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# Plastics — Determination of burning behaviour by oxygen index —

## Part 1: General requirements

*Plastiques — Détermination du comportement au feu au moyen de  
l'indice d'oxygène —*

*Partie 1: Exigences générales*



Reference number  
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## Foreword

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This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 4, *Burning behaviour*.

This second edition cancels and replaces the first edition (ISO 4589-1:1996), which has been technically revised.

A list of all parts in the ISO 4589 series can be found on the ISO website.

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## Introduction

The oxygen index (OI) test at ambient temperature was first described by Fenimore and Martin<sup>[3]</sup> in 1966. The first use of the method in standards was ASTM D2863:1970<sup>[2]</sup> and it has since been published in a wide range of national and international standards. It was published as ISO 4589 in 1984 and has now been revised as ISO 4589-2. The OI test at elevated temperatures is described in ISO 4589-3.

In the period since ASTM D2863 became a standard, a considerable number of papers have been published about this test. An example is the review in Reference [6] relating to the relevance of the test to real fire situations. Other papers have suggested empirical formulae relating OI to the amounts of added fire retardant, or describe practical investigations on the equipment performance (see Reference [7]). A clear consensus on the value of the two variants of the test has emerged, however, and it is the purpose of this document to discuss the use of the equipment and the applicability of both test methods.