

Introduction

By invitation, a group of 13 scientists and engineers assembled in Philadelphia on 26 June 1973 to describe not only the present state of the art but to relate methods of testing and analyzing rubber and its associated products. Included in the presentations was a new method of classifying carbon black, rubber's most important reinforcing pigment, which provided a detailed "fingerprint" for each type of black when combined with the quantitative dimensional information on size and shape.

A new automatic tensile tester, capable of obtaining accurate data using less man-hours, was described in detail. Dynamic properties of elastomers were handled by several speakers, and a spectrometer system capable of characterizing a wide range of materials from liquid rubber resin to cured compounds was described. A new test for natural rubber which may replace the long and tedious copper and manganese analyses was presented. A pyrolysis-gas chromatography analytical method applied to polymers was shown to be an effective quantitative and qualitative tool. An improved way of testing tire cord fatigue was the subject of another lecture. Also included were talks on low temperature properties of rubbers, standards and standardization, computerized testing of rubber, and new data on the oscillating-disk cure meter.

This publication containing all of these subjects will be an excellent reference for many years to come. Scientific and technological advances can proceed no faster than the development of adequate test methods for evaluating their products. Thus, the information and the ideas contained in this book are of value to all polymer chemists and engineers. Of even greater importance is the speculation that this work will act as a seed or a stimulus for further investigation leading to new advances. It is not difficult to visualize a few years from now, one or more of these methods being used in place of present highly regarded tests.

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