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Publisher *Taylor & Francis*

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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>

To cite this Article (1992) ", The Journal of Adhesion, 36: 4, 285 – 287

To link to this Article: DOI: 10.1080/00218469208026532

URL: <http://dx.doi.org/10.1080/00218469208026532>

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Preparation of Water-Dispersive Poly(Ester-Amide-Carbamate)

Zhou Qitao, Zhen Ruizhi, Gao Xuemin

Abstract

A simple method has been presented in this article to prepare poly(Ester-Amide-Carbamate). The order of preparation is the ammonolysis reaction of Chinese oil with diethanolamine first, then the semi-esterifying reaction with phthalic anhydride, next with diisocyanotoluene to form poly(Ester-Amide-Carbamate) anion resin, finally the dissolution of this resin into de-ionized water. The effect of reactive conditions and pH of solution on the stabilization of the water dispersive system and the property of heat-

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

and solvent-resistance is investigated. A fast drying water-dispersive polymer with good performance, especially for excellent resistance to petroleum ester but not so good to acetic ester, can be obtained with this method.

Development of One-Component Polyurethane Sealing Paste Modified by Organosilicone

Feng Jinhua, Wu Biyao, Shu Zhonghua, Zhou Huiru

Abstract

Polyurethane Sealing Paste is prepared by using the polyurethane prepolymer in conjunction with organosilicone, filler, plasticizer and other materials. The mechanism and effect of the structure of polyurethane and the content of ingredients on the mechanical properties are investigated. Fracture strength increased with increasing content of trifunctional polyurethane and carbon black, and decreased with increasing content of calcium carbonate. Carbon black is better than calcium carbonate for enhancing performance. The fracture strength and hardness increased with increasing content of organosilicone.

Measurement of Polymer Surface Energy—Effect of Matrix Materials on the Film Formation of Polymer

Wei Xianzhong, Wang Jianqi

Abstract

It is important to study the surface properties of the polymer for the selection and investigation of a polymer adhesive. In this article, a method to compute solid polymer surface energy, using five reference liquids and a contact angle meter, is presented. Most polymers can be formed to an even film on aluminum foil owing to the similarity of their surface energy, but it is difficult to obtain an even film on glass since it is a high surface energy (about 0.5N/m) substance and some water is adsorbed on it.

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Investigation on Connection of Dental Calculus with Coupling Agent by a Fluorescent Couplant

Zou Zhaoe, Mao Yu

Abstract

The fluorescence spectra of enamel and dentine have been measured using solid fluorescence analysis. The peak value undergoes a bathochromic shift when treated by a self-prepared coupling agent which can combine with calcium ion. The peak value for the Fluorescent Couplant containing a functional group that could combine with calcium also undergoes a bathochromic shift when a complex compound is formed with calcium ion. It is directly shown that chemical combination exists between dental tissue and coupling agent.

Study on Curing Process and the Mechanical Conversion Behavior of One-Component Polyurethane Adhesive

Li Xuefang, Zhang Donghua

Abstract

The curing process at various temperatures of a one part polyurethane adhesive with water and the dynamic mechanical conversion behavior of the cured adhesive film were mainly investigated by means of a domestic QNP-1 automatic torsional braid dynamometer. The solidifying process at normal atmospheric temperature and moisture were studied by means of IR. The curing reaction could be accelerated by increasing the temperature, and could also be completed at normal atmospheric temperature and moisture. The lower the glass transition temperature, the better the low-temperature resistance of the adhesive is.