

BS EN ISO 1043-2:2011



BSI Standards Publication

Plastics — Symbols and abbreviated terms

Part 2: Fillers and reinforcing materials (ISO 1043-2:2011)

bsi.

...making excellence a habit.™

National foreword

This British Standard is the UK implementation of EN ISO 1043-2:2011. It supersedes BS EN ISO 1043-2:2001 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/10, Terminology for rubbers and plastics.

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.

© BSI 2011

ISBN 978 0 580 66819 7

ICS 59.100.01; 83.040.30; 83.080.01

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 December 2011.

Amendments issued since publication

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

English Version

Plastics - Symbols and abbreviated terms - Part 2: Fillers and reinforcing materials (ISO 1043-2:2011)

Plastiques - Symboles et termes abrégés - Partie 2:
Charges et matériaux de renforcement (ISO 1043-2:2011)

Kunststoffe - Kennbuchstaben und Kurzzeichen - Teil 2:
Füllstoffe und Verstärkungsstoffe (ISO 1043-2:2011)

This European Standard was approved by CEN on 12 November 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN ISO 1043-2:2011) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 1043-2:2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 1043-2:2011 has been approved by CEN as a EN ISO 1043-2:2011 without any modification.

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

ISO 1043-2 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 1, *Terminology*.

This third edition cancels and replaces the second edition (ISO 1043-2:2000), which has been revised to include both modified and new symbols, in particular the following: “A” instead of “R” for aramid, in accordance with common use; “ME” for metal, to distinguish it from “M” for mineral; “EM” for endless-strand mat; “CM” for chopped-strand mat; “LF” for long fibres and “NF” for nanofibres.

ISO 1043 consists of the following parts, under the general title *Plastics — Symbols and abbreviated terms*:

- *Part 1: Basic polymers and their special characteristics*
- *Part 2: Fillers and reinforcing materials*
- *Part 3: Plasticizers*
- *Part 4: Flame retardants*

Plastics — Symbols and abbreviated terms —

Part 2: Fillers and reinforcing materials

1 Scope

This part of ISO 1043 specifies uniform symbols for terms referring to fillers and reinforcing materials. It includes only those symbols that have come into established use, and its main aim is both to prevent the occurrence of more than one symbol for a given filler or reinforcing material and to prevent a given symbol being interpreted in more than one way.

NOTE For symbols and abbreviated terms for basic polymers and their special characteristics, see ISO 1043-1, for plasticizers see ISO 1043-3, and, for flame retardants, see ISO 1043-4.

2 Use of the symbols

2.1 The symbols for fillers and reinforcing materials are specified in Subclause 3.1 and the symbols for their form and/or structure are specified in Subclause 3.2.

2.2 Only capital letters shall be used, except for chemical symbols.

2.3 The type of filler or reinforcing material shall be represented by the first letter and its physical form or structure by the second letter.

NOTE There are exceptions requiring the use of one or more further letters, as indicated in Tables 1 and 2.

EXAMPLE 1 GF is the symbol for glass in the form of fibre.

EXAMPLE 2 GCM is the symbol for glass in the form of chopped-strand mat.

2.4 Mixtures of materials or forms may be indicated by combining the relevant symbols using a “+” sign and enclosing the whole in parentheses.

There should be no space before or after the “+” sign.

EXAMPLE (GF+MD) is the symbol for a mixture of glass fibres (GF) and mineral powder (MD).

2.5 The further information required for metals shall be indicated by the chemical symbol in parentheses.

EXAMPLE MED(Al) is the symbol for aluminium powder.

3 Symbols

3.1 Fillers and reinforcing materials

The symbols for fillers and reinforcing materials are specified in Table 1.

Table 1 — Symbols for fillers and reinforcing materials

Symbol	Material ^a
A	aramid ^b
B	boron
C	carbon
D	alumina trihydrate
E	clay
G	glass
K	calcium carbonate
L	cellulose
M	mineral
ME	metal ^c
N	natural organic (cotton, sisal, hemp, flax, etc.)
P	mica
Q	silica
S	synthetic organic (e.g. finely divided PTFE, polyimides or thermoset resins) ^d
T	talcum
W	wood
X	not specified
Z	others not included in this list

^a The materials may be further defined, for example by their chemical symbols or by additional symbols defined in the relevant International Standard.

^b Aramid was previously defined by the symbol "R", but "A" is in common use.

^c In the case of metals (ME), the type(s) of metal shall be indicated by means of the relevant chemical symbol(s).

^d A specific material may be further defined.

3.2 Form or structure

The symbols for the form or structure of fillers and reinforcing materials are specified in Table 2.

Table 2 — Symbols for the form or structure of fillers and reinforcing materials

Symbol	Form or structure
B	beads, spheres, balls
C	chips, cuttings
CM	chopped-strand mat
D	finer, powder
EM	continuous (endless) strand mat
F	fibre
G	ground
H	whiskers
K	knitted fabric
L	layer
LF	long fibres
M	mat (thick)
N	non-woven (fabric, thin)
NF	nanofibres
NT	nanotubes
P	paper
R	rovings
S	flakes
T	twisted or braided fabric, cord, tube
V	veneer
W	woven fabric
X	not specified
Y	yarn
Z	others not included in this list

Bibliography

- [1] ISO 1043-1, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*
- [2] ISO 1043-3, *Plastics — Symbols and abbreviated terms — Part 3: Plasticizers*
- [3] ISO 1043-4, *Plastics — Symbols and abbreviated terms — Part 4: Flame retardants*

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards-based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

All the data, software and documentation set out in all British Standards and other BSI publications are the property of and copyrighted by BSI, or some person or entity that owns copyright in the information used (such as the international standardization bodies) and has formally licensed such information to BSI for commercial publication and use. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI. Details and advice can be obtained from the Copyright & Licensing Department.

Useful Contacts:

Customer Services

Tel: +44 845 086 9001

Email (orders): orders@bsigroup.com

Email (enquiries): cservices@bsigroup.com

Subscriptions

Tel: +44 845 086 9001

Email: subscriptions@bsigroup.com

Knowledge Centre

Tel: +44 20 8996 7004

Email: knowledgecentre@bsigroup.com

Copyright & Licensing

Tel: +44 20 8996 7070

Email: copyright@bsigroup.com



...making excellence a habit.™