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STANDARD

**7854**

Second edition  
1995-08-15

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**Rubber- or plastics-coated fabrics —  
Determination of resistance to damage  
by flexing**

*Supports textiles revêtus de caoutchouc ou de plastique — Détermination  
de la résistance à la flexion*



Reference number  
ISO 7854:1995(E)

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## Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 7854 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

This second edition cancels and replaces the first edition (ISO 7854:1984), which has been technically revised.

Annex A of this International Standard is for information only.

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## Introduction

Investigation of dynamic-flex fatigue properties of coated fabrics has for a number of years suffered from poor repeatability (due in part to the unknown but inevitable variability of the material tested) and worse reproducibility. Nevertheless, dynamic-flex performance of coated fabrics has been long and widely used as a measure of the product quality.

The methods traditionally used suffered from the common deficiency of testing only a small test piece. The De Mattia test is unsuitable for materials that exhibit "set", such as thermoplastics, and the Schildknecht method has disadvantages when testing the heavier industrial fabrics and also tends to require very high geometric ratios and consequently time-consuming tests to verify results. In addition, the mounting of Schildknecht test pieces can seriously affect test results and repeatability.

Both the De Mattia and Schildknecht methods are also uni-directional, which in some cases is advantageous, but in many cases is not appropriate, e.g. where bi-directional stresses are exerted during use.

This revised edition of ISO 7854 attempts to standardize the mounting difficulties associated with the Schildknecht apparatus (method B) and introduces a bi-directional flex fatigue test that provides a large test piece, enabling post-flexing investigations, such as hydrostatic-head tests, to be conducted. The apparatus is described in ISO 8096-3:1988, *Rubber- or plastics-coated fabrics for water-resistant clothing — Specification — Part 3: Natural rubber- and synthetic rubber-coated fabrics*. The apparatus outlined there in illustrative form (see the note to F.1 in annex F of ISO 8096-3:1988) has been developed in more detail and is now widely available commercially from a number of sources.

Flex testing can provide a useful indication of the durability of coated fabrics. However, for most applications, flexing conditions induced by these test methods are dissimilar to the conditions met in practice. In particular, the micro-climate induced around the test piece and the thermal stresses induced in the molecular structure of the coating during flexing are unlikely to be representative of practical situations. It is important therefore that these effects be kept to a minimum and their effect be given due consideration when test results are being considered. Consequently, it is important to ensure that the air temperature around the test pieces is kept constant during the test. This can be achieved either by maintaining adequate non-forced, open ventilation around the test pieces or by controlling the air temperature within any closed container in which the test apparatus may be mounted.

Three methods are described. Method A (De Mattia) may be found suitable for flex testing coated fabrics which cannot be constrained into the configuration required by method B or where the amount of material available for testing is too small to permit the other methods to be employed. Method B (Schildknecht) will be found useful for flex testing coated fabrics of relatively lightweight construction or whose practical