INTERNATIONAL STANDARD

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Plastics — Generic identification and marking of plastics products

Plastiques — Identification générique et marquage des produits en matière plastique

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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 on 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 the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 61, *Plastics*, Subcommittee SC 1, *Terminology*.

This third edition cancels and replaces the second edition (ISO 11469:2000), which has been technically revised with the following changes:

— the definition of "plastics products" has been modified;

— the marking of recyclates has been included.

Plastics — Generic identification and marking of plastics products

1 Scope

This International Standard specifies a system of uniform marking of products that have been fabricated from plastics materials. Provision for the process or processes to be used for marking is outside the scope of this International Standard.

NOTE 1 Precise details of the marking, e.g. the minimum size of the item to be marked, the size of the lettering, the appropriate location of the marking, are subject to agreement between the manufacturer and the user.

The marking system is intended to help identify plastics products for subsequent decisions concerning handling, waste recovery or disposal.

Generic identification of the plastics is provided by the symbols and abbreviated terms given in ISO 1043-1, ISO 1043-2, ISO 1043-3 and ISO 1043-4.

NOTE 2 If more detailed information for material identification is needed, additional marking of plastics products can be applied as defined in the appropriate product standard.

This International Standard is not intended to supplant, replace or in any way interfere with the requirements for labelling specified in product standards or legislation.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 472, *Plastics — Vocabulary*

ISO 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*

ISO 1043-2, *Plastics — Symbols and abbreviated terms — Part 2: Fillers and reinforcing materials*

ISO 1043-3, *Plastics — Symbols and abbreviated terms — Part 3: Plasticizers*

ISO 1043-4, *Plastics — Symbols and abbreviated terms — Part 4: Flame retardants*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and the following apply.

3.1
abbreviated term
term resulting from the omission of any part of a term while designating the same concept

[SOURCE: ISO 1043-1:2011, 3.1]

3.2
plastics products
articles or stocks shapes of plastic materials for any type of application

4 Symbols and abbreviated terms

The symbols and abbreviated terms given in ISO 1043-1, ISO 1043-2, ISO 1043-3 and ISO 1043-4 shall be used for this International Standard. If an appropriate symbol or abbreviated term is not included in ISO 1043 (all parts), such a symbol or abbreviated term from any available national or international standard may be used. Based on the rule of symbol "REC" for polymer in ISO 1043-1, a similar rule is applied to a product with two or more components when it is regarded as a single recyclate.

5 Requirements

5.1 Marking system

5.1.1 Marking of products

If plastics products are marked with the identification of the plastic materials, they shall be marked at some place on the surface with the appropriate standard symbol(s) or abbreviated term(s) set between the punctuation marks ">" and "<".

NOTE ">" and "<" are "greater than" and "less than" signs, respectively, often referred to in this context as reversed angled brackets.

5.1.2 Single-constituent products

Products made from a single polymer or copolymer shall be marked as specified in 5.1.1.

EXAMPLE 1 For acrylonitrile-butadiene-styrene polymer, use

>ABS<

EXAMPLE 2 If plastics recyclate is included with the minimum amount *x*, the symbol "(REC)" is an option.

>ABS<	When the specific claim regarding recyclate is not intended to be declared.
>ABS(REC)<	When the specific claim regarding recyclate is intended to be declared without specifying amount.
>ABS(RECx)<	When the specific claim regarding recyclate with specific amount is intended to be declared.

5.1.3 Polymer blends or alloys

Products of polymer blends or alloys shall be marked with the appropriate abbreviated terms for the constituent polymers, with the main component in first place followed by the other components in descending order according to their mass fractions, separated by one or more plus signs and set out as described in 5.1.1.

EXAMPLE 1 For an alloy of polycarbonate and acrylonitrile-butadiene-styrene in which the polycarbonate is the main polymer with the acrylonitrile-butadiene-styrene being dispersed therein, use

>PC+ABS<

EXAMPLE 2 If a specific claim of recycled content has to be declared, capital letters REC are followed by a number indicating the minimum percentage of 30 by mass

>PC+ABS(REC30)<

5.1.4 Compositions with special additives

5.1.4.1 Fillers or reinforcing agents

Compositions with a single filler or reinforcing material shall be marked with the abbreviated term for the polymer, followed by a hyphen, then the abbreviated term or symbol for the additive, in accordance with ISO 1043-2, with its percent by mass, arranged as shown in the examples and set out as described in 5.1.1.

EXAMPLE 1 For a polypropylene containing 30 % by mass of mineral powder, use

>PP-MD30<

EXAMPLE 2 For a high impact polystyrene containing 20 % by mass of glass fibre, use

>PS-HI-GF20<

For compositions with a mixture of fillers or reinforcing agents or both, the marking to show the presence of these additives shall be between parentheses (curved brackets) as shown in examples 3 and 4.

EXAMPLE 3 For a polyamide 66 containing a mixture of 15 % by mass of mineral powder and 25 % by mass of glass fibre, use

>PA66-(GF25+MD15)< or >PA66-(GF+MD)40<

EXAMPLE 4 For a thermoset moulding compound based on unsaturated polyester with 50 % by mass of mineral powder (MD) and 25 % by mass of glass fibre (GF), use

>UP-(MD50+GF25)< or >UP-(MD+GF)75<

5.1.4.2 Plasticizers

Compositions containing plasticizers shall be marked with the abbreviated term for the polymer followed by a hyphen, then the symbol "P" followed by the abbreviated term of the plasticizer in parentheses, as given in ISO 1043-3.

EXAMPLE For a PVC containing dibutyl phthalate as plasticizer, use

>PVC-P(DBP)<

5.1.4.3 Flame retardants

Compositions containing flame retardants shall be marked with the abbreviated term for the polymer followed by a hyphen, then the symbol "FR" followed by the code number of the flame retardant in parentheses, as given in ISO 1043-4.

EXAMPLE 1 For a polyamide 66 containing a mixture of 15 % by mass of mineral powder and 25 % by mass of glass fibre and, additionally, red phosphorus (52) as a flame retardant, use

>PA66-(GF25+MD15)FR(52)< or >PA66-(GF+MD)40FR(52)<

EXAMPLE 2 If a specific claim of recycled content has to be declared, capital letters REC are followed by a number indicating the minimum percentage of 30 by mass

>PA66-(GF25+MD15)FR(52)(REC30)< or >PA66-(GF+MD)40FR(52) (REC30)<

5.1.4.4 Products with two or more components difficult to separate

Products that comprise two or more components, some of which are not readily visible, shall be marked so that the primary visible material is identified first, by the system specified in 5.1.1, followed by identification of the other material(s) with the individual identification(s) separated by a comma. The main component by mass shall be identified by underlining.

EXAMPLE For a product made of three components, the visible one being a thin coating of poly(vinyl chloride) over a polyurethane containing an insert of acrylonitrile-butadiene-styrene that is the major component by mass, use

>PVC,PUR,ABS<

5.2 Method of marking

The marking shall be made

— during moulding by having the appropriate symbol included in the mould design,

— or by embossing,

— or by melt imprinting,

— or by other legible and indelible marking of the polymer.

NOTE 1 Precise details of the marking, e.g. the minimum size of the item to be marked, the size of the lettering, the appropriate location of the marking, are subject to agreement between the manufacturer and the user.

NOTE 2 If space for marking is not able to be secured, modification or omitting of marking is subject to agreement between the manufacturer and the user.

