Mechanical properties of visco-elastic materials : for filled SBR vulcanizates
隆, 雅久(Takashi, Masahisa)
慶応義塾大学藤原記念工学部
1965
Proceedings of the Fujihara Memorial Faculty of Engineering Keio
University (慶応義塾大学藤原記念工学部研究報告). Vol.18, No.71 (1965.) ,p.95(31)- 95(31)
Summaries of Doctor and Master Theses
Master of Engineering, 1965
Mechanical Engineering
Departmental Bulletin Paper
https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO50001004-00180071-0031

慶應義塾大学学術情報リポジトリ(KOARA)に掲載されているコンテンツの著作権は、それぞれの著作者、学会または出版社/発行者に帰属し、その権利は著作権法によって 保護されています。引用にあたっては、著作権法を遵守してご利用ください。

The copyrights of content available on the KeiO Associated Repository of Academic resources (KOARA) belong to the respective authors, academic societies, or publishers/issuers, and these rights are protected by the Japanese Copyright Act. When quoting the content, please follow the Japanese copyright act.

Mechanical Properties of Visco-Elastic Materials

-For Filled SBR Vulcanizates-

Masahisa TAKASHI*

In recent years, there has been a spectacular expansion in using polymeric materials, and it seems to be very important for engineer to analyze their mechanical properties.

The correspondence rule between elastic analysis in real time and visco-elastic analysis in Laplace transformed time has been proposed by T. Alfray and others. In this experiment, the author required to find out the relaxation modulus $E_{\tau}(t)$ in real time, using the time-temperature shift factor a_t , of filled SBR rubber, at the first stage of tensile test under various constant strain rate and temperature, and then to investigate E(p) or D(p) which were respectively modulus and compliance in Laplace transformed time.

From the result of this experiment, it was seen that the curve of time temperature shift factor a_t was nearly equal to the W. L. F.'s. Then E(p) was numerically computed from $E_r(t)$ by collocational method and $D_c(t)$, from the inverse of E(p), again.

Secondarily, the author analysed one or two examples of the cylindrical problem under internal pressure, using these moduli and compliances.

*隆雅久

ľ

í