

Editorial 3

RFP News 6

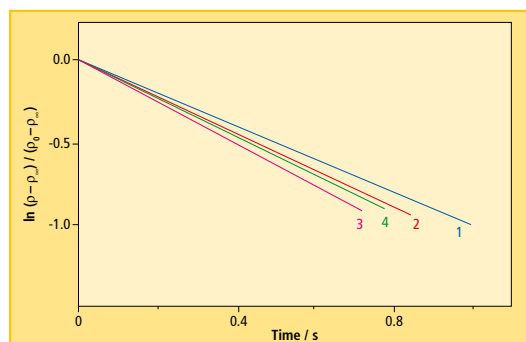
World's no. 2 and Asia's no. 1 plastics and rubber trade fair returns to Shanghai..... 16

Rosehill Polymers: Pioneers in polymer innovation 17

J. N. ANELI, G. E. ZAIKOV, O. V. MUKBANIANI

Relaxation and electrical conductivity of polymer compounds 20

Relaxation processes affect the electrical conductivity of polymer compounds. By measuring the specific volume resistivity it could be experimentally shown that filler content and filler type significantly influence the relaxation characteristics of a compound. Rubbers containing active carbon blacks show much more clearly slow as well as fast relaxations than those containing low activity carbon blacks even when its concentration is increased for improving the elasticity modulus. The impact of the filler type is similar to that of the filler amount. It results in the formation of an interphase layer. Active carbon blacks induce increased filler-filler and polymer-filler interactions. Regarding low activity carbon blacks this can be balanced by adding higher amounts. In both cases the modulus of the rubber material as well as the internal friction during the relaxation process grows.

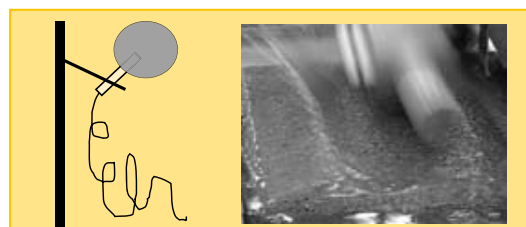


Special show at K 2013 takes up the theme of mobility 23

X.-D. PAN, P. ZAKELJ, C. ADAMS, A. NEIL, G. CHAPLIN

Wet skid resistance testing and analysis of sliding noise..... 24

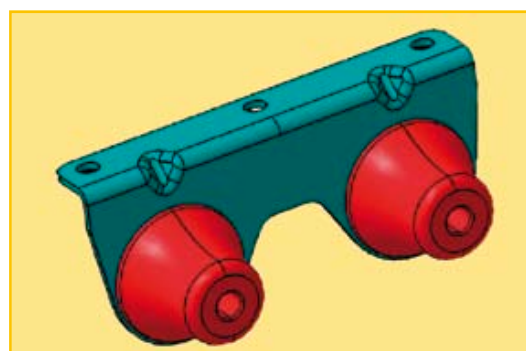
The British pendulum skid tester (BPST) has been widely adopted for laboratory characterisation of wet skid resistance (WSR) for rubber compounds. Testing results, however, are not yet well explained with material properties. Inorganic filled SBR compounds have a higher wet skid resistance on a Portland cement concrete surface wetted with water than those having the inorganic oxides substituted by the same filler volume fraction carbon black. Such a difference in WSR is eliminated under ethanol lubrication. When compounds filled with a reinforcing filler and compounds filled with a non-reinforcing filler are compared with each other under ethanol lubrication the difference is retained. The possible modification of bulk viscoelasticity from ethanol absorption should not be neglected for consideration of these phenomena. When the loss tangent for the compounds was measured at various low temperatures, accepting that a dynamic deformation of rubber during testing with the BPST occurs in the frequency range $10^2 - 10^6$ Hz, it failed to correlate with WSR detected under water lubrication. Since viscoelastic properties of rubber compounds and lubrication significantly affect sliding noise, it was captured under varied lubrication conditions during testing with the BPST. However, no strict correlation between the intensity of sliding noise and WSR was observed. From frequency domain analysis, major components of the sliding noise lie in the frequency range 500 – 5,000 Hz for most compounds. For better understanding on testing with the BPST, modes of material deformation during dynamic sliding on a wet rough surface need to be further scrutinised.



A. ARRILLAGA, Z. KAREAGA, E. RETOLAZA, A. M. ZALDUA

Determining the state of cure of rubber by means of swelling..... 37

The rubber industry requires a practical technique to determine the degree of cure achieved in moulded parts. In this context tests regarding the swelling characteristics and residual exothermicity (by means of DSC) can be considered as helpful techniques. DSC measurements, however, were not useful due to the low exothermicity of the formulations having been investigated. The cure variation of a NR crosslinked with sulphur and an EPDM crosslinked with peroxide was examined using swelling measurements in cyclohexane. It could be observed that swelling results agreed with data from rheological tests as well as modulus values from tensile testing. The method was also applied to an industrial rubber part to evaluate differences in the degree of cure across the part thickness.

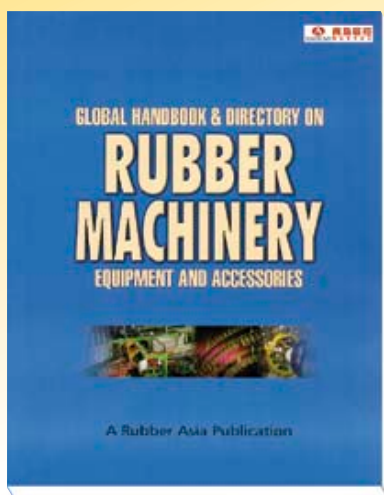


Sibur targets European and Asian markets	44
The European GRP market in 2011	46
E. L. PEKHTASHEVA, A. N. NEVEROV, G. E. ZAIKOV	
Bacteria and microscopic fungi – The sources of damage – Part 2.....	49
This review is including information about morphology, internal organization and chemical composition of microorganisms (bacteria and fungi), aggressive metabolites of microorganisms, degradation materials by action of bacteria and fungi. Some parts of the review are dedicated to the problems of factors affecting biodamages processes (chemical, physical, and biological).	
Reviews.....	58
People in the news	58
Events	60
Suppliers list.....	64
Publication information & contacts	66

Bookshop

www.gupta-verlag.de

Global Handbook & Directory on Rubber Machinery



Contents

Foreword	5	Interview: China will be a powerhouse of world rubber machinery: Li Dongping	50
Preface	6	European rubber machinery: Going all out to tap the Asian potential	53
Introduction	7	Rubber machinery industry in Taiwan: It's cost and quality that boost Taiwan's rubber machinery demand	56
Contents	9	TAMI: Promoting Taiwan's machinery industry	58
Qingdao MESNAC: Emerging power in global rubber machinery	11	Supply of used machinery: A flourishing global business	59
World Rubber Machinery: It is an unstoppable saga of growth	13	Machinery manufacturers' associations	61
History of rubber: A chronological update	26	Kendek Group: Renowned in latex glove machinery and equipment	64
Pioneers in the rubber industry	29	Glossary of terms	65
Who's who in the rubber industry	36	Listings	84
Indian rubber machinery industry: Aggressive R&D is the need of the hour	41	Index to advertisers	340
Interview with Kloeckner Desma official	44		
Indian rubber machinery on fast track: DN Singh	45		
Chinese rubber machinery industry: Surging ahead to world's No. 1 slot	47		

Global Handbook & Directory on Rubber Machinery

Dhanam Publications - 2009, 1. Edition, 340 pages, softcover,

John S. Powath, Kurian Abraham (Editor)

EUR 50.00