International Standard

ISO 15015

Plastics — Extruded sheets of impact-modified acrylonitrile-styrene copolymers (ABS, AEPDS and ASA) — Requirements and test methods

Plastiques — Plaques extrudées en copolymères d'acrylonitrile-styrène modifiés choc (ABS, AEPDS ou ASA) — Exigences et méthodes d'essai

Third edition
2025-11

Reference number
ISO 15015:2025(en)

© ISO 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

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

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **2**

4 Material ... **2**

5 Requirements ... **2**
5.1 Appearance ... 2
5.2 Dimensional tolerances ... 2
5.2.1 Thickness ... 2
5.2.2 Length and width ... 2
5.2.3 Rectangularity ... 3
5.2.4 Bow of sheets in rolled form ... 3
5.3 Properties ... 3
5.3.1 Mechanical and thermal properties ... 3
5.3.2 Behaviour on heating ... 4
5.3.3 Physiological behaviour ... 4

6 Test methods ... **5**
6.1 Test specimens ... 5
6.1.1 Preparation of test specimens ... 5
6.1.2 Conditioning ... 5
6.1.3 Test conditions ... 5
6.2 Delivery condition ... 5
6.3 Appearance ... 5
6.4 Dimensions ... 5
6.4.1 Thickness, h ... 5
6.4.2 Length, l, and width, b ... 6
6.4.3 Rectangularity ... 6
6.4.4 Bow of sheets in rolled form ... 6
6.5 Density ... 6
6.6 Mechanical properties ... 6
6.6.1 Tensile stress at yield, σ_y ... 6
6.6.2 Modulus of elasticity in tension, E_t ... 6
6.6.3 Charpy impact strength of unnotched specimens, a_{cu} ... 6
6.6.4 Charpy impact strength of notched specimens, a_{cn} ... 6
6.6.5 Ball indentation hardness ... 6
6.6.6 Melt mass-flow rate (MFR) ... 6
6.7 Thermal properties ... 7
6.7.1 Vicat softening temperature ... 7
6.7.2 Determination of shrinkage on heating ... 7

7 Designation ... **8**
7.1 Example for ABS sheets ... 8
7.2 Example for ASA sheets in rolled form ... 9

8 Marking ... **9**

Annex A (informative) **Additional guide values** ... **10**

Bibliography ... **11**

© ISO 2025 – 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 11, *Products,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 249, *Plastics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 15015:2011), which has been technically revised

The main changes are as follows:

— Clause 3, Terms and definitions, has been added, and subsequent clauses have been renumbered;

— Formula (2) has been deleted because the tolerance for the entire sheets delivery would be higher than for each individual sheet, and subsequent formulae have been renumbered;

— in the title of Table 2, ISO 291 has been added;

— in Tables 2 and 3, the mechanical properties 50 % impact-failure energy, E_{50}, at h_n= 4 mm have been deleted as it is not used;

— puncture impace behaviour (former 5.6.5) has been deleted as it is not used.

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 2025 – All rights reserved

Plastics — Extruded sheets of impact-modified acrylonitrile-styrene copolymers (ABS, AEPDS and ASA) — Requirements and test methods

1 Scope

This document specifies the requirements and test methods for solid flat extruded sheets of impact-modified acrylonitrile-styrene copolymer materials:

— acrylonitrile-butadiene-styrene (ABS),

— acrylonitrile-(ethylene-propylene-diene)-styrene (AEPDS) (commonly known as AES), and

— acrylonitrile-styrene-acrylate (ASA), without fillers or reinforcing materials.

This document also applies to ABS, AEPDS and ASA sheet in rolled form. It applies only to thicknesses from 0,25 mm to 20,0 mm.

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 179-1, *Plastics — Determination of Charpy impact properties — Part 1: Non-instrumented impact test*

ISO 179-2, *Plastics — Determination of Charpy impact properties — Part 2: Instrumented impact test*

ISO 291, *Plastics — Standard atmospheres for conditioning and testing*

ISO 306, *Plastics — Thermoplastic materials — Determination of Vicat softening temperature (VST)*

ISO 527-2, *Plastics — Determination of tensile properties — Part 2: Test conditions for moulding and extrusion plastics*

ISO 1133-1, *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics — Part 1: Standard method*

ISO 1183 (all parts), *Plastics — Methods for determining the density of non-cellular plastics*

ISO 2039-1, *Plastics — Determination of hardness — Part 1: Ball indentation method*

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

ISO 11501, *Plastics — Film and sheeting — Determination of dimensional change on heating*

ISO 19062-1, *Plastics — Acrylonitrile-butadiene-styrene (ABS) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

ISO 19065-1, *Plastics — Acrylonitrile-styrene-acrylate (ASA), acrylonitrile-(ethylene-propylene-diene)-styrene (AEPDS) and acrylonitrile-(chlorinated polyethylene)-styrene (ACS) moulding and extrusion materials — Part 1: Designation system and basis for specifications*

© ISO 2025 – All rights reserved

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological 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/

4 Material

Sheets shall be made of either ABS extrusion materials as defined in ISO 19062-1 or AEPDS (AES) or ASA extrusion materials as defined in ISO 19065-1, without fillers or reinforcing materials. The extrusion materials can contain additives such as processing aids, stabilizers, flame-protective agents and colorants. Compounds and additives of unknown identity shall not be used.

NOTE Legal conditions might necessitate a specific choice of extrusion material (see 5.3.3).

5 Requirements

5.1 Appearance

Sheets shall be substantially free from bubbles, voids, cracks, visible impurities and other defects which would make them unfit for the intended use. Surfaces shall be substantially smooth, if not embossed, and free from grooves, sink marks or damage. Colorants shall be homogeneously distributed throughout the material. Slight colour variations due to variations in the extrusion compound or processing conditions are admissible. The exact extent of variations in any of the above, as well as gloss level specifications, if required, shall be agreed between the interested parties. Sheets shall be examined in accordance with 6.3.

5.2 Dimensional tolerances

5.2.1 Thickness

Within any delivery of sheets, the maximum thickness variation from the nominal value, Δh_1, in millimetres, shall satisfy the requirement given as Formula (1):

$$|\Delta h_1| \leq (0{,}03 + 0{,}04 \times h_n) \quad (1)$$

where h_n is the nominal sheet thickness, in millimetres.

5.2.2 Length and width

The nominal length, l_n, and nominal width, b_n, of sheets shall be as agreed between the interested parties. Unless agreed differently, the length shall be in the direction of extrusion.

For any individual sheet selected at random from any delivery, the tolerances on length and width shall be in accordance with Table 1. Testing shall be in accordance with 6.4.2.

© ISO 2025 – All rights reserved