中国国家知识产权局
CHINA NATIONAL INTELLECTUAL PROPERTY ADMINISTRATION

PATENTED GREEN TECHNOLOGY

BRIPC Pilot Program
for the Promotion of Patented GreenTechnologies in 2024

Foreword

The Belt and Road Initiative, proposed by Chinese President Xi Jinping, draws inspiration from the ancient Silk Road, with connectivity as its core principle. It aims to strengthen policy communication, infrastructure connectivity, trade facilitation, financial integration, and people-to-people exchanges with other countries. The initiative seeks to inject new impetus into global economic growth, open up new avenues for global development, and create a new platform for international economic cooperation.

Intellectual property rights play a crucial role in promoting industrial upgrading, the green economy, and regional economic development. They are key drivers of the innovative economy, the brand economy, the cultural industry, and region-specific economic development. Currently, under the guidance of international intellectual property regulations, China's new inventions and creations, as well as core technologies with independent intellectual property rights are being implemented and taking root in various countries through the Belt and Road Initiative, bringing benefits to people around the world.

As humanity is an interdependent global community, it is imperative for all countries to expedite the transition to green, low-carbon practices and achieve harmonious coexistence between humanity and nature. Currently, China's economic development has entered a stage of high-quality growth, where green development serves as the foundation, and green industry is the inevitable path to achieving this high-quality development. China has consistently strengthened green technological innovation and promoted the industrialization of green technologies. Chinese green enterprises have expanded into overseas markets and established a presence in Belt and Road Initiative partner countries. These efforts have significantly contributed to the development of local green industries and economic growth, while also robustly supporting the implementation and advancement of the initiative's goals.

At the Third Belt and Road High-Level Conference on Intellectual Property, China proposed and recommended the BRIPC Pilot Program for the Promotion of Patented Green Technologies among BRI partner countries, aiming to establish a new cooperation mechanism for green patent technologies and release a list of widely beneficial patented technologies. Based on the principles of voluntariness and equality, the implementation, utilization, and promotion of patented green technologies in the BRI partner countries will be accelerated under this cooperation mechanism, by taking a market-based approach. This will enable China's high-quality green industries to benefit people worldwide more quickly, effectively, and extensively.

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List of Patented Green Technologies

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Patents

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No.	Patent	Title	Patentee	Contacts	Contact details	Index
1	PL2014854777T IDP00201603205 VN1201601633 ZA201602767	Method for removing sox from gas with complex alcohol-amine solution	Beijing Boyuan Hengsheng High Technology Co Ltd	Wang Lei	Tel: +86-10-62768127 E-mail: wanglei31@pku.edu.cn	15
2	IDP00201603919 PL2014869828T VN1201602274 ZA201604746 EA201691102 EP2014869828	Method for removing sox from gas using a polyol complex solution	Beijing Boyuan Hengsheng High Technology Co Ltd	Wang Lei	Tel: +86-10-62768127 E-mail: wanglei31@pku.edu.cn	15
3	IDP00201602327 PL2014843772T VN1201601066 ZA201602379 EP2014843772	Method for removing sox from gas using modified polyethylene glycol	Beijing Boyuan Hengsheng High Technology Co Ltd	Wang Lei	Tel: +86-10-62768127 E-mail: wanglei31@pku.edu.cn	16
4	PL2014868984T IDP00201603918 ZA201604749 VN1201602455 EA201691106 EP2014868984	Method for removing sox in gas by using ethylene glycol complex solution	Beijing Boyuan Hengsheng High Technology Co Ltd	Wang Lei	Tel: +86-10-62768127 E-mail: wanglei31@pku.edu.cn	16
5	PL2010740927T EA201171061 EP2010740927	Method for removing sox from gas using polyethylene glycol	Beijing Boyuan Hengsheng High Technology Co Ltd	Wang Lei	Tel: +86-10-62768127 E-mail: wanglei31@pku.edu.cn	17
6	IDP00201704096 ZA201704362 EA201791649	Method and apparatus for waste gas dedusting	Beijing Boyuan Hengsheng High Technology Co Ltd	Wei Xionghui	Tel: +86-10-62670910 E-mail: xhwei@pku.edu.cn	17
7	IDP00201705937 ZA201706321 EA201791791	Gas denitration process and apparatus	Beijing Boyuan Hengsheng High Technology Co Ltd	Wei Xionghui	Tel: +86-10-62670910 E-mail: xhwei@pku.edu.cn	18
8	RU2018102194	Renewable high efficient desulfurization process using a suspension bed	Beijing Huashi United Energy Technology Development Co. Ltd.	Ma Fang	Tel: +86 15910796848 E-mail: mafang@hxnk.com	18
9	RU2017144593	Process and device for hydrogenation of heavy oil using a suspension-bed	Beijing Huashi United Energy Technology Development Co. Ltd.	Ma Fang	Tel: +86 15910796848 E-mail: mafang@hxnk.com	19
10	RU2017140242	Biomass liquefaction process, and fuel oils and chemical materials prepared by the same	Beijing Huashi United Energy Technology Development Co. Ltd.	Ma Fang	Tel: +86 15910796848 E-mail: mafang@hxnk.com	19

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11	PL2017194880T	Battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	20
12	HUE18215095	Composite end plate and battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	20
13	EP2018187650	Battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	21
14	EP2018184045	Battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	21
15	HUE18192053	Battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	22
16	PL2019161114T	Battery heating system and control method therefor	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	22
17	EP2018198249	Electrode plate, electrochemical device and safety coating	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	23
18	HUE19886853 PL2019886853T	Current collecting member, secondary battery and fabrication method	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	23
19	EP2019903839	Secondary battery and battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	24
20	HUE057985T2 PL2020176107T	Output electrode plate and battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	24

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21	PL2019195611T	Battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	25
22	HUE19902042 PL20199020 42T	Battery box and battery module	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	25
23	HUE19205782	Battery pack and vehicle	Contemporary Amperex Technology Co., Ltd.	Chen Dezong	Tel: +86 13516627251 E-mail: ChenDZ@catl.com	26
24	EP2013886136	Oil return method for multiple air conditioning unit in heating	Gree Electric Appliances, Inc. of Zhuhai	Zeng Lingqian	Tel:+86-756-8587761 E-mail:patent4@cn.gree.com	26
25	TR201905512T	Air-conditioning system and method for controlling air-conditioning system	Gree Electric Appliances, Inc. of Zhuhai	Zeng Lingqian	Tel: +86-756-8587761 E-mail:patent4@cn.gree.com	27
26	EP2014905952	Power adaptor, terminal and charging system	Guangdong OPPO Mobile Telecommunications Corp., Ltd.	Hu Yuanxiang	Tel: +86 13794982356 E-mail: hyx@oppo.com	27
27	MYPI2016702725 IDP00201605213 EP2014881067	Battery charging apparatus and method	Guangdong OPPO Mobile Telecommunications Corp., Ltd.	Hu Yuanxiang	Tel: +86 13794982356 E-mail: hyx@oppo.com	28
28	MYPI2016702708 IDP00201605213 EP2015743946	Power adapter and terminal	Guangdong OPPO Mobile Telecommunications Corp., Ltd.	Hu Yuanxiang	Tel: +86 13794982356 E-mail: hyx@oppo.com	28
29	PL2014882487T	Method for controlling electronic device, control terminal, and system	Shenzhen TCL New Technology Co., Ltd.	Wang Min	Tel: +86 15602223820 E-mail: min21.wang@tcl.com	29
30	RU2020100113	Control strategy, device, and non-volatile computer storage medium	Great Wall Motor Co., Ltd.	Xiao Jingjie	Tel: +86 18531223028 E-mail: cyzlk02@gwm.cn	29

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31	MN1020180006335	High-temperature dust removal and filtering apparatus, high-temperature dust removal and filtering system, and continuous dust removal and filtering method	Henan Longcheng Coal Efficient Technology Application Co., Ltd.	Wang Xibin	Tel: +86 13937763907 E-mail: 13937763907@163.com	30
32	MN1020190006446	Coal pyrolysis process device	Henan Longcheng Coal Efficient Technology Application Co., Ltd.	Wang Xibin	Tel: +86 13937763907 E-mail: 13937763907@163.com	30
33	MN1020220006890	Rotary kiln sealing system and rotary kiln equipment	Henan Longcheng Coal Efficient Technology Application Co., Ltd.	Wang Xibin	Tel: +86 13937763907 E-mail: 13937763907@163.com	31
34	PL2015901619T	Process method using thermoplastic resin photoconverter to bond-package LED by rolling	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	31
35	PL2015901632T	Process method for refining photoconverter to bond-package LED and refinement equipment system	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	32
36	PL2015901630T	Equipment system using organic silicone resin photoconverter to bond-package LED by tandem rolling	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	32
37	PL2015901631T	Process method using organic silicone resin photoconverter to bond-package LED by tandem rolling	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	33
38	PL2015901622T	Equipment system using deformable organic silicone resin photoconverter to bond-package an LED	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	33
39	PL2015901621T	Process method using deformable organic silicone resin photoconverter to bond-package LED	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	34
40	PL2015901620T	Equipment system using thermoplastic resin photoconverter to bond-package LED by rolling	Jiangsu Chengruida Photoelectric Co Ltd	Sun Yu	Tel: +86-25-52706577 E-mail: bree_ip@bright2lcn.com	34

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41	PL2020179977T	Photovoltaic module, solar cell, and method for producing solar cell	Jingke Green Energy (Shanghai) Management Co., Ltd.	Li Xiang	Tel: +86 18221453805 E-mail: xiang.li7@jinkosolar.com	35
42	PL2020179975T	Photovoltaic module, solar cell, and method for producing solar cell	Jingke Green Energy (Shanghai) Management Co., Ltd.	Li Xiang	Tel: +86 18221453805 E-mail: xiang.li7@jinkosolar.com	35
43	BY20210178 RU2021116834	Method and device for calculating pressure of venturi tube	Weichai Power Co.,Ltd.	Wang Chunhui	Tel: +86 19157582513 E-mail: wangchunh@weichai.com	36
44	RU2012137778 SG201205590 PH12012501586 IDW00201203581 VN1201202443 MYPI2012003289 PL2011739354T EP2011739354	Wind power generating device and wind blade structure	Shandong Zhongtai New Energy Group Co., Ltd.	Liu Guoxin	Tel: +86 13287733348 E-mail: sdztxny@126.com	36
45	RU2014128651	Hydraulic power generation apparatus without dam	Shandong Zhongtai New Energy Group Co., Ltd.	Liu Guoxin	Tel: +86 13287733348 E-mail: sdztxny@126.com	37
46	RU2018145371	Large-scale ethylene glycol reactor	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	37
47	RU2018145377	Process and system for tail gas treatment	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	38
48	RU2018145394	Carbonylation catalyst and preparation thereof	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	38
49	RU2018145398	Catalyst for synthesizing oxalate by co coupling reaction, preparation and uses	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	39
50	RU2018145283	Catalyst for treatment of tail gas and preparation thereof	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	39

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51	RU2018145304	Catalyst for treatment of coal-based ethylene glycol tail gas and preparation thereof	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	40
52	RU2018145250	Hydrogenation catalyst and preparation and uses thereof	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	40
53	RU2018145227	Ultra high selective hydrogenation catalyst and preparation thereof	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	41
54	RU2018145243	Process and system for producing alkyl nitrites	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	41
55	RU2021104730 IDP00202103675	Nitric acid reduction conversion process	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	42
56	RU2022106245 IDP00202204507 TR202203519	Method for synthesizing acetic acid by low-pressure methanol carbonylation	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	42
57	RU2022106244	Process method for preparing acetic acid by carbonylating methanol by means of reactor thermally coupled with rectifying tower	Pujing Chemical Industry Co., Ltd	Ji Haixia	Tel: +86-21-34688788 E-mail: jihaixia@pjchem. com	43
58	TR201010211	Solid acid catalyst and method for preparing and using the same	Sennics Co., Ltd.	Zhang Pingting	Tel: +86-21-31769722 E-mail: zhangpingting@sinochem.com	43
59	EP2017892075	Torsion cable protection device, method for using torsion cable protection device, and wind power generator set	Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	44
60	ZA202210122	Control circuit of npc-type three-level converter, npc-type three-level converter and wind power generator set	Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	44

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61	EP2017785283	Wind turbine and operational control method and device therefor	Beijing Etechwin Electric Co. Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	45
62	EP2016829883	Yaw control method and device for wind generator set	Beijing Etechwin Electric Co. Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	45
63	EP2018882270	Method and device for detecting short-circuit capacity of grid-connected point of wind generating set	Beijing Etechwin Electric Co. Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	46
64	EP2018887200	Generator module and wind turbine having the same	Goldwind Science & Technology Co., Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	46
65	EP2018811125	Method and equipment for monitoring vortex-induced vibration for wind turbine generator set	Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	47
66	EP2019889545	Method, device and system for correcting installation errors of wind vane	Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	47
67	EP2019824790	Monitoring method and monitoring system for cracking state of blade, and blade	Jiangsu Goldwind Science & Technology Co. Ltd.	Guo Xia	Tel: +86 13031199268 E-mail: guoxia@goldwind.com	48
68	CL201700160	Lance	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	48
69	RU2021100316	One-step nickel smelting system and one-step nickel smelting method	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	49
70	IDP00201810079 RU2018143336	Side-submerged combustion smelting apparatus for spraying oxygen enriched air and pulverized coal	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	49

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71	PH12016000054 CU20160158	High-temperature material conveying tank	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	50
72	HUE14841022	Nickel hydroxide product and preparation method thereof	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	50
73	RU2015119158 VN1201500603 MN1020150005506 CL201500351	Copper matte bottom-blowing refining process and copper matte bottom-blowing refining furnace	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	51
74	IDP00201808713 RU2018138058	Lance for side-submerged combustion smelting metallurgical furnace and metallurgical furnace having lance	China ENFI Engineering Corp.	Fan Baohu	Tel: +86-10-63936626 E-mail: fanbh@enfi.com.cn	51
75	ZA202106689	Competition graph-based demand response method for electric vehicle charging station	Aostar Infomation Technologies Co. Ltd.	Tang Donglai	Tel: +86 13981852422 E-mail: tangdonglai@sohu.com	52
76	RU2016151311	Insulator cleaning robot	State Grid Intelligence Technology Co., Ltd.	Liu Piyu	Tel: +86 13869128981 E-mail: 1009921431@qq.com	52
77	RU2015147542	System for testing property of thunder and lightning traveling wave of power transmission line	State Grid Sichuan Electric Power Company Electric Power Research Institute	Qiao Yunchi	Tel: +86 15196639239 E-mail: qyc20220822@163.com	53
78	VN1201101713	Annular cooler	Zhongye Changtian International Engineering Co., Ltd.	He Luyao	Tel: +86 15874843387 E-mail: heluyao@cie-cn.com	53
79	VN1201600282	Method for recycling lead oxide-containing waste material	Chaowei Power Group Co., Ltd.	Wang Yan	Tel: +86 18158722256 E-mail: wangyan_fw@chilwee.com	54
80	VN1201600283	Method of direct lead oxide collection for lead acid batteries from waste lead powder	Chaowei Power Group Co., Ltd.	Wang Yan	Tel: +86 18158722256 E-mail: wangyan_fw@chilwee.com	54

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81	RU2020120932 ZA202003027	Automatic continuous hydrogen generation device	CHINT Group Corp.	Jin Fu	Tel: +86 13968720290 E-mail: jf@chint.com	55
82	PL2016908535T	Filter having back-flushing cleaning device	Sensen Group Co., Ltd.	Tang Xu	Tel: +86-580-8080508 E-mail: tx1036@126.com	55
83	TH1401005684	Catalyst for synthesizing ethylene amine and method for preparing ethylene amine	Dalian Institute of Chemical Physics Chinese Academy of Sci	Du Wei	Tel: +86-411-84379172 E-mail: duwei@dicp.ac.cn	56
84	ZA201800637 SA518390760 MN1020180006207 UZ201800050 IDP00201800729 EA201890301	Methyl acetate preparation method	Dalian Institute of Chemical Physics Chinese Academy of Sci	Du Wei	Tel: +86-411-84379172 E-mail: duwei@dicp.ac.cn	56
85	TH0601000334	Propylene polymer composition and oriented film made therefrom	China Petroleum & Chemical Corp.	Lv Jinglan	Tel: +86 18911625808 E-mail: lujl.bjhy@sinopec.com	57
86	TH0701001930	A process for the preparation of high performance polypropylene	China Petroleum & Chemical Corp.	Lv Jinglan	Tel: +86 18911625808 E-mail: lujl.bjhy@sinopec.com	57
87	SG201208009	Propylene random copolymer, method for its preparation, and compositions and articles containing the same	China Petroleum & Chemical Corp.	Lv Jinglan	Tel: +86 18911625808 E-mail: lujl.bjhy@sinopec.com	58
88	TH1201003683 ZA201206323 SG10201500468R	Propylene homopolymer having high melt strength and preparation method thereof	China Petroleum & Chemical Corp.	Lv Jinglan	Tel: +86 18911625808 E-mail: lujl.bjhy@sinopec.com	58
89	TH1201003683 ZA201206323 SG201205407	Preparation method for propylene homopolymer having high melt strength	China Petroleum & Chemical Corp.	Lv Jinglan	Tel: +86 18911625808 E-mail: lujl.bjhy@sinopec.com	59
90	IDW00201101735 KZ20111543 MYPI2011001671 SG201102713 VN1201101241	A ethylene cracking furnace	China Petroleum & Chemical Corp.	Lv Jinglan	Tel: +86 18911625808 E-mail: lujl.bjhy@sinopec.com	59

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91	KZ20151495	Associated copolymer and preparation method thereof, and drilling fluid	China Petroleum & Chemical Corp.	Yuan Changfu	Tel: +86 15804112765 E-mail: yuanchangfu.fshy@sinopec.com	60
92	KZ20180986 IDP00201810955 SG10201811718T	Wax Oil Hydrogenation Method and System	China Petroleum & Chemical Corp.	Yuan Changfu	Tel: +86 15804112765 E-mail: yuanchangfu.fshy@sinopec.com	60
93	SG11202100468T	Process, Reactor and System for Catalytic Cracking of Hydrocarbon Oils	China Petroleum & Chemical Corp.	Lei Bin	Tel: +86 17611411956 E-mail: leibin.ripp@sinopec.com	61
94	ZA202304166	Method for preparing ethylene propylene	China Petroleum & Chemical Corp.	Xuan Dong	Tel: +86 13501830423 E-mail: xuand.sshy@sinopec.com	61
95	IDP00201100338	Processes for synthesizing ethylbenzene from ethanol and benzene	China Petroleum & Chemical Corp.	Xuan Dong	Tel: +86 13501830423 E-mail: xuand.sshy@sinopec.com	62
96	KZ20160385	Separator for oil well produced fluid, and separation device comprising the same	China Petroleum & Chemical Corp.	Wang Dan	Tel: +86-10-56607535 E-mail: wangdan.syky@sinopec.com	62
97	KZ20180556	Separation device	China Petroleum & Chemical Corp.	Wang Dan	Tel: +86-10-56607535 E-mail: wangdan.syky@sinopec.com	63
98	RU2014121391	Well bore pressure model prediction system control method	PetroChina Co., Ltd.	Zhang Xiaolin	Tel: +86 13618032206 E-mail: zxl_jcjc@cnpc.com.cn	63
99	EA201501105	Method for preparing noble metal hydrogenation catalyst, noble metal hydrogenation catalyst and use thereof	PetroChina Co., Ltd.	Wang Gang	Tel: +86-459-6765108 E-mail: wangg459@petrochina.com.cn	64
100	SG11201404087V	High light received heavy oil catalytic cracking catalyst and preparation method therefor	PetroChina Co., Ltd.	Huang Xiaoliang	Tel: +86 13893116750 E-mail: huangxiaoliang@petrochina.com.cn	64
101	RU2014145197	Sidewall coring while drilling tool	PetroChina Co., Ltd.	Zhang Xiaolin	Tel: +86 13618032206 E-mail: zxl_jcjc@cnpc.com.cn	65
102	RS20221097	Winding type permanent magnet coupling transmission device	Jiangsu Magnet Valley Technologies Co., Ltd.	Zhu Xudong	Tel: +86 18118962528 E-mail: 3588005396@qq.com	65

Introduction of Green Patents

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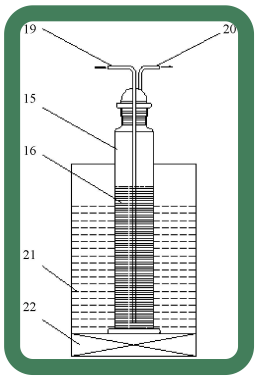
Green Patent 1

Title: Method for removing sox from gas with complex alcohol-amine solution

Patent: PL2014854777T
IDP00201603205
VN1201601633
ZA201602767

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



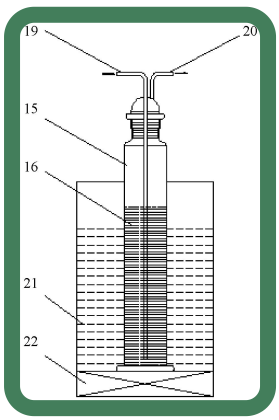
Provided is a method for removal of SOx from gas using a compound amine alcohol solution. Ethylene glycol and/or polyethylene glycol is/are mixed with a hydroxyl and/or carboxyl organic compound of a basic nitrogen-containing group to form a compound amine alcohol solution, which solution is caused to come into contact with a SOx-containing gas so as to absorb therefrom said SOx, wherein x = 2, and/or 3. The compound amine alcohol solution having absorbed the SOx is recovered by means of one or more of heating, vacuum, air-stripping, ultrasonic, microwave or radiation methods, releasing sulfur dioxide and sulfur trioxide as by-products and recycling the compound amine alcohol solution for reuse. The present method can be used for removal of SOx from flue gases, incinerator gases, coke oven gases, synthesis waste gases of dye plants, gaseous waste of chemical fiber plants, and from other industrial feed or exhaust gases containing SOx.

Green Patent 2

Title: Method for removing sox from gas using a polyol complex solution

Patent: IDP00201603919
PL2014869828T
VN1201602274
ZA201604746
EA201691102
EP2014869828

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



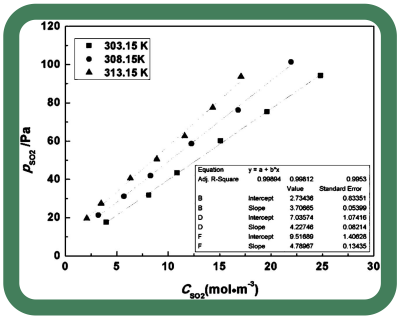
A method for removing SOx from gas using a polyol complex solution: mixing a polyol with an organic acid and/or organic acid salt to form a polyol complex solution; enabling the polyol complex solution to contact gas containing SOx, and absorbing SOx in the gas, x=2 and/or 3, and the polyol being an organic compound simultaneously comprising two or more hydroxyls in the same organic molecule in addition to ethanediol and polyethylene glycol.

Green Patent 3

Title: Method for removing sox from gas using modified polyethylene glycol

Patent: IDP00201602327
PL2014843772T
VN1201601066
ZA201602379
EP2014843772

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



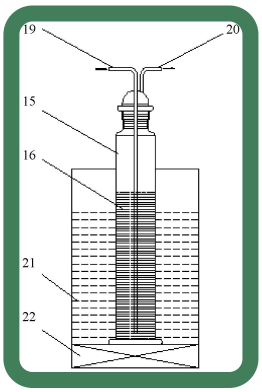
A method for removing SOx from a gas using a modified polyethylene glycol solution to absorb the SOx in the gas. The modified polyethylene glycol solution contacts the gas containing SOx and absorbs the SOx in the gas, x being 2 and/or 3. The modified polyethylene glycol is the product of etherification of the hydroxyl in ethylene glycol and/or polyethylene glycol molecules, and has the formula of: R1-(O-C2H4)n-O-R2, where n is a positive integer, and R1 and R2 can be the same or different and can be independently alkyl, alkenyl, alkynyl, acyl, or aryl groups.

Green Patent 4

Title: Method for removing sox in gas by using ethylene glycol complex solution

Patent: PL2014868984T
IDP00201603918
ZA201604749
VN1201602455
EA201691106
EP2014868984

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



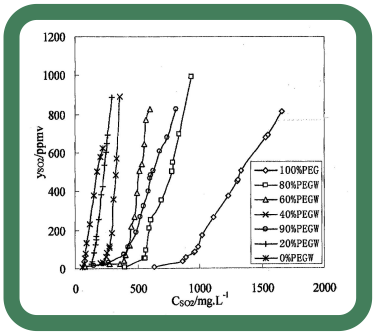
Disclosed is a method for removing SOx in a gas by using an ethylene glycol complex solution. Ethylene glycol and/or polyethylene glycol is mixed with an organic acid or organic acid salt that does not contain nitrogen atoms in molecules, to form the ethylene glycol complex solution, and the ethylene glycol complex solution is made to be in contact with a gas containing Sox, to absorb SOx in the gas, wherein x is equal to 2 and/or 3. The ethylene glycol complex solution in which SOx is absorbed is regenerated by using one or more of a heating method, a vacuum method, a gas stripping method, an ultrasonic method, a microwave method and a radiation method, byproducts of sulfur dioxide and sulfur trioxide are released, and the regenerated ethylene glycol complex solution is recycled. The method can be applied to desulfurization of flue gases, incineration gases, coke furnace gases, synthetic waste gases in a dyestuff plant, sewage disposal gases in a chemical fiber factory, and other industrial raw material gases or waste gases containing SOx.

Green Patent 5

Title: Method for removing sox from gas using polyethylene glycol

Patent: PL2010740927T
EA201171061
EP2010740927

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



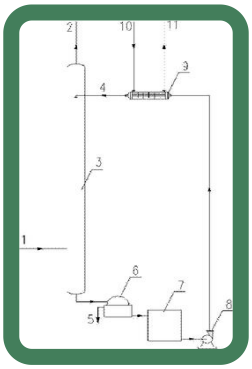
A method for removing SOX (x=2 and/or 3) from gas using a solution having polyethylene glycol as the main ingredient. First, SOX in the gas is absorbed by the solution of polyethylene glycol. Second, the solution of polyethylene glycol which has absorbed SOX is regenerated by one or more of the heating, vacuum, ultrasonic, microwave or radiation methods, thereby releasing the by-products of sulfur dioxide and sulfur trioxide. The regenerated solution of polyethylene glycol is recycled. When the water content of the regenerated solution of polyethylene glycol is high enough to affect the desulfurization, it needs to be removed. Removal methods include heating and rectification, absorption using a water absorbent, or a combination of these methods. The polyethylene glycol solution is recycled after dehydration.

Green Patent 6

Title: Method and apparatus for waste gas dedusting

Patent: IDP00201704096
ZA201704362
EA201791649

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



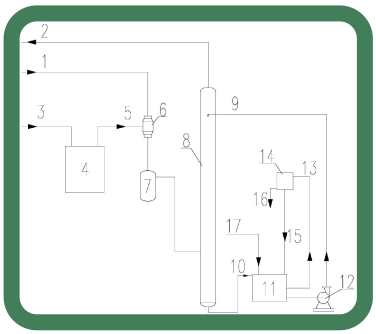
A method and device for waste gas dedusting and a dedusting agent used in the method. A dust-containing waste gas (1) and an organic dedusting agent (4) are introduced into a dedusting tower (3), respectively, and make contact with each other in the tower; at least part of the water vapor in the dust-containing waste gas (1) is condensed, and the organic dedusting agent (4) and the condensed water adsorb solid particles, acidic pollutants, organic pollutants and/or heavy metal compounds in the dust-containing waste gas; and the resulting purified gas (2) is emptied out or subjected to a subsequent process. The organic dedusting agent (4) comprises a non-toxic and high boiling point organic solvent composition, being two or more selected from cooking oil, silicone oil, modified silicone oil, liquid-state asphalt oil, tung tree seed oil, liquid-state paraffin wax oil, mineral oil, palm oil and waste cooking oil.

Green Patent 7

Title: Gas denitration process and apparatus

Patent: IDP00201705937
ZA201706321
EA201791791

Patentee: Beijing Boyuan Hengsheng High Technology Co Ltd



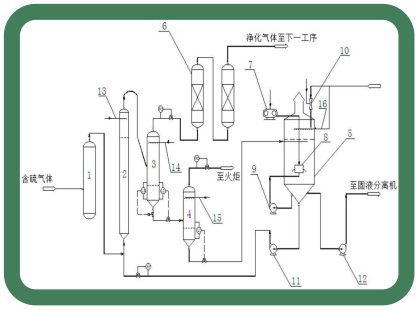
A process and an apparatus for gas denitration, involving first the use of an oxidizing agent to oxidize NO in a gas to NO2, then using a denitration agent to absorb the NO2 in the gas, thus achieving the purpose of denitration.

Green Patent 8

Title: Renewable high efficient desulfurization process using a suspension bed

Patent: RU2018102194

Patentee: Beijing Huashi United Energy Technology Development Co. Ltd.



Provided is a renewable high efficient desulfurization process using a suspension bed, comprising mixing the desulfurization slurry with a hydrogen sulfide containing gas to obtain a first mixture, and passing the first mixture into a suspension bed reactor from bottom to top, with controlling the first mixture to have a dwell time of 5-60 minutes in the suspension bed reactor to allow they contact and react sufficiently with each other; and subjecting a second mixture obtained from the reaction to gas liquid separation to produce a rich solution and a purified gas, feeding the purified gas into a fixed bed reactor for carrying out a second desulfurization to obtain a second purified gas, subjecting the resulting rich solution to flash evaporation and then reacting with an oxygen-containing gas for carrying out regeneration. The process may reduce the sulfur content in the hydrogen sulfide containing gas from 2.4-140 g/Nm3 to 50 ppm or less by using a suspension bed, and further reduce the sulfur content to less than 10 ppm in conjunction with a fixed bed. The invention achieves high efficient desulfurization by combining the suspension bed with the fixed bed connected in series. The present invention has high regeneration efficiency, and the barren solution may be recycled for being used as the desulfurization slurry, without generating secondary pollution, which is very suitable for industrial promotion.

Green Patent 9

Title: Process and device for hydrogenation of heavy oil using a suspension-bed

Patent: RU2017144593

Patentee: Beijing Huashi United Energy Technology Development Co. Ltd.

A process and device for hydrogenation of heavy oil using a suspension-bed are provided. In the process, a part of a raw oil is mixed with a suspension-bed hydrocracking catalyst to form a first mixture, the first mixture is subjected to first and second shear in sequence so as to realize high dispersion and mixing of the catalyst and the raw oil to obtain a catalyst slurry; through pretreatment of the raw oil, the device can prevent the raw oil from coking in the hydrogenation process; through the adoption of a suspension-bed reactor with a liquid phase self-circulation function or a cold-wall function; and light and heavy components are separated from the suspension-bed hydrogenated product in advance and only medium component is subjected to fixed-bed hydrogenation, thereby greatly reducing the load of the fixed-bed hydrogenation, prolonging the service life of the fixed-bed catalyst, improving the yield and quality of gasoline and diesel, and being beneficial for energy conservation and emission reduction of the system.

Green Patent 10

Title: Biomass liquefaction process, and fuel oils and chemical materials prepared by the same

Patent: RU2017140242

Patentee: Beijing Huashi United Energy Technology Development Co. Ltd.

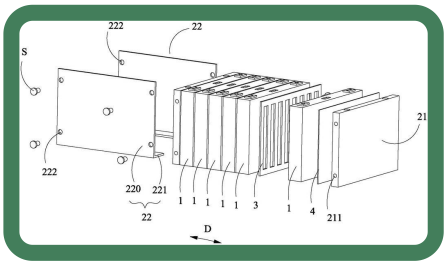
The present invention relates to the field of biological energy, in particular to a biomass liquefaction process and fuel oil and chemical raw materials prepared by the same. The biomass liquefaction process comprises the following steps: preparing a slurry comprising a first catalyst and a biomass; performing a first hydrogenation reaction by introducing hydrogen to the slurry to obtain a first stage hydrogenation product; performing a second hydrogenation reaction by adding a second catalyst and introducing hydrogen into the first stage hydrogenation product to obtain a second stage hydrogenation product; and subjecting the second stage hydrogenation product to separation operation to obtain a fuel oil and chemical raw material; wherein the first hydrogenation reaction is controlled to have a reaction pressure of 13-25 MPa and a reaction temperature of 200-350° C., and the second hydrogenation reaction is controlled to have a reaction pressure of 13-25 MPa and a reaction temperature of 380-480° C. The present invention provides a biomass liquefaction process with high reaction efficiency and high liquid yield without coke generation.

Green Patent 11

Title: Battery module

Patent: PL2017194880T

Patentee: Contemporary Amperex Technology Co., Ltd.



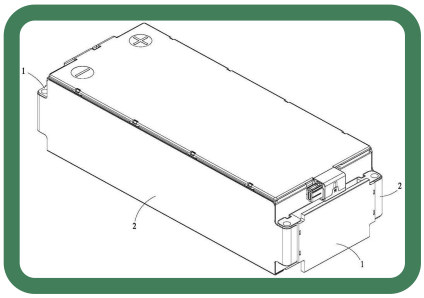
The present disclosure provides a battery module. The battery module comprises: a plurality of mono-batteries arranged along an arrangement direction; and a frame receiving and fixing the plurality of mono-batteries. The battery module further comprises a plurality of isolating plates, each isolating plate is interposed between two adjacent mono-batteries, each isolating plate is provided with a through hole penetrating along the arrangement direction. Each isolating plate is configured to be capable of self-foaming to make a volume of each isolating plate expanded when each isolating plate is heated and a temperature of each isolating plate is more than 200° C. When one mono-battery suffers thermal runaway, the through hole of each isolating plate can form air thermal resistance, thereby preventing heat generated by the runaway mono-battery from massively and quickly transferring to the large surfaces of the adjacent mono-batteries, so as to achieve the purpose of thermal isolation.

Green Patent 12

Title: Composite end plate and battery module

Patent: HUE18215095

Patentee: Contemporary Amperex Technology Co., Ltd.



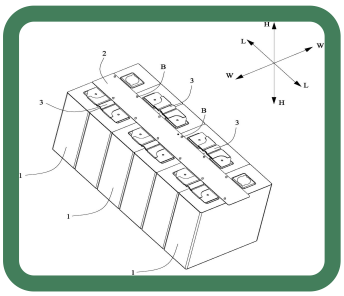
The present disclosure relates to a composite end plate and a battery module. The composite end plate comprises a first rigid plate having a first surface and a second surface opposite to each other in a thickness direction of the first rigid plate, and comprising a first end portion, a first intermediate portion and a second end portion continuously distributed in a length direction of the first rigid plate; and a second rigid plate comprising a first free end, a second intermediate portion and a second free end continuously distributed in the length direction, wherein the first rigid plate and the second rigid plate are made of different materials, the second intermediate portion is disposed opposite to the first surface, the first free end is connected to the first end portion, and the second free end is connected to the second end portion.

Green Patent 13

Title: Battery module

Patent: EP2018187650

Patentee: Contemporary Amperex Technology Co., Ltd.



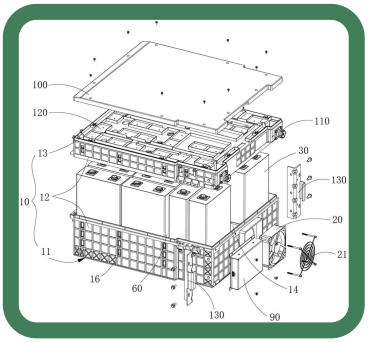
Provided in the present invention is a battery module. The battery module comprises: a plurality of batteries arranged side by side along a length direction, each battery including a top cover assembly, and the top cover assembly including a top cover sheet; and a FPC located in a height direction above the top cover sheets of all batteries. A fixing post is provided on the top cover sheet of at least one of the batteries, and the FPC is provided with a positioning hole at the position corresponding to the battery provided with the fixing post. The fixing post is provided with: a rod portion, which is received in the positioning hole of the FPC and has one end fixed to the top cover sheet; and a cover portion, which is connected to the other end of the rod portion, covers the positioning hole and is fixed to the FPC, thereby fixing the FPC to the corresponding battery. The FPC fixing method for the battery module is stable and effective, improves FPC fixing reliability, facilitates automatic production and reduces cost. Compared with the pasting method in the prior art, the FPC fixing method of the present invention has a wider application range, avoids situations unfavorable for production, such as wrinkles formed during manual pasting and the like, and facilitates the improvement of production efficiency.

Green Patent 14

Title: Battery module

Patent: EP2018184045

Patentee: Contemporary Amperex Technology Co., Ltd.



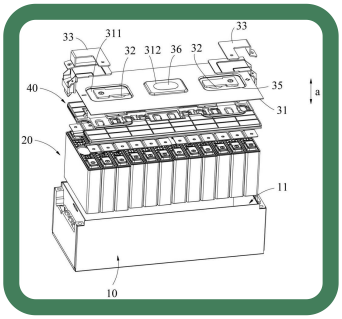
The present invention relates to a battery module. The battery module includes: a box (10) having a cavity (14) and having a bottom plate (11), a top plate (13) and a side plate (14) connecting the bottom plate and the top plate, wherein the side plate, the top plate and the bottom plate together form the cavity, and the side plate has ventilation holes (16) communicating with the cavity; first spacers (40) distributed on a surface of the bottom plate facing the cavity in order to form a plurality of first grids (41); a plurality of batteries (30) corresponding to the plurality of first grids, wherein airflow passages (60) are formed among the plurality of batteries; and a fan (20) on the side plate communicating with the cavity for discharging an airflow entering the cavity through the ventilation holes away from the cavity through the airflow passages.

Green Patent 15

Title: Battery module

Patent: HUE18192053

Patentee: Contemporary Amperex Technology Co., Ltd.



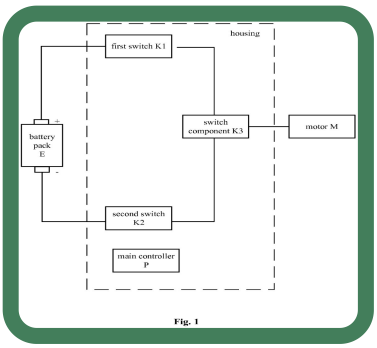
The disclosure relates to a battery module comprises a housing, a battery stack, a cover plate assembly, and a guiding component. The battery stack is disposed in a containing chamber of the housing. The cover plate assembly comprises a plate, a deformable plate and a module output, the plate is arranged to close the opening, the deformable plate is connected to the plate and is deformable in a thickness direction of the plate, the module output is connected to the plate and is disposed opposite to the deformable plate, the module output and the battery stack are electrically connected. The guiding component is disposed between the cover plate assembly and the battery stack, and comprises a guiding channel and an exhaust port, and the gas released after the first vent plate is opening flows to the deformable plate through the exhaust port and the guiding channel.

Green Patent 16

Title: Battery heating system and control method therefor

Patent: PL2019161114T

Patentee: Contemporary Amperex Technology Co., Ltd.



The disclosure provides a battery heating system and a control method thereof. The system includes a first switch (K1) connected to a positive electrode of the battery pack (E), a second switch (K2) connected to a negative electrode of the battery pack (E), a switch component (K3) connected between the first switch (K1) and the second switch (K2), a motor (M) connected to the switch component (K3), and a main controller (P); wherein: the first switch (K1), the second switch (K2), the switch component (K3) and the main controller (P) are integrated in a same housing; the main controller (P) is configured to determine, based on a state parameter of the battery pack (E), whether the battery pack (E) needs to be heated, and to send a battery heating request to a vehicle controller when it is determined that the battery pack (E) needs to be heated, so as to enable the vehicle controller to send a battery heating instruction to the main controller (P) according to the battery heating request in a case where it is determined that a vehicle is in a static state and the motor (M) is not operating; and the main controller (P) is configured to control, based on the battery heating instruction, the first switch (K1), the second switch (K2) and the switch component (K3) so as to heat the battery pack (E). Based on the embodiments of the disclosure, cost can be reduced and heating efficiency can be improved.

Green Patent 17

Title: Electrode plate, electrochemical device and safety coating

Patent: EP2018198249

Patentee: Contemporary Amperex Technology Co., Ltd.

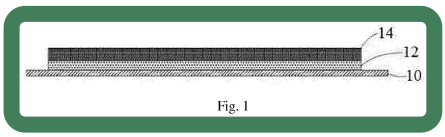


Fig. 1

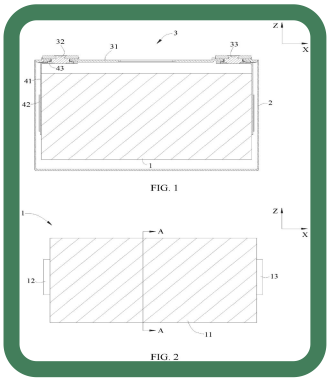
The present invention relates to an electrode plate, an electrochemical device and a safety coating. The electrode plate comprises a current collector, an electrode active material layer and a safety coating disposed between the current collector and the electrode active material layer, the safety coating layer comprising a fluorinated polyolefin and/or chlorinated polyolefin polymer matrix, a conductive material and an inorganic filler. The electrode plate can quickly open the circuit when the electrochemical device (for example, a capacitor, a primary battery, or a secondary battery) is in a high temperature condition or an internal short circuit occurs, and thus it may improve the high temperature safety performance of the electrochemical device.

Green Patent 18

Title: Current collecting member, secondary battery and fabrication method

Patent: HUE19886853
PL2019886853T

Patentee: Contemporary Amperex Technology Co., Ltd.



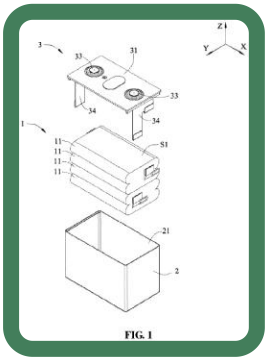
This application provides a current collecting member, a secondary battery, and a fabrication method. The secondary battery includes an electrode assembly, a housing, a top cover assembly and current collecting members. The electrode assembly is accommodated in the housing and includes a main body portion and a first tab, the first tab extending from an end of the main body portion along a transverse direction. The top cover assembly includes a top cover plate and a first electrode terminal that is disposed on the top cover plate, the top cover plate being connected to the housing. The current collecting member is connected to the first tab and the first electrode terminal. The current collecting member includes a substrate and a support plate, the substrate being provided at a side of the main body portion along a transverse direction, the support plate extending from an end part of the substrate in a longitudinal direction, and the first tab being connected to the support plate. One end of the main body portion protrudes from an end of the substrate along a direction leaving the top cover plate. The substrate is provided with a channel, where the channel places an end surface of the main body portion in communication with space on a side of the substrate facing away from the main body portion.

Green Patent 19

Title: Secondary battery and battery module

Patent: EP2019903839

Patentee: Contemporary Amperex Technology Co., Ltd.



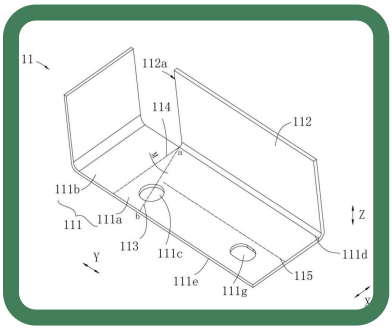
The present disclosure provides a secondary battery and a battery module. The secondary battery includes an electrode assembly, a case and a cap assembly. The case includes an accommodating cavity, and the electrode assembly is accommodated in the accommodating cavity. The electrode assembly includes electrode units, which are stacked in an axial direction of the accommodating cavity. The cap assembly includes a cap plate and an insulating member disposed on an inner side of the cap plate. The cap plate is connected to the case, and the insulating member is located on a side of the electrode assembly in the axial direction. The insulating member is provided with a first surface at a side close to the electrode assembly, and the first surface is a flat surface. A battery module includes second batteries, which are arranged sequentially and an arrangement direction of which is perpendicular to the axial direction.

Green Patent 20

Title: Output electrode plate and battery module

Patent: HUE057985T2
PL2020176107T

Patentee: Contemporary Amperex Technology Co., Ltd.



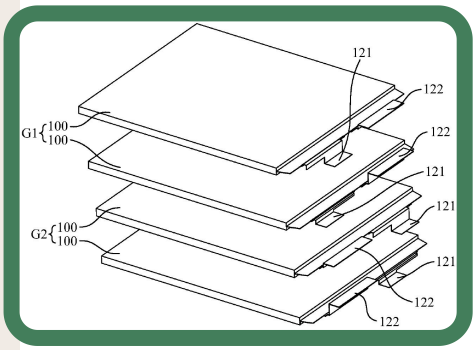
The disclosure relates to an output electrode plate and a battery module. The output electrode plate comprises a first metal plate. The first metal plate includes a first region and a second region in a first direction. The first region includes a first overcurrent portion and a second overcurrent portion in a second direction. The second region is connected to the first region. The first overcurrent portion is provided with a through hole which extends in a thickness direction thereof, and a projection of the through hole along the first direction does not exceed a projection of the second region along the first direction in the second direction, and the first metal plate is formed with a minimum overcurrent section at the through hole, such that the minimum overcurrent section is first fused when a current flowing through the first metal plate is greater than a preset current.

Green Patent 21

Title: Battery module

Patent: PL2019195611T

Patentee: Contemporary Amperex Technology Co., Ltd.



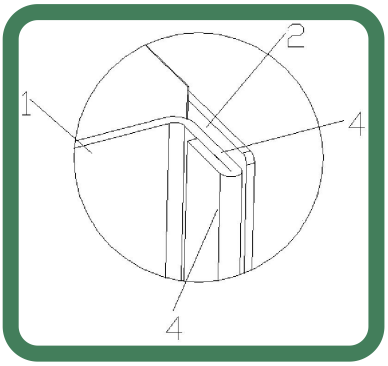
The present disclosure relates to a battery module comprising a first battery unit (G1) and a second battery unit (G2), each of which comprises N secondary batteries (100), wherein N is an integer greater than or equal to 2, and each of the secondary batteries comprises a first electrode lead (121) and a second electrode lead (122) having opposite polarities. The first electrode lead (121) has a melting point higher than that of the second electrode lead (122), and N first electrode leads (121) of the first battery unit (G1) and N second electrode leads (122) of the second battery unit (G2) are arranged to form a layered construction. The battery module has a plurality of connection points distributed in the layered construction, the number of the connection points is greater than or equal to N, and each of the connection points is configured to electrically connect one of the first electrode leads (121) of the first battery unit (G1) to at least one of the second electrode leads (122) of the second battery unit (G2). In the battery module according to the embodiments of the present disclosure, generation of voids due to excessive plastic flow in the welding can be avoided, and welding strength and connection reliability of the electrode leads can be improved.

Green Patent 22

Title: Battery box and battery module

Patent: HUE19902042
PL2019902042T

Patentee: Contemporary Amperex Technology Co., Ltd.



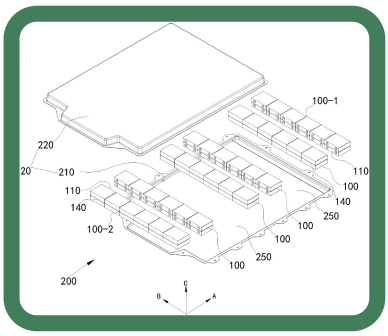
The present application provides a battery box and a battery module. The battery box comprises: a plurality of end plates; and a plurality of side plates. One end plate is provided between adjacent side plates. The end plates and the side plates enclose to form a cavity of the battery box. The end portions for the enclosure of the side plates and/or the end plates are bent for a plurality of times to form a plurality of welding members. Each wedging member is welded to the corresponding end plate or side plate.

Green Patent 23

Title: Battery pack and vehicle

Patent: HUE19205782

Patentee: Contemporary Amperex Technology Co., Ltd.



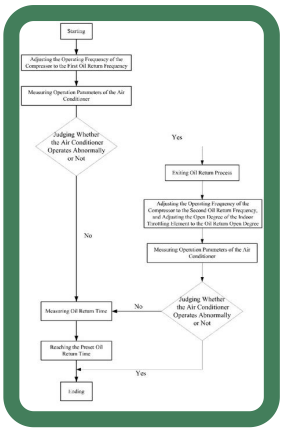
The present disclosure provides a battery pack including a housing and a plurality of battery modules disposed in the housing and arranged in a horizontal direction. The battery module includes a plurality of battery cells electrically connected to each other by a plurality of first bus bars, the battery cell includes a battery case and two electrode terminals. The battery pack of the present disclosure can effectively avoid short-circuiting the electrode terminals of the battery module caused by the collapse of the housing toward inside, thereby improving the safety of the battery pack.

Green Patent 24

Title: Oil return method for multiple air conditioning unit in heating

Patent: EP2013886136

Patentee: Gree Electric Appliances, Inc. of Zhuhai



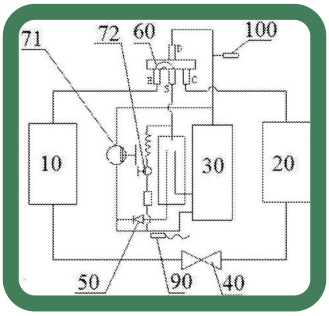
An oil return method for multi-split air conditioner in heating comprises steps of: S1, adjusting operation frequency f0 of a compressor to a first preset oil return frequency f1, and simultaneously, adjusting open degree S0 of each indoor throttling element to a preset oil return open degree; S2, measuring operation parameters of the air conditioner; S3, judging whether the air conditioner operates abnormally, jumping to Step S4 if so, or jumping to Step S5 if not; S4, exiting from oil return process, adjusting the operation frequency f0 of the compressor to a second preset oil return frequency f1, judging whether the air conditioner operates abnormally, existing from the oil return process if so, or jumping to Step S5 if not; S5, ending the oil return process when oil return time reaches the oil return time t2.

Green Patent 25

Title: Air-conditioning system and method for controlling air-conditioning system

Patent: TR201905512T

Patentee: Gree Electric Appliances, Inc. of Zhuhai



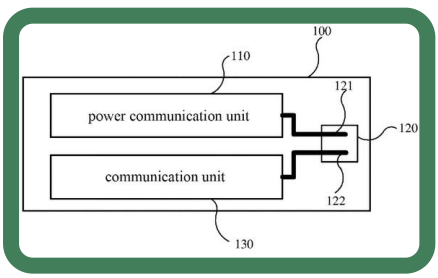
The disclosure discloses an air-conditioning system. The air-conditioning system includes a double-cylinder capacity-variable compressor , the double-cylinder capacity-variable compressor having a suction port of an upper cylinder, a suction port of a lower cylinder and an exhaust port. The air-conditioning system further includes a first solenoid valve, one end of the first solenoid valve is connected to the exhaust port of the double-cylinder capacity-variable compressor, and the other end of the first solenoid valve is connected to a one-way valve and the suction port of the lower cylinder of the double-cylinder capacity-variable compressor respectively. One end of the one-way valve is connected to the first solenoid valve, and the other end of the one-way valve is communicated with an inner chamber of a gas-liquid separator. The air-conditioning system further includes a second solenoid valve, the second solenoid valve being provided in a pipeline connecting the suction port of the lower cylinder of the double-cylinder capacity-variable compressor to an inlet of the gas-liquid separator. By means of a drain bypass pipeline provided with a solenoid valve and additionally provided between the suction port of the lower cylinder and the inlet of the gas-liquid separator, a high-pressure coolant at a suction side of the lower cylinder can be decompressed to the gas-liquid separator, thereby optimizing the stability of the system when being switched from a single-cylinder operation to a double-cylinder operation. The disclosure also discloses a method for controlling an air-conditioning system.

Green Patent 26

Title: Power adaptor, terminal and charging system

Patent: EP2014905952

Patentee: Guangdong OPPO Mobile Telecommunications Corp., Ltd.



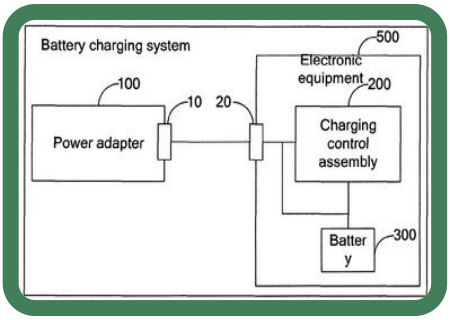
A power adaptor (100), comprising a power conversion unit (110) and a power supply line (121), wherein the power conversion unit (110) charges a terminal (200) by means of the power supply line (121). The power adaptor (100) further comprises a communication unit (130) and a data line (122). When the power adaptor (100) is connected to the terminal (200), the communication unit (130) communicates with the terminal (200) by means of the data line (122). The present power adaptor (100) charges the terminal (200) still using the power supply line (121). Furthermore, when the power adaptor (100) is connected to the terminal (200), the power adaptor (100) communicates with the terminal by means of the data line (122). Compared with the method of data and power time-division multiplexing the power supply line, the heating phenomenon of the power supply line caused by an excessively high load of a signal isolation unit can be effectively avoided.

Green Patent 27

Title: Battery charging apparatus and method

Patent: MYPI2016702725
IDP00201605213
EP2014881067

Patentee: Guangdong OPPO Mobile Telecommunications Corp., Ltd.



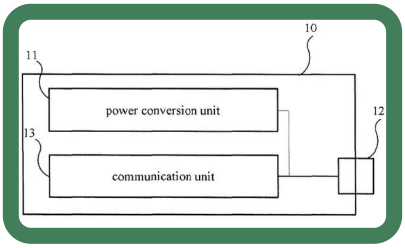
The disclosure belongs to the technical field of charging and provides a battery charging apparatus and charging method thereof. The disclosure adopts a battery charging apparatus that comprises a power adaptor and a charging control module. During charging the battery, the power adaptor first charges the battery in a regular charging mode; when the output current value of the power adaptor falls within the range of regular current at default time intervals, the power adaptor and the charging control module perform quick charge inquiry communication. After the charging control module sends a quick charge command to the power adaptor, the power adaptor will adjust the output voltage according to the battery voltage information fed back by the charging control module. If this output voltage meets the voltage requirement for quick charge predefined in the charging control module, the power adaptor will adjust the output current and output voltage according to the quick charge mode to charge the battery, and the charging control module simultaneously introduces direct current from the power adaptor to charge the battery, thus realizing quick charge for battery to reduce the charging time.

Green Patent 28

Title: Power adapter and terminal

Patent: MYPI2016702708
IDP00201605213
EP2015743946

Patentee: Guangdong OPPO Mobile Telecommunications Corp., Ltd.



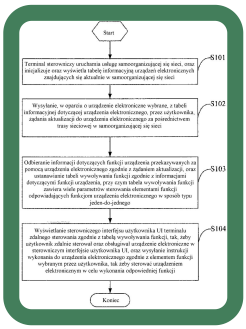
A power adapter and a terminal. The power adapter (10) comprises a power conversion unit (11) and a charging interface (12). The charging interface comprises a power cable. The power conversion unit forms a charging loop with a terminal by using the power cable, so as to charge a battery of the terminal. The power adapter also comprises a communications unit (13). The charging interface also comprises a data line. During connection between the power adapter and the terminal, the communications unit performs bidirectional communication with the terminal through the data line. By using the power adapter and the terminal, the phenomenon of heating of a power cable due to an excessively high load of a single isolation unit can be avoided.

Green Patent 29

Title: Method for controlling electronic device, control terminal, and system

Patent: PL2014882487T

Patentee: Shenzhen TCL New Technology Co., Ltd.



A method for controlling an electronic device. The method comprises: a control terminal starting a service of a self-organizing network, and initializing and displaying an information table of electronic devices currently on the self-organizing network; sending, based on an electronic device selected from the electronic device information table by a user, an update request to the electronic device through a network route of the self-organizing network; receiving device function information fed back by the electronic device according to the update request, and establishing a function calling table according to the device function information; and displaying a control UI of the remote control terminal according to the function calling table, so that the user remotely controls and operates the electronic device in the control UI, and sending an execution instruction to the electronic device according to a function item selected by the user, so as to control the electronic device to execute a corresponding function. A control terminal for controlling the electronic device and a system for controlling the electronic device. Unified management of various electronic devices is implemented, and an independent network support facility is not required, thereby providing convenience.

Green Patent 30

Title: Control strategy, device, and non-volatile computer storage medium

Patent: RU2020100113

Patentee: Great Wall Motor Co., Ltd.

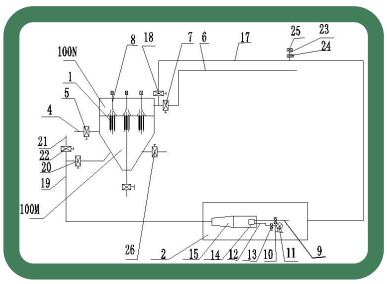
Disclosed are a control strategy for a continuously variable valve lift mechanism, a device, and a non-volatile computer storage medium. The control strategy comprises: after an engine is powered on, the continuously variable valve lift mechanism performs self-learning to determine the current position thereof; if the self-learning is successful, the continuously variable valve lift mechanism is in the maximum lift position, prepare to start the engine, and an adjustment mode is determined according to a starting temperature, wherein when starting at a normal temperature, the valve lift mechanism is adjusted from the maximum lift position to the minimum lift position, and when starting at a low temperature, the valve lift mechanism is adjusted from the maximum lift position to a position where the lift difference between two valves of the same cylinder is the largest; if the self-learning fails, entering a preliminary start-up mode; entering a CVVL control mode according to an operating condition of the engine; and powering the engine off.

Green Patent 31

Title: High-temperature dust removal and filtering apparatus, high-temperature dust removal and filtering system, and continuous dust removal and filtering method

Patent: MN1020180006335

Patentee: Henan Longcheng Coal Efficient Technology Application Co., Ltd.



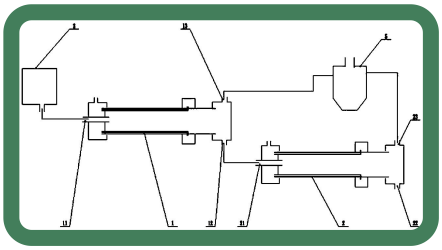
A high-temperature dust removal and filtering apparatus, comprising a set of high-temperature dust removal and filtering devices and a pre-heating apparatus (2) and regeneration apparatus (3) provided for the high-temperature dust removal and filtering devices; a high-temperature dust removal and filtering system, comprising two or more sets of high-temperature dust removal and filtering devices, and a pre-heating apparatus (2) and regeneration apparatus (3) provided for the high-temperature dust removal and filtering devices; a continuous dust removal and filtering method consisting of two or more sets of high-temperature dust removal and filtering devices and a pre-heating apparatus (2) and regeneration apparatus (3) provided for the high-temperature dust removal and filtering devices. Said method is implemented with a high-temperature dust removal and filtering system capable of switching. The high-temperature dust removal and filtering system always keeps one or more sets of high-temperature dust removal and filtering devices in a normal filtering state.

Green Patent 32

Title: Coal pyrolysis process device

Patent: MN1020190006446

Patentee: Henan Longcheng Coal Efficient Technology Application Co., Ltd.



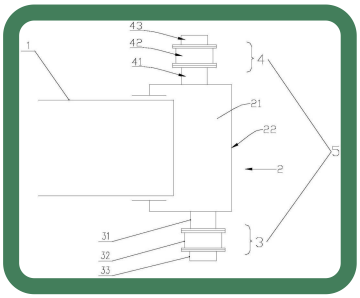
A coal pyrolysis process device, comprising a primary coal pyrolysis device (1) and a secondary coal pyrolysis device (2), wherein a discharge port (12) of the primary coal pyrolysis device (1) communicates with a feed port (21) of the secondary coal pyrolysis device (2). When coal is in the primary coal pyrolysis device (1), coal tar is extracted to the maximum extent, and then enters the secondary coal pyrolysis device (2). The coal continues to be heated and undergo pyrolysis at an upper portion of the secondary coal pyrolysis device (2), so that volatile matter of upgraded coal having undergone primary pyrolysis and upgrading are further reduced in the secondary coal pyrolysis device (2), and more gas is produced.

Green Patent 33

Title: Rotary kiln sealing system and rotary kiln equipment

Patent: MN1020220006890

Patentee: Henan Longcheng Coal Efficient Technology Application Co., Ltd.



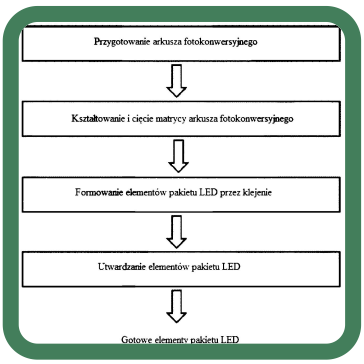
A rotary kiln sealing system and rotary kiln equipment are provided. The rotary kiln sealing system includes a first housing and a second housing. The second housing is annularly disposed outside the first housing in space, and a first gap is left between the first housing and the second housing. An elastic compensation joint is disposed outside the second housing.

Green Patent 34

Title: Process method using thermoplastic resin photoconverter to bond-package LED by rolling

Patent: PL2015901619T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



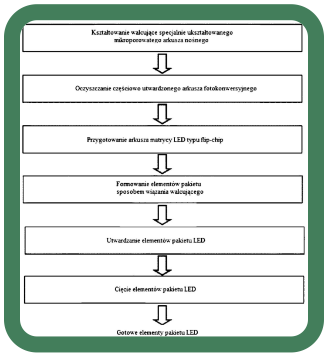
A process method using a thermoplastic resin photoconverter to bond-package an LED by rolling comprises at least the following continuous processes: preparing a photoconversion film; shaping and cutting a phohoconversion film array; performing roll-bonding and molding on an LED package component; and curing and molding the LED package component. The invention has the significant advantage of using a continuous rolling technique to bond-package an LED, can satisfy a requirement of using a thermoplastic resin photoconverter to bond-package an LED, and can increase production efficiency and yield of LED packages in industrialized batch production.

Green Patent 35

Title: Process method for refining photoconverter to bond-package LED and refinement equipment system

Patent: PL2015901632T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



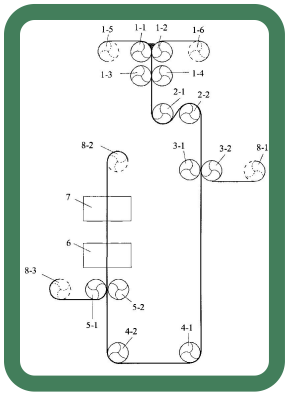
Provided are a process method for refining a photoconverter to bond-package an LED, and refinement equipment system. The process method comprises the following continuous processes: performing roll-shaping on a deformable microporous carrier film; refining and molding a semi-cured photoconversion film; preparing an LED flip-chip array film; performing roll-bonding and molding on an LED package component; curing and molding the LED package component; and cutting the LED package component. The invention has the significant advantage of refining a photoconverter, and can satisfy a requirement of a continuous technique using an organic silicone resin photoconverter to bond-package an LED, thereby increasing production efficiency and yield of LED packages in industrialized batch production.

Green Patent 36

Title: Equipment system using organic silicone resin photoconverter to bond-package LED by tandem rolling

Patent: PL2015901630T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



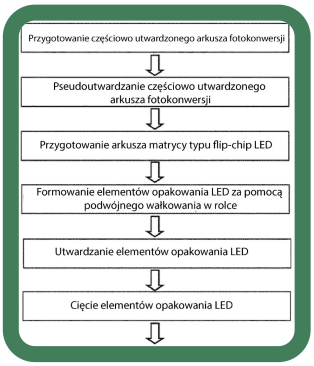
An equipment system using an organic silicone resin photoconverter to bond-package an LED by tandem rolling comprises: a protective film peeling device for peeling one of two protective films disposed at two sides of a photoconversion film; and a roll-bonding device using the photoconversion film having a protective film at one side thereof to package an LED flip-chip array to form an LED package component. The protective film peeling device comprises photoconversion film freezing elements (2-1, 2-2), drawing elements (3-1, 3-2) for drawing and peeling a frozen protective film at one side of a photoconversion film, and photoconversion film rewarming elements (4-1, 4-2) sequentially disposed and connected together. The roll-bonding device comprises two single rollers (5-1, 5-2) having respective smooth roller surfaces. The invention has the significant advantage of being applicable to a continuous rolling technique for bond-packaging an LED, and can satisfy a requirement of a process method applicable to the use of an organic silicone resin photoconverter to bond-package an LED, thereby increasing production efficiency and yield of LED packages in industrialized batch production.

Green Patent 37

Title: Process method using organic silicone resin photoconverter to bond-package LED by tandem rolling

Patent: PL2015901631T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



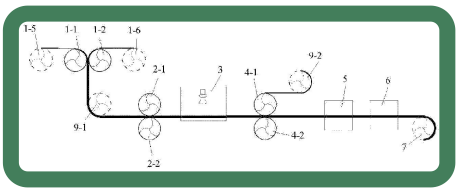
Provided is a process method using an organic silicone resin photoconverter to bond-package an LED by tandem rolling, comprising the following continuous processes: preparing a semi-cured photoconversion film; performing pseudo-curing on the semi-cured photoconversion film; preparing an LED flip-chip array film; performing dual-roller roll-bonding and molding on an LED package component; curing the LED package component; and cutting the LED package component. The invention has the significant advantage of using a continuous rolling technique to bond-package an LED, and can satisfy a requirement of using an organic silicone resin photoconverter to bond-package an LED, thereby increasing production efficiency and yield of LED packages in industrialized batch production.

Green Patent 38

Title: Equipment system using deformable organic silicone resin photoconverter to bond-package an LED

Patent: PL2015901622T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



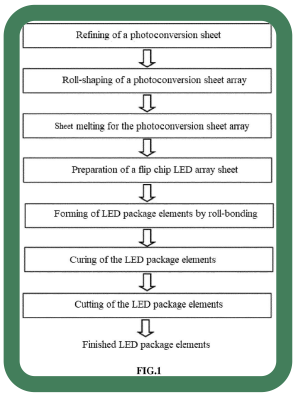
An equipment system using a deformable organic silicone resin photoconverter to bond-package an LED comprises: a roll-pressing device configured to refine photoconversion films (8-6); a roll-shaping device configured to perform heated roll-shaping on the refined photoconversion films (8-6); a film-melting device (3) configured to perform film-melting on the refined photoconversion films (8-6) having undergone the roll-shaping; and a roll-bonding device configured to oppositely align and roll-bond the refined photoconversion films having undergone the film-melting and an LED flip-chip array having a carrier film. The roll-pressing device, the roll-shaping device, the film-melting device and the roll-bonding device are sequentially disposed and constitute a cooperatively-linked process equipment. The equipment system continuously rolls to bound-package an LED, and can satisfy a requirement of a process method applicable to the use of a deformable organic silicone resin photoconverter to bond-package an LED, thereby increasing production efficiency and yield of LED packages in an industrialized batch production.

Green Patent 39

Title: Process method using deformable organic silicone resin photoconverter to bond-package LED

Patent: PL2015901621T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



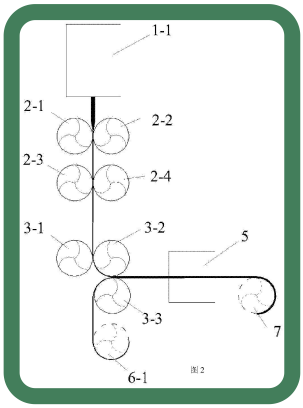
A process method using a deformable organic silicone resin photoconverter to bond-package an LED comprises the following continuous processes: performing roll-molding to refine a photoconversion film; performing roll-shaping on a photoconversion film array; performing film-melting on the photoconversion film array; preparing an LED flip-chip array film; performing roll-bonding and molding on an LED package component; curing and molding the LED package component; and cutting the LED package component. The invention has the significant advantage of using a continuous rolling technique to bond-package an LED, can satisfy a requirement of using a deformable organic silicone resin photoconverter to bond-package an LED, and can increase production efficiency and yield of LED packages in industrialized batch production.

Green Patent 40

Title: Equipment system using thermoplastic resin photoconverter to bond-package LED by rolling

Patent: PL2015901620T

Patentee: Jiangsu Chengruida Photoelectric Co Ltd



An equipment system using a thermoplastic resin photoconverter to bond-package an LED by rolling comprises: a combined roll-shaping and cutting device configured to perform roll-shaping and roll-cutting on a photoconversion film to form a photoconversion film array; and a roll-bonding device configured to press-bond the photoconversion film array and an LED flip-chip array. The combined roll-shaping and cutting device and the roll-bonding device are arranged sequentially to constitute a cooperatively-linked process equipment. The combined roll-shaping and cutting device comprises a first rolling device having an array of protrusions and a second rolling device having an array of recesses oppositely disposed and aligned with each other. The roll-bonding device comprises a fourth rolling device having an array of recesses and a third rolling device having a smooth surface oppositely disposed and aligned with each other.

Green Patent 41

Title: Photovoltaic module, solar cell, and method for producing solar cell

Patent: PL2020179977T

Patentee: Jingke Green Energy (Shanghai) Management Co., Ltd.

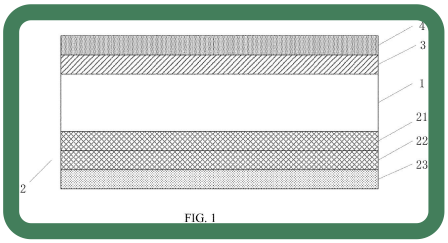


FIG. 1

Provided is a solar cell. The solar cell may include a semiconductor layer and a passivation film stack provided on a back surface of the semiconductor layer. The passivation film stack may include a first passivation layer provided on the back surface of the semiconductor layer and including a silicon-rich layer with a silicon atom concentration ranging from 5×1021/cm3 to 2.5×1022/cm3; a second passivation layer provided on a surface of the first passivation layer and including an oxygen-rich and nitrogen-rich layer; and a third passivation layer provided on a surface of the second passivation layer and including at least one silicon nitride film with a gradient-varied refractive index. A first refractive index of the first passivation layer may be greater than a second refractive index of the second passivation layer and smaller than a third refractive index of the third passivation layer.

Green Patent 42

Title: Photovoltaic module, solar cell, and method for producing solar cell

Patent: PL2020179975T

Patentee: Jingke Green Energy (Shanghai) Management Co., Ltd.

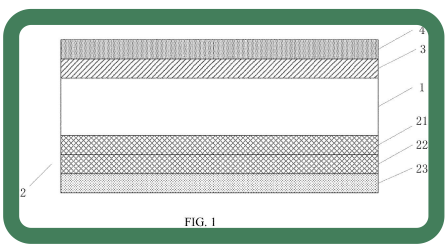


FIG. 1

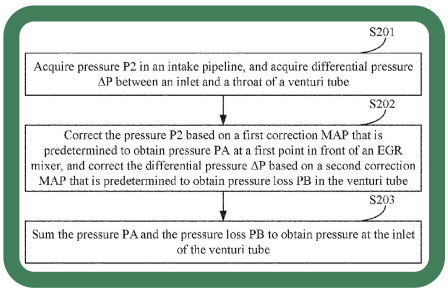
A solar cell is provided. The solar cell at least includes a semiconductor layer and a plurality of passivation layers provided on a back surface of the semiconductor layer. The passivation layers include a first silicon oxynitride film layer having a first refractive index, a second silicon oxynitride film layer having a second refractive index and provided on a surface of the first silicon oxynitride film layer, and a silicon nitride film layer having a third refractive index and provided on a surface of the second silicon oxynitride film layer.

Green Patent 43

Title: Method and device for calculating pressure of venturi tube

Patent: BY20210178
RU2021116834

Patentee: Weichai Power Co.,Ltd.



A method for calculating a pressure of a Venturi tube, comprising acquiring a pressure value P2 of an air inlet tube, and acquiring a pressure difference ΔP between an inlet and a throat of the Venturi tube; performing correction on the P2 by using a predetermined first correction MAP, and obtaining a pressure PA of a first point before an EGR mixer; performing correction on the ΔP by using a predetermined second correction MAP, and obtaining a pressure loss PB of the Venturi tube; and summing the PA and the PB to obtain the pressure of the Venturi tube. According to the method for calculating the pressure of the Venturi tube, an inlet pressure of the Venturi tube can be collected and calculated by using a calculation mode rather than a sensor. Therefore, it is not necessary to arrange an inlet pressure sensor of the Venturi tube, the number of sensors arranged on the Venturi tube is reduced, and an exhaust flow can also be calculated. Further provided is a device for calculating the pressure of the Venturi tube.

Green Patent 44

Title: Wind power generating device and wind blade structure

Patent: RU2012137778
SG201205590
PH12012501586
IDW00201203581
VN1201202443
MYPI2012003289
PL2011739354T
EP2011739354

Patentee: Shandong Zhongtai New Energy Group Co., Ltd.

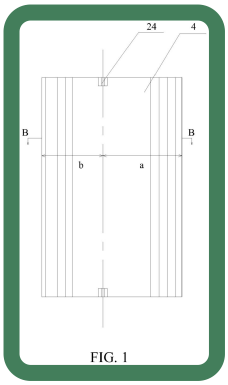


FIG. 1

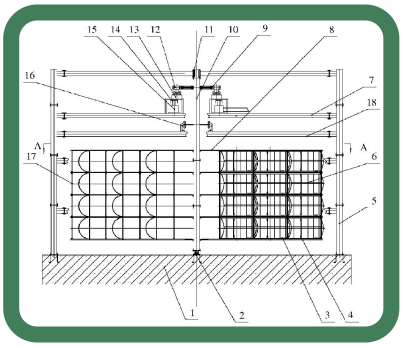
A wind blade structure includes a wind blade frame (3), wind blade shafts (5, 6, 24) provided in the wind blade frame (3), movable blades (4) and blade stoppers (23). The blade stoppers (23) are projecting elements on the wind blade frame (3) or the wind blade shafts (5, 6, 24) for blocking the movable blades (4) from rotating when the movable blades (4) rotate to a position where they overlap with the wind blade frame (3). The areas of two portions of the movable blade (4) on both sides of the wind blade shaft (5, 6, 24) are not equal. A wind power generating apparatus is also disclosed, comprising at least one wind wheel mechanism rotating around its rotary shaft (2). The wind wheel mechanism includes at least one wind blade structure. The wind power generating apparatus and the wind blade structure may endure the impact of a strong wind without being damaged easily.

Green Patent 45

Title: Hydraulic power generation apparatus without dam

Patent: RU2014128651

Patentee: Shandong Zhongtai New Energy Group Co., Ltd.



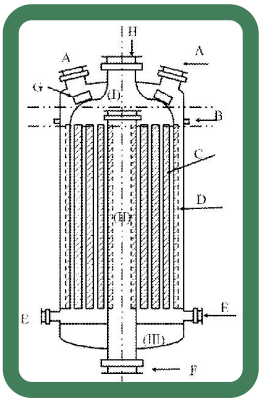
A large hydraulic power station without a dam comprises a base (1) and a frame (5) fixed on the base; a water turbine rotating shaft (10) connected to a generator (15), and a first support assembly (11) and a second support assembly (2) used for fixing the water turbine rotating shaft (10) are arranged on the frame (5); at least one layer of water turbine mechanism (8) is arranged on the water turbine rotating shaft (10); the water turbine mechanism (8) comprises a blade frame (17) fixed on the water turbine rotating shaft (10), multiple blade rotating shafts (3) installed on the blade frame (17), and multiple water turbine blades with the blade rotating shaft (3) as an axis; a blade stopper (4) for controlling the rotation angle of the blades is arranged on the blade frame (17) or the blade rotating shaft (3).

Green Patent 46

Title: Large-scale ethylene glycol reactor

Patent: RU2018145371

Patentee: Pujing Chemical Industry Co., Ltd



A reactor having a large-scale dimethyl oxalate or ethylene glycol production capacity is provided. The reactor comprises a shell, a gas distribution member, an internal heat exchange member, a inlet pipe member and an outlet pipe member. The large-scale dimethyl oxalate or ethylene glycol production capacity may be greater than about 400 or 200kt/a respectively. A large volume of catalysts may be used in a catalyst bed (c) having a reduced pressure drop. Also provided is a process for producing ethylene glycol on a large scale in a reactor.

Green Patent 47

Title: Process and system for tail gas treatment

Patent: RU2018145377

Patentee: Pujing Chemical Industry Co., Ltd

Presented is a process for treating a tail gas having nitrogen oxides and an alkyl nitrite. The process comprises contacting the tail gas with an alkyl alcohol in the presence of oxygen to absorb the alkyl nitrite, contacting the resulting absorbed gas with a reducing gas in the presence of a catalyst to reduce the nitrogen oxides, and washing the absorbed and reduced gas to generate a treated tail gas. Also provided is a system for treating a tail gas having nitrogen oxides and an alkyl nitrite. The treated tail gas has a low nitrogen oxide content and a low alkyl nitrite content.

Green Patent 48

Title: Carbonylation catalyst and preparation thereof

Patent: RU2018145394

Patentee: Pujing Chemical Industry Co., Ltd

The invention relates to a carbonylation catalyst for synthesizing an oxalate from carbon monoxide (CO) and nitrite in a gas phase is provided. The catalyst comprises an active component, an auxiliary agent and a carrier. The active component comprises palladium (Pd) particles. The auxiliary agent comprises an auxiliary element selected from the group consisting of an alkali metal, an alkaline earth metal, IB, IIB, IVB, VB, VIB, VIIB, VIII, IIIA, IVA and a lanthanide. The carrier comprises an oxide or a composite oxide. Also provided is a process for making the catalyst and a method for using the catalyst in synthesizing an oxalate in a gas phase reaction between CO and methyl nitrite (MN).

Green Patent 49

Title: Catalyst for synthesizing oxalate by co coupling reaction, preparation and uses

Patent: RU2018145398

Patentee: Pujing Chemical Industry Co., Ltd

Catalyst	Composition	Specific Surface Area (m^2/g)
Catalyst 1	0.25%Pd-0.60%Bi /α-Al_2O_3	123.7
Catalyst 2	0.05%Pd-4.20%Co/α-Al_2O_3	198.3
Catalyst 3	0.15%Pd-2.30%Ti /α-Al_2O_3	163.2
Catalyst 4	0.45%Pd-1.10%Y /α-Al_2O_3	139.5
Catalyst 5	0.97%Pd-0.22%Ni /α-Al_2O_3	11.4
Catalyst 6	0.36%Pd-2.13%Mn /α-Al_2O_3	75.9
Catalyst 7	0.23%Pd-1.76%Zr /α-Al_2O_3	60.8
Catalyst 8	0.57%Pd-0.15%Ce /α-Al_2O_3	103.3
Catalyst 9	0.32%Pd-0.81%La/α-Al_2O_3	100.9
Catalyst 10	0.60%Pd-0.31%Mo/α-Al_2O_3	135.3
Catalyst 11	0.22%Pd-0.95%Ba /α-Al_2O_3	54.8
Catalyst 12	0.46%Pd-0.42%V/α-Al_2O_3	65.3
Catalyst 13	0.52%Pd-0.21%Fe /α-Al_2O_3	33.9
Catalyst 14	0.31%Pd-1.24%Nb /α-Al_2O_3	121.1

The invention relates to a catalyst for synthesizing an oxalate by a CO coupling reaction. The catalyst comprises an active component, an auxiliary agent and hollow microspheres of α-Al2O3 as a carrier. The auxiliary agent may comprise an auxiliary element selected from the group consisting of nickel, cobalt, manganese, zirconium, cerium, lanthanum, molybdenum, barium, vanadium, titanium, iron, yttrium, niobium, tungsten, tin and bismuth. Also provided is a process for making the catalyst and a method for using the catalyst in synthesizing an oxalate in a gas phase reaction between carbon monoxide (CO) and methyl nitrite (MN).

Green Patent 50

Title: Catalyst for treatment of tail gas and preparation thereof

Patent: RU2018145283

Patentee: Pujing Chemical Industry Co., Ltd

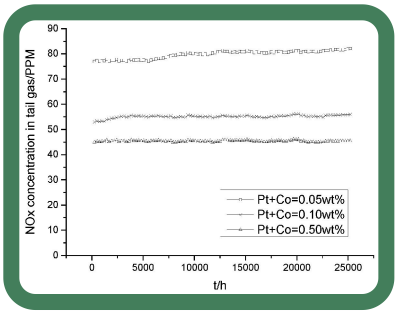
A carrier of a catalyst for treating a CO-coupled oxalate synthesis tail gas is provided. The carrier consists of Al 2O 3 and having a bimodal pore size distribution. A catalyst comprising the carrier an active component comprising a precious metal is provided. Also provided are preparation process for preparing the carrier and the catalyst. Further provided is a method for treating a CO-coupled oxalate synthesis tail gas having nitrogen oxides to lower greatly the level of the nitrogen oxides in the tail gas.

Green Patent 51

Title: Catalyst for treatment of coal-based ethylene glycol tail gas and preparation thereof

Patent: RU2018145304

Patentee: Pujing Chemical Industry Co., Ltd



A catalyst for treating a coal-based ethylene glycol tail gas is provided. The catalyst comprises an active component, an auxiliary agent, and a carrier. The active component comprises one or more active component elements selected from the group consisting of Cu, Pd, Pt, an oxide thereof, and a combination thereof. The auxiliary agent comprises one or more auxiliary agent elements selected from the group consisting of sixth periodic transition metals other than Group VIII, rare earth elements, an oxide thereof, and a combination thereof. The carrier is aluminum oxide. Also provided are the preparation and uses of the catalyst.

Green Patent 52

Title: Hydrogenation catalyst and preparation and uses thereof

Patent: RU2018145250

Patentee: Pujing Chemical Industry Co., Ltd

Catalyst	Active Component	Specific Surface Area (m^2/g)	Characteristics of hollow silica microspheres	
			The average particle size (nm)	The average thickness of the shell wall (nm)
Catalyst 1	25%Cu-5%Co /SiO_2	867	310	22
Comparative Catalyst 1	25%Cu-5%Co /SiO_2	753	190	28
Catalyst 2	15%Cu-8%Ni /SiO_2	652	285	90
Comparative Catalyst 2	15%Cu-8%Ni /SiO_2	317	950	–
Catalyst 3	18%Cu-6%Ce /SiO_2	782	530	110
Comparative Catalyst 3	18%Cu-6%Ce /SiO_2	289	290	–
Catalyst 4	10%Cu-10%La /SiO_2	1055	75	11
Catalyst 5	20%Cu-4%Mo /SiO_2	458	620	205
Catalyst 6	16%Cu-10%Mn /SiO_2	1120	110	5
Catalyst 7	22%Cu-10%Zr /SiO_2	231	2770	195
Catalyst 8	35%Cu-2%Zn /SiO_2	178	980	380
Catalyst 9	13%Cu-10%Al-2%B/SiO_2	329	1600	280
Catalyst 10	30%Cu-1%Ba-4%P/SiO_2	578	1010	270
Catalyst 11	17%Cu-5%Bi-3%La /SiO_2	922	220	18
Comparative Catalyst 4	17%Cu-5%Bi-3%La /SiO_2	347	580	–

A hydrogenation catalyst is disclosed. The catalyst comprises an active component in the form of nanoparticles comprising copper or a cooper oxide; an auxiliary agent in the form of nanoparticles comprising an element selected from the group consisting of nickel, cobalt, manganese, zinc, aluminum, zirconium, cerium, lanthanum, molybdenum, barium, vanadium, titanium, iron, yttrium, niobium, tungsten, tin, bismuth, strontium, boron and phosphorus; and a carrier in the form of hollow silica microspheres having microsphere surfaces, wherein the nanoparticles of the active component and the nanoparticles of the auxiliary dispersed on the microsphere surfaces. The hydrogenation catalyst is useful for hydrogenating an oxalate to ethylene glycol, providing a high oxalate conversion rate, a high selectivity for ethylene glycol, strong stability and high yield. Preparation and uses of the catalyst are also disclosed.

Green Patent 53

Title: Ultra high selective hydrogenation catalyst and preparation thereof

Patent: RU2018145227

Patentee: Pujing Chemical Industry Co., Ltd

Catalyst	Specific Surface Arear (m^2/g)	Pore Volume (cm^3/g)	Pore diameter (nm)
Catalyst 1	520	0.69	6.01
Catalyst 2	492	0.75	7.21
Catalyst 3	485	0.75	9.10
Catalyst 4	470	0.78	6.25
Catalyst 5	512	0.75	5.73
Catalyst 6	504	0.81	5.82
Catalyst 7	489	0.69	9.8
Catalyst 8	498	0.73	10.5
Comparative Catalyst 1	452	0.61	4.5
Comparative Catalyst 2	459	0.71	4.9
Comparative Catalyst 3	430	0.61	5.8

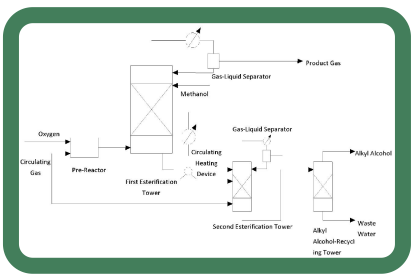
A highly selective hydrogenation catalyst for hydrogenating an oxalate to ethylene glycol is disclosed. The catalyst comprises an active component, an auxiliary agent and a carrier. The active component comprises copper or an oxide thereof. The auxiliary agent is a metal selected from the group consisting of Ni, B, Bi, Fe, Ce, Mo, Sn, Co, La, Y, Nd, V and W, an oxide thereof, or a combination thereof. The carrier is selected from the group consisting of silicon, aluminum, zirconium and titanium oxide. Also disclosed is a process for preparing the catalyst.

Green Patent 54

Title: Process and system for producing alkyl nitrites

Patent: RU2018145243

Patentee: Pujing Chemical Industry Co., Ltd



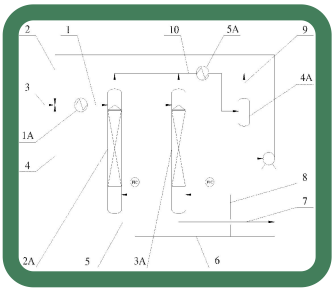
A process for producing an alkyl nitrite is provided, comprising: mixing oxygen and a circulating gas in a pre-reactor, mixing the oxidized circulating gas and an alkyl alcohol liquid in a first esterification tower to generate alkyl nitrite, heating a portion of a first esterification tower bottom liquid in a circulating heating device external to the first esterification tower and transferring the heated collected first esterification tower bottom liquid into the first esterification tower, mixing a second portion of the collected first esterification tower bottom liquid and the circulating gas in a second esterification tower to generate alkyl nitrate, transferring a second esterification tower bottom liquid into an alkyl alcohol recycling tower. A related production system is also provided with a pre-reactor, a first esterification tower, a circulating heating device, a second esterification tower and an alkyl alcohol recycling tower.

Green Patent 55

Title: Nitric acid reduction conversion process

Patent: RU2021104730
IDP00202103675

Patentee: Pujing Chemical Industry Co., Ltd



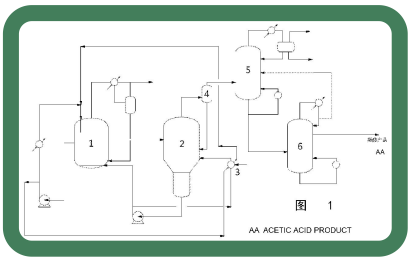
The present invention relates to a nitric acid reduction conversion process, the process involving bringing a raw material gas that is rich in nitric oxide into contact with a raw material liquid containing nitric acid and methanol in a nitric acid reduction reactor, such that an oxidation-reduction reaction occurs in order to convert the nitric acid into methyl nitrite. Compared with the prior art, the present invention improves the nitric acid conversion rate, reduces the pressure drop and also increases the selectivity of the target product methyl nitrite by optimizing the number of reactors in series, the reaction temperature, the feed ratio of the nitric oxide in the raw material gas to the nitric acid in the raw material liquid, and the amount of supplemented methanol.

Green Patent 56

Title: Method for synthesizing acetic acid by low-pressure methanol carbonylation

Patent: RU2022106245
IDP00202204507
TR202203519

Patentee: Pujing Chemical Industry Co., Ltd



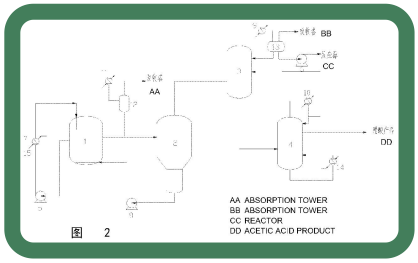
The present invention relates to a method for synthesizing acetic acid by low-pressure methanol carbonylation. The method comprises: (1) in the presence of a catalyst, introducing methanol and CO into a non-stir reactor to undergo a carbonylation reaction, and then feeding a liquid phase portion in a middle part of the non-stir reactor into a flash evaporator to undergo flash evaporation, thereby separating and obtaining a liquid phase component and a gas phase component; (2) performing heat exchange on the liquid phase component with a mother liquid flash evaporation heat exchanger, and once heated, performing secondary flash evaporation, thereby separating and obtaining a secondary liquid phase component and a secondary gas phase component; (3) feeding the separated and obtained primary gas phase and secondary gas phase components into a catalyst trap, returning the trapped and recovered catalyst back into the flash evaporator, and allowing the gas phase components to enter into a light component fractionating column to undergo fractionation, thereby obtaining light components and heavy components; (4) feeding the liquid phase components from steps (1) and (2) back into the non-stir reactor to undergo reaction; (5) feeding the heavy components from step (3) into a heavy component fractionating column to undergo fractionation, thereby obtaining an acetic acid product. The present invention utilizes self-produced reaction heat to perform advanced separation of a reaction liquid, reduces ineffective circulation, and lowers electricity consumption and steam consumption.

Green Patent 57

Title: Process method for preparing acetic acid by carbonylating methanol by means of reactor thermally coupled with rectifying tower

Patent: RU2022106244

Patentee: Pujing Chemical Industry Co., Ltd



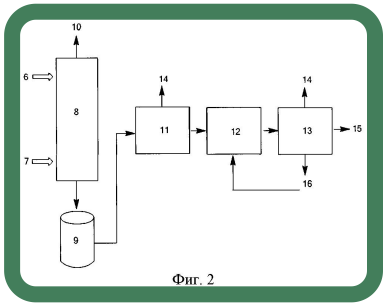
The present invention relates to a process method for preparing acetic acid by carbonylating methanol by means of a reactor thermally coupled with a rectifying tower. The process method comprises: introducing methanol and CO into the reactor for a carbonylation reaction, sending a reaction liquid at an outlet port of the reactor to a flash evaporator for flash evaporation in order to separate a liquid phase component and a gas phase component, and returning the liquid phase component to the reactor; allowing the gas phase component to enter a catalyst trap, returning the trapped catalyst to the bottom of the flash evaporator, and allowing the gas phase to enter a light component tower for separation in order to obtain a first overhead light component and a first tower kettle heavy component; and sending the first tower kettle heavy component into a heavy component tower for separation in order to obtain an acetic acid product, wherein the reaction liquid in the reactor and the tower kettle material in the heavy component tower undergo coupled heat transfer. Compared with the prior art, the present invention has the advantages of energy efficiency, reduced emissions, a high product purity, easy control of the system, stable operation, etc.

Green Patent 58

Title: Solid acid catalyst and method for preparing and using the same

Patent: TR201010211

Patentee: Sennics Co., Ltd.



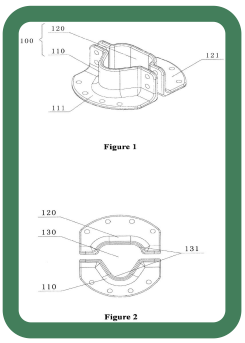
A solid acid catalyst having a strong acid cation exchange resin having a cross-linking network structure and free aromatic sulfonic acids adsorbed in the network. The solid acid catalyst is prepared by treating a strong acid cation exchange resin with aromatic sulfonic acids in a solution. The catalyst is useful for synthesizing rubber antioxidant RD and other strong-acid catalyzed reactions.

Green Patent 59

Title: Torsion cable protection device, method for using torsion cable protection device, and wind power generator set

Patent: EP2017892075

Patentee: Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.



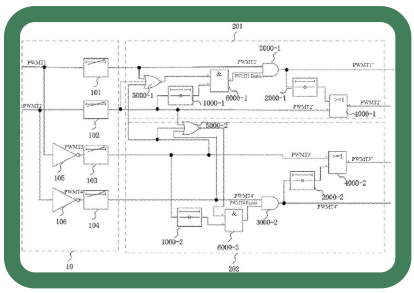
A torsion cable protection device, a method for using the torsion cable protection device, and a wind power generator set. The torsion cable protection device comprises a cable clamp block (100) which comprises a first clamp block (110) and a second clamp block (120), the first clamp block (110) and the second clamp block (120) being connected to form a cylindrical structure (130) having a through hole, capable of clamping a cable, in the middle; and a cable partition plate (200) formed by splicing more than two partition plates (210), with a groove (211) being arranged on an abutting face between the partition plates (210); the cable clamp block (100) is fixedly connected on the cable partition plate (200), and the cylindrical structure (130) of the cable clamp block (100) is vertically aligned to a partition hole (212) of the cable partition plate (200). The torsion cable protection device, the method for using the torsion cable protection device, and the wind power generator set have beneficial effects in that: cables (500) are clamped and fixed by the cable clamp block (100), the cable clamp block (100) is fixed by the cable partition plate (200) formed by splicing, the partition holes (212) on the cable partition plate (200) separate the cables (500), so that the heat radiation of the cables (500) is ensured, and the problem of the cables (500) becoming twisted and coiled when a cabin rotates due to a change in the wind direction is solved.

Green Patent 60

Title: Control circuit of npc-type three-level converter, npc-type three-level converter and wind power generator set

Patent: ZA202210122

Patentee: Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.



A control circuit for an NPC-type three-level converter is provided. Each phase bridge arm of the NPC-type three-level converter includes multiple IGBT devices. For each phase bridge arm, a control circuit corresponding to the phase bridge arm includes an off-time control circuit and a timing control circuit. The off-time control circuit is configured to reserve a preset time period for turn-off of the multiple IGBT devices in the corresponding phase bridge arm. The timing control circuit includes a first sub-circuit and a second sub-circuit, and each sub-circuit of the first sub-circuit and the second sub-circuit includes: a first fixed delay circuit, a second fixed delay circuit, a first AND gate circuit and a first OR gate circuit. For each sub-circuit, output terminals of the first AND gate circuit and the first OR gate circuit serve as output terminals of the timing control circuit, respectively.

Green Patent 61

Title: Wind turbine and operational control method and device therefor

Patent: EP2017785283

Patentee: Beijing Etechwin Electric Co. Ltd.

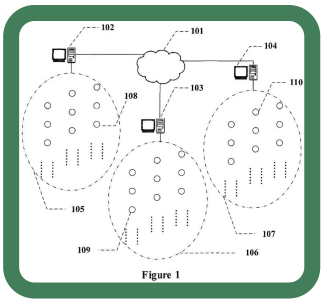


Figure 1

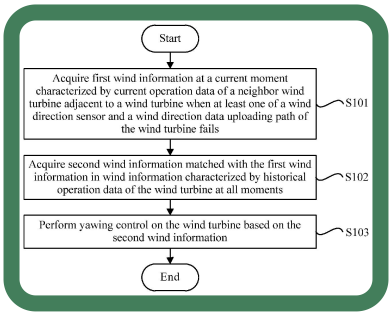
A wind turbine and an operational control method therefor are disclosed. The method comprises: obtaining current directional data from the nacelle of the wind turbine; and, according to the directional data, positional data of each wind turbine of a wind farm, as well as wind condition data as measured by each wind turbine, and controlling operational equipment of the wind turbine, so as to increase power generated by the wind turbine. According to the current direction of the nacelle of the wind turbine, positional data of each wind turbine of a wind farm, and wind condition data as measured by each wind turbine, accurate control policy adjustment is performed in advance on operational equipment of a wind turbine, thereby increasing the power generated by the wind turbine. A device for implementing the control method is also disclosed.

Green Patent 62

Title: Yaw control method and device for wind generator set

Patent: EP2016829883

Patentee: Beijing Etechwin Electric Co. Ltd.



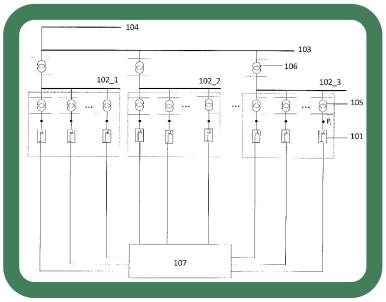
Provided are a yawing control method and a yawing control device for a wind turbine. The yawing control method includes: acquiring first wind information at a current moment characterized by current operation data of a neighbor wind turbine adjacent to the wind turbine when at least one of a wind direction sensor and a wind direction data uploading path of the wind turbine fails; acquiring second wind information matched with the first wind information in wind information characterized by historical operation data of the wind turbine at all moments; and performing yawing control on the wind turbine based on the second wind information.

Green Patent 63

Title: Method and device for detecting short-circuit capacity of grid-connected point of wind generating set

Patent: EP2018882270

Patentee: Beijing Etechwin Electric Co. Ltd.



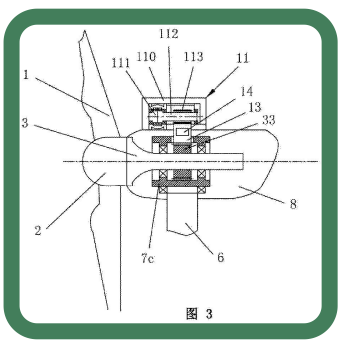
The present disclosure discloses a method and apparatus for detecting a short-circuit capacity at a grid connection point of a wind turbine. The method includes: modulating, when a converter is in a grid-side no-load modulation state and a power grid is in a short-circuited state with respect to the converter, a reactive power reference value and a braking power reference value of the converter; collecting a modulated three-phase voltage signal and a modulated three-phase current signal at the grid connection point of the wind turbine; and obtaining, according to the modulated three-phase voltage signal and the modulated three-phase current signal at the grid connection point of the wind turbine as well as a rated line voltage at the grid connection point of the wind turbine, the short-circuit capacity at the grid connection point of the wind turbine.

Green Patent 64

Title: Generator module and wind turbine having the same

Patent: EP2018887200

Patentee: Goldwind Science & Technology Co., Ltd.



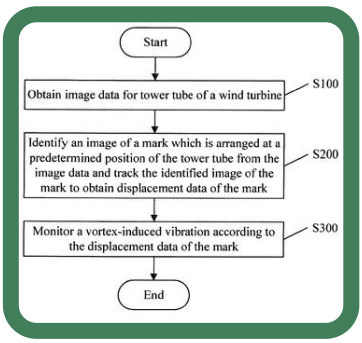
A generator module and a wind turbine set having the same. The generator module (11) comprises: a generator module housing (110); a generator unit (111), which is provided within the generator module housing (110) and which comprises a rotor and a stator; a generator rotary shaft (112), an end thereof being connected to the rotor, and the generator rotary shaft (112) being provided thereon with a belt pulley (113).

Green Patent 65

Title: Method and equipment for monitoring vortex-induced vibration for wind turbine generator set

Patent: EP2018811125

Patentee: Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.



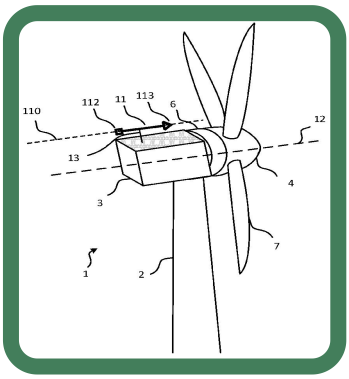
Provided in the present disclosure are a method and equipment for monitoring vortex-induced vibration for a wind turbine generator set, the monitoring method comprising: collecting image data of a tower of a wind turbine generator; identifying from the image data a marked image that is provided at a preset location at the tower, and tracking the identified marked image so as to obtain displacement data of the mark; and monitoring vortex-induced vibration according to the displacement data of the mark.

Green Patent 66

Title: Method, device and system for correcting installation errors of wind vane

Patent: EP2019889545

Patentee: Beijing Goldwind Science & Creation Windpower Equip Co., Ltd.



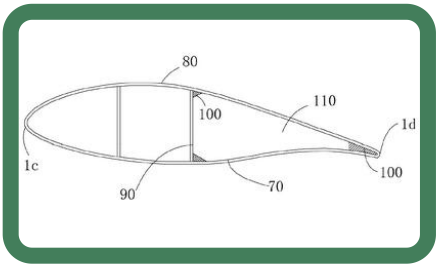
Disclosed are a method, device and system for correcting installation errors of a wind vane (11). The method for correcting installation errors of a wind vane comprises: obtaining images of unit blades (7) and an electric generator outer rotor (S101); obtaining contours of the unit blades (7) and the contour of the electric generator outer rotor from the images of the unit blades (7) and the electric generator outer rotor (S102); calculating a unit center line (12) according to the contour of the electric generator outer rotor and the contours of two blades of the unit blades (7) (S103); obtaining a point of intersection of the unit center line and the contour of the electric generator outer rotor as a first point of intersection (S104); obtaining an orientating face of a wind vane (11) (S105); determining whether the wind vane (11) is aligned with the unit center line (12) according to the unit center line and the orientating face of the wind vane (11) (S106); and if the wind vane (11) is not aligned with the unit center line (12), calculating a deviation angle between the wind vane (11) and the unit center line (12) according to the orientating face of the wind vane (11) and the first point of intersection, and correcting the orientation of the wind vane (11) according to the deviation angle between the wind vane (11) and the unit center line (12) (S107).

Green Patent 67

Title: Monitoring method and monitoring system for cracking state of blade, and blade

Patent: EP2019824790

Patentee: Jiangsu Goldwind Science & Technology Co. Ltd.



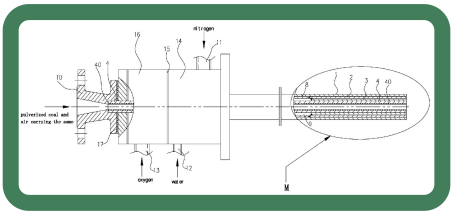
Disclosed is a monitoring method and a monitoring system for a cracking state of a blade, and a blade. The blade comprises multiple blade components and connection bodies, wherein the multiple blade components are connected to each other, by means of the connection bodies, to form a cavity. The monitoring method comprises: providing pressure transmission assemblies, each of which comprises a side wall, a hollow space enclosed by the side wall, and an opening formed on the side wall and in communication with the hollow space; forming a closed cavity, in which the pressure transmission assemblies are arranged at joints between the blade components and the connection bodies in the cavity and are fixed by means of the connection bodies, so that the pressure transmission assemblies and the blade components together form a closed cavity with a preset air pressure value; detecting the actual air pressure, in which the actual air pressure value in the closed cavity is detected using a detector; and determining the cracking state, in which the cracking state of the blade is determined based on the actual air pressure value and the preset air pressure value. The embodiments of the present application provide a monitoring method and a monitoring system for the cracking state of a blade, and a blade, so that the monitoring for the cracking state of a blade can be realized, and the misjudgment rate is low.

Green Patent 68

Title: Lance

Patent: CL201700160

Patentee: China ENFI Engineering Corp.



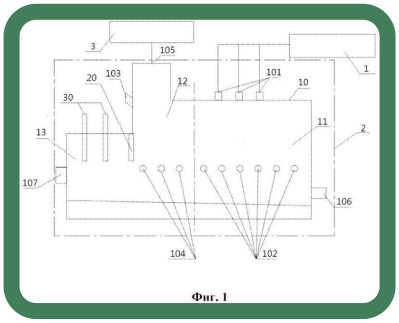
A lance including: a central pipe having a wear-resistant ceramic layer coated on an inner wall thereof; a central casing pipe having a casing pipe groove in an outer wall thereof, in which the central casing pipe is fitted over the central pipe; an intermediate pipe fitted over the central casing pipe, in which a combustion-supporting gas chamber is formed between a front part of the central pipe and the intermediate pipe, and an intermediate pipe groove is formed in an outer wall of the rear part; and an outer casing pipe fitted over the intermediate pipe, in which a cooling medium chamber is formed between a front part of the intermediate pipe and the outer casing pipe, and a cooling medium injection channel is defined by an inner wall of the outer casing pipe and the intermediate pipe groove.

Green Patent 69

Title: One-step nickel smelting system and one-step nickel smelting method

Patent: RU2021100316

Patentee: China ENFI Engineering Corp.



Фиг. 1

The invention provides a one-step nickel smelting system and a one-step nickel smelting method. The system includes a raw material conveying device, a one-step nickel smelting device and a flue gas treatment device; the one-step nickel smelting device is an integrated device and includes a furnace body, and a molten pool smelting area and a reduction depletion area are sequentially arranged inside the furnace body; a first feeding inlet and a first blower nozzle are formed in the molten pool smelting area, the first feeding inlet is connected with the raw material conveying device, and the molten pool smelting area is used for performing molten pool smelting on nickel sulfide concentrates to produce high nickel matte containing 35 ~ 65wt% nickel, smelting slag and flue gas; the reduction depletion area communicates with the molten pool smelting area, a second feeding inlet, a second blower nozzle and a flue gas outlet are formed in the reduction depletion area, and the reduction depletion area is used for enabling the smelting slag to be subjected to the depletion reaction to produce depleted slag and first metallized nickel matte; the flue gas treatment device is connected with the flue gas outlet. The problems such as high raw material feeding-into-furnace conditions of the DON process, high nickel content in the smelting slag, large load and high energy consumption when an electric furnace separately treats the smelting slag are effectively solved.

Green Patent 70

Title: Side-submerged combustion smelting apparatus for spraying oxygen enriched air and pulverized coal

Patent: IDP00201810079
RU2018143336

Patentee: China ENFI Engineering Corp.

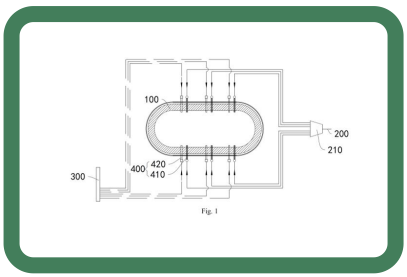


Fig. 1

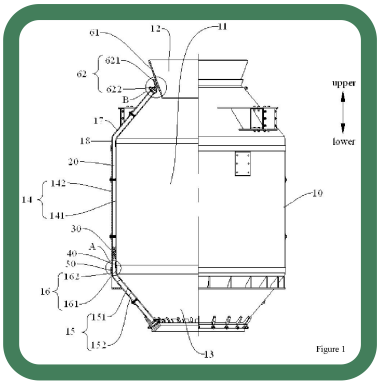
A side-submerged combustion smelting apparatus (1) for spraying oxygenenriched air and pulverized coal includes: a smelting furnace (100); a pulverized coal delivery pipe (200) for delivering the pulverized coal; an air delivery pipe (300) for delivering the oxygen-enriched air; a plurality of coal injection assemblies (400) arranged at intervals on two opposite side walls of the smelting furnace (100), each coal injection assembly (400) including a pulverized coal lance (410) and an air lance (420) that are adjacent to each other and arranged as a pair, and each coal injection assembly (400) at least partially extending into the smelting furnace (100).

Green Patent 71

Title: High-temperature material conveying tank

Patent: PH12016000054
CU20160158

Patentee: China ENFI Engineering Corp.



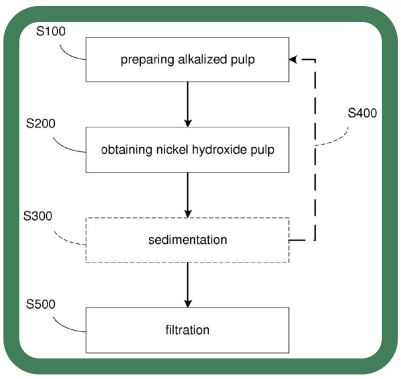
A high-temperature material conveying tank (100), including a tank body(10) provided with a material cavity (11) inside, a feed inlet (12) at an upper part and a discharge outlet (13) at a lower part, wherein the tank body (10) includes a cylindrical section (14), a first taper section (15) and a first connection section (16); the first connection section (16) is arranged at one end of the cylindrical section (14) and arranged between the one end of the cylindrical section (14) and the first taper section (15); the first connection section (16) is integrally formed with the first taper section (15), and buttwelded with the cylindrical section (14). The high-temperature material conveying tank (100) has an advantage of good stress intensity, thereby prevents a welded joint from cracking and deforming.

Green Patent 72

Title: Nickel hydroxide product and preparation method thereof

Patent: HUE14841022

Patentee: China ENFI Engineering Corp.



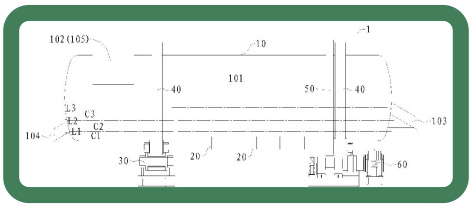
Disclosed are a nickel hydroxide and preparation method thereof, the method comprising: (a) contacting first nickel hydroxide slurry and sodium hydroxide to obtain alkaline slurry; (b) contacting the alkaline slurry and a solution containing nickel sulfate to obtain immersion nickel slurry; (c) returning at least a part of the immersion nickel slurry to step (a) as the first nickel hydroxide slurry so as to repeat steps (a) and (b) at least once; and (d) separating nickel hydroxide from the remainder of the immersion nickel slurry.

Green Patent 73

Title: Copper matte bottom-blowing refining process and copper matte bottom-blowing refining furnace

Patent: RU2015119158
VN1201500603
MN1020150005506
CL201500351

Patentee: China ENFI Engineering Corp.



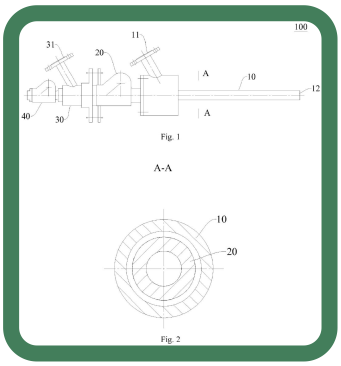
A copper matte bottom-blowing refining process and copper matte bottom-blowing refining furnace (1), the copper matte bottom-blowing refining process comprising the steps of: adding a copper matte and a flux to the bottom-blowing refining furnace; using a bottom-blowing spray gun (20) to continuously blow oxygen-containing gas from the bottom of the refining furnace toward the melt in the furnace; and discharging crude copper and slag respectively.

Green Patent 74

Title: Lance for side-submerged combustion smelting metallurgical furnace and metallurgical furnace having lance

Patent: IDP00201808713
RU2018138058

Patentee: China ENFI Engineering Corp.



A lance (100) for a side-submerged combustion smelting metallurgical furnace and a metallurgical furnace (1000) having the lance. The lance (100) includes: an outer injection pipe (10), the outer injection pipe (10) internally defining a combustion-supporting gas inlet (11), a combustion-supporting gas outlet (12), and an insertion port (13); an insertion self-locking member (20) having a self-locking and closing function, the insertion self-locking member (20) being mounted at the insertion port (13) of the outer injection pipe; an inner injection pipe (30), the inner injection pipe (30) having a medium inlet (31), a medium injection port (32), and a medium clearing port (33), the inner injection pipe (30) being detachably inserted into the insertion self-locking member (20), an end of the inner injection pipe (30) provided with the medium injection port (32) extending into the outer injection pipe (10) via the insertion port (13), and the insertion self-locking member (20) being self-locked and closed to block off the insertion port (13) when the inner injection pipe (30) is disengaged from the insertion self-locking member (20); and a blocking member (40), the blocking member (40) being mounted to the inner injection pipe (30) to open or close the medium clearing port (33). The lance not only facilitates clearing of pulverized coal clogging the inner injection pipe (30), thus allowing the inner injection pipe (30) to be unclogged in time, but also obviates the need to lower a liquid level of a molten bath when the inner injection pipe is detached for maintenance, thereby effectively ensuring normal operation of the metallurgical furnace and increasing yield.

Green Patent 75

Title: Competition graph-based demand response method for electric vehicle charging station

Patent: ZA202106689

Patentee: Aostar Infomation Technologies Co. Ltd.

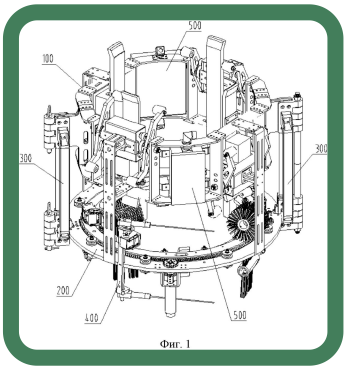
The present disclosure proposes a competition graph-based DR method for an EV charging station, which, on the basis of the existing peak-to-valley charging price difference, fully considers the experience and personalization needs of EV users, and realizes more types of electricity price fluctuations for EV users. According to the present disclosure, during the charging process of an EV user, a VIP level of the EV user is obtained through a competition graph, and the EV user can obtain corresponding economic compensation or value-added services based on the VIP level, so that a more personalized service experience can be provided for the EV user.

Green Patent 76

Title: Insulator cleaning robot

Patent: RU2016151311

Patentee: State Grid Intelligence Technology Co., Ltd.



Фиг. 1

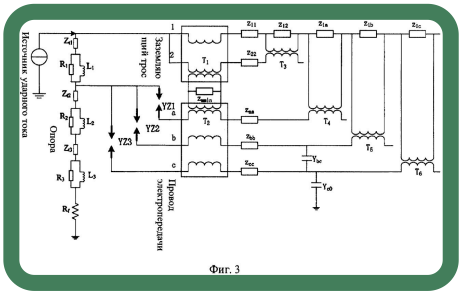
An insulator cleaning robot, comprising a crawling mechanism (100), a cleaning mechanism (200), a locking mechanism (300), a detecting mechanism (400), and a battery control system (500). The crawling mechanism (100) is a closed circumferential structure, surrounds an insulator string, and drives the robot to move continuously along the insulator string. The cleaning mechanism (200) is a closed circumferential structure and surrounds the insulator string, the locking mechanism (300) is uniformly arranged on the crawling mechanism (100), and the crawling mechanism (100) is connected to the cleaning mechanism (200) via the locking mechanism (300). The detecting mechanism (400) is distributed at one side of the locking mechanism (300), and the battery control system (500) is mounted on the crawling mechanism (100). The structure of the insulator cleaning robot is simple, the structure being an overall symmetrical-type structure. The robot has good stability, a continuous-type movement means is used, movement is rapid, the means of cleaning is simple, cleaning is rapid, there is little wear and tear to an insulator coating, and locking is reliable. An adjustment mechanism on the robot can adapt to insulator strings having different structural heights and disc diameters, an electrified cleaning insulator string operation is performed, and insulator piece quality is detected.

Green Patent 77

Title: System for testing property of thunder and lightning traveling wave of power transmission line

Patent: RU2015147542

Patentee: State Grid Sichuan Electric Power Company Electric Power Research Institute



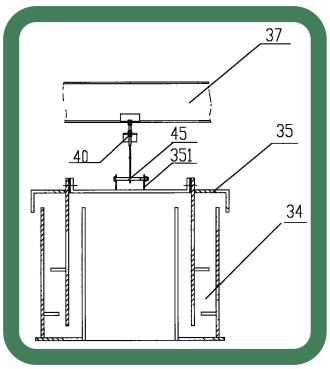
A system for testing the property of a thunder and lightning traveling wave of a power transmission line is formed by a power transmission line thunder and lightning electromagnetic transient movable mold device and an intelligent monitoring device. On the basis of a power transmission line and lightning conductor model, a pole tower and a pole tower grounding body model and an insulator model, the pole tower is divided into a slantwise material section, a cross arm section and a main material section, and in consideration of factors of an insulator, the power transmission line and a lightning conductor, a lightning stroke transient equivalent circuit is built in a simulation manner by using corresponding wave impedance, self-impedance, mutual impedance, self-admittance, mutual admittance, inductance and the like. The intelligent monitoring device is formed by sequentially cascading a current or voltage sensor with an A/D convertor, a singlechip, and a display or an oscilloscope. An impact current is added into different positions of the system, so that signals of the lightning conductor and the conductor arranged at a far end can be measured, the propagation process of the lightning wave in the whole power transmission line can be analyzed, and an anti-thunder weak section of the power transmission line can be optimized and the lightning protection of substation equipment can be performed according to an analysis result.

Green Patent 78

Title: Annular cooler

Patent: VN1201101713

Patentee: Zhongye Changtian International Engineering Co., Ltd.



An annular cooler comprises a trolley (11) of the annular cooler, an air inlet pipe (36) of the trolley connected to an inside sealing plate (14) of the trolley (11), and a door-shaped sealing device (35) connected to the air inlet pipe (36) of the trolley. The door-shaped sealing device (35) is suspended from a support beam (37) of the trolley (11) through a hanging -type mounting mechanism (40), so that the weight of the door-shaped sealing device (35) acts on the support beam (37) of the trolley.

Green Patent 79

Title: Method for recycling lead oxide-containing waste material

Patent: VN1201600282

Patentee: Chaowei Power Group Co., Ltd.

Provided is a method for recycling a lead oxide-containing waste material, comprising: (1) contacting the lead oxide-containing waste material with a desulphurizer under desulphurization reaction conditions, and performing a solid-liquid separation on the mixture after contacting to obtain a filtrate and a filtration residue; (2) performing a conversion reaction on the above-mentioned filtration residue at a temperature of 350-750°C so as to convert the lead-containing components in the filtration residue into lead oxide; (3) contacting the product obtained from step (2) with an alkaline solution so as to dissolve the PbO therein, and then performing a solid-liquid separation to obtain a PbO-alkaline solution; and (4) crystallizing the PbO-alkaline solution from step (3) to obtain PbO crystals and an alkaline filtrate. The method can reduce the energy consumption.

Green Patent 80

Title: Method of direct lead oxide collection for lead acid batteries from waste lead powder

Patent: VN1201600283

Patentee: Chaowei Power Group Co., Ltd.

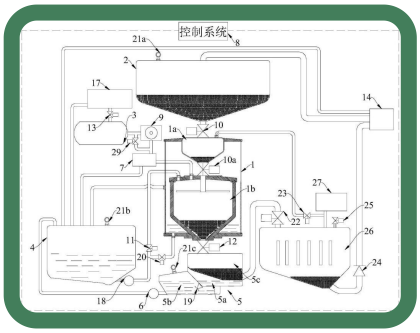
The invention relates to a method for the direct recovery of lead oxide used for the negative electrode of a lead-acid battery from waste lead powder, consisting of the following steps: (1) controlling the waste lead powder for exposure to barium-containing desulfurizer under desulfurization reaction conditions, and perform a solid-liquid separation of the mixture obtained from the contact reaction, to obtain the filtrate and residue; (2) control the filter residue to have a conversion reaction at a temperature of 350-750 °C, to convert the lead-containing component in the filter to lead oxide. In the method proposed to the present invention, the additive barium sulphate may be added in suitable quantities during the desulfurization process, for the direct recovery of lead oxide which can be used as a raw material for electricity. cathode of lead-acid battery from waste lead powder. As a result, recovery costs and energy consumption can be greatly reduced, and the full utilization of waste lead powder can be improved.

Green Patent 81

Title: Automatic continuous hydrogen generation device

Patent: RU2020120932
ZA202003027

Patentee: CHINT Group Corp.



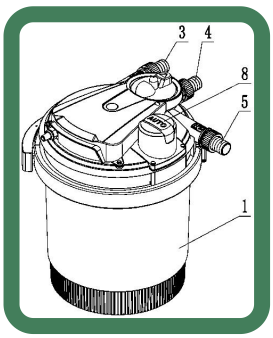
Provided is an automatic continuous hydrogen generation device, comprising a feed port (14), a control system (8), a raw material tank (2), a water tank (4), a hydrogen storage tank (3), a collection cabin (5) and a hydrogen generation cabin (1), wherein the raw material tank (2) is connected to the hydrogen generation cabin (1); the water tank (4) is connected to the hydrogen generation cabin (1); and the raw material tank (2), the water tank (4) and the collection cabin (5) are also respectively connected to the feed port (14) ; the hydrogen generation cabin (1) serves as a container for reaction of a metal hydride with a liquid reactant; the collection cabin (5) and the hydrogen storage tank (3) can release the space of a reaction cabin in time, thereby realizing a continuous and controllable reaction of hydrogen generation, and also realizing collection of byproducts of the reaction; and the raw material tank (2), the water tank (4) and the collection cabin (5) thereof are respectively connected to the feed port (14), so that synchronous operations of adding a raw material and collecting the byproducts are realized, thereby saving on operation procedures and time.

Green Patent 82

Title: Filter having back-flushing cleaning device

Patent: PL2016908535T

Patentee: Sensen Group Co., Ltd.



The present invention discloses a filter with a backwashing unit, which is used for conveniently and rapidly washing a filter element in the filter, and is characterized by including a two-position three-way valve, a second valve and a third valve, wherein the two-position three-way valve is provided with a port P1, a port A1 and a port B1, the second valve is provided with a port P2 and a port A2, and the third valve is provided with a port P3 and a port A3; the port P1 is connected with the water inlet, the port A2 is connected with the water outlet, the port A3 is connected with the drain outlet, the port A1 and the port P3 are connected with the inlet region of the filter element, and the port B1 and the port P2 are connected with the outlet region of the filter element; and the filter is located on a filtering station when the port P1 communicates with the port A1, the port P2 communicates with the port A2, and the port P3 does not communicate with the port A3, and the filter is located on a backwashing station when the port P1 communicates with the port B1, the port P2 does not communicate with the port A2, and the port P3 communicates with the port A3. The switching between the filtering station and the backwashing station may be completed by only simultaneously switching the three valves instead of changing the water flow directions of the water inlet and the water outlet, so that the whole process is simple, and the operation is convenient; in addition, the pipeline is compact in structure, and the overall appearance of the filter cartridge is also very simple.

Green Patent 83

Title: Catalyst for synthesizing ethylene amine and method for preparing ethylene amine

Patent: TH1401005684

Patentee: Dalian Institute of Chemical Physics Chinese Academy of Sci

表 1 实施例的临氢条件下乙醇胺氨化反应数据

实施例	催化剂组成	载体氨化处理	乙醇胺转化率(%)	产品选择性(wt%)					
				EDA	PIP	DETA	AEEA	HEP	AEP
实施例 1	5%Ni-15%Re-1.2%B/SiO_2	是	35.68	57.73	4.70	9.91	26.36	0.65	0.65
实施例 2	15%Ni-3.6%Re-1.2%B/SiO_2	是	46.73	72.39	3.04	11.86	12.71	0	0
实施例 3	30%Ni-0.2%Re-15%K/SiO_2	是	58.03	46.58	3.12	11.05	39.25	0	0
实施例 4	15%Ni-3.6%Co-1.2%B/SiO_2	是	44.08	59.44	12.36	10.43	14.43	1.48	1.86
实施例 5	15%Co-3.6%Re-1.2%B/SiO_2	是	39.94	67.32	7.86	9.69	9.76	1.15	4.22
实施例 6	5%Ni-8%Re-1.2%B/Al_2O_3	是	34.81	70.43	9.54	10.47	8.47	1.09	0
实施例 7	15%Ni-2%Re-1.2%B/Al_2O_3	是	52.61	79.84	3.48	10.34	6.34	0	0
实施例 8	30%Ni-2%Re-1.2%B/Al_2O_3	是	56.02	81.23	6.62	8.55	2.39	0.21	0
实施例 9	15%Ni-0.2%Re-10%Zn/Al_2O_3	是	51.35	31.75	16.01	11.79	36.42	0	4.03
实施例 10	15%Ni-3.6%Re-0.2%Zn/Al_2O_3	是	55.45	44.08	10.22	11.52	32.54	1.64	0
实施例 11	30%Ni-2%Re/Al_2O_3	是	56.44	47.95	12.97	10.39	13.17	0	5.41
实施例 12	15%Ni-2%Re-12%B/Al_2O_3	是	54.98	57.54	10.41	12.80	17.43	1.80	0
实施例 13	5%Co-15%Cu-1.2%K/Al_2O_3	是	34.73	38.43	10.58	8.98	41.48	0.53	0
实施例 14	15%Co-3.6%Re-1.2%B/Al_2O_3	是	41.72	69.42	8.36	10.77	10.38	1.07	0
实施例 15	30%Co-2%Re-1.2%B/Al_2O_3	是	56.66	66.87	8.8	11	11.99	1.34	0
对照例 1	15%Ni-3.6%Re-1.2%B/SiO_2	否	35.61	54.80	4.93	9.51	22.24	5.93	2.57
对照例 2	15%Co-3.6%Re-1.2%B/Al_2O_3	否	30.98	50.27	8.61	5.89	29.02	2.20	3.01

The present invention relates to a catalyst for synthesizing ethylene amine and a method for preparing ethylene amine. The catalyst is formed of a main active component, an auxiliary agent, and a carrier processed by ammonification. The main active component is Ni or Co, the auxiliary agent comprises one or more of Fe, Cu, Ru, Re, K, Zn, B and other metal or oxides thereof, and the ammonified carrier is ammonified SiO2 or Al2O3. In the total weight of the catalyst, the main active component accounts for 1~40%, and the auxiliary agent accounts for 0.1~20%. The catalyst of the present invention is characterized in that the used carrier needs to be ammonified specially. The ethylene amine product synthesized in a hydrogen condition by using the catalyst of the present invention to carry out an ethanolamine ammonification reaction presents high activity, high selectivity and stability.

Green Patent 84

Title: Methyl acetate preparation method

Patent: ZA201800637
SA518390760
MN1020180006207
UZ201800050
IDP00201800729
EA201890301

Температура реакции (°C)	Гидрирование метилацетата		
	Процентная конверсия метилацетата (%)	Селективность к этанолу (%)	Селективность к метанолу (%)
180	68,1	39,7	53,2
200	77,4	41,0	51,8
220	88,3	43,3	50,1
240	96,2	45,2	50,3

Patentee: Dalian Institute of Chemical Physics Chinese Academy of Sci

The present invention provides a method for producing methyl acetate, and the method comprises a step in which dimethyl ether and a raw gas containing carbon monoxide and hydrogen go through a reactor loaded with a catalyst for carrying out a carbonylation reaction; wherein the catalyst contains an acidic EMT zeolite molecular sieve. The present invention has provided a new method for producing methyl acetate. In the method of the present invention, the carbonylation is carried out in the presence of the catalyst containing the acidic EMT zeolite molecular sieve, and the reaction activity is high, and the stability has been significantly improved, meeting the requirement of industrial production.

Green Patent 85

Title: Propylene polymer composition and oriented film made therefrom

Patent: TH0601000334

Patentee: China Petroleum & Chemical Corp.

$$T_{overall} = \frac{[mm] + \frac{1}{2}[mr \ \& \ PPE]}{[mm] + [mr \ \& \ PPE] + [rr \ \& \ EPE]}$$

The present invention provides a propylene polymer composition for producing a biaxially oriented film, comprising propylene random copolymer and propylene homopolymer; wherein the propylene random copolymer is a copolymer of propylene and ethylene, optionally comprising one or more alpha-olefins of C4-C10; the propylene polymer composition has an overall isotacticity index, as determined by nuclear magnetic resonance method, of greater than or equal to 96.5%, and an ethylene content of greater than 0.3 wt%; and wherein, the melt flow rate of the propylene random copolymer is lower than that of the propylene homopolymer. The biaxially oriented polypropylene film produced by the propylene polymer composition of the present invention exhibits excellent physical properties, and has, in the absence of any stiffening agent, relatively higher modulus and stiffness. Moreover, the process for producing the biaxially oriented polypropylene film is featured with a good film-forming stability and a high film-forming stretching speed.

Green Patent 86

Title: A process for the preparation of high performance polypropylene

Patent: TH0701001930

Patentee: China Petroleum & Chemical Corp.

The invention discloses a process for preparing high-performance propylene polymers, the process utilizing a high activity, highly stereoselective Ziegler-Natta catalyst and two or more stages of polymerization carried out under different hydrogen concentrations to prepare propylene polymers having broad molecular weight distribution, wherein non-uniformness of isotacticity of molecular chains of the final propylene polymers is improved by adjusting or controlling stereoselectivity of catalytic active sites under different hydrogen concentrations, namely, making the low molecular weight fraction of the polymers having a higher isotacticity and making the high molecular weight fraction of the polymers having a lower isotacticity, thereby overcoming the drawbacks of the propylene polymers having broad molecular weight distribution known in the art. The resulting final polymers have excellent combined properties, in particular, remarkably improved mechanical properties.

Green Patent 87

Title: Propylene random copolymer, method for its preparation, and compositions and articles containing the same

Patent: SG201208009

Patentee: China Petroleum & Chemical Corp.

$$MD_{observed(B)} = \frac{\frac{1}{2}[PB]}{[B]} \times 100 \quad (1)$$

The present invention relates to a propylene-butene-1 random copolymer which has a butene-1 content of 1-6 mol% and a relative dispersity of butene-1, as determined according to NMR method, of greater than 98.5%. The propylene-butene-1 random copolymer of the present invention has a high relative dispersity of butene-1, as well as better transparency and heat resistance, so that it is more suitable for packaging food that may be edible after heating. Moreover, the copolymer has a lower xylene solubles content at room temperature. In addition, the present invention further relates to a method for preparing the copolymer and to a composition and an article comprising the copolymer.

Green Patent 88

Title: Propylene homopolymer having high melt strength and preparation method thereof

Patent: TH1201003683
ZA201206323
SG10201500468R

Patentee: China Petroleum & Chemical Corp.

The present invention provides a process for preparing high melt strength propylene polymer by direct polymerization, comprising that a propylene polymer with wide molecular weight distribution and containing "very high molecular weight fraction" can be prepared by controlling the species and ratios of the external electron donors in the Ziegler-Natta catalyst system at different reaction stages according to the requirment for different molecular weight fractions in the different propylene polymerization stage of the series operation, and said polymer has excellent mechnical properties, especially with very high melt strength. The present invention also provides a propylene homopolymer with high melt strength, comprising the following features: (1) the MFR is 0.2-10g/10min at 230°C with a load of 2.16kg; (2) the molecular weight distribution Mw/Mn is 6-20; (3) the content of the fraction with a molecular weight higher than 5,000,000 is higher than or equal to 0.8wt%; (4) Mz+1/Mn is higher than or equal to 70. Said homopolymer can be used in the preparation of foam products, thermoforming products, biaxial stretching films, blown films and blow-molded products.

Green Patent 89

Title: Preparation method for propylene homopolymer having high melt strength

Patent: TH1201003683
ZA201206323
SG201205407

Patentee: China Petroleum & Chemical Corp.

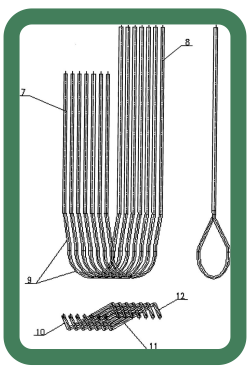
The present invention provides a process for preparing high melt strength propylene polymer by direct polymerization, comprising that a propylene polymer with wide molecular weight distribution and containing "very high molecular weight fraction" can be prepared by controlling the species and ratios of the external electron donors in the Ziegler-Natta catalyst system at different reaction stages according to the requirment for different molecular weight fractions in the different propylene polymerization stage of the series operation, and said polymer has excellent mechnical properties, especially with very high melt strength. The present invention also provides a propylene homopolymer with high melt strength, comprising the following features: (1) the MFR is 0.2-10g/10min at 230°C with a load of 2.16kg; (2) the molecular weight distribution Mw/Mn is 6-20; (3) the content of the fraction with a molecular weight higher than 5,000,000 is higher than or equal to 0.8wt%; (4) Mz+1/Mn is higher than or equal to 70. Said homopolymer can be used in the preparation of foam products, thermoforming products, biaxial stretching films, blown films and blow-molded products.

Green Patent 90

Title: A ethylene cracking furnace

Patent: IDW00201101735
KZ20111543
MYPI2011001671
SG201102713
VN1201101241

Patentee: China Petroleum & Chemical Corp.



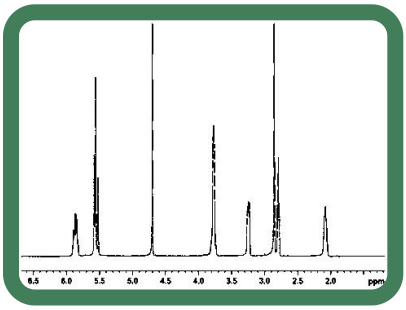
Disclosed is a ethylene cracking furnace which comprises followings: high pressure vapor-bag (1), convection section (2), radiation section, several furnace tubes (14) which are vertically set out in the radiation section, burner (5), and instant-freezing boiler (6); each furnace tube of radiation section comprises one first stroke pipe (7), one second stroke pipe (8) and one connecting piece (9); the cracking material is fed in through the inlet of the first stroke pipe, and drawn out through the outlet of the second stroke pipe; said first stroke pipe (7) and second stroke pipe (8) are non-branched furnace tubes, and the central lines of each furnace tube are in same plane; said connecting piece (9) is a stereo structure which comprises inlet bend (10), return bend (11) and outlet bend (12); said inlet bend (10) and outlet bend (12) are situated on the both sides of the plane in which are the central lines of the first stroke pipe (7) and the second stroke pipe (8); the side project of said connecting pieces (9) is one symmetrical continual endless curve, the inner diameters of furnace tubes are changed at least once along the length direction of said furnace tube.

Green Patent 91

Title: Associated copolymer and preparation method thereof, and drilling fluid

Patent: KZ20151495

Patentee: China Petroleum & Chemical Corp.



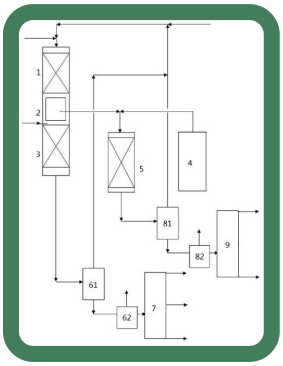
Disclosed are an associated copolymer, a method for preparation of a polymer and a polymer prepared with the method, a use of the associated copolymer and/or the polymer in drilling fluids, and a drilling fluid containing the associated copolymer and/or the polymer. The associated copolymer comprises acrylamide structural units, zwitter-ionic structural units, and cationic polyamine structural units at a specific proportion, and the cationic polyamine structural units have specific kinematic viscosity and cationic degree; thus, when the associated copolymer is used as a viscosity improver for drilling fluids, the obtained drilling fluid not only has favorable apparent viscosity after it is aged at a high temperature, but also has high dynamic shear force, and is resistant to high temperature up to 200° C. or above, resistant to NaCl up to saturated concentration, and resistant to CaCl2 up to 20 wt % concentration.

Green Patent 92

Title: Wax Oil Hydrogenation Method and System

Patent: KZ20180986
IDP00201810955
SG10201811718T

Patentee: China Petroleum & Chemical Corp.



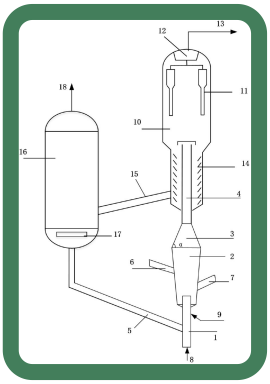
Wax Oil Hydrogenation Method and System The present invention relates to the petroleum refining field, and discloses wax oil hydrogenation method and system. The method comprises: (1) controlling wax oil as feedstock and a hydrogen-containing gas to contact with a first hydro-treating catalyst, dividing a first hydro-treated stream obtained through the contact into two parts, i.e., a first hydro-treated stream A and a first hydro-treated stream B, and performing gas-liquid separation of the first hydro-treated stream A to obtain a first hydro-treated gas-phase stream and a first hydro-treated liquid-phase stream; (2) controlling the first hydro-treated stream B, the first hydro-treated liquid-phase stream, and a hydrogen-containing gas to contact with a second hydro-treating catalyst, to obtain a resultant hydro-treated stream; (3) controlling the first hydro-treated gas-phase stream and light catalytic cracking cycle oil to contact a hydrofining catalyst to have a hydrofining reaction, to obtain a resultant hydro-fined stream. The method and system provided in the present invention can be used to produce high-quality catalytic cracking feedstock, and employ a flexible process and have low energy consumption.

Green Patent 93

Title: Process, Reactor and System for Catalytic Cracking of Hydrocarbon Oils

Patent: SG11202100468T

Patentee: China Petroleum & Chemical Corp.



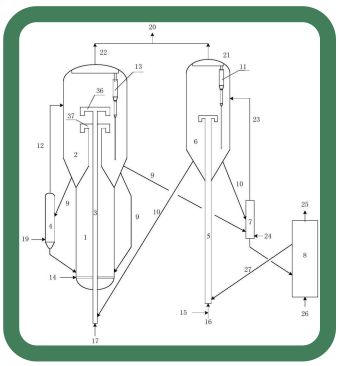
Disclosed are a method, reactor and system for the catalytic cracking of a hydrocarbon oil. The method comprises: a step of bringing a hydrocarbon oil feedstock into contact with a catalytic cracking catalyst in a reactor comprising one or more fast fluidized reaction zones and then reacting same, wherein at least one of the fast fluidized reaction zones of the reactor is a fully-concentrated phase reaction zone, and throughout the fully-concentrated phase reaction zone, the axial solid fraction ε of the catalyst is controlled to be within the range of approximately 0.1 to approximately 0.2. When the method, reactor and system of the present application are used for a catalytic cracking reaction of a hydrocarbon oil, especially a heavy feedstock oil, there is a high oil agent contact efficiency and a good catalytic reaction selectivity, and the yields of a dry gas and coke can be effectively reduced, while the yields of high value-added products such as ethylene and propylene are increased.

Green Patent 94

Title: Method for preparing ethylene propylene

Patent: ZA202304166

Patentee: China Petroleum & Chemical Corp.



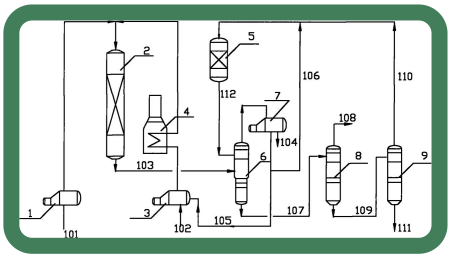
The present invention provides a device for mixing at least two granular materials, comprising a first lifting tube used for loading first particles, and a second lifting tube surrounding and coaxial to the first lifting tube and used for loading second particles, the upper part of said first lifting tube extending beyond the top of said second lifting tube, and at least part of said upper part of the first lifting tube and at least part of said upper part of the second lift tube being located inside a fast bed precipitator, allowing the first and second particles to be transported by means of the first and second lifting tubes to the interior of said fast bed precipitator and mixed.

Green Patent 95

Title: Processes for synthesizing ethylbenzene from ethanol and benzene

Patent: IDP00201100338

Patentee: China Petroleum & Chemical Corp.



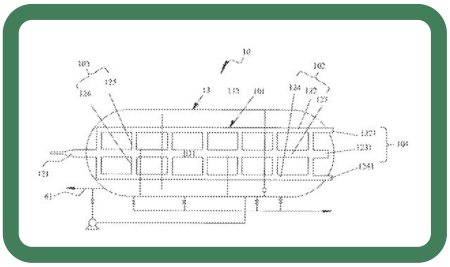
Processes for catalytically synthesizing ethylbenzene from ethanol and benzene comprising: 1) reacting a first mixture comprising ethanol and benzene with at least one catalyst chosen from binder-containing alkylation catalysts and binder-free alkylation catalysts in an alkylation reactor to obtain a second mixture comprising residual benzene, ethylbenzene, diethylbenzene, and water; 2) passing the second mixture successively through a benzene recovery tower, an ethylbenzene recovery tower, and a polyethylbenzene recovery tower to obtain separated water, separated benzene, separated ethylbenzene, and separated diethylbenzene; and 3) reacting a third mixture with at least one transalkylation catalyst in a transalkylation reactor, wherein the third mixture comprises at least some of the separated benzene and at least some of the separated diethylbenzene at a weight ratio ranging from about 2:1 to about 10:1.

Green Patent 96

Title: Separator for oil well produced fluid, and separation device comprising the same

Patent: KZ20160385

Patentee: China Petroleum & Chemical Corp.



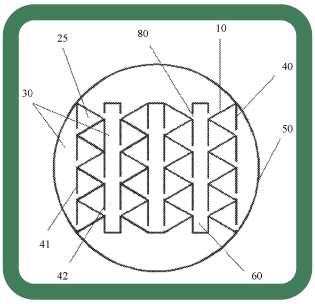
A separator for an oil well produced fluid comprises a housing and a tube group arranged within the housing. The tube group includes a plurality of horizontal pipes in a layered arrangement along a vertical direction, and a plurality of vertical pipes which allows adjacent layers of the horizontal pipes to be in fluid communication with each other. The plurality of horizontal pipes shares an inlet pipe in communication with the outside of the housing, and each of the horizontal pipes has a respective outlet. The separator is configured in such a manner that the horizontal pipes in an upper layer, a middle layer, and a lower layer are respectively used as oil pipes, water pipes, and sediment pipes.

Green Patent 97

Title: Separation device

Patent: KZ20180556

Patentee: China Petroleum & Chemical Corp.



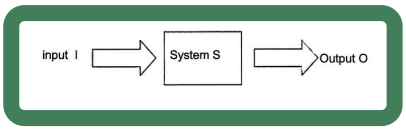
Disclosed herewith a separation device for performing phase separation on a three-phase liquid. The device includes: a housing; at least one pair of longitudinal baffle plates; a flow channel formed between every pair of longitudinal baffle plates; and collection chambers formed between adjacent pairs of longitudinal baffle plates. Each collection chamber is provided with a transverse baffle plate to separate the collection chamber into a first phase and a second phase collection cells. Each flow channel is provided with multiple lateral baffle plates to separate the flow channel into multiple sub-channels. In the areas of each longitudinal baffle plate where the first phase and second phase collection cells are located respectively, said longitudinal baffle plate is provided with a first and a second phase guiding holes in communication with the first phase and the second collection cells respectively.

Green Patent 98

Title: Well bore pressure model prediction system control method

Patent: RU2014121391

Patentee: PetroChina Co., Ltd.



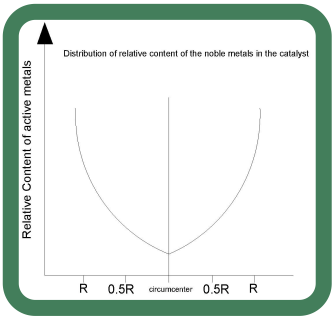
The present invention relates to the technical field of well bore pressure control. Disclosed is a well bore pressure model prediction system control method, comprising: detecting during construction the well bottom pressure, vertical casing pressure, injection flow rate and outlet flow rate, and determining the presence of overflow or leakage; if there is no overflow or leakage, then fine-adjusting the wellhead casing pressure according to the slight fluctuations of the well bottom pressure or the vertical casing pressure, ensuring that the well bottom pressure or the vertical casing pressure are at the set value; if there is overflow or leakage, then using a well bore multi-phase flow dynamic model to simulate and calculate the overflow or leakage position and the overflow or leakage starting time, predicting the variation over a future time period of the well bore pressure in the well drilling process, and utilizing an optimization algorithm to calculate the control parameter under the minimum actual well bottom pressure difference over the future period; and repeating the optimization process for the next time period after a first control parameter is selected and set. The present method enables the well bore pressure to be controlled within the allowable fluctuation range of a project, thus achieving precise pressure control.

Green Patent 99

Title: Method for preparing noble metal hydrogenation catalyst, noble metal hydrogenation catalyst and use thereof

Patent: EA201501105

Patentee: PetroChina Co., Ltd.



Disclosed are a method for preparing a noble metal hydrogenation catalyst comprising preparing a carrier from a molecular sieve having a 10-member ring structure and/or an amorphous porous material; preparing a noble metal impregnation solution; and preparing noble metal impregnation solutions in a concentration gradient ranging from 0.05 to 5.0 wt % with deionized water, and sequentially impregnating the carrier with the impregnation solutions from low to high concentrations during the carrier impregnation process, or preparing a noble metal impregnation solution at a low concentration ranging from 0.05 to 0.5 wt % and impregnating the carrier by gradually increasing the concentration of the noble metal impregnation solution to 2.0 to 5.0 wt % in the impregnation process, followed by homogenization, drying, and calcination, as well as a noble metal hydrogenation catalyst, use thereof, and a method for preparing lubricant base oil.

Green Patent 100

Title: High light received heavy oil catalytic cracking catalyst and preparation method therefor

Patent: SG11201404087V

Patentee: PetroChina Co., Ltd.

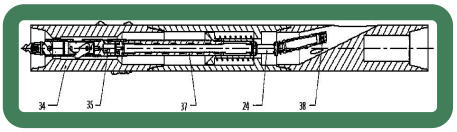
The present invention relates to a high light received heavy oil catalytic cracking catalyst and a preparation method therefor. The catalyst contains 2%-50% of magnesium modified ultra-stable rare earth Y-type molecular sieve by weight, 0.5%-30% of one or more types of other molecular sieves by weight, 0.5%-70% of clay by weight, 1.0%-65% of heat-resisting inorganic oxide by weight, and 0.01%-12.5% of rare earth oxide by weight. The magnesium modified ultra-stable rare earth Y-type molecular sieve is obtained by using an NaY molecular sieve as the raw material and by performing rare earth exchange, dispersion pre-exchange, magnesium salt exchange modification, ammonium salt exchange sodium reduction, and "exchanging twice roasting twice". The catalyst provided by the present invention has the features of high heavy oil conversion capability and high yield of light oil.

Green Patent 101

Title: Sidewall coring while drilling tool

Patent: RU2014145197

Patentee: PetroChina Co., Ltd.



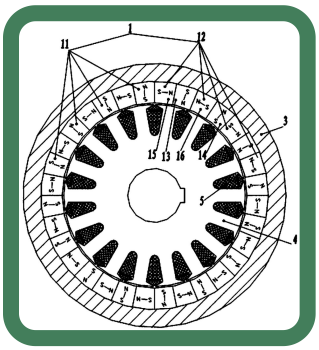
Disclosed is a sidewall coring while drilling tool. The tool comprises an outer barrel set (34), a fishing mechanism (35), a drilling and sealing mechanism (36), a propulsion mechanism (37) and a coring mechanism (38), wherein the outer barrel set (34) is principally composed of a stabilizer (1), a limiting connector (22) and a steering connector (23) connected in succession; the fishing mechanism (35) is principally composed of a fishing socket (39), a fishing head set (40) and a steel wire rope (33); the drilling and sealing mechanism (36) is principally composed of a connecting rod (28), a universal joint (24), a plug sleeve (29) and a sealing plug (30) connected in succession; the propulsion mechanism (37) is principally composed of a planar thrust bearing (17), a screw stator (18), a screw rotor (19), a limiting piston (20) and a first spring (21); and the coring mechanism (38) is principally composed of a coring barrel (25), a rock core catcher (26) and a coring drill bit (27). Prior to coring the tool does not require a drill tool to be removed and can realise sidewall coring while drilling. The sidewall coring while drilling tool is also suitable for coring layers of earth already drilled and can successfully attain a rock core with sufficient length and relatively large diameter, ensuring rock core quality.

Green Patent 102

Title: Winding type permanent magnet coupling transmission device

Patent: RS20221097

Patentee: Jiangsu Magnet Valley Technologies Co., Ltd.



A winding type permanent magnet coupling transmission device, comprising a permanent magnet rotor and a winding rotor that is coaxial with the permanent magnet rotor and capable of rotating relative to the permanent magnet rotor. An air gap (9) exists between the permanent magnet rotor and the winding rotor. The winding rotor is connected to a control structure (17) capable of regulating the current/voltage of the winding rotor. The control structure is capable of controlling the current or voltage of the winding rotor, so as to regulate the output torque of the transmission device, with no need to configure any corresponding mechanical execution mechanism. Therefore, the transmission device has a simple structure and small energy loss.

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