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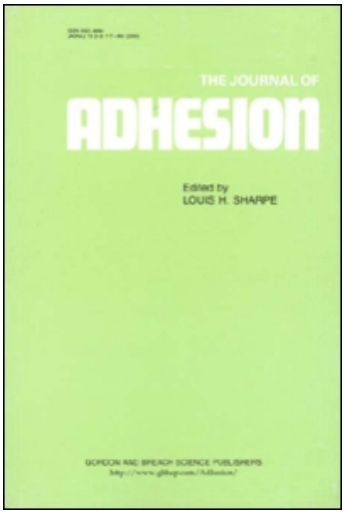

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Conference Review

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Conference Review

ADHÉSION DES ÉLASTOMÈRES

SETCO, Revue Générale des Caoutchoucs et Plastiques, Paris, 1971, pp 180, 80 francs.

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In June 1970, at the Conférence Internationale de Caoutchouc organised by the Association Française des Ingénieurs du Caoutchouc et des Plastiques, Sessions III and IV were devoted to the study of elastomeric adhesion and it is these twenty-one papers, the majority in English, which comprise the present volume.

It has been said so often that the study of adhesion involves many scientific disciplines and it is always interesting to realise that very much the same range of disciplines can be applied to the study of the economically rewarding bonding of elastomers as to that of the so-called more sophisticated structural adhesives.

Eight theoretical papers were presented at the first session, the first of which was a review paper by J. B. Donnet and J. Schultz (University of Mulhouse). Here the main theories of adhesion, adsorption, diffusion, electrical attraction and chemisorption were all outlined and discussed and the possible extension of work in the field of chemisorption was forecast. J. J. Bikerman's paper considered the more mechanical aspects of adhesion, suggesting that variation of contact time and pressure, usually cited in support of the diffusion theory might equally cause gradual displacement of air from the interface, consequent closer contact and greater adhesion. He went on to examine the influence of modulus on adhesion strength in elastomers.

W. C. Wake and L. Greenwood examined the influence of halogenation of vulcanised elastomer surfaces upon their surface energy and showed that the increased adhesion conferred by halogenation could be explained by the increase in resultant surface energy. They went on to discuss the practical aspects of adhesion of cured elastomers in terms of increase in joint strength.

A. N. Gent and N. Fujimori discussed the strength of adhesion between lightly crosslinked and uncrosslinked samples of polybutadiene and butadiene-styrene copolymers. Changes in peel resistance were observed corresponding to the transition from the rubbery to the glasslike response in each component

as the rate of peel increased. The strength of adhesion was shown to be dependent upon viscous effects in the adhesive as well as equilibrium thermodynamic factors.

The thirteen practical papers covered a wide range of subjects from methods of measuring tack and interpretation of results by K. Baranwal and J. R. Beatty and by R. P. Campion to studies of rubber-metal bonding in papers by J. Morlon, G. Bertrand, C. H. Nitzche and B. H. ter Muelen.

As might be expected there was great interest in rubber-fabric bonding and many papers were presented on tyre cord adhesion. One of these was a paper from the Tyre Research Institute of Moscow on the latex-resorcinol cord dipping process with particular interest in the formulation of anhydrous adhesives for use with polyamide and polyester cords.

The conference ended with the presentation of two papers on the production of new adhesive materials; first a new aminimide for tyre cord rubber adhesion described by W. J. McKillys, C. N. Impole and S. F. Chappell, and secondly in a paper by A. V. Cunliffe, D. H. Richards and N. F. Scilly in which my colleagues discussed a possible method of tailoring epoxide resins with predetermined hydroxyl groupings.

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