International Standard 5630/1

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Paper and board — Accelerated ageing — Part 1 : Dry heat treatment

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

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5630/1 was developed by Technical Committee ISO/TC 6, *Paper, board and pulps,* and was circulated to the member bodies in December 1981.

It has been approved by the member bodies of the following countries :

Australia	France	South Africa, Rep. of
Austria	Germany, F.R.	Spain
Belgium	Italy	Sweden
Brazil	Kenya	Switzerland
Canada	Korea, Rep. of	Turkey
China	Netherlands	United Kingdom
Czechoslovakia	New Zealand	USA
Egypt, Arab Rep. of	Norway	Venezuela
Finland	Romania	

No member body expressed disapproval of the document.

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Paper and board — Accelerated ageing — Part 1 : Dry heat treatment

0 Introduction

Exposure of paper or board to some types of radiation or chemical attack over a period of hours may give a guide to the natural change of the material over a period of years.

Methods that have been used include exposure to heat, visible and ultra-violet light, and sulphur dioxide gas.

Properties compared before and after such exposure include mechanical properties such as folding endurance and tearing resistance, and optical properties such as brightness. The paper or board is tested before and after exposure and the results are compared.

1 Scope and field of application

This part of ISO 5630 specifies a method for accelerating the ageing of paper and board by dry heat treatment.

Parts 2 and 3 of ISO 5630[1] will detail methods of accelerating the ageing of paper and board under moist conditions. Part 2 will specify a procedure for ageing at low relative humidity, and Part 3, a procedure for ageing at high relative humidity.

This procedure is not applicable to certain electrical insulating and tissue papers, for which different conditions apply.

2 References

ISO 186, *Paper and board — Sampling for testing.*

ISO 187, *Paper and board — Conditioning of samples.*

3 Principle

Properties of paper or board are compared before and after "accelerated ageing" by heat treatment.

4 Apparatus

4.1 Oven, ventilated and capable of maintaining the air temperature at 105 ± 2 °C; so designed that, during the test, test pieces are not exposed to light or to direct radiation from the heating element(s).

4.2 Test equipment, complying with the relevant International Standard, if any, or with another appropriate standard method.

5 Sampling

Sampling shall be carried out in accordance with ISO 186.

6 Preparation of test pieces

Select and prepare two sets of test pieces in accordance with the relevant International Standard, if any, or any other standard method used to determine the properties of the material.

Protect the test pieces from strong light.

Avoid handling with bare hands and avoid undue exposure to the atmosphere of a chemical laboratory.

7 Procedure for heat treatment

Suspend one of the two sets of test pieces (clause 6) in the oven (4.1) so that uncontaminated air at 105 ± 2 °C can circulate round each test piece; leave the test pieces in the oven for 72 ± 1 h preferably, but if a shorter treatment time is considered more suitable the time used shall be 24 ± 1 h or 48 ± 1 h.

NOTES

1 By agreement between vendor and purchaser, all these specified times may be used and the results of tests plotted as a function of the treatment time. In this case, four sets of test pieces are required.

2 The oven should not contain more than one type of paper at any time, in order to prevent the possibility of contamination by distillation or sublimation products.

8 Conditioning

8.1 At least 2 h before completion of the heat treatment, place the untreated set of test pieces in a desiccator.

8.2 On completion of the heat treatment, transfer both the treated and untreated sets of test pieces to the same conditioned enclosure in accordance with ISO 187.

1) In preparation.