MK ML MN 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

8) Family number: 47693580 (US2012123084A)

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Title: DEVICE AND METHOD FOR DEGASSING SOLVENT-CONTAINING POLYCARBONATE SOLUTIONS

Abstract: The invention relates to an apparatus and a process for devolatilizing solvent-containing polycarbonate solutions. By employing the inventive apparatus, polycarbonates with low residual values of volatile constituents are produced from solvent-containing polymer melts, which improved optical properties, especially yellowness index, with the aid of an apparatus combination of a flash devolatilizer and a vented extruder.

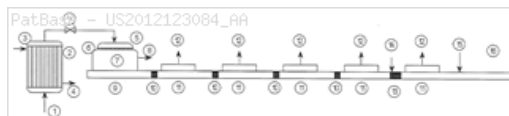
Classifications:

International (IPC 8-9): B01D1/00 B01D19/00 B01D3/06 B01D3/10 B29B7/84 B29C47/10 B29C47/76 C08G64/00 C08G64/40 C08J3/00 C08J3/02 C08J3/07 (Advanced/Invention);
B29K105/16 B29K69/00 C08G63/02 (Advanced/Non-invention);
B01D3/06 B01D35/01 (Core/Invention)

CPC: C08J3/02 B29C48/03 B01D19/0031 B01D19/0005 B01D19/0052 B29K2069/00 B29K2105/0005 B29K2105/0008 B29K2105/0026 B29K2105/0032 B29K2105/0038 B29K2105/0044 B29K2105/005 B29K2105/06 B29K2105/16 B29C48/285 B29C48/29 B29C48/767

European: B01D19/00B B01D19/00F B01D19/00P4 B29C47/10 B29C47/76Q2B L29C47/10L L29K105/00E L29K105/00E10 L29K105/00E14 L29K105/00E18 L29K105/00E2 L29K105/00E20B L29K105/00E7 L29K105/06 L29K105/16 L29K69/00

US: 159/2.2 159/2.200S 159/2.3 159/2.300S 528/196 528/196P 528/501

**Family:**

Publication number	Publication date	Application number	Application date
CN102448569 A	20120509	CN201080024023	20100526
CN102448569 B	20160601	CN201080024023	20100526
DE502010011740 D1	20160707	DE201050011740T	20100526
EP2255860 A1	20101201	EP20090007269	20090530

EP2435151 A1	20120404	EP20100722007	20100526
EP2435151 B1	20160525	EP20100722007	20100526
IN09397DN2011 A	20130125	IN2011DN09397	20111130
JP2012528896 T2	20121115	JP20120512253T	20100526
JP5844253 B2	20160113	JP20120512253T	20100526
KR101743310 B1	20170615	KR20117028507	20100526
KR20120036814 A	20120418	KR20117028507	20100526
SG175850 A1	20111229	SG20110080348	20100526
TH128932 A	20131114	TH20111003378	20100526
US2012123084 AA	20120517	US20120322731	20120127
US8497345 BB	20130730	US20120322731	20120127
WO10139413 A1	20101209	WO2010EP03206	20100526

Priority:

EP20090007269 20090530 WO2010EP03206 20100326 EP20100722007 20100526
WO2010EP03206 20100526

Probable Assignee: COVESTRO DEUTSCHLAND AG

Assignee(s): (std): BAYER MATERIAL SCIENCE LLC ; BAYER MATERIALSCIENCE AG ; VAES JOHAN ; KOENIG THOMAS ; DE VOS STEFAAN ; VANDEN EYNDE JOHAN ; KOHLGRUEBER KLEMENS ; JOHAN VAES ING ; COVESTRO DEUTSCHLAND AG ; BAYER IP GMBH

Assignee(s): BAYER MATERIAL SCIENCE AG ; BAYER INTELLECTUAL PROPERTY GMBH

Inventor(s): (std): STEFAAN DE VOS ; JOHAN VAES ; KLEMENS KOHLGRUEBER ; THOMAS KOENIG ; JOHAN VANDEN EYNDE ; JOHAN VAES ING ; KOHLGRUEBER KLEMENS ; KOENIG THOMAS ; KOHLGRUEBER KLEMENS DR ; VANDEN EYNDE JOHAN ; DE VOS STEFAAN ; KOENIG THOMAS DR ; VAES JOHAN

Inventor(s): STEFAAN DE VAS ; THOMAS KONIG ; KLEMENS KOHLGRUBER

Agent(s): LEVPAT; NOVAK DRUCE CONNOLLY BOVE AND QUIGG LLP; BAYER MATERIALSCIENCE AG

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 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

9) Family number: 47693957 (US2012157653A)

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Title: ULTRA-HIGH PURITY POLYCARBONATES HAVING GOOD INHERENT COLOR AND THERMAL RESISTANCE AND A DEVICE AND A METHOD FOR PRODUCING THE SAME

Abstract: The invention relates to polycarbonates with extremely low residual levels of volatile constituents and thermal degradation products, and also improved optical properties, especially Yellowness Index (YI) and good thermal stability, from solvent-containing polymer melts. The invention further relates to an apparatus and a process for preparing these polycarbonates with the aid of a devolatilizing extruder with at least three devolatilizing zones, and zones for introducing entraining agent into dispersion are present upstream of at least three devolatilizing zones.

Classifications:

International (IPC 8-9): B01D1/00 B01D1/04 B29C B29C47/00 B29C47/36 B29C47/40 B29C47/50 B29C47/76 B29C48/07 B29C48/13 B29C48/38 B29C48/385 B29C48/39 B29C48/40 B29C48/76 C08G C08G64/04 C08G64/20 C08G64/30 C08G64/40 (Advanced/Invention); B29K69/00 (Advanced/Non-invention); C08G64/20 C08G64/40 (Core/Invention)

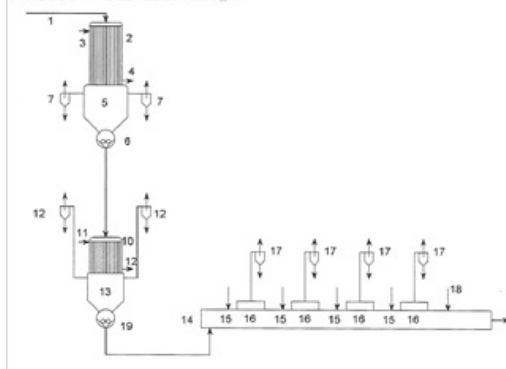
International (IPC 1-7): C08G64/20 C08G64/40

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European: B29C47/50 B29C47/76Q2B C08G64/20A C08G64/40D L29C47/40 L29K69/00

US: 1/1 422/255 422/255S 528/196 528/196P

PatBase - US2012157653_AA



Family:

Publication number	Publication date	Application number	Application date
CN102459404 A	20120516	CN201080033799	20100526
CN102459404 B	20141224	CN201080033799	20100526
CN104151539 A	20141119	CN201410370485	20100526
CN104151539 B	20170412	CN201410370485	20100526
DE202010018508 U1	20170511	DE201020018508U	20100526
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EP2256146 A1	20101201	EP20090007270	20090530
EP2445950 A1	20120502	EP20100726422	20100526
EP2445950 B1	20140129	EP20100726422	20100526
ES2451518 T3	20140327	ES20100726422T	20100526
HK1166813 A1	20121109	HK20120107555	20120801
IN09395DN2011 A	20130222	IN2011DN09395	20111130
JP2012528895 T2	20121115	JP20120512252T	20100526
JP2016104877 A2	20160609	JP20160002004	20160107
JP5870025 B2	20160224	JP20120512252T	20100526
JP6121577 B2	20170426	JP20160002004	20160107
KR20120024884 A	20120314	KR20117031525	20100526
PL2445950 T3	20140630	PL20100726422T	20100526
RU2011154113 A	20130710	RU20110154113	20100526
RU2566822 C2	20151027	RU20110154113	20100526

SG10201402741P A1	20140730	SG20141002741	20100526
SG176228 A1	20120130	SG20110087053	20100526
TH117968 A	20121127	TH20111003432	20100526
TH67383 B	20190111	TH20111003432	20100526
US2012157653 AA	20120621	US20100375052	20100526
US2018105644 AA	20180419	US20170789704	20171020
US9828464 BB	20171128	US20100375052	20100526
US10435507 BB	20191008	US20170789704	20171020
WO10139412 A1	20101209	WO2010EP03205	20100526

Priority:

EP20090007270 20090503 EP20090007270 20090530 CN201080033799 20100526
EP20100726422 20100526 JP20120512252T 20100526 WO2010EP03205 20100526
US20120375052 20120308 JP20160002004 20160107 US20170789704 20171020

Probable Assignee: COVESTRO DEUTSCHLAND AG

Assignee(s): (std): BAYER IP GMBH ; BAYER MAT AG ; BAYER MATERIALSCIENCE AG ; KIRCHHOFF JOERG ; BRUYNSEELS FRANK ; BIERDEL MICHAEL ; BAYER MATERIAL SCIENCE AG ; BAYER MATERIAL SCIENCE LLC ; COVESTRO DEUTSCHLAND AG ; KOENIG THOMAS ; VANDEN EYNDE JOHAN ; VAES JOHAN ; RUYTINX BERT ; RECHNER JOHANN ; KOHLGRUEBER KLEMENS ; VANDER EYNDE JOHAN ; VAES ING JOHAN

Assignee(s): BAJER MATIRIAL SAJENS AG ; BAYER INTELLECTUAL PROPERTY GMBH

Inventor(s): (std): JOHAN VANDEN EYNDE ; BERT RUYTINX ; JOHAN VAES ; THOMAS KOENIG ; JOHANN RECHNER ; MICHAEL BIERDEL ; FRANK BRUYNSEELS ; JOERG KIRCHHOFF ; KLEMENS KOHLGRUEBER ; VAES ING JOHAN ; VANDER EYNDE JOHAN ; BIERDEL MICHAEL ; KOHLGRUEBER KLEMENS ; RECHNER JOHANN ; KIRCHHOFF JOERG ; KOENIG THOMAS ; KOHLGRUEBER KLEMENS DR ; RECHNER JOHANN DR ; VANDEN EYNDE JOHAN ; BRUYNSEELS FRANK ; VAES JOHAN ; KOENIG THOMAS DR ; BIERDEL MICHAEL DR ; RUYTINX BERT ; KIRCHHOFF JOERG DR ; DR KIRCHHOFF JOERG ; DR RECHNER JOHANN ; DR KOHLGRUEBER KLEMENS ; DR VAES JOHAN ; DR BIERDEL MICHAEL ; JOHANN LECHNER ; KENIG TOMAS ; KOL GRJUBER KLEMENS ; RUJTINKS BERT ; REHKHNER JOKHANN ; KIRKHKHOFF JORG ; BRUJNZEEL S FRANK ; BIRDEL MIKHAHL ; VANDEN EHJNDE JOKHAN ; VAES JOKHAN

Inventor(s): THOMAS KONIG ; KLEMENS KOHLGRUBER ; JORG KIRCHHOFF

Agent(s): LEVPAT; BIP PATENTS; CARPINTERO MARIO; CHINA PATENT AGENT HK LTD; NAGAI HIROSHI; DREW AND NAPIER LLC; K AND L GATES LLP; BAYER MATERIALSCIENCE AG

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

10) Family number: 76814459 (CN209734996U)

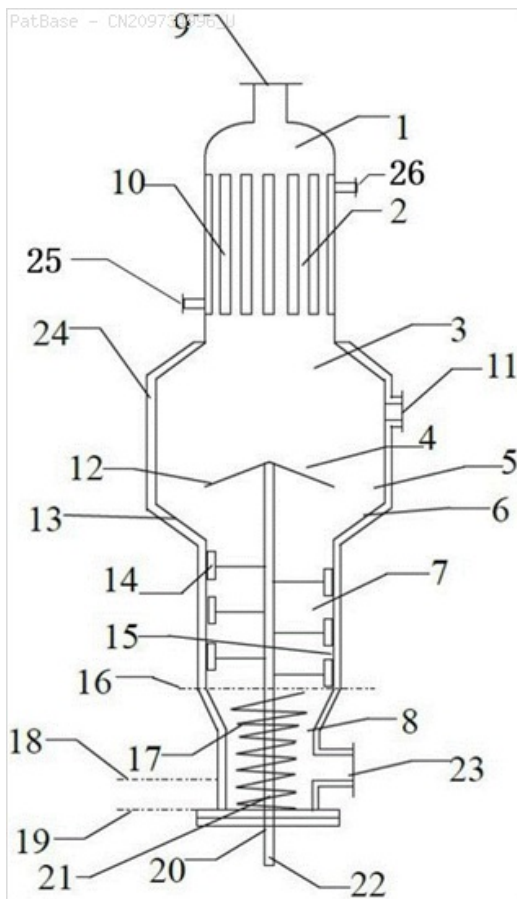
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Title: A polymer devolatilization apparatus (Machine translation)

Abstract: Source: CN209734996U **Machine translation:** The utility model provides a polymer devolatilization apparatus, the devolatilization apparatus from top to bottom is provided with: The feed distribution, heating the devolatilization zone, the fall of the devolatilizing a devolatilization zone, falling film first zone, the second zone, the fall of the devolatilization zone and material falling film devolatilization second collection area; The feed distribution area is provided with a feed inlet; Said heating the devolatilization zone is provided with a shell and tube heat exchanger, the tube-and-shell heat exchanger tube layer comprises a plurality of progress under a heating tube; The fall of the devolatilization volatiles one region is provided with an outlet; The falling film a devolatilization zone is provided with liquid collecting falling film distributor, said liquid collection falling film distributor through the shaft connected to the bottom of the devolatilizer outside of the motor; The material collection zone with a base or a side provided with a discharge port, the material collecting section is also provided with pusher means pushing downward movement of the polymer. After adopting the technical scheme, the devolatilization apparatus is compact, small size, and can be in a suitable process temperature polymers were static, dynamic, efficient multi-stage devolatilization.

Classifications:

International (IPC 8-9): B01D1/06 B01D1/22
B01D1/30 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
CN209734996 U	20191206	CN201920250971U	20190228

Priority:

CN201920250971U 20190228

Probable Assignee: FORGIVE ONE CENT SHANGHAI CHEMICAL CO LTD

Assignee(s): FORGIVE ONE CENT SHANGHAI CHEMICAL CO LTD

11) Family number: 11426753 (US3004900A)

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Title: APPARATUS FOR DEVOLATILIZING

Abstract: Synthetic vinylidene polymers and copolymers are devolatilized from unpolymerized monomer and low molecular weight polymers, by feeding the polymer at devolatilizing temperature into a chamber having a condensing surface maintained at a temperature greater than the condensing temperature of the low molecular weight polymers under pressure, and withdrawing pure monomer vapours from the chamber; withdrawing the condensed low molecular weight polymers as a liquid from the condensing surface; and withdrawing the devolatilized polymer from the chamber. Polymers mentioned are those derived from styrene, b -methyl styrene, vinyl toluene, mono- and dichlorostyrene and ar-dimethyl styrene, their copolymers and graft copolymers, and in an example, polystyrene containing styrene and less than 1% polymers with less than a M.W. of 300, is devolatilized in a chamber at between 100 and 150 mm. absolute and with a condensing surface at between 37 DEG and 52 DEG C. Suitable apparatus is described and claimed in Specification 880,907.

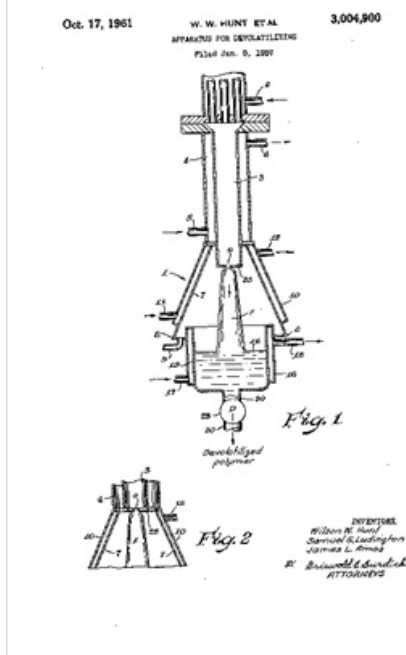
Classifications:

International (IPC 8-9): B01D1/06 B01D3/06 B01D5/00 B29B13/06 C08F6/00 C08F6/28 (Advanced/Invention); B01D1/00 B01D3/00 B01D5/00 B29B13/00 C08F6/00 (Core/Invention)

CPC: Y10S159/10 C08F6/28 B01D1/065 B01D3/06 B01D5/0066 B29B13/06 C08F6/00

European: B01D1/06B B01D3/06 B01D5/00H10D B29B13/06 C08F6/00 C08F6/28

US: 159/10 159/13.2 159/2.1 159/27.3 159/DIG.10 202/191 202/205

**Family:**

Publication number	Publication date	Application number	Application date
AU240899 A0	19990916	AU1999PQ02408	19990824
AU240899 A1	00000000		00000000
BE582999 A	00000000		00000000
FR1245000 A	19601104	FR19590805945	19590924
GB880906 A	19611025	GB19570034858	19571108
GB880907 A	19611025	GB19590034563	19571108
GB888716 A	19620207	GB19590031908	19590918
NL108067 C	00000000		00000000
NL243816 A	00000000		00000000
US2914120 A	19591124	US19570633315	19570109
US3004899 A	19611017	US19570633316	19570109
US3004900 A	19611017	US19570633317	19570109

Priority:

US19570633315 19570109	US19570633316 19570109	US19570633317 19570109
GB19590031908 19590918	FR19590805945 19590924	AU1999PQ02408 19990824

Probable Assignee: DOW CHEMICAL CO**Assignee(s):** (std): DOW CHEMICAL CO ; RAFFAELE M ; RAFFAELE P**Assignee(s):** THE DOW CHEMICAL COMPANY**Inventor(s):** (std): AMOS JAMES L ; AMOS JAMES LAWRENCE ; HUNT WILSON W ; HUNT WILSON WESTLE ; LUDINGTON SAMUEL G**12) Family number: 46560704 (US2011269898A)**

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Title: METHOD FOR SYNTHESIZING IMPROVED BINDERS HAVING A DEFINED GRAIN SIZE DISTRIBUTION

Abstract: The invention relates to a method for producing polymers for paint applications by polymerizing esters of acrylic acid or of methacrylic acid or vinyl aromatic compounds or other radically polymerizable vinyl compounds or monomer mixtures that consist predominantly of such monomers by means of a continuous polymerization method. The invention relates in particular to a solvent-free, continuous method of producing polymers, whereby it is possible to produce binders for paint applications having an adjustable granule size. The polymer granulates produced according to the invention are characterized by superior processing properties without fine fractions.

Classifications:

International (IPC 8-9): C08F C08F120/10 C08F2/01 C08F2/02 C08F20/10 C08F220/14 C08F220/18 C08F6/00 C08J3/12 C08L33/08 C08L33/10 C09D C09D11/02 C09D11/10 C09D133/00 C09D133/04 C09D133/06 C09D133/10 C09J C09J133/00 C09J133/04 C09J133/06 C09J133/10 C09K C09K3/10 (Advanced/Invention); C08F220/14 C08L33/08 C08L33/10 (Advanced/Non-invention); C08F2/01 C08F2/02 C08F20/00 C08F6/00 C08J3/12 (Core/Invention); C08F C09D C09J C09K (Subclass/Invention)

International (IPC 1-7): C08F2/01 C08F2/02 C08F20/10 C08F6/00 C08J3/12

CPC: C08F6/005 C08F2/02 C08F220/14 C08F220/18 C09D133/06 C09J133/06 C09J2201/61

European: C08F2/02 C08F220/18 C08F6/00B4 C09D133/06 C09J133/06 M08F220/14 M09J201/610

US: 524/560 526/329.7 526/329.700S

Family:

Publication number	Publication date	Application number	Application date
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Priority:

DE200910000814 20090212 EP20100701137 20100121 WO2010EP50655 20100121

Probable Assignee: EVONIK ROEHM GMBH

Assignee(s): (std): BALK SVEN ; BORGMANN CORNELIA ; EVONIK ROEHM GMBH ; MAUS STEFANIE ; SCHWIND HELMUT ; WIESLER UWE MARTIN ; SCHMIED THOMAS

Inventor(s): (std): WIESLER UWE MARTIN ; SCHMIED THOMAS ; BORGMANN CORNELIA ; SCHWIND HELMUT ; MAUS STEFANIE ; BALK SVEN ; UWE MARTIN WIESLER ; CORNELIA BORGMANN ; SVEN BALK ; THOMAS SCHMIED ; STEFANIE MAUS ; HELMUT SCHWIND ; UWE MARTIN WIESLER U

Inventor(s): BORGMANN CORNELIA CHATHAM ; STEFANIE MULLER

Agent(s): MARKS AND CLERK; CLT PATENT AND TRADEMARK HK LTD

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