
**Plastics — Symbols and abbreviated
terms —**

**Part 4:
Flame retardants**

*Plastiques — Symboles et abréviations —
Partie 4: Ignifuges*
(standards.iteh.ai)

ISO 1043-4:1998

<https://standards.iteh.ai/catalog/standards/sist/57c5a85f-5515-4518-9c42-e1ccdf8ee1c9/iso-1043-4-1998>



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.

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.

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International Standard ISO 1043-4 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 1, *Terminology*.

ISO 1043 consists of the following parts, under the general title *Plastics — Symbols and abbreviated terms*: <https://standards.iteh.ai/catalog/standards/sist/57c5a85f-5515-4518-9c42-e1ccd8ee1c9/iso-1043-4-1998>

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

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Plastics — Symbols and abbreviated terms —

Part 4: Flame retardants

1 Scope

This part of ISO 1043 provides uniform symbols for flame retardants added to plastics materials. The symbols are written with the abbreviated term “FR” and one or more succeeding code numbers as given in clause 5. They are used in addition to the symbols for the plastics materials, for plastics material designation and for identification and marking of plastics products.

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2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 1043. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 1043 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1043-1:1997, *Plastics — Symbols and abbreviated terms — Part 1: Basic polymers and their special characteristics*.

ISO 1043-2:1988, *Plastics — Symbols — Part 2: Fillers and reinforcing materials*.

ISO 1043-3:1996, *Plastics — Symbols and abbreviated terms — Part 3: Plasticizers*.

3 Definition

For the purposes of this part of ISO 1043, the following definition applies:

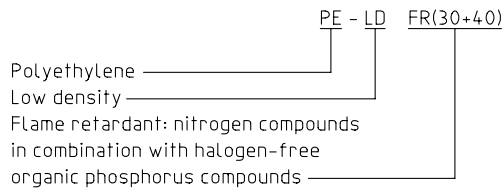
3.1 flame retardant: A substance that markedly retards the propagation of a flame.

NOTE — Included are flame retardants that are incorporated in prepolymers.

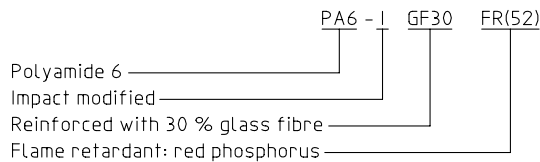
4 Application of symbols

The symbols are written with the abbreviated term “FR”, in capital letters, followed, without a space, by a two-digit code number enclosed in parentheses and selected, as appropriate, from the list given in clause 5. Only flame retardants exceeding 1 % (*m/m*) have to be identified. These symbols are used in addition to the symbols for a plastics material derived from parts 1, 2 and 3 of ISO 1043.

EXAMPLE 1:



EXAMPLE 2:



5 Code numbers for flame retardants

The code numbers are grouped according to the chemical composition of the flame retardant.

NOTE — Additional materials will be coded as required and will form amendments to this part of ISO 1043.

Halogenated compounds:

Code

- 10 aliphatic/alicyclic chlorinated compounds
- 11 aliphatic/alicyclic chlorinated compounds in combination with antimony compounds
- 12 aromatic chlorinated compounds
- 13 aromatic chlorinated compounds in combination with antimony compounds
- 14 aliphatic/alicyclic brominated compounds
- 15 aliphatic/alicyclic brominated compounds in combination with antimony compounds
- 16 aromatic brominated compounds (excluding brominated diphenyl ether and biphenyls)
- 17 aromatic brominated compounds (excluding brominated diphenyl ether and biphenyls) in combination with antimony compounds
- 18 polybrominated diphenyl ether
- 19 polybrominated diphenyl ether in combination with antimony compounds
- 20 polybrominated biphenyls
- 21 polybrominated biphenyls in combination with antimony compounds
- 22 aliphatic/alicyclic chlorinated and brominated compounds
- 23, 24 not allocated
- 25 aliphatic fluorinated compounds
- 26 to 29 not allocated

Nitrogen compounds:

Code

- 30 nitrogen compounds (confined to melamine, melamine cyanurate, urea)
- 31 to 39 not allocated

Organic phosphorus compounds:

Code

40	halogen-free organic phosphorus compounds
41	chlorinated organic phosphorus compounds
42	brominated organic phosphorus compounds
43 to 49	not allocated

Inorganic phosphorus compounds:

Code

50	ammonium orthophosphates
51	ammonium polyphosphates
52	red phosphorus
53 to 59	not allocated

Metal oxides, metal hydroxides, metal salts:

Code

60	aluminium hydroxide
61	magnesium hydroxide
62	antimony(III) oxide
63	alkali-metal antimonate
64	magnesium/calcium carbonate hydrate
65 to 69	not allocated

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Boron and zinc compounds:

Code

70	inorganic boron compounds
71	organic boron compounds
72	zinc borate
73	organic zinc compounds
74	not allocated

Silica compounds:

Code

75	inorganic silica compounds
76	organic silica compounds
77 to 79	not allocated

Code

80	graphite
81 to 89	not allocated

Code

90 to 99	not allocated
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ICS 83.040.30; 83.080.01

Descriptors: plastics, flame proofing, retardants, symbols, abbreviations, designation, numeric codes.

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