

# 化工新型材料®

## NEW CHEMICAL MATERIALS

● 中国化工信息中心 ● 上海和氏璧化工有限公司

**和氏璧化工**  
Hersbit Chemical

现在及未来市场领导者的成功伙伴  
Preferred Partner for Current and Emerging Market Leaders

千种选择, 供您查阅  
Thousands of Choices for Your Reference

[km.ncmchem.com](http://km.ncmchem.com)



共同创造 **低碳** 新生活  
Create a low-carbon lifestyle corporately

400-888-8899 mod@ncmchem.com  
关注微博 <http://weibo.com/2594309644>  
Attention micro-blog

和氏璧化工将有效地动员、组织我们的现有和潜在资源服务于您(及您的企业)  
NCM will effectively mobilize and organize our current and potential resources to serve you (and your enterprises)  
知识及精细化工 聚合物 溶剂 特种纤维 助剂 填料等分销服务  
Knowledge and Fine Chemicals, Polymers, Solvents, Special Fibers, Additives, Fillers and Distribution Services



ISSN 1006-3536  
9 771006 353001 1 2 >  
万方数据

2012 12

1973年创刊 月刊

第40卷 第12期(总第483期)

主管: 中国石油和化学工业协会

主办: 中国化工信息中心

协办: 和氏璧化工

支持: 宁波化学工业区

江苏工业学院化工学院

常州江工化工设计研究院

吉林石化公司研究院

出版: 中国化工信息中心

主编: 林莉

化工新型材料编辑部

地址: 北京安定门外小关街53号(100029)

电话: (010)64437113

传真: (010)64437113

http://www.hgxx.org

http://www.hgxx.org.cn

http://nm.cheminfo.gov.cn

E-mail: hgxx@cheminfo.gov.cn

国际标准刊号: ISSN 1006-3536

国内统一刊号: CN 11-2357/TQ

广告经营许可证: 京朝工商广字第8004号(1-1)

印刷: 北京科信印刷有限公司

出版日期: 2012年12月

发行: 国内外公开发行

总发行: 北京报刊发行局

订购: 全国各地邮电局

邮发代号: 82-816

定价: 内地13元/本 全年156元

台港澳100美元/年(800港元/年)

国外120美元/年

<b>综述与专论</b>	
·树脂基热防护材料研究进展	王富忠 秦岩 黄志雄等(1)
·聚苯并咪唑在高温质子交换膜燃料电池中的应用研究进展	徐帆 范晨亮 徐宏杰等(4)
·光敏树脂研究进展	陈建山 周钢(7)
·锂离子电池用酚醛树脂热解碳负极材料的研究进展	王元瑞 强国俊 吕贤浩等(9)
·纳米SiO <sub>2</sub> 表面化学改性补强硅橡胶的研究进展	梁鹏 石耀刚 李晓(12)
·高分子纳滤膜制备方法研究进展	蒋佳雨 展侠 于群等(15)
·有机硅构建超疏水表面的研究进展	侯成成 管自生(19)
·生物质气化技术的研究进展	武卫荣 崔淑贞 高文超(22)
<b>新材料与新技术</b>	
·聚吡咯/凹凸棒石水性导电涂料的制备	陆中 李恒 左士祥等(25)
·PM <sub>10</sub> V <sub>2</sub> /PANI/TiO <sub>2</sub> 复合材料的制备及光催化性能	马荣华 房武祥(28)
·溶剂萃取法制备高电导率聚苯胺	张可青 杨俊伟 司新生等(31)
·酯化淀粉制备工艺条件的研究	马征 卢艳 卢大山等(34)
·聚苯胺/聚丙烯复合微孔膜的研究	蒋娟 谢淘 郑涛等(37)
·基于煤沥青质族组成的陶瓷-炭复合膜制备	陈冬梅 秦志宏 李新艳等(40)
·微波法制备聚丙烯酸/膨润土复合高吸水材料的特征研究	马琦 程志强 康立娟等(43)
·抗菌纤维织物的制备及表征	王留阳 廖洪林 王芳颖(46)
·包埋碳纳米管凝胶球的制备及吸附性能研究	任德财 秦柏雪 辛苗等(49)
·掺锡二氧化锡纳米涂层电极制备及电催化氧化性能	杨芬 甘复兴(52)
·水热法与溶胶-凝胶法复合制备锂离子筛前驱体膜	张林栋 陈晓燕 纪志永等(56)
·PANI/TiO <sub>2</sub> 复合材料的合成条件研究及可见光催化性能	何方元 宋燕西 陈勇航等(58)
·聚苯硫醚气流牵伸丝的制备与热处理研究	鲍德 邓炳耀 刘庆生等(61)
<b>科学研究</b>	
·银改性阳极氧化TiO <sub>2</sub> 纳米管及光催化性能研究	钟捷敏 赵蓉 鹿九云等(64)
·PLA/GF/EVA复合材料的制备及性能研究	韩冰 张春祥 吴玉成等(67)
·DMF/SiO <sub>2</sub> 有机溶胶的制备与表征	刘见祥 仇伟 张波等(70)
·自乳化型非离子水性环氧树脂固化剂的合成与性能研究	王心伟 李群 孔合心等(73)
·高温改性凹凸棒石对Cr(VI)的吸附研究	郑建东 常彬彬 吴霖生(74)
·新型耐溶剂纳滤膜的性能表征	任元丹 蒋元力 张婕等(79)
·CeO <sub>2</sub> :Eu <sup>3+</sup> 纳米晶的发光特性与Gd <sup>3+</sup> 离子掺杂影响研究	郭艳艳 吴杏华 孙光厚等(82)
·生物降解PBAT的合成与表征	苑仁旭 徐依斌 麦堪成(85)
·OTS自组装分子膜的制备及其摩擦学测试	薛守庆(88)
·含氟丙烯酸疏水树脂强化水蒸汽冷凝传热研究	张雷 潘莉莎 徐树英等(91)
·双酚A型聚酰亚胺单体BAPP的合成与表征	柯昌美 王茜 汪振忠等(94)
·KOH活化后多壁碳纳米管结构及其活化机理的研究	金效齐 刘俊 周云波(97)
·还原氧化石墨烯/Al-Ni层状双氢氧化物复合物的制备及其电化学电容行为	鲁爱莲 胡中爱 胡英琪等(100)
·扩链剂对环氧聚氨酯复合乳液性能的影响	张丽 杨光瑞 贺国旭等(107)
·ZnS:La纳米晶的制备及其光学性质研究	张丽 杨光瑞 贺国旭等(107)
·草酸盐共沉淀法合成LiNi <sub>0.8</sub> Co <sub>0.1</sub> Mn <sub>0.1</sub> O <sub>2</sub> 及电化学性能	韦向红 苏静 吕奕菊等(110)
·咪唑基改性的水溶性PDI荧光材料的合成和表征及对Cu <sup>2+</sup> 离子的荧光检测	王凯凯 张齐贤 李亚丰等(114)
·静态化学气相沉积法制备SiC纤维的拉伸强度分布研究	赵松 史景利 魏兴海等(117)
·1-丁烯共聚弹性体的微观结构表征	李兰阁 邵华锋 刘晨光(121)
<b>开发与应用</b>	
·生物质基聚氨酯泡沫的制备及吸油性	杜峰 项尚林 方显力(123)
·C/SiO <sub>2</sub> 复合微纳米粒增强环氧树脂	吕文晏 程俊华 闻获江(126)
·氨水对纳米氧化锌的影响	权正男 吴丹 王维等(129)
·PVDF/PMMA/TiO <sub>2</sub> 共混薄膜的耐候性能研究	侯佳音 曾雨晴 李辰等(132)
·有机硅改性喷涂聚脲的性能研究	张武英 刘红波 林峰等(135)
·粉状活性炭颗粒制备、脱色性能及再生性能研究	李洁 熊莲 张海荣等(137)
·端羟基基聚甲基苯基硅氧烷改性水性聚氨酯的合成及性能	陈存友 王庭魁 狄超等(140)
·载银剑麻抗菌纤维的制备及其抗菌性能的研究	马肃 刘峰 袁帅等(143)
·玉米淀粉接枝顺丁烯二酸酐高分子吸水树脂的制备和保水性能研究	李铭慧 郭明 高兴军等(147)
·铝板基体上疏水表面的制备及防腐蚀性研究	陈桐滨 吴云彩(150)
·WJ-8扣件系统中弹性垫板的应力松弛性能研究	罗玉媛 唐功庆 刘佳等(152)
<b>NCM产品介绍</b>	
·GPPS注塑/挤出通用级高透明PS抗静电技术—PS ANTISTATIC 8008	范宏杰(155)
<b>消息报道</b>	
特种炭黑母料助力聚乙烯管材,为水质安全护航(156)林化所反相悬浮聚合合法制备两性离子型纤维素基高吸水树脂产业化技术通过国家验收(156)第434次香山科学会议:磁性纳米材料及其交叉学科的关键科学问题(156)稀土元素分离技术获重大突破(157)复旦大学研发出新型纳米钛酸锂电极材料充放电循环数千次以上,电池寿命大大延长(157)双层平板膜技术成本低效率高(157)3M新一代电池技术引领未来能源市场(157)巴斯夫在美国俄亥俄州伊利亚里锂离子电池阴极材料生产厂投产(158)霍尼韦尔中化合资公司在中国建设HFC-245fa项目(158)帝人碳纤维增强的热塑性塑料厂开始运营(158)	

NEW

# CHEMICAL MATERIALS

Vol. 40, No. 12, 2012

(Total No. 483)

Monthly, Foundation in 1973

Supervisor: China Petroleum & Chemical  
Industry Association

Sponsor: China National Chemical  
Information Center (CNCIC)  
NCM Hersbit Chemical Co., Ltd.

Editor: China National Chemical Information  
Center (CNCIC)

Chief Editor: Lin Li

Address: No. 53 Xiaoguanjie, Anwai  
Beijing, P. R. China

Post Code: 100029

Telephone: (010)64437113

Fax: (010)64437113

http://www.hgxx.org

http://www.hgxx.org.cn

http://nm.cheminfo.gov.cn

E-mail: hgxx@cheminfo.gov.cn

ISSN 1006-3536

CN 11-2357/TQ

Subscription rates for 1 year:

China mainland RMB¥156

Hongkong, Macao, Taiwan US \$ 100.00  
(HK \$ 800.00)

Rest of the world US \$ 120.00

## MAIN CONTENTS

- Recent research progress of resin-based thermal protection materials ..... Wang Fuzhong Qin Yan Huang Zhixiong, et al (1)
- Recent progress in polybenzimidazoles applied for high temperature proton exchange membrane fuel cell ..... Xu Fan Fan Chenliang Xu Hongjie, et al (4)
- Research progress in photosensitive resin ..... Chen Jianshan Zhou Gang (7)
- Research progress on the hard carbon as anode material obtained by pyrolysis of phenolic resin for lithium-ion batteries ..... Wang Yuanrui Qiang Guojun Lu Xianhao, et al (9)
- Progress in surface chemical modification of nano-silica for reinforcing silicone rubber ..... Liang Peng Shi Yaogang Li Xiao (12)
- Progress of polymeric nanofiltration membrane preparation methods ..... Jiang Jiayu Zhan Xia Yu Qun, et al (15)
- Progress in superhydrophobic surfaces prepared by organosilane ..... Hou Chengcheng Guan Zisheng (19)
- Research progress of biomass gasification technology ..... Wu Weirong Cui Shuzhen Gao Wenchao (22)
- Preparation of novel conductive water-based acrylic coating by using polypyrrole/attapulgite nanocomposites ..... Lu Zhong Li Heng Zuo Shiriang, et al (25)
- Preparation of composite PMOV<sub>2</sub>/PANI/TiO<sub>2</sub> and photocatalytic performance ..... Ma Ronghua Fang Wuziang (28)
- Polyaniline with high electrical conductivity prepared by extracting ..... Zhang Keqing Yang Junwei Si Xincheng, et al (31)
- Study on preparation conditions of esterified starch ..... Ma Zheng Lu Yan Lu Dashan, et al (34)
- Preparation and characterization of PANI/PP composite microporous membrane ..... Jiang Shan Xie Xun Zheng Tao, et al (37)
- Preparation of ceramic-carbon composite membrane based on the coal asphaltene group component ..... Chen Dongmei Qin Zhihong Li Xinyan, et al (40)
- Study on synthesis and characterization of polyacrylic acid/bentonite composite superabsorbent under microwave irradiation ..... Ma Qi Cheng Zhiqiang Kang Lijuan, et al (43)
- Preparation and characterization of antimicrobial cellulose fabric ..... Wang Liuyang Liao Honglin Wang Fangying (46)
- Study on the preparation of gel beads embedded carbon nanotubes and adsorption performances ..... Ren Decai Qin Baixue Xin Miao, et al (49)
- Preparation of tin oxide doped with antimony nano-coating electrode and electro-catalysis oxidation property ..... Yang Fen Gan Fuxing (52)
- Synthesis of lithium ion-sieve membrane by hydrothermal and sol-gel methods ..... Zhang Lindong Chen Xiaoyan Ji Zhiyong, et al (56)
- Synthesis conditions of PANI/TiO<sub>2</sub> composite materials and visible light photocatalytic activity ..... He Fangyuan Song Yanzi Chen Yonghang, et al (58)
- Preparation of polyphenylene sulfide airflow drafting fiber and its heat treatment ..... Bao Wen Deng Bingyao Liu Qingsheng, et al (61)
- Preparation and Ag-modification of anodized titania nanotube array and its photocatalytic activity ..... Zhong Jiemin Zhao Rong Lu Jiuyun, et al (64)
- Preparation and properties of PLA/GF/EVA composite ..... Han Bing Zhang Chunxiang Wu Yucheng, et al (67)
- Preparation and characterization of DMF/SiO<sub>2</sub> organic sol ..... Liu Jianxiang Qiu Wei Zhang Bo, et al (70)
- Study on synthesis and properties of nonionic type self-emulsified waterborne epoxy curing agent ..... Wang Xinwei Li Qun Kong Herin, et al (73)
- Study on adsorption of Cr<sup>6+</sup> in solution with attapulgite clay modified at high temperature ..... Zheng Jiandong Chang Binbin Wu Linsheng (76)
- Characterization of the new solvent-resistance nanofiltration membrane ..... Ren Yuandan Jiang Yuanli Zhang Jie, et al (79)
- Luminescence properties and doping effect of Gd<sup>3+</sup> on CeO<sub>2</sub>:Eu<sup>3+</sup> nanocrystals ..... Guo Yanyan Wu Xinghua Sun Guanghou, et al (82)
- Synthesis and characterization of biodegradable poly(butylene adipate-co-butylene terephthalate) ..... Yuan Renxu Xu Yibin Mai Kan Cheng (85)
- Synthesis and tribological properties of OTS self-assembled monolayers ..... Xue Shouqing (88)
- Heat transfer intensification of water steam condensation by fluoride acrylic hydrophobic resin ..... Zhang Lei Pan Lisha Xu Shuying, et al (91)
- Synthesis and characterization of bisphenol A type polyimide monomer BAPP ..... Ke Changmei Wang Qian Wang Zhenzhong, et al (94)
- Investigation of structure and mechanism of KOH activation of multiwalled carbon nanotubes ..... Jin Xiaohui Liu Jun Zhou Yunbo (97)
- Preparation and electrochemical capacitive behaviors of reduced graphene oxide/Al-Ni layered double-hydroxide composite ..... Lu Ailian Hu Zhong'ai Hu Yingying, et al (100)
- Effect of chain extender on properties of epoxy polyurethane hybrid emulsion ..... Deng Zhaoxia (104)
- Study on preparation and optical properties of ZnS:La nanocrystals ..... Zhang Li Yang Guangrui He Guozu, et al (107)
- Electrochemical properties of LiNi<sub>0.8</sub>Co<sub>0.1</sub>Mn<sub>0.1</sub>O<sub>2</sub> prepared by oxalate co-precipitation method ..... Wei Xianghong Su Jing Lv Yiju, et al (110)
- Synthesis and characterization of aqueous perylene diimide fluorescent material for sensing Cu<sup>2+</sup> ions ..... Wang Kaikai Zhang Qixian Li Yafeng (114)
- The tensile strength distribution of SiC fibers fabricated by static cold-wall chemical vapor deposition ..... Zhao Song Shi Jinli Wei Xinhai, et al (117)
- Characterization of microstructure of 1-butene copolymer elastomer ..... Li Lange Shao Huaifeng Liu Chenguang (121)
- Synthesis and oil adsorption of biomass polyurethane foams ..... Du Feng Xiang Shanglin Fang Xianli (123)
- The study on epoxy resin improved by the C/SiO<sub>2</sub> micronano-particles ..... Lv Wenyan Cheng Junhua Wen Dijiang (126)
- The influence of aqueous ammonia on nano-ZnO ..... Quan Zhengnan Wu Dan Wang Wei, et al (129)
- Anti-aging property of PVDF/PMMA/TiO<sub>2</sub> composite film ..... Hou Jiayin Zeng Yuqing Li Chen, et al (132)
- Synthesis and properties of silicone-modified spray polyurea ..... Zhang Wuying Liu Hongbo Lin Feng, et al (135)
- Study on the preparation, decolorizing and regenerating performances of granular activated carbons ..... Li Jie Xiong Lian Zhang Hairong (137)
- The synthesis and performance of hydroxylalkyl terminated polymethylphenylsiloxane modified waterborne polyurethane ..... Chen Cunyou Wang Tingwei Di Chao, et al (140)
- Fabrication of antibacterial sisal fiber with Ag and its antibacterial property ..... Ma Su Liu Zheng Yuan Shua, et al (143)
- Study on synthesis and water absorbency of grafting copolymerization of maleic anhydride onto core starch superabsorbent ..... Li Minghui Guo Ming Gao Xingjun, et al (147)
- Fabrication and anticorrosion property of hydrophobic films on aluminum ..... Chen Tongbin Wu Yunying (150)
- Study on stress relaxation characteristics of elastic pad in WJ-8 fastener system ..... Luo Yuyuan Tang Gongqing Liu Jia, et al (152)