



BSI Standards Publication

**Plastics — Polymer polyols for use in the
production of polyurethane — Determination
of the residual acrylonitrile and styrene
monomer content by gas chromatography**

National foreword

This British Standard is the UK implementation of [ISO 21257:2018](#).

The UK participation in its preparation was entrusted to Technical Committee PRI/42, Fibre reinforced thermosetting plastics and prepregs.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2018

Published by BSI Standards Limited 2018

ISBN 978 0 580 51642 9

ICS 83.080.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2018.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

INTERNATIONAL STANDARD

ISO
21257

First edition
2018-10-23

Plastics — Polymer polyols for use in the production of polyurethane — Determination of the residual acrylonitrile and styrene monomer content by gas chromatography



Reference number
ISO 21257:2018(E)
Documents
Document Sharing Hub
© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
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	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Reagents and materials	2
6 Apparatus	2
7 Preparation of calibration solution and sample solution	3
7.1 General	3
7.2 Method A for using OT column	3
7.2.1 Preparation of internal standard solution	3
7.2.2 Preparation of calibration solutions	3
7.2.3 Preparation of sample solution	4
7.3 Method B for using packed column	4
7.3.1 Preparation of internal standard solution	4
7.3.2 Preparation of calibration solutions	4
7.3.3 Preparation of sample solution	4
8 Procedure	5
8.1 Gas chromatographic procedure	5
8.2 Measurement of sample solutions and calibration solutions	5
8.3 Evaluation of gas chromatographic peak	6
9 Expression of the results	6
9.1 Preparation of the calibration curve	6
9.2 Calculation of results from a calibration graph	7
9.3 Calculation of results from a single-point calibration	8
9.4 Acceptability of results and measurement sensitivity	8
10 Precision	8
11 Test report	9
Annex A (informative) Typical analytical conditions	10
Annex B (informative) Typical examples of GC chromatogram	12
Annex C (informative) Precision	14
Bibliography	15

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 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*.

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.

Introduction

Polymer polyols are defined as very fine and stable dispersions of solid, vinylic polymers (for example, acrylonitrile/styrene copolymers are typical) in liquid polyether polyols.

Polymer polyol is used to improve the physical properties of seat cushions, especially hardness. Because the toxicity of acrylonitrile and styrene is high, it is important to establish an analytical method to determine residual amounts of these reactants.

The importance of residual toxicity has increased with the use of polyurethane foam, etc. which comes in contact with food and skin. This document is intended to help manufacturers evaluate the safety of their products.

[Annexes A, B](#) and [C](#) complement the main body of this document and not meant to be a normative part of this document.

This page deliberately left blank