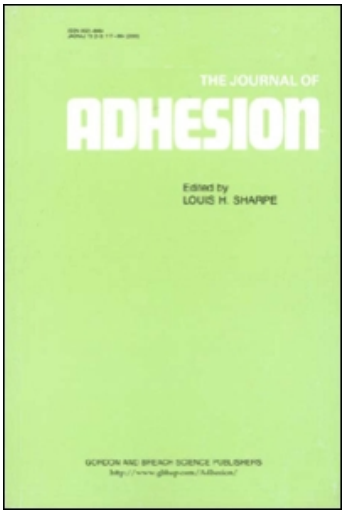

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Contents

Study on Thermal Resistance and Dynamics of Methacrylate Modified by Maleimide

Wang XINGDONG, Kuang ZHIXIANG and Yang YINGTAI

(Guangzhou Institute of Chemistry, Academy of Sciences, Guangzhou, The People's Republic of China)

Abstract

The heat resistance of 1, 1, 1-trimethylolpropanetrimethacrylate —N, N′ (methylenedi-p-phenylene) dimaleimide copolymer (I) was studied. The results show that N, N′ (methylenedi-p-phenylene) dimaleimide could largely improve the thermal resistance of 1, 1, 1-trimethylolpropanetrimethacrylate polymer. In N_2, the

weight-loss temperature of copolymer (I) (with 0.09 part maleimide) at the weight-loss of 10%. 20% was 404 and 424 C, respectively. The thermal decomposition dynamics parameter of polymer and curing reaction dynamics parameters of meth-acrylate-maleimide system were calculated from the DSC data. The decomposition activation energy increased greatly with increasing of the amount of maleimide.

KEY WORDS (meth)acrylate; thermal resistance; dynamics

Study of Synthesis of Water Soluble Melamine Resin with Low Viscosity and High Solid Content

Cui YUEFEI, Ning PING, Chen ZHIQUAN and Zeng FANSEN

(Department of Polymer, South China University of Science and Engineering, The People's Republic of China)

Abstract

The effects of mole ratio of reactants, temperature and pH on the reaction and the performance of melamine resin was discussed. The best reaction parameter is as follows: The ratio of formaldehyde to urea is in 4–5, pH is 7.5–8.5 and the temperature varied from 50 to 60C in different stages. The viscosity (Cup No.4, 25C) is lower than 30 seconds even if the solid content of the product is up to 85%. The performance of coating prepared with this resin and water soluble acrylic resin was measured and discussed.

KEY WORDS low viscosity; high solid content; water soluble melamine resin

Effect of Casting Solvents on the Morphology of SBS

Zhang BIN, Chen DAOYI and Wang ZHILU

(Institute of Petrochemistry, Heilongjiang Academy of Sciences, Harbin, The People's Republic of China)

Shan JUN, Yu CHUNHAI

(The Center of Analysis and Test of Heilongjiang, The People's Republic of China)

Abstract

In this paper, the effect of casting solvents on the morphology of styrene-butadiene-styrene (SBS) block copolymer was studied by TEM and TBA. These solvents were toluene, carbon tetrachloride and cyclohexane. The basic morphology of SBS was two separate phases. The continuous degree of PB phase increased in the order of toluene, carbon tetrachloride and cyclohexane. The existence of interphase was proved and a structural model of SBS was given.

KEY WORDS morphology; SBS block copolymer

Preparation of Solid Starch Glue

Yan HAIBIN and Hu LIXIN

(Chemical Industry Department, Hubei Industry College, The People's Republic of China)

Abstract

Solid amylum glue was prepared by the following method: A quantity of amylum as the main raw material was heated and oxidized in the presence of the catalyst; polyvinyl alcohol was then added to improve its performance; lastly, sodium stearate as the excipient was added to solidify the composite. The solid amylum glue has good adhesion for paper products. The reaction mechanism, technological process and the performances were described in this paper.

KEY WORDS amylum; polyvinyl alcohol; sodium stearate; solid glue

Study on the Compatibility and Crystalline Property of PES-PEEK Blends by DSC

Fu HONGGANG, Liu ZHONGYI and Shao YANWEN

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Ni ZHAO

(Harbin Institute of Electrical Technology)

Abstract

The compatibility and crystalline property of PES-PEEK blends prepared by mechanical mixing method (MSK) and solvent casting method (SSK) was studied. The results indicated that the compatibility of SSK blends was much better than that of MSK. The compatibility increase with the increasing of PES contents and the crystalline property of PEEK in blends decreases. Thermal treatment could increase the compatibility also. Tm (melt temperature), Tl (low temperature for melt), Hm, Hl and Xcr (degree of crystallinity) were related to treating temperature.

KEY WORDS PEEK-PES blends; compatibility; crystalline property; DSC method

Research and Preparation of EPS Adhesive

Li JIAN, Ni QIAN

(Heilongjiang Commercial College, The People's Republic of China)

Mo XIN

(Harbin Normal University, Chemistry Department, The People's Republic of China)

Abstract

A method for making functional adhesive by solving the used foamed polystyrene plastic (EPS) in mixed solvents was proposed in this paper. The components and the technical factors were determined and the properties were measured. The water-proof property was studied when used as coating. This process was a new comprehensive utilization method for used foamed polystyrene plastic.

KEY WORDS foamed polystyrene plastic; adhesive; mixed solvent; comprehensive utilization.

The Methods for Developing Surface Protective Film

Wang TIMING, Qiu MEIQIN and Zhao LINWU

(Institute of Chemical Processing and Utilization of Forest Products, Chinese Academy of Forestry, Nanjing, The People's Republic of China)

Abstract

The application and property of surface protective film was described in this paper, and the way how to improve the force to substrate and to stabilize peel force was discussed also.

KEY WORDS surface protection; protective film; adhesive

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Contents

Study on Vinyl Terminated Polyester/Styrene AB Crosslinkable Polymers

Fan SHIXIA, Han XIAOZU and Qu SHUCHUM

(Changchun Institute of Applied Chemistry, Academia Sinica, Changchun, The People's Republic of China)

Abstract

AB crosslinkable polymers were synthesized by the graft reaction of vinylterminated polyester with styrene, and the polyester was prepared by the reaction of maleic anhydride and hydroxyterminated polyester. The relationship between compositions and damping properties of the copolymers were investigated. The results are beneficial to the molecular design of damping material.

KEY WORDS polyethylene adipate; styrene; AB crosslinked polymer; damping material

Study on the Graft Copolymerization of Neoprene in Solution

Fang ZHENGPING, Yu XIAOWEI, Zheng XUEJING and Xu CHENGEI

(Department of Chemistry, Hangzhou University, Hang Zhou, The People's Republic of China)

Abstract

The effect of BPO content on the viscosity, conversion efficiency, grafting efficiency and adhesion properties of CR/MMA-AA adhesives were studied in this paper. The graft polymer was characterized by infrared spectrum and elementary analysis. The results showed that there were three kinds of reactions, *e.g.* grafting, decomposition and crosslinking in the grafting process. The reactivity of each reaction was different under given conditions.

KEY WORDS neoprene; methyl methacrylate; acrylic acid; grafting decomposition crosslinking

The Development of J-91 Heat Resistant Epoxy Novolac Adhesive

Yu JIANFEI, Liu XIAOHUI, Sun YU and Wang ZHILU

(Institute of Petrochemistry, Heilongjiang Academy of Sciences, Harbin, The People's Republic of China)

Abstract

In this paper, the properties of J-91 adhesive were presented and the effect of epoxy novolac resin, active epoxy resin, curing agent were discussed. It was found that the active epoxy resin played an important role in reducing the curing temperature and increasing the heat resistance of J-91 adhesive.

KEY WORDS adhesive; heat resistance; epoxy novolac resin

Study on Oxidation Reaction of Benzoin

Piao MINGZHU

(Department of Chemistry, Mudanjiang Teacher's College, Mudanjiang, The People's Republic of China)

Abstract

A possible mechanism of the oxidation reaction of benzoin by phenyltrimethylammonium tribromide and N-bromosuccinimide was proposed. The phenyltrimethylammonium tribromide and N-bromosuccinimide were considered as a mild and efficient oxidative agent for the conversion of benzoin to benzil with good yields.

KEY WORDS phenyltrimethylammonium tribromide; N-bromosuccinimide; benzoin; benzil

The Applications of Diffuse Reflectance Infrared Fourier Transform on Study of Matching Property of Structure Adhesive

Qu CHUNYAN, Guo XINGYA, Zhou HAOYAN, Li GONGCHUN and Mao YONG, Wang HAIMIN

(Institute of Petrochemistry, Heilongjiang Academy of Sciences, Harbin, The People's Republic of China)

Abstract

The Diffuse Reflectance Fourier Transform Infrared was employed to analyze the matching property between epoxy-type J-30G high temperature curing structure adhesive and bismaleimide adhesive. The result showed that the two adhesives penetrated each other at the interface in the course of curing and J-30G was more easy to penetrate than BMI.

KEY WORDS diffuse reflectance infrared fourier transform; structure adhesive; matching property

The Oxidized Starch H5 Adhesive

Zhang LIXIN

(Mudanjiang Pharmaceutical Factory, Mudanjiang, The People's Republic of China)

Abstract

The technology process and characteristic method for oxidized starch was introduced in this paper. The oxidized starch is of good adhesion, easy to flow and stable in viscosity. The adhesive based on this starch can be widely used in the field of paper making and textile industry.

KEY WORDS oxidized starch; adhesive; viscosity

Applications of the Antiseptic Lining Reinforced by Epoxy Fibreglass in Chemical Engineering Equipments

Lei YANYING

(Department of Chemical Engineering, Northwest University, Xi An, The People's Republic of China)

Abstract

It has been described that the technology, formulae and applying results of the antiseptic lining reinforced by epoxy fibreglass for non-standard chemical engineering equipment in this paper.

KEY WORDS chemical engineering equipment; antiseptic lining; epoxy fibreglass; reinforced plastic; formulations; technology process

Preparation of Adhesive Film by Solvent Free Process

Hong YOUQIN, Wang CHANGJIE and Li XIULANG

(Institute of Petrochemistry, Heilongjiang Academy of Sciences, Harbin, The People's Republic of China)

Abstract

The method is introduced in this paper, which can tell how to trial-produce Zili-2 Adhesive Film successfully and its significance.

KEY WORDS no solvent mechanical film; adhesive film; Zili-2 Adhesive

Development of Adhesive Based on Corn Starch by Cold Process

Lu YUMIN, Zhang LONG

(Fuda Package Print Factory of Yichun, Heilongjiang Province, The People's Republic of China)

Abstract

The title adhesive was prepared by the oxidization of corn starch with the suitable Cl content oxidizer in ordinary running water at room temperature. The present process is of easy operating with low investment and good benefit.

KEY WORDS adhesive; corn starch; cold process

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