INTERNATIONAL STANDARD

ISO 4589-1

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Plastics — Determination of burning behaviour by oxygen index —

Part 1: Guidance

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

Partie 1: Guide

Reference number
ISO 4589-1:1996(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 4589-1 was prepared by Technical Committee ISO/TC 61, *Plastics,* Subcommittee SC 4, *Burning behaviour.*

Together with parts 2 and 3 (see below), this part of ISO 4589 cancels and replaces ISO 4589:1984, which has been technically revised.

ISO 4589 consists of the following parts, under the general title, *Plastics — Determination of burning behaviour by oxygen index*:

— *Part 1: Guidance*

— *Part 2: Ambient-temperature test*

— *Part 3: Elevated-temperature test*

Annex A of this part of ISO 4589 is for information only.

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Introduction

The oxygen index (OI) test at ambient temperature was first described by Fenimore and Martin[2] in 1966. The first use of the method in standards was ASTM Standard Test Method D 2863:1970[6], 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 D 2863 became a standard, a considerable number of papers have been published about this test. An example is the review by Weil, Hirschler, *et al*[3] 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 Kanury[4]). A clear consensus on the value of the two variants of the test has emerged, however, and it is the purpose of this guidance document to discuss the use of the equipment and the applicability of both test methods.