INTERNATIONAL STANDARD

ISO 17710

Second edition
2023-06

Plastics — Polyols for use in the production of polyurethanes — Determination of degree of unsaturation by microtitration

Plastiques — Polyols pour la production des polyuréthannes — Détermination du degré de non-saturation par microtitrage

Reference number
ISO 17710:2023(E)

© ISO 2023



COPYRIGHT PROTECTED DOCUMENT

© ISO 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO 2023 – All rights reserved

Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Principle **2**
5 Application **2**
6 Interferences **2**
7 Reagents **2**
8 Apparatus **3**
9 Sampling **3**
10 Procedure **3**
11 Expression of results **4**
12 Precision and bias **5**
12.1 Precision 5
12.2 Bias 5
13 Test report **6**
Bibliography **7**

© ISO 2023 – All rights reserved

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics,* Subcommittee SC 12, *Thermosetting materials*.

This second edition cancels and replaces the first edition (ISO17710:2002), of which it constitutes a minor revision.

The changes are as follows:

— the title has been changed to plural form to read: "Plastics — Polyols for use in the production of polyurethanes — Determination of degree of unsaturation by microtitration"

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2023 – All rights reserved

Introduction

Standards have been published which deal with the measurement of the degree of unsaturation in polyols used for the production of polyurethane plastics (ASTM D 4671, JIS K 1557, part 6.7). These standards are based on the reaction of mercuric acetate with the unsaturation present in the molecule. The method described in this document relies on the same chemistry, but is a microtitration method which uses less reagent and therefore reduces the disposal problems associated with mercury compounds. It is based primarily on ASTM D 4671.

© ISO 2023 – All rights reserved

Plastics — Polyols for use in the production of polyurethanes — Determination of degree of unsaturation by microtitration

WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices, and to determine applicable national regulatory conditions prior to the application of this document.

1 Scope

This document specifies a microtitration method to measure the degree of unsaturation in polyether polyols used in the production of polyurethanes. It is based on the reaction of mercuric acetate with double bonds in the polyol. It does not apply to compounds in which the unsaturation is conjugated with carbonyl, carboxyl or nitrile groups.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 4787, *Laboratory glassware — Volumetric glassware — Methods for use and testing of capacity*

ISO 6353-1, *Reagents for chemical analysis — Part 1: General test methods*

ISO 6353-2, *Reagents for chemical analysis — Part 2: Specifications — First series*

ISO 6353-3, *Reagents for chemical analysis — Part 3: Specifications — Second series*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
unsaturation
property of a compound or polymer distinguished by the presence of a carbon-to-carbon double bond

3.2
polyol
organic compound which contains two or more hydroxyl groups capable of reacting with isocyanates to form polyurethanes

© ISO 2023 – All rights reserved