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The Journal of Adhesion

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713453635>

Titles and Abstracts from the China Journal “Chemistry and Adhesion”

To cite this Article (1994) "Titles and Abstracts from the China Journal “Chemistry and Adhesion””, *The Journal of Adhesion*, 44: 3, 229 – 235

To link to this Article: DOI: 10.1080/00218469408027079

URL: <http://dx.doi.org/10.1080/00218469408027079>

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Titles and Abstracts from the China Journal "Chemistry and Adhesion"

Chemistry and Adhesion No. 1, 1993 Total 43

Contents

Study on the Synthesis of Polyesteramide Hot melt Adhesives for Textile by Co-polycondensation.....	Zhang Duan <i>et al.</i>	[1]
Study on the Relation of Structure and Properties of Composite EVA/PMMA Emulsion	Cheng Shiyuan <i>et al.</i>	[5]
A Study of Improved Polyurethane for Grouting	Ye Yuezhong <i>et al.</i>	[10]
Study of the Adhesive Based on EVA Emulsion for PVC Laminated Films	Fu Rongxing <i>et al.</i>	[14]
Study on YD-8690 Hot-Melt Polyisobutylene Sealing Adhesive for Insulating Glass Unit	Ji Shaoqing	[17]
Research into Deodorization Process of Epoxy-polyacrylic Ester IPN Emulsion	Chen Jun <i>et al.</i>	[20]
Catalytic Synthesis of Sebacates by Tungstogermanic Acid Catalyst	Wu Qingyin <i>et al.</i>	[24]
Synthesis of Amino-polyethylenephosphonic Acids by Using Phosphorous Trichloride	Long Jiahong <i>et al.</i>	[27]
Detection of impurities in Bisphenol-A by HPLC	Ling Wanyou	[30]
Bonding of HDPE Water Feed Pipe with Hot-Melt Adhesive	Fang Tongyu	[47]
The Contents List and Abstracts of <i>The Journal of Adhesion</i> Vol. 37, Nos. 1-3 (1992)		[59]

Study on the Synthesis of Polyesteramide Hot melt Adhesives for Textile by Co-polycondensation

Zhang Duan, Li Chunzhen, Wang Runhang

Hebei Institute of Technology

Abstract

The polyester-amide hot melt adhesive was prepared by copolycondensation of dibasic acid, dibasic alcohol and diamine. It was proved that the products were polyesteramide by the extraction experiment and the IR analysis. The hot melt adhesives prepared with this material are of both the advantages of the polyester and the polyamide. It can be used in bonding textile with bearing water washing and dry washing performance.

Key Words: Polyester; Hot melt adhesive; Copolycondensation; Solution extraction; Dry washing.

Study on the Relation of Structure and Properties of Composite EVA/PMMA Emulsion

Cheng Shiyuan, He Huoming

Department of Chemistry, Hubei University

Abstract

Composite EVA/PMMA emulsion was prepared by semi-bath seeded emulsion polymerization. The forming mechanism of composite particles was studied by TEM. The surface formation of latex films was investigated by SEM. The crosslinking reaction of active monomer and its effect on the property of composite latex film were discussed. The results were showed as follows:

If the active monomer was introduced in second stage of emulsion polymerization, the crosslinking reaction would take place in the middle of molecular chain of two components of composite latex film, which would lead to the increase of the compatibility of EVA and PMMA. EVA/PMMA composite latex film had good water-resisting property and great tensile strength and great extensibility.

Key Words: ethylene-vinyl acetate; methyl methacrylate; composite emulsion; crosslinking reaction; structure; property.

A Study of Improved Polyurethane for Grouting

Yu Yuezhong, Zheng Shengge and Pan Shaowei

South-west Traffic University

Abstract

The prepolymer of improved polyurethane designed for grouting was prepared with toluene diisocyanate (TDI), diphenyl methane diisocyanate (MDI), polyether (N505 and N303) and epoxy resin (E-44 and E-51). The effect of curing agent and diluent on the mechanical properties were also studied in this paper.

Key Words: polyurethane; diisocyanate; polyether; epoxy resin; grouting.

Development of the Adhesive based on EVA Emulsion for PVC Laminated Films

Fu Rongxing, Han Xiao and Shen Jiefa

Jiangsu Chemical Technology College

Abstract

The adhesive designed for PVC laminated films was composed of EVA emulsion, rosin and polyterpene resin. The effects of coating quantity, cure temperature and time, and the kinds of tackifier and its content on the peel strength were discussed in this paper.

Key Words: Ethylene-vinyl acetate copolymer (EVA); emulsion; adhesive; PVC laminated films.

Chemistry and Adhesion
No. 2, 1993 Total 44

Contents

Study of JGN Heat-resisting Structure Adhesive for Architecture	[63]
..... He Manluo, Sun Xuebin, Lin Zhijiang	
The Alternating Copolymerization of Styrene with Maleic Anhydride (SMA) and the Application of the Copolymer	[75]
..... Wang Rongwei, Yu Jianyi, Zhang Zhengbai	
Synthesis of Imidazoline Type Amphoteric Surface	[83]
..... Wang Jun, Liu Wenbin	
Preparation of PVAc Emulsion by Hydrolysates of Waste Fibers of Acrylonitrile Polymer	[86]
..... Zhang Guangyan <i>et al.</i>	
Analysis of Organic Impurity in Acrylamide by Gas Chromatography	[89]
..... Qi Xiangqian, Wei Li, Wang Man	
Applications of Chlorinated Paraffins and New Advances in the Technology of Paraffin Chlorination	[95]
..... Liu Junxian, Zhangtong	

Study of JGN Heat-resisting Structure Adhesive for Architecture

He Manluo, Sun Xuebin and Lin Zhijiang

Dalian Chemistry-Physics Institute of the Chinese Academy Sciences, 116012 Dalian

Abstract

The formulation, physical properties and bonding strength of JGN heat-resisting structure adhesive were described. The adhesive was mainly composed of epoxy resin and modified aromatic amine, which could be cured at room temperature and used at 80°C. Various properties of the adhesive were excellent. Satisfactory results have been obtained in the applications to building reinforcement.

Key Words: adhesive; heat-resisting adhesive; building material.

Alternating Copolymerization of Styrene with Maleic Anhydride (SMA) and Application of the Copolymers

Wang Rongwei, Yu Jianyi and Zhang Zhengbai

(Shanghai Research Institute of Petrochemical Technology)

Abstract

In this paper, alternating SMA copolymers (esterified by *n*-butanol with esterification degree about 20–30%) were prepared by precipitation copolymerization. The intrinsic viscosities of these copolymers were from 0.52 to 0.55 dl/g (30°C, in methyl ethyl ketone). It was shown that the dilute alkaline solutions of these copolymers could be used as emulsifying or dispersing agents with excellent performances. The synthetic and characterizing method were also described in the paper.

Key Words: SMA copolymer; intrinsic viscosity; viscosity of dilute alkaline solution; dispersant agent; surface sizer for paper; precipitation copolymerization.

Chemistry and Adhesion
No. 3, 1993 Total 45

Contents

Study of the Damping Material Based on Epichlorohydrin Oligomer/Epoxy Resin.	[129]
. Cuo Finchun <i>et al.</i>	
Study on the One-Package Foamable Polyurethane Adhesive	[133]
. LI Xuefang	
Study of Adhesives for Bonding Brakes	[137]
. Song Guangyu	
Investigation on Polyethylene Adhesive as Backing Glue	
. Hao Lixin, Sun Shengbing, Lu Xiyuan	[141]
A Study on the Mechanical Property of PP-PA Polymer Alloys.	[147]
. Zhao Shulan	
A Study of Inorganic Filler in Epoxy Resin Pouring Sizing for Electrical Engineering	
. Sheng Shouguo, Zhang Xianyou	[151]
Development of Polyglycidyl Ester as New Cryogenic Adhesive	[156]
. Wu Shunyuan	
Analysis of the Composition of Water Soluble Adhesive Polyvinyl Pyrrolidone(PVP)	
. Su Haiying, Wang Shaoxian, Yen Henggang	[164]
The Contents List and Abstracts of <i>The Journal of Adhesion</i> Vol. 37, No. 4 (1992), Vol. 38,	
Nos. 1-4 (1992).	[188]

Study of the Damping Material Based on Epichlorohydrin Oligomer/Epoxy Resin

Cuo Finchun, Han Xiaou, Zhang Qingyu and Ming Weili

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences

Abstract

A mixture of liquid hydroxy-terminated polyepichlorohydrin (PECH) and epoxy resin was cured by using a diacid anhydride and a tertiary amine catalyst to obtain a good vibration damping material. The effects of the amount of PECH on the mechanical and dynamic mechanical properties of the material were studied.

Key Words: hydroxy-terminated polyepichlorohydrin; epoxy resin; damping material.

Study on the One-Package Foamable Polyurethane Adhesive

LI Xuefang

Changchun Institute of Applied Chemistry, Chinese Academy of Sciences

Abstract

A one-package foamable polyurethane adhesive was synthesized by the reaction of hydroxy-terminated polyether with excessive polyisocyanate. The adhesive can be cured with moisture or water and the cured resin has good mechanical properties and storage stability. The effects of some factors on the properties and curing course were studied.

Key Words: One-package; polyurethane; adhesive moisture cured.

Study of Adhesives for Bonding Brake

Song Gangyu, Xu Lianxiang, Huang Shaojun, Pan Huiming and Ding Xiuying

Material Science Institute, South China Science and Engineering University

Abstract

The adhesive was prepared by using phenolic resin, modifier and filler. The effect of some factors (modifying agent, filling agent and curing technique) on various properties of the adhesive was studied. After 180 hr. ageing at 200 °C, the impact strength is 1.23 MPa, and the compression shear strength is 3.5 MPa for bonding brakes.

Key Words: Brake; modifying agent; differential scanning calorimeter; thermo-gravimetric analysis.

Investigation on Polyethylene Adhesive as Backing Glue

Hao Lixin,* Sun Shengbing,** Lu Xiyuan*

*Qingdao College of Chemical Technology

**Rongcheng Rubber Factory of Shandong Province

Abstract

A hot-melt backing glue was prepared by polyethylene powder. The surface of the glue was covered with surface-active substance which was the prepolymer of butyl hydroxyl or polyether polyurethane. The process parameters was optimized and determined. This backing glue is of high adhesion strength, washes well and is pleasant for the feeling.

Key Words: polyethylene; polyurethane prepolymer; heat-meltable adhesive; backing glue for costume.

A Study on the Mechanical Property of PP PA Polymer Alloys

Zhao Shulan, Tian Yengan, Xue Kai* and Wang Tie**

*The Chemical Engineering Department, Harbin Shipbuilding Engineering Institute

**The Application Chemical Department, Harbin Institute of Technology

Abstract

The melting-blends of polypropylene (PP) and polyamide (PA) and the mechanical properties of the well performed new material in the presence of polypropylene-grafted-maleic anhydride (pp-g-MAH) were studied. The orthogonal experiment method was employed to optimise the recipes of above-mentioned blends. The corresponding experienced formula was found out.

Key Words: polypropylene; polyamide; maleic anhydride; blend; mechanical property.

Chemistry and Adhesion
No. 4, 1993 Total 46

Contents

Study on Heat-Resistant Adhesive J-27H	[193]
..... Guan Changshen, Zhang Entian, Zhang Bin	
The Development of High Emissive Coatings	[199]
..... Ma Hengshou <i>et al.</i>	
Research of Molybdenum-Modified Phenol-Formaldehyde Resin used for Adhesive ..	
..... Gou Xiaohui <i>et al.</i>	[203]
Development of Stick Adhesive for Pipe Sealing	[207]
..... Liu Defu, Gao Sannan, Jin Yuxi	
Analysis of Chlorion in Petroleum Resin	[214]
..... Sun Xiaohong, Liu Naifen, Li Jia Lin	
Application of VAE Emulsion in Adhesive	[226]
..... Liu Yuzhi	
Application of Rubber Adhesive for Production	[232]
..... Liu Jinghua <i>et al.</i>	
Discussion of the Methods for Rapid Determination of Fatigue Limits of Adhesives...	
..... Wang Changjie, Hong Youquin	[238]
The Contents List and Abstracts of <i>The Journal of Adhesion</i> , Vol. 39, Nos. 1-4 (1992),	
Vol. 40, Nos. 1 (1992)	[252]

Study on Heat-Resistant Adhesive J-27H

Guan Changshen, Zhang Entian and Zhang Bin

The Institute of Petrochemistry, Heilongjiang Academy of Sciences

Abstract

A new heat-resistant adhesive J-27H is a bismaleimide-modified epoxy double component adhesive. The adhesive exhibits excellent bonding strength to metals, glass, ceramic, asbestos, graphite etc. The adhesive can served from -60°C to 250°C . It is designed for the manufacture of aircraft motor.

Key Words: bismaleimide; modify; heat-resistance aircraft motor.

The Development of High Emissivity Coatings

Ma Hengshou, Li Junhai, Geng Qingsheng and Chang Lichun

Petrochemistry of Institute, Heilongjiang Academy of Sciences

Abstract

High emissive coatings are useful for enhancing efficiency of heat transmission by emissivity. Two kinds of emissive materials based on SiC and oxide was developed with high-emissivity rate, high-bond strength and thermal shock resistance.

The materials also reduce energy consumption, increase service life, improve temperature uniformity and shorten heat time,

Key Words: silicon carbide; emissivity; ceramic coatings.

Research of Molybdenum-Modified Phenol-Formaldehyde Resin used for Adhesive

Gou Xiaohui, Liu Xiaohong, Wang Yuanliang, Li Haijun

Institute of Chemistry and Engineering, Chongqing University

Abstract

This paper describes the synthesis and properties of molybdenum-modifying phenol-formaldehyde (Mo-PF). The decomposing temperature of the synthetic Mo-PF is 522°C, with the residue being 82.5% at 600 C. The other properties reach the standard for the same type of resins. The principal properties of Mo-PF adhesive meet the demand of the adhesive J-04, a brake adhesive, and the service temperature is higher than others.

Key Words: molybdenum-modified phenol-formaldehyde; adhesive; J-04.

The Journal "Chemistry and Adhesion" may be contacted at: Petrochemical Institute of Heilongjiang Academy, 160 Zhongshan Avenue, Harbin, Heilongjiang, PEOPLE'S REPUBLIC OF CHINA.