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Rubber, vulcanized or thermoplastic — Determination of flex cracking and crack growth (De Mattia)

*Caoutchouc vulcanisé ou thermoplastique — Détermination de la
résistance au développement d'une craquelure (De Mattia)*



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Foreword

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This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This sixth edition cancels and replaces the fifth edition (ISO 132:2011), of which it constitutes a minor revision to update normative references in [Clause 2](#) and improve the title and the key for [Figure 1](#).

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Introduction

Repeated bending or flexing of a rubber causes cracks to develop in that part of the surface where tension stress is set up during flexing or, if this part of the surface contains a crack, causes this crack to extend in a direction perpendicular to the stress. Certain soft vulcanizates, for instance those prepared from styrene-butadiene rubber, show marked resistance to crack initiation, but it is possible for these vulcanizates to have a low resistance to growth (propagation) of cracks. It is important, therefore, to measure both the resistance to crack initiation by flexing and the resistance to crack propagation.

The method is suitable for rubbers that have reasonably stable stress-strain properties, at least after a period of cycling, and do not show undue stress softening or set, or highly viscous behaviour. The results obtained for some thermoplastic rubbers should be treated with caution if the elongation at yield is below, or close to, the maximum strain imposed during the test.