

Search history

Search APPARATUS FOR SIMULTANEOUS GRINDING AND FROTH FLOTATION (Results 1)

1:

Search [SP]: 1. an apparatus for simultaneous grinding and froth flotation of at least one crude mineral and/or pigment, comprising a) a vessel (1) suitable for containing grinding media (2), a flotation gas, a collector agent and at least one crude mineral and/or pigment b) an agitation unit (3) rotatably mounted in vessel (1) c) drive means (4) connected to agitation unit (3) for agitating the grinding media (2) and the at least one crude mineral and/or pigment to grind the at least one crude mineral and/or pigment into at least one ground mineral and/or pigment d) a charge system (5) connected to vessel (1) comprising i. a crude mineral and/or pigment feed (5a), ii. a collector agent feed (5b), and iii. a flotation gas inlet (5c) e) a discharge system (6) connected to vessel (1) comprising i. a sieve (6a) suitable for separating the froth from the ground mineral and/or pigment, ii. a product collecting zone (6b) suitable for collecting the ground mineral and/or pigment, iii. a froth collecting zone (6c) and iv. a froth redirecting zone (6d). 2. the apparatus according to claim 1, characterized in that the froth collecting zone (6c) comprises spraying nozzles (6c1) and/or the discharge system (6) comprises a discharge control valve (6e) or a bypass with overflow (6f) and/or the product collecting zone (6b) is ring-shaped and/or the froth collecting zone (6c) is ring-shaped and/or the froth redirecting zone (6d) is ring-shaped. 3. the apparatus according to claim 1, characterized in that the mineral and/or pigment feed (5a) is connected to the bottom (7) of vessel (1), preferably to the centre (7a) of the bottom (7) or to the side (7b) of the bottom (7), more preferably tangential, most preferably the charge system (5) is connected to the bottom (7) of vessel (1) and/or the crude mineral and/or pigment feed (5a), the collector agent feed (5b) and the flotation gas inlet (5c) of the charge system (5) are connected to each other such that the flotation gas, preferably air, and the collector agent are fed together with the at least one crude mineral and/or pigment in vessel (1). 4. the apparatus according to claim 1, characterized in that the at least one crude mineral and/or pigment has/have a weight median particle diameter d₅₀ in the range from 20 to 500 µm and the grinding media (2) have a bulk density in the range from 1.5 to 6.0 kg/dm³, preferably in the range from 2.0 to 5.0 kg/dm³ and more preferably in the range from 2.2 to 4.0 kg/dm³ and/or the grinding media (2) have a weight median particle diameter d₅₀ in the range from 0.2 to 5.0 mm, preferably in the range from 1.0 to 4.5 mm and more preferably in the range from 2.4 to 4.0 mm or the apparatus is for grinding and froth flotation of at least one crude mineral and/or pigment having a weight median particle diameter d₅₀ in the range from 0.5 to 20 µm and the grinding media (2) have a bulk density in the range from 1.5 to 6.0 kg/dm³, preferably in the range from 2.0 to 4.5 kg/dm³ and more preferably in the range from 2.5 to 3 kg/dm³ and/or the grinding media (2) have a weight median particle diameter d₅₀ in the range from 0.2 to 5 mm, preferably in the range from 0.3 to 4.0 mm and more preferably in the range from 0.4 to 3.0 mm. 5. a process carried out in an apparatus according to claim 1 for manufacturing at least one ground mineral and/or pigment comprising the steps i. providing at least one crude mineral and/or pigment, grinding media (2) and at least one collector agent in vessel (1) ii. mixing the at least one crude mineral and/or pigment, the grinding media (2) and the at least one collector agent as provided in step i. with water to form an aqueous suspension iii. passing a flotation gas through flotation gas inlet (5c) into the aqueous suspension formed in step ii. and agitating the obtained aqueous suspension by using agitation unit (3) to transform the at least one crude mineral and/or pigment into at least one ground mineral and/or pigment and obtaining thereby a ground mineral and/or pigment bearing phase and a froth. recovering the at least one ground mineral and/or pigment by removing the ground mineral and/or pigment bearing phase from the froth obtained in step iii. 6. the process according to claim 5, characterized in that the process involves a direct or an indirect flotation step leading to the formation of a froth containing the floated phase and a slurry bearing phase with the remaining ground mineral and/or pigment. 7. the process according to claim 5, characterized in that at least one dispersing agent is added before or during step iii. and/or the at least one crude mineral and/or pigment comprises at least one dispersing agent. 8. the process according to claims 5, characterized in that the at least one dispersing agent is selected from the group consisting of sodium, potassium, calcium, magnesium, lithium, strontium, primary amine, secondary amine, tertiary amine and/or ammonium salts, whereby the amine salts are linear or cyclic, of at least partly neutralized homopolymers or copolymers of (meth)acrylic acid, maleic acid, fumaric acid, itaconic acid and derivatives of these acids, preferably esters or amides such as methylmethacrylate, methylacrylate, acrylamide, sodium hydrogen phosphate or polyphosphates such as alkaliphosphates, carboxymethylcellulose, steric dispersants, comb polymers and/or mixtures thereof, preferably sodium polyacrylate having a molecular weight mw of from 4 000 to 10 000 g/mol, preferably from 4 000 to 8 000 g/mol and most preferably of about 6 000 g/mol and/or the at least one collector agent is selected from the group consisting of surface active and hydrophobic tensides, preferably xanthate or thio phosphates, oleic acids, alkyl sulphates, polyalkylenimines, primary amines, tertiary amines, quaternary amines, fatty amines, esterquats, polyesterquats, imidazolines or quaternary imidazolium compounds, preferably quaternary imidazolium methosulphates and/or mixtures thereof and/or the content of the at least one dispersing agent is in the range from 0.1 to 1.0 wt.-% percent based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension, preferably from 0.2 to 0.6 wt.-% percent based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension and more preferably in the range from 0.3 to 0.5 wt.-% percent based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension and/or the content of the at least one collector agent is in the range from 0.001 to 5.0 wt.-% percent based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii., preferably from 0.05 to 0.8 wt.-% percent based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii. and most preferably in the range from 0.02 to 0.1 wt.-% percent, based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii. preferably the at least one dispersing agent is negatively charged and/or the at least one collector agent is non-ionic. 9. the process according to claim 5, characterized in that the mill diameter is in the range from 200 to 750 mm and the agitation unit is adjusted to a shaft speed of 150 to 400 rpm or the mill diameter is in the range from 751 to 1 250 mm and the agitation unit is adjusted to a shaft speed of 125 to 350 rpm or the mill diameter is in the range from 1 251 to 1 750 mm and the agitation unit is adjusted to a shaft speed of 100 to 300 rpm. 10. the process according to claim 5, characterized in that the solid content of the aqueous suspension is between 5.0 and 80.0 wt.-% percent based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii., preferably between 10.0 and 75.0 wt.-% percent, based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii., more preferably between 20.0 and 70.0 wt.-% percent, based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii. and most preferably between 30.0 and 55.0 wt.-% percent, based on the total weight of the at least one crude mineral and/or pigment in the aqueous suspension as provided in step ii. 11. the process according to claim 5, characterized in that the at least one crude mineral and/or pigment provided in step i. is a crude white pigment containing material, wherein the white pigment is preferably selected from the group consisting of calcium carbonate-comprising materials, barite, aluminium oxide, titanium oxide and mixtures thereof, and is most preferably natural calcium carbonate, preferably the content of the white pigment in the crude white pigment contains (Results 19)

Search 1 and pd<20141128 (Results 0)

3:

Search 2 and pd<20141128 (Results 17)

4:

Search 4 and sieve (Results 3)

5:

1) Family number: 18571186 (DE356815A)

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Title: EINRICHTUNG ZUR AUFBEREITUNG VON ERZEN MITTELS DES SCHAUMSCHWIMMVERFAHRENS DEVICE FOR TREATMENT OF ORES USING THE FOAM FLOAT PROCEDURE (Machine translation)

Abstract: Source: DE356815A [DE] (Claim 1) 1. PATENTANSPRUCH: Einrichtung zur Aufbereitung von Erzen mittels des Schaumswimmer- Verfahrens, welche aus einem mit Mitteln zum Vermischen der Trübe und Luft im Unterteil versehenen Behälter besteht, da durch gekennzeichnet, dass der Oberteil des Behälters ganz oder teilweise als Sieb ausgebildet ist, durch das die Berge aus treten, während die Abführung des Schäumens in an sich bekannter Weise am oberen

Behaelterrund erfolgt.

Machine translation: (Claim 1) 1.PATENTANSPRUCH: means for processing of ores by means of the Schaumschwimmver-
procedure, which consists of a means for mixing the slurry and air in the lower part versiehenen container, as characterized
by that the upper part of the container wholly or partially as a sieve, pass through the mountains from the, during the
transfer measure of the actor is in a known manner on the upper Ren Behaelterrund.

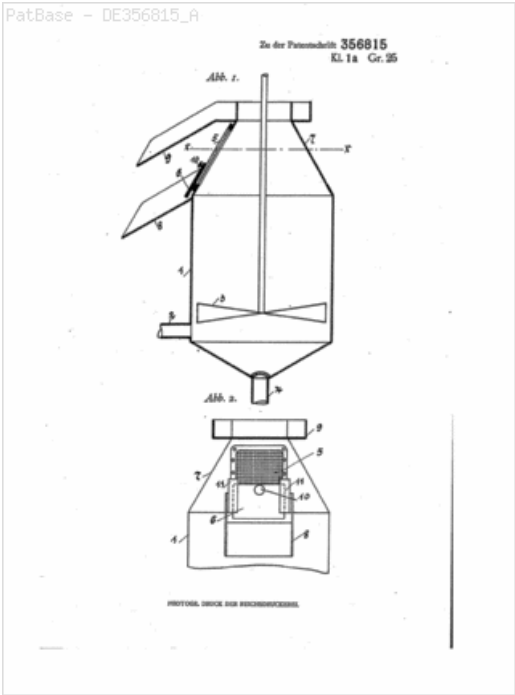
Classifications:

International (IPC 8-9): B03D1/16 (Advanced/Invention);
B03D1/14 (Core/Invention)

International (IPC 1-7): B03D1/16 D21B1/32

CPC: B03D1/028 B03D1/16 B03D1/1475

European: B03D1/16



Family:

Publication number	Publication date	Application number	Application date
DE356815 A	19220729	DE1919E023723D	19190206

Priority:

DE1919E023723 19190206

Probable Assignee: ELEKTRO OSMOSE GRAF SCHWERIN GES AG

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2) Family number: 56260531 (US2015240056A)

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Title: PROCESS OF CONTROLLED CHEMICAL REACTION OF A SOLID FILLER MATERIAL SURFACE AND ADDITIVES TO PRODUCE A SURFACE TREATED FILLER MATERIAL PRODUCT

Abstract: The present invention relates to a process for preparing a surface treated filler material product with succinic anhydride(s), a surface treated filler material product, a polymer composition, a fiber and/or filament and/or film and/or thread comprising the surface treated filler material product and/or the polymer composition, an article comprising the surface treated filler material product and/or the polymer composition and/or the fiber and/or filament and/or film and/or thread as well as the use of a mono-substituted succinic anhydride for decreasing the hydrophilicity of a calcium carbonate-containing filler material surface and the use of a surface-treated filler material product for initiating the crosslinking reaction in epoxide resins.

Classifications:

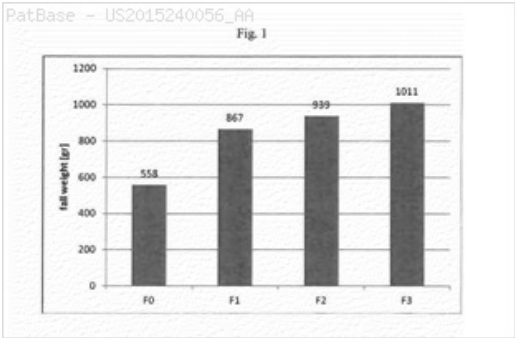
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C08J3/22 C08K3/26 C08K9/04 C08L101/00 C09C C09C1/02
C09C3/08 D01F1/02 D01F1/10 D04H3/007

D06M11/76 (Advanced/Invention);

C09C1/00 C09C1/02 (Core/Invention)

CPC: C01P2004/61 C01P2004/62 C01P2006/12 C08K9/04
D04H3/007 D01F1/02 C07D307/60 D10B2505/04 D10B2501/00
D10B2509/00 D10B2321/022 C09C1/021 Y10T442/60

US: 106/465 427/214 427/221 442/327 523/200 524/425 549/233



Family:

Publication number	Publication date	Application number	Application date
AR093016 AA	20150513	AR2013P103734	20131015
AU2013331867 AA	20140424	AU20130331867	20131010
AU2013331867 BB	20150903	AU20130331867	20131010
BR112015008494 A2	20170704	BR20151108494	20131010
CA2886812 AA	20150330	CA20132886812	20131010
CA2886812 C	20170815	CA20132886812	20131010
CN104736646 A	20150624	CN201380054230	20131010

CN104736646 B	20170315	CN201380054230	20131010
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EP2722368 B1	20160713	EP20120188739	20121016
EP2909275 A1	20150826	EP20130774664	20131010
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GC6052 A	20170814	GC2013P025496	20131002
HR20161294 T1	20161118	HR20160001294	20161007
HU031169 T2	20170628	HU20120188739T	20121016
ID201603728 A	20160603	ID2015P0002208	20131010
IN00814MN2015 A	20160527	IN2015MN00814	20150410
IN302304 B	20181026	IN2015MN00814	20150410
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KR101725698 B1	20170410	KR20157011706	20131010
KR20150068424 A	20150619	KR20157011706	20131010
MX2015004204 A1	20150916	MX20150004204	20131010
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PL2722368 T3	20170831	PL20120188739T	20121016
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SG11201502541U A1	20150429	SG20151102541	20131010
SI2722368 T1	20161028	SI20120030709	20121016
TH162548 A	20170518	TH20151002025	20131010
TR201613928 T4	20161021	TR20160013928T	20121016
TW201434999 A	20140916	TW20130135610	20131002
TWI510566 B	20151201	TW20130135610	20131002
US2015240056 AA	20150827	US20130431345	20131010
WO14060286 A1	20140424	WO2013EP71185	20131010
ZA201503395 A	20160831	ZA20150003395	20131010

Priority:

EP20120188739 20121016 US20120717135P 20121023 EP20130774664 20131010
US20130431345 20131010 JP20150537199T 20131010 WO2013EP71185 20131010
JP20170112685 20170607

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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

3) Family number: 57259862 (US2016115302A)

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Title: NEW SURFACE TREATMENT OF WHITE MINERAL MATERIALS FOR APPLICATION IN PLASTICS

Abstract: The present invention relates to a polymer composition comprising at least one polymeric resin and from 0.1 to 95 wt.- percent of at least one surface reactive white mineral material, a process for preparing a surface reactive white mineral material, a surface reactive white mineral material obtainable by the process, a fibre and/or filament and/or film and/or thread and/or breathable film comprising the polymer composition and/or the surface reactive white mineral material, an article comprising the polymer composition and/or the surface reactive white mineral material and/or the fibre and/or filament and/or film and/or thread and/or breathable film as well as the use of a phosphoric acid ester blend for decreasing the hydrophilicity and/or moisture pick up susceptibility of the surface reactive white mineral material-containing particle surface.

Classifications:

International (IPC 8-9): C08J5/18 C08K3/00 C08K3/26 C08K5/49 C08K5/521 C08K9/02 C08K9/04 C08L101/00 C09C1/00 C09C1/02 C09C3/06 C09C3/08 (Advanced/Invention); C08K5/00 C08K5/49 (Core/Invention)

CPC: C08J5/18 C08K3/26 C08K5/521 C08L101/00 C08K9/04 C09C3/08 C08J2323/06 C09C1/00 C08K3/00 C08K5/49

US: 106/503 427/212 442/327 524/127

PatBase - US2016115302_AA

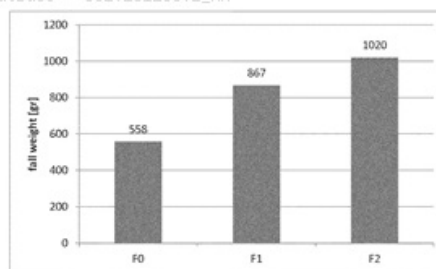


Fig. 1

Family:

Publication number	Publication date	Application number	Application date
BR112015020123 A2	20170718	BR20151120123	20140217
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EP2770017 A1	20140827	EP20130156349	20130222
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ES2550679 T3	20151111	ES20130156349T	20130222
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TW201443118 A	20141116	TW20140104658	20140213
TWI510533 B	20151201	TW20140104658	20140213
US2016115302 AA	20160428	US20140763663	20140217
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WO14128087 A1	20140828	WO2014EP53036	20140217

Priority:

EP20130156349 20130222 US20130771110P 20130301 EP20140705150 20140217
WO2014EP53036 20140217 US20140763663 20140217

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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