STANDARD **5630-1**

Second edition
1991-02-15

Paper and board — Accelerated ageing —

Part 1:
Dry heat treatment at 105 °C

Papier et carton — Vieillissement accéléré —
Partie 1: Traitement à la chaleur sèche à 105 °C

Reference number
ISO 5630-1:1991(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 5630-1 was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*.

This second edition cancels and replaces the first edition (ISO 5630-1:1982), which has been technically revised.

ISO 5630 consists of the following parts, under the general title *Paper and board — Accelerated ageing*:

— *Part 1: Dry heat treatment at 105 °C*

— *Part 2: Moist heat treatment at 90 °C and 25 % relative humidity*

— *Part 3: Moist heat treatment at 80 °C and 65 % relative humidity*

— *Part 4: Dry heat treatment at 120 or 150 °C*

Annex A of this part of ISO 5630 is for information only.

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Introduction

Exposure of paper and board to a hostile environment such as some types of radiation, elevated temperature or chemical attack over a period of hours, may provide information concerning the natural changes that may occur in the material over a period of years [1], [2].

Environments that have been used include exposure to visible and ultraviolet radiation, to dry heat, to moist heat, and to sulfur dioxide gas.

Properties compared before and after such exposure include mechanical, chemical and optical properties.

NOTE 1 Mechanical properties typically used to demonstrate the effect of exposure include fold endurance (ISO 5626), tensile strength (ISO 1924), tearing resistance (ISO 1974), or bursting strength (ISO 2758, ISO 2759). Folding endurance is the most sensitive indicator of deterioration of paper in ageing, and changes may show up before there is a change in other mechanical characteristics. However, there are situations where a degraded paper might not survive even a single fold; and therefore, other tests should be used.

Chemical properties typically may include pH (ISO 6588), and alkali solubility (ISO 692).

The optical property typically measured is diffuse blue reflectance (ISO brightness) (ISO 2470).

It has been determined that the degradation of cellulose is very sensitive to moisture [3], [4]. Comparison of accelerated ageing with natural ageing indicates that some moisture should be present in an accelerated ageing atmosphere [5], [6]. Dry-accelerated ageing of cellulose is much less sensitive and probably does not rank papers in order of stability as accurately as moist accelerated ageing. It is much simpler to use and may be adequate for many purposes, but moist-accelerated ageing should be used where the greatest correlation with natural ageing is needed.