INTERNATIONAL STANDARD

ISO 12632

First edition
2015-12-15

Graphic technology — Ink, paper and labels — Requirements on hot alkali penetration and resistance

Technologie graphique — Encres, papier et étiquettes — Exigences de pénétrabilité et résistance aux alcalins chauds

Reference number
ISO 12632:2015(E)

COPYRIGHT PROTECTED DOCUMENT

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 130, *Graphic technology.*

Introduction

Bottles or other containers for beverages and soft drinks may be labeled with wet glued printed labels of various substrates. If the bottles and containers are reused, they need to be cleaned thoroughly. Often, bottles and containers are used for different types of drinks. This requires the removal of the labels from the bottles and containers during the cleaning process. Usually, hot alkaline solution is used within the cleaning facilities. To ensure the stability of the process, the penetration of the cleaning solution through the label needs to occur rapidly. In addition, the labels need to stay intact to ease the process of removing them from the cleaning agent. Also, no dying of the solution must occur so as to minimize costs for the waste treatment of the cleaning solutions after neutralization. The test methods given in this International Standard have been successfully applied in the European beverage industry for decades and are also standardized as DIN Standards.

Graphic technology — Ink, paper and labels — Requirements on hot alkali penetration and resistance

1 Scope

This International Standard specifies test methods for

— penetrability and removal times of labels that have been wet glued on bottles intended to be refilled and reused, and

— resistance of printed labels against hot alkaline solution.

Test results always deal with systems comprising of substrates, ink films and varnish films if present. This International Standard is valid for label substrates and printed labels. Label substrates include metalized papers. The test procedures are also valid for the evaluation of inks and papers to be used in printing labels.

This International Standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this International Standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
penetration time
time of travel for a liquid through a substrate

2.2
removal time
time of separation of a glued label from a glass substrate

2.3
thymolphthaleine
organic chemical compound that is employed as an acid-base indicator, changing in appearance from red to yellow to blue as the pH changes from acidic (low pH) to neutral (pH = 7) to basic (high pH)

2.4
wire bar
coating device consisting of a metal rod covered with a tightly wound wire, in which the applied coating thickness is a function of the diameter of the wire (also known as a wire-wound rod)

3 Principle

Labels of bottles intended to be refilled and reused are removed from the bottles by applying hot alkaline solution.

3.1 Test method for the penetration time of hot alkaline solution on labels

To test if the hot alkaline solution is able to penetrate printed labels or label substrates from bottles within a required time, a glue, containing thymolphthalein solution is applied on the glue side of the label, the label is then glued onto the bottom of a petri dish and the dish is brought into contact with the hot alkaline solution. Appearance of a blue colour indicates the penetration of the hot alkaline solution