

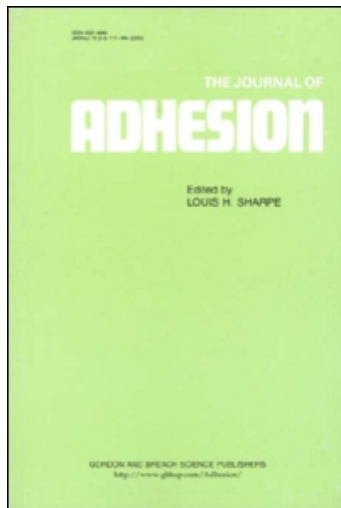
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## Contents Lists and Abstracts from the China Journal “Adhesion & Sealing”

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### Development of J-94 Heat-Resistant Foaming Structural Adhesive Film

Zhang Entian, Li Qili

### Abstract

J-94 heat-resistant foaming structural adhesive which is available in the temperature range of -55–150 °C was prepared with reference to the technical specification of “Redux 219 Expensive Film

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

Adhesive." Epoxy resin was used as the main raw material blending with polysulfones, inorganic filler, latent curing agent and foaming agent. This Adhesive is of high bonding strength, good age resistance, no slump in curing process and long storage-life in room-temperature and refrigerator, and easy to manufacture and apply. It has been used as a sealant for bonding sides of honeycomb structural joint of domestic helicopter, and shows good performance.

### Studies on Modified-Starch Adhesive for Art Paper Process Coating

Yang Mingshan, Liang Shanjie

#### Abstract

In this article, the technical methods of modified-starch have been investigated, and the effect of various factors on the property of modified-starch have been discussed. The result is that the hydroxy-propyl starch could be obtained with the raw material of corn flour treated by oxidative etherifying method. This modified starch is of low viscosity and has high adhesion strength, which could replace casein for art paper process coating adhesive and have good performance.

### Synthesis of 4,4'-Diphenylether Tetracarboxylic Acid

Shen Xiangrui, Wang Kuntang

#### Abstract

The dehydration product of 4,4'-diphenylether tetracarboxylic acid (I), diphenylether tetracarboxylic anhydride (II), is a good modifier of resins and an important raw material of ether-anhydride-type polyimide. (I) are prepared with phthalic anhydride by methylation, nitration, condensation and hydrolysis steps. The synthesis process and detailed methods of operation to synthesize (I) are discussed, and the effect of reactive conditions on the yield of product is investigated in order to determine the appropriate synthesis conditions.

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**The Adhesive for Making Graphite Seal Slip Sheets**

Guan Changshen, Li Xiulan

(Petrochemical Institute of Heilongjiang Academy)

**Abstract**

An adhesive for making graphite seal slip sheets was prepared. The main ingredients of the adhesive were phenolic formaldehyde resin and butadiene acrylonitrile rubber. The shear strengths (Al-Al) of the adhesive were 33.9MPa at 20°C and 9.7MPa at 250°C. The tensile strength was 36.2MPa at 20°C. Graphite seal slip sheets used for motive seal were prepared by blending the PPS adhesive, fine graphite powder and some other additives, and then heating, milling and hot molding the blend.

The compressive strength of slip sheet was 120N/mm<sup>2</sup>. The folding strength was 57–65N/mm<sup>2</sup>. The coefficient of thermal expansion was  $11.51 \times 10^{-6}$ . T<sub>g</sub> and T<sub>f</sub> were 256 and 373.5°C, respectively.

**Investigation of Chloroprene Rubber Adhesive Crosslinked by Organosilcone**

Wang Zuoxing, Zhang Li, Wang Zhi Lu

(Petrochemical Institute of Heilongjiang Academy)

**Abstract**

In order to make adhesive for bonding metals or metal to non-metal materials,  $\gamma$ -aminopropyl triethoxy silane (APTS) was used to modify and crosslink chloroprene rubber (CR). A high peel strength and good water-resistant adhesive was obtained by blending the modified CR, tackifier and other additives. At room temperature the shear strength was 2.4MPa. The floating-roll peel strength (Al-CR) was 2.4MPa. After 3 months immersion in water the peel strength increased to 29.0N/cm.

The reaction between CR and APTS, the quantities of APTS used in the reaction and the time and the temperature were also discussed.

**The Research of Water-Soluble Phenol-formaldehyde Adhesive for Electrical Engineering Paperboard**

Zhang Xianyou, Han Huanmei

(Harbin College of Electrical Engineering)

**Abstract**

The water-soluble phenolic adhesive used for making electrical engineering paperboard was prepared by the reaction of phenol and formaldehyde under the catalysis of barium hydroxide in mole ratio of 1:1.4. The viscosity of water-soluble phenolic adhesive was 95s (Tu-4 Cup for Coating Test). The solid content was up to 60%. The free-phenol content was 8.3%. The puncture voltage of the Electrical Engineering Paperboards was 45.6kV/mm. The  $\rho_v$  (20°C) is  $1.5 \times 10^{10}\Omega$ . The  $\epsilon$  is 3.4. The  $\tan \delta$  is 3.5%. The tensile strength is 108.3MPa. The flexural strength is 110.1MPa. After being dried in vacuum oven, the water content is 0.288%.

The effect of reaction extent, water content and catalyst on the performance of the adhesive was mentioned.

### **J-80 Adhesive for Making Nomex Paper Honeycomb Core in Sandwich**

Li Gongchun, Mao Yong, Qu Chunyan

(Petrochemical Institute of Heilongjiang Academy)

#### **Abstract**

J-80 Adhesive is a one-part, liquid packed adhesive, which is mainly used to bond the Nomex papers and then make honeycomb core. It consists of alicyclic epoxy resin, benzophenone-3,3',4,4'-tetracarboxylic dianhydride, butadiene acrylonitrile rubber, phenolic resin and ethyl acetate. The shear strength (A1-A1) of the adhesive is 30.0MPa. The non-unified shear strength is 500.0N/cm at room temperature. The T-peel strength for the multi-nodal Nomex paper honeycomb is 5.0N/cm or more. The temperature range service for the adhesive is from -55 to 150°C. The heat-, humidity- and solvent-resistance are perfect.

### **CC-3 Type Composite Resin for Repairing Teeth**

Jiang Jiying, Tang Lihui, Xie Heming

(The Fourth Army Medical College, Stomatological Institute)

#### **Abstract**

CC-3 composite resin is a type of denture plastics for replacement of the dentists' amalgam. It is made of CC adhesive, PETA, SiO<sub>2</sub> and Si<sub>3</sub>N<sub>4</sub> powder. CC adhesive consists of PU-EAM, DEMA and EMA resin. The PETA is a monomer and EAM is a condensation product of epoxy resin, methacrylic acid, and maleic anhydride. The DEMA is glycol dimethacrylate.

The compressive strength is 332.3MPa. The tensile strength is 56.3MPa. The surface hardness is 68.3MPa. The shear strength to enamel is 26.4MPa.