

Tentative Method of Test for

LOW-TEMPERATURE BRITTLINESS OF RUBBER AND RUBBER-LIKE MATERIALS¹



A.S.T.M. Designation: D 736 - 46 T

ISSUED, 1943; REVISED, 1946.²

This Tentative Method has been approved by the sponsoring committee and accepted by the Society in accordance with established procedures, for use pending adoption as standard. Suggestions for revisions should be addressed to the Society at 1916 Race St., Philadelphia 3, Pa.

Scope

1. This method of test is intended to determine the ability of compounds made from rubber or rubber-like materials to resist the effect of low temperatures in causing them to become brittle so as to fracture or crack when bent. Standard specimens are exposed to specified low temperatures for definite periods after which the specimens are bent in a prescribed manner and any fracture or cracking noted. The procedure is commonly called the "Thiokol" method.

Apparatus

2. The apparatus shall consist of the following:

(a) *Cold Chamber*.—The cold chamber in which the test specimens are exposed to the low temperature shall be of sufficient size to contain the flexing fixture when loaded with specimens, and so arranged as to permit the operation of the fixture to bend the specimens with-

out removal from the chamber. It shall be capable of maintaining within it a uniform atmosphere of cold, dry air or a mixture of air and carbon dioxide at specified temperatures within a tolerance of plus or minus 2 F. Standard test temperatures shall be -40 F. and -70 F.

(b) *Flexing Fixture*.—The flexing fixture shall consist of two parallel plates each having a width of at least 2 in. so supported in guides that they may be rapidly moved from a position $2\frac{1}{2}$ in. apart until they are separated by a distance of 1 in. Suitable clamping bars or devices shall be provided for holding the ends of the specimens for a distance of $\frac{1}{2}$ in. at the corresponding edge of each plate so that when mounted, the specimens form similar bent loops between the plates. A satisfactory flexing fixture is shown in Fig. 1.

Test Specimens

3. (a) The test specimens shall conform in shape to die C as specified in the Standard Methods of Tension Testing of Vulcanized Rubber (A.S.T.M.

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-11 on Rubber and Rubber-Like Materials.

² Revision accepted by the Society at annual meeting, June, 1946.