



MALAYSIAN STANDARD

MS ISO 62:2010

PLASTICS - DETERMINATION OF WATER ABSORPTION (FIRST REVISION) (ISO 62:2008, IDT)

ICS: 83.080.01

Descriptors: plastics, water absorption, test

© Copyright 2010

DEPARTMENT OF STANDARDS MALAYSIA

DEVELOPMENT OF MALAYSIAN STANDARDS

The **Department of Standards Malaysia (STANDARDS MALAYSIA)** is the national standards and accreditation body of Malaysia.

The main function of STANDARDS MALAYSIA is to foster and promote standards, standardisation and accreditation as a means of advancing the national economy, promoting industrial efficiency and development, benefiting the health and safety of the public, protecting the consumers, facilitating domestic and international trade and furthering international cooperation in relation to standards and standardisation.

Malaysian Standards (MS) are developed through consensus by committees which comprise balanced representation of producers, users, consumers and others with relevant interests, as may be appropriate to the subject at hand. To the greatest extent possible, Malaysian Standards are aligned to or are adoption of international standards. Approval of a standard as a Malaysian Standard is governed by the Standards of Malaysia Act 1996 [Act 549]. Malaysian Standards are reviewed periodically. The use of Malaysian Standards is voluntary except in so far as they are made mandatory by regulatory authorities by means of regulations, local by-laws or any other similar ways.

STANDARDS MALAYSIA has appointed **SIRIM Berhad** as the agent to develop, distribute and sell the Malaysian Standards.

For further information on Malaysian Standards, please contact:

Department of Standards Malaysia
Ministry of Science, Technology and Innovation
Level 1 & 2, Block 2300, Century Square
Jalan Usahawan
63000 Cyberjaya
Selangor Darul Ehsan
MALAYSIA

Tel: 60 3 8318 0002
Fax: 60 3 8319 3131
<http://www.standardsmalaysia.gov.my>

E-mail: central@standardsmalaysia.gov.my

OR **SIRIM Berhad**
(Company No. 367474 - V)
1, Persiaran Dato' Menteri
Section 2
40000 Shah Alam
Selangor Darul Ehsan
MALAYSIA

Tel: 60 3 5544 6000
Fax: 60 3 5510 8095
<http://www.sirim.my>

E-mail: msonline@sirim.my

CONTENTS

	Page
Committee representation	ii
National foreword.....	iii
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references	1
3 Principle.....	2
4 Apparatus	2
5 Test specimens	2
5.1 General.....	2
5.2 Square-shaped test specimens for homogeneous plastics.....	3
5.3 Test specimens of reinforced plastics affected by anisotropic diffusion effects.....	3
5.4 Tubular test specimens	3
5.5 Rod-shaped test specimens.....	4
5.6 Specimens cut from finished products, extrusion compounds, sheets or laminates.....	4
6 Test conditions and procedures	4
6.1 General.....	4
6.2 General conditions.....	4
6.3 Method 1: Determination of amount of water absorbed after immersion in water at 23 °C.....	5
6.4 Method 2: Determination of amount of water absorbed after immersion in boiling water	5
6.5 Method 3: Determination of water-soluble matter lost during immersion.....	6
6.6 Method 4: Determination of amount of water absorbed after exposure to 50 % relative humidity.....	6
7 Expression of results	6
7.1 Percentage by mass of water absorbed.....	6
7.2 Determination of the water content at saturation and the water diffusion coefficient using Fick's laws.....	7
8 Precision	8
9 Test report	9
Annex A Correlation between water absorption by test specimens and Fick's diffusion laws	10
Annex B Precision statement.....	12
Bibliography.....	15

MS ISO 62:2010

Committee representation

The Industry Standards Committee on Plastics and Plastics Products (ISC J) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Department of Standards Malaysia
Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysian Association of Standards Users
Malaysian Institute of Chemistry
Malaysian Petrochemical Association
Malaysian Plastics Manufacturers Association
Malaysian Rubber Board
Ministry of Domestic Trade, Co-operatives and Consumerism
Ministry of Health Malaysia
Ministry of International Trade and Industry
Plastics Rubber Institute of Malaysia
SIRIM Berhad (Advanced Polymer and Composites Programme)
SIRIM QAS International Sdn Bhd
The Institution of Engineers, Malaysia
Universiti Kebangsaan Malaysia
Universiti Sains Malaysia
Universiti Teknologi Malaysia

The Technical Committee on General Methods of Test for Plastics which recommended the adoption of the ISO Standard consists of representatives from the following organisations:

Federation of Malaysian Manufacturers
Hicom-Teck See Manufacturing Sdn Bhd
IKRAM QA Services Sdn Bhd
Malaysian Institute of Chemistry
Polypropylene Malaysia Sdn Bhd
SIRIM Berhad (Advanced Polymer and Composites Programme)
SIRIM Berhad (Secretariat)
Universiti Kebangsaan Malaysia
Universiti Teknologi Malaysia
Universiti Teknologi MARA

NATIONAL FOREWORD

The adoption of the ISO Standard as a Malaysian Standard was recommended by the Technical Committee on General Methods of Test for Plastics under the authority of the Industry Standards Committee on Plastics and Plastics Products.

This Malaysian Standard is the first revision of MS ISO 62, *Plastics - Determination of water absorption*.

This Malaysian Standard is identical with ISO 62:2008, *Plastics - Determination of water absorption*, published by the International Organization for Standardization (ISO). However, for the purposes of this Malaysian Standard, the following apply:

- a) in the source text, "this International Standard" should read "this Malaysian Standard";
- b) the comma which is used as a decimal sign (if any), to read as a point; and
- c) reference to International Standards should be replaced by corresponding Malaysian Standards as follows:

Referenced International Standards

Corresponding Malaysian Standards

ISO 175:1999, *Plastics - Methods of test for the determination of the effects of immersion in liquid chemicals*

MS ISO 175, *Plastics - Methods of test for the determination of the effects of immersion in liquid chemicals*

ISO 294-3, *Plastics - Injection moulding of test specimens of thermoplastic materials - Part 3: Small plates*

MS ISO 294-3, *Plastics - Injection moulding of test specimens of thermoplastic materials - Part 3: Small plates*

ISO 2818, *Plastics - Preparation of test specimens by machining*

MS ISO 2818, *Plastics - Preparation of test specimens by machining*

This Malaysian Standard cancels and replaces MS ISO 62:2001.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

NOTE. IDT on the front cover indicates an identical standard i.e. a standard where the technical content, structure, and wording (or is an identical translation) of a Malaysian Standard is exactly the same as in an International Standard or is identical in technical content and structure although it may contain the minimal editorial changes specified in clause 4.2 of ISO/IEC Guide 21-1.