INTERNATIONAL STANDARD

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AMENDMENT 1
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Plastics — Determination of Charpy impact properties —

Part 2:
Instrumented impact test

AMENDMENT 1: Precision data

Plastiques — Détermination des caractéristiques au choc Charpy —

Partie 2: Essai de choc instrumenté

AMENDEMENT 1: Données de fidélité

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

Amendment 1 to ISO 179-2:1997 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 2, *Mechanical properties*.

Plastics — Determination of Charpy impact properties —

Part 2: **Instrumented impact test**

AMENDMENT 1: Precision data

Page 11, Clause 9

Replace "See ISO 179-1, clause 9" by "See Annex D".

End of text

Add the following annex:

Annex D
(informative)

Precision data

D.1 Tables D.1 and D.2 are based on a round-robin test involving four laboratories and one material. All of the test samples were produced and distributed by one source. Each "test result" was the average of 10 individual determinations. Each laboratory obtained and reported 10 test results for each material.

D.2 Tables D.3 and D.4 are based on a round-robin test involving three laboratories and one material. All of the test samples were produced and distributed by one source. Each "test result" was the average of 10 individual determinations. Each laboratory obtained and reported 10 test results for each material.

D.3 Due to the limited number of laboratories and materials, the explanations of r and R given in Clause D.4 are only intended to present a meaningful way of considering the *approximate* precision of this test method. The data in Tables D.1 to D.4 should not be rigorously applied to acceptance or rejection of material, as those data are specific to the round robin and might not be representative of other lots, conditions, materials or laboratories.

D.4 Concept of "r" and "R" in Tables D.1 to D.4: If s_r and s_R have been calculated from a large enough body of data, and for test results that were averages from testing 10 specimens for each test result, then the following applies:

a) *Repeatability* — Two test results obtained within one laboratory should be judged not equivalent if they differ by more than the r value for that material, r being the interval representing the critical difference between two test results for the same material, obtained by the same operator using the same equipment in the same laboratory.

b) *Reproducibility* — Two test results obtained by different laboratories should be judged not equivalent if they differ by more than the R value for that material, R being the interval representing the critical difference between two test results for the same material, obtained by different operators using different equipment in different laboratories.

The judgements in a) and b) will have an approximately 95 % (0,95) probability of being correct.

Table D.1 — Precision for Charpy (notched) impact strength

Values in kilojoules per square metre

Material	Average	s_r	s_R	r	R
PS-HI	13,03	0,099	1,56	0,28	4,36

s_r within-laboratory standard deviation;
s_R between-laboratory standard deviation;
r 95 % repeatability limit (= 2,8s_r);
R 95 % reproducibility limit (= 2,8s_R).

Table D.2 — Precision for impact energy at break

Values in joules

Material	Average	s_r	s_R	r	R
PS-HI	0,40	0,004	0,04	0,01	0,11

s_r within-laboratory standard deviation;
s_R between-laboratory standard deviation;
r 95 % repeatability limit (= 2,8s_r);
R 95 % reproducibility limit (= 2,8s_R).

Table D.3 — Precision for maximum impact force

Values in newtons

Material	Average	s_r	s_R	r	R
PS-HI	193,7	3,62	9,72	10,14	27,23

s_r within-laboratory standard deviation;
s_R between-laboratory standard deviation;
r 95 % repeatability limit (= 2,8s_r);
R 95 % reproducibility limit (= 2,8s_R).

Table D.4 — Precision for deflection at maximum impact force

Values in millimetres

Material	Average	s_r	s_R	r	R
PS-HI	1,89	0,049	0,06	0,14	0,17

s_r within-laboratory standard deviation;
s_R between-laboratory standard deviation;
r 95 % repeatability limit (= 2,8s_r);
R 95 % reproducibility limit (= 2,8s_R).

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