

Symbols for plastics and rubber materials —

Part 3: Schedule for symbols for compounding ingredients

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Plastics and Rubber Standards Policy Committee (PRM/-) to Technical Committee PRM/10, upon which the following bodies were represented:

- British Plastics Federation
- Chief and Assistant Chief Fire officers' Association
- Department of the Environment (Building Research Establishment)
- Department of Trade and Industry (Laboratory of the Government Chemist)
- Malaysian Rubber Producers' Research Association
- Ministry of Defence
- Plastics and Rubber Institute

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Foreword

This Part of BS 3502 has been prepared under the direction of the Plastics and Rubber Standards Policy Committee. It supersedes BS 4589:1970, which is withdrawn.

The other two Parts of BS 3502 are as follows:

— Part 1: *Schedule for symbols for plastics*. This Part superseded BS 3502-1:1978 and is identical with ISO 1043-1:1987 *Plastics — Symbols — Part 1 Basic polymers and their special characteristics*.

— Part 2: *Schedule for symbols for rubbers*. This Part superseded BS 3502-3:1978 and is identical with ISO 1629:1987 *Rubber and latices — Nomenclature* except for two clauses which were not acceptable in the United Kingdom and which therefore were omitted.

This Part of BS 3502 is related to ISO 1043-2:1988 and ISO 1043-3:1988 *Plastics — Symbols — Part 2 Fillers and reinforcing materials* and — *Part 3 Plasticizers*, and to ISO 6472 *Rubber compounding ingredients — Abbreviations*¹⁾. All terms and symbols in these standards have been incorporated except symbols offered as alternatives to those used in the United Kingdom. These alternatives, excepting those for most dithiocarbamates (see note 1 to clause 4), are listed in italics and a cross-reference is given to the preferred symbols.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 14, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

¹⁾ To be published in 1993.

1 Scope

This Part of BS 3502 is intended to provide unambiguous symbols for compounding ingredients used in plastics and rubbers. The types of ingredients covered are accelerators and vulcanizing agents, activators and process aids, antioxidants and antiozonants, blowing agents, plasticizers, retarders of vulcanization, and fillers and reinforcing materials for plastics. The schedule includes, in general, only those symbols that have come into established use, and its aim is both to prevent the occurrence of more than one symbol for a given ingredient and, as far as is practicable, to prevent the interpretation of more than one meaning for a given symbol.

The symbols are primarily intended to be a convenient short-hand for chemical names in publications and other written matter. They are also suitable for data storage systems.

NOTE The list does not purport to be comprehensive, and symbols for other compounding ingredients will be added in future revisions.

2 Informative references

This Part of BS 3502 refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover but reference should be made to the latest editions.

3 Use of the symbols

3.1 The first appearance of the symbols in texts shall be enclosed in parentheses and shall be preceded by the chemical name written in full.

3.2 Only capital letters shall be used, except where otherwise shown in this schedule.

3.3 The list comprises the commonly used name or names for each ingredient, followed by the IUPAC²⁾ equivalent where this is available. In cases where IUPAC nomenclature is not available due to uncertainty or ambiguity, an explanation is given in a note. Also in some instances alternative commonly used chemical names are given where they are recognized. The preferred name is listed first.

The commonly used chemical name or the IUPAC name given in this schedule shall be referred to when defining each symbol.

4 Accelerators and vulcanizing agents

NOTE In the UK and most European countries, the dithiocarbamate group is denoted by the symbol "C", whereas in the system prevailing in North America and some other countries this group is usually denoted by "DC". Thus the British symbol for zinc dimethyldithiocarbamate, for example, is ZDMC but in the USA it is ZMDC. Both symbols are permitted in ISO 6472 but only the first is adopted in this Part of BS 3502.

NOTE The symbol DCP is used as an abbreviation for the plasticizer, dicapryl phthalate (clause 8) as well as the vulcanizing agent, dicumyl peroxide. Confusion between the two ingredients is unlikely because of their different functions, with the phthalate being used primarily in plastics materials and the peroxide in rubbers. If both appear in the same formulation or text, one of them should be identified by an alternative symbol.

BA	butyraldehyde-aniline condensate IUPAC: not possible
BiDMC	bismuth dimethyldithiocarbamate IUPAC: bismuth bis(dimethyldithiocarbamate)
BQD	<i>p</i> -benzoquinone dioxime IUPAC: same
CBS	<i>N</i> -cyclohexylbenzothiazole-2-sulfenamide; <i>N</i> -cyclohexylbenzothiazyl sulfenamide IUPAC: <i>N</i> -cyclohexyl-1,3-benzothiazole-2-sulfenamide
CdDEC	cadmium diethyldithiocarbamate IUPAC: cadmium bis(diethyldithiocarbamate)
CdDMC	cadmium dimethyldithiocarbamate IUPAC: cadmium bis(dimethyldithiocarbamate)

²⁾ International Union of Pure and Applied Chemistry.

CuDMC	copper dimethyldithiocarbamate IUPAC: copper bis(dimethyldithiocarbamate)
DBA	dibenzylamine IUPAC: same
DBQD	<i>p,p'</i> -dibenzoyl- <i>p</i> -benzoquinone dioxime; quinone dioxime dibenzoate IUPAC: <i>p</i> -benzoquinone bis(<i>O</i> -benzoyloxime)
DBTU	1,3-dibutylthiourea IUPAC: 1,3-dibutyl-2-thiourea
DBXD	dibutylxanthogen disulfide IUPAC: <i>O,O</i> -dibutyl dithiobis(thioformate)
DCBS	<i>N,N</i> -dicyclohexylbenzothiazole-2-sulfenamide; <i>N,N</i> -dicyclohexylbenzothiazyl sulfenamide IUPAC: <i>N,N</i> -dicyclohexyl-1,3-benzothiazole-2-sulfenamide
DCP	dicumyl peroxide IUPAC: bis(1-methyl-1-phenylethyl) peroxide
DETU	1,3-diethylthiourea IUPAC: 1,3-diethyl-2-thiourea
DIBS	<i>N,N</i> -diisopropylbenzothiazole-2-sulfenamide; <i>N,N</i> -diisopropylbenzothiazyl sulfenamide IUPAC: <i>N,N</i> -diisopropyl-1,3-benzothiazole-2-sulfenamide
DOTG	di- <i>o</i> -tolylguanidine IUPAC: 1,3-di- <i>o</i> -tolylguanidine
DPG	diphenylguanidine IUPAC: 1,3-diphenylguanidine
DPTD	dipentamethylenethiuram disulfide IUPAC: bis[piperidino(thiocarbonyl)] disulfide
DPTH	dipentamethylenethiuram hexasulfide IUPAC: bis[piperidino(thiocarbonyl)] hexasulfide
DPTM	dipentamethylenethiuram monosulfide IUPAC: di(piperidine-1-carbothioic) thioanhydride
DPTT	dipentamethylenethiuram tetrasulfide IUPAC: bis[piperidino(thiocarbonyl)] tetrasulfide
DPTU	1,3-diphenylthiourea IUPAC: 1,3-diphenyl-2-thiourea
DTBP	di- <i>tert</i> -butyl peroxide IUPAC: same
DTDM	dithiodimorpholine IUPAC: 4-(morpholinodithio)morpholine
DTTU	1,3-di- <i>o</i> -tolylthiourea IUPAC: 1,3-di- <i>o</i> -tolyl-2-thiourea
ECFA	<i>See EFA, the preferred symbol</i>
EFA	ethyl chloride, formaldehyde and ammonia reaction product IUPAC: not possible
EPTD	<i>N,N'</i> -diethyl- <i>N,N'</i> -diphenylthiuram disulfide IUPAC: same
ETU	ethylene thiourea IUPAC: imidazoline-2-thione