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Water and solvent resistance of adhesive bonded metal joints

Dr.-Ing.I.Bursztyn.- Long-time tests were conducted at the Polish Plastics Institute in order to establish the shearing strength under various conditions of joints produced with two epoxyde resins and various other adhesives. The metal used for the test specimens was similar to the English Alclad. A range of specimens was immersed into different liquid ageing media such as distilled and sea water, benzole, ethyl acetate, and other solvents, and shear strength values were taken in monthly intervals up to a total exposure time of six months. The results are arranged in a table. It is considered the most interesting result that phenole-formaldehyde base adhesives show better resistance to most of the liquid media than the epoxyde resins. This is contradictory to theoretical expectations and has not yet been explained. 1 table.
(PK 4. no.7. 250-251. July 1957. Warszawa, Poland)

Contribution to the "thermal vulcanization" of Buna

H.Luttropp.- Different sorts of Buna may be vulcanized into soft rubber without the addition of vulcanizing agents and accelerators by a special thermal treatment. The underlaying effect (thermovulcanization) is studied for various synthetic caoutchoucs, and the properties of the resulting products are tested in detail. The results show that thermovulcanized products generally possess less tensile strength and swelling resistance than normal vulcanizates. Elastic properties, wear resistance, and resistance to surface ageing under static and dynamic loads, however, is better than with normal vulcanizates. 3 diagram charts; 2 tables.
(PK 4. no.7. 266-269. July 1957. Schkopau, GDR)

Patents Survey

The following patents in the field of plastics and caoutchouc chemistry and technology originating in the GDR are listed and briefly characterized under "Patentschau", PK 4, no.7, 275-276:

(a) Separation of the cellulose esters of fatty acids with 4 or more carbon atoms from their respective acetylizing solutions.
(b) Solutions of linear polymers with amide groups present in the chain structure.
(c) High molecular polyamide [illegible] compounds.
(d) Device for making joints of conveyor belts, drive belts, etc. consisting of weldable plastics.
(e) Device for continuous manufacture of belts from plastic materials.
(f) Device for the continuous removal of monomer components from epsilon-amino-caprolactam.
(g) Device for the removal of threaded plastic parts from multiple injection-molding presses.
(h) Elastic, chemical resistant priming compounds.
(i) Device for the manufacture of porous caoutchouc.
(k) Method for making high-strength plastic shapes out of high polymers.
(l) Joints for profile bodies, particularly tubes.

(PK 4. no.7. 275-276. July 1957. GDR)

Contribution to the grindability of glass. Part II

J.Gypser.- In continuation of tests described in part I of the treatise (ST 6, no.9, 372-377, September 1955), the influences of different liquid grinding media on the grindability of plane glass are determined by measuring the depth to which a grinding wheel works into the specimen under otherwise equal conditions. It is found that the basicity of water is not changed appreciably by the glass grindings, and also that basicity has no influence on the grinding depth. Grinding depth and hence grinding capacity, however, is considerably increased when hot water is used as a grinding medium instead of cold water.
Further tests were made in order to illuminate the relationship between physical properties of glass and optimum grinding speed. The results indicate that the viscosity behaviour of the glass mainly determines the value of optimum grinding speed whereas other physical properties have only secondary importance. 3 figures.
(ST 8. no.7. 264-266. July 1957. Weißwasser, GDR)

The structure of alumina-chromium sintered bodies

W.Schatt.- The influence of grinding time, chromium content, and sintering temperature on the structure of sintered bodies of alumina and chromium is studied. Specimens sintered under a hydrogen atmosphere and also such sintered under a mixed atmosphere of carbon monoxide and nitrogen were found to contain a constituent possessing a micro hardness considerably higher than that of the chromium particles. This constituent is determined by etching with a solution of potassium ferricyanide. Its distribution and quantity depend on the sintering atmosphere used. With specimens sintered under hydrogen, the new constituent chiefly occurs at the boundary of the chromium phase, particularly in case of higher chromium content. With specimens sintered in the CO-Ni atmosphere, on the other hand, it shows throughout most of the chromium. Comparative investigations of sintered chromium bodies permit to infer that the new constituent is a chromium-chromium oxide mixed crystal. 28 ground sections.
(ST 8. no.7. 268-273. July 1957. Dresden, GDR)

Modern analytical methods for process control in cement works

E.Vogel.- The author described a number of methods for cement analysis which are mainly based on the use of Complexon III. The described methods distinguish by that they permit considerably saving of analysis time.
2 figures.
(ST 8. no.7. 287-290. July 1957. Nienburg, GDR)

Dielectric properties of high moleculars and of mixtures thereof as a function of temperature. Comparision with mechanical measurements.

Dr.H.Wolff.- When the dielectric loss factor of a high-molecular compound is measured as a function of temperature, a marked maximum occurs at a certain temperature, which is characteristical for the substance examined. Equal results are obtained it mechanical (torsional) measuring methods are employed for such investigations. Earlier studies have shown that mixtures of high-molecular substances compatible with each other show a single maximum of damping at a temperature depending on the ratio of the two components in the mixture. Two damping maxima are measured with mixtures of components that are not compatible with each other.
The author reports on results of further tests in this field, particularly dealing with the behaviour of the dielectric loss factor in high-molecular mixtures. 8 figures.
(PK 4. no.7. 244-246. July 1957. "VEB Chemische Werke Buna", GDR)

Digest of GDR's Technical and Scientifical Periodicals

CHEMICAL ENGINEERING

This Digest covers the following periodicals:

Silikat-Technik (ST)
Plaste und Kautschuk (PK)

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