EVALUATION OF COMPRESSION SET OF VULCANIZED ELASTOMERS— STANDARD VERSUS VARIABLE DEFLECTION METHODS

BY WILLIAM H. KING
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FOREWORD

The ASTM Standard Methods of Test for Compression Set of Vulcanized Rubber (D 395 – 55)[1] contained a table showing the proper deflection value, based on hardness, to use in method B. When originally agreed on, this was considered good practice, but later experience resulting from borderline hardness values and inability to make certain cross comparisons because of different original deflections showed the need for a standard single deflection, if possible.

Mr. W. H. King of Acushnet Process Co. was appointed chairman of a task group to evaluate the possibility of using a 25 per cent original deflection in method B of Standard D 395.

Under the able direction of Mr. King, some 18 different laboratories cooperated in making tests on twelve totally different polymers whose compound hardness varied from 30 to 90 on the Shore A durometer.

The voluminous data obtained were statistically analyzed. When presented to Subcommittee X on Physical Testing of Rubber Products of Committee D-11 on Rubber and Rubber-Like Materials as a final report, its value was immediately recognized, and action was taken by Committee D-11 to recommend that the Society publish it as a Special Technical Publication.

Here in one paper are the properties of properly compounded polymers ranging from natural rubber to silicones, urethanes, fluorels, vitons, as well as all the better known substitutes for natural rubber, compounded and cured in a manner prescribed by the best talent in the industry.

L. V. COOPER (*deceased*),
Chairman, Subcommittee X
on Physical Testing of Rub

[1] Methods of Test for Compression Set of Vulcanized Rubber (D 395 – 55), 1958 Book of ASTM Standards, Part 9.

NOTE.—The Society is not responsible, as a body, for the statements and opinions advanced in this publication.

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THIS PUBLICATION is one of many issued by the American Society for Testing Materials in connection with its work of promoting knowledge of the properties of materials and developing standard specifications and tests for materials. Much of the data result from the voluntary contributions of many of the country's leading technical authorities from industry, scientific agencies, and government.

Over the years the Society has published many technical symposiums, reports, and special books. These may consist of a series of technical papers, reports by the ASTM technical committees, or compilations of data developed in special Society groups with many organizations cooperating. A list of ASTM publications and information on the work of the Society will be furnished on request.