



Standard Terminology for Abbreviated Terms Relating to Plastics¹

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This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 The purpose of this terminology is to provide uniform contractions of terms relating to plastics. Abbreviated terminology has evolved through widespread common usage. This compilation has been prepared to avoid both the occurrence of more than one abbreviated term for a given plastics term and multiple meanings for abbreviated terms.

1.2 The scope of these abbreviated terms includes plastics terms pertaining to composition and relating to type or kind according to mode of preparation or principle distinguishing characteristics. Also included are abbreviated terms for terms relating to copolymers, blends and alloys of plastics, and additives such as plasticizers, fillers, etc.

NOTE 1—A code relating to the composition of rubbers is given in Practice D 1418.

1.3 No attempt is made here to systematize formally a shorthand terminology for polymers. Terminology, including nomenclature, codes, symbols, and formula designations for use in scientific literature in the field of natural and synthetic polymers, are being studied and standardized by the International Union of Pure and Applied Chemistry.²

1.4 These abbreviated terms are by no means all-inclusive of plastics terminology. They represent, in general, those terms that have come into established use. Since it is recognized that abbreviated terms serve no useful purpose unless they are generally accepted and used, no attempt has been made to establish a rigorous code for devising standard abbreviated terms. This would result in awkward departures from established usage of existing and accepted abbreviated terms and lead to cumbersome combinations in the future, which would not be likely to receive widespread acceptance. The abbreviated terms now in use have grown naturally out of the need for convenient, readily comprehended shorthand for long chemical names. This process can be expected to continue along the natural lines of least resistance and will serve as a basis for further standardization as the need arises. A general guide for

the preparation of abbreviated terms appears desirable, however, to facilitate more organized and uniform standardization in the future. An appendix is attached, which suggests a uniform way to prepare abbreviated terms.

1.5 Note that the uppercase letter F should be used to designate phosphate and that other elements may also be designated F.

1.6 An abbreviated term (FR) and code numbers are provided to identify classes of materials used as flame retardants added to plastics. The system is provided for use in situations where marking of plastics products is desired.

NOTE 2—Many of the abbreviated terms, codes, numbers, and symbols in ISO 1043 parts 1 through 3 and in ISO/DIS 1043-4 are the same as the corresponding item in ASTM D 1600. D 1600 includes a number of abbreviated terms that are not in ISO 1043.

2. Referenced Documents

2.1 ASTM Standards:

D 883 Terminology Relating to Plastics³

D 1418 Practice for Rubber and Rubber Latices—Nomenclature⁴

D 1972 Practice for Generic Marking of Plastics Products³

2.2 ISO Standards:

ISO 472:1988 Plastics—Vocabulary⁵

ISO 1043-1:1996 Plastics—Symbols—Part 1: Basic Polymers and Their Special Characteristics⁵

ISO 1043-2:1988 Plastics—Symbols—Part 2: Fillers and Reinforcing Materials⁵

ISO 1043-3:1988 Plastics—Symbols—Part 3: Plasticizers⁵

ISO/DIS 1043-4:1996 Plastics—Symbols and Abbreviated Terms—Part 4: Flame Retardants⁵

ISO 11469:1992 Plastics—Generic Identification and Marking of Plastics Products⁵

3. Terminology

3.1 Definitions:

3.1.1 For definitions of general terms, see Terminology D 883.

¹ This terminology is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.92 on Terminology.

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² "Report on Nomenclature in the Field of Macromolecules," *Journal of Polymer Science*, Vol VIII, 1952, pp. 257–277.

³ *Annual Book of ASTM Standards*, Vol 08.01.

⁴ *Annual Book of ASTM Standards*, Vol 09.01.

⁵ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

*A Summary of Changes section appears at the end of this standard.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *flame retardant, FR, n*—a substance that markedly retards the propagation of a flame. (See ISO 472.)

3.2.1.1 *Discussion*—Flame retardants may be incorporated in plastics as additives (external flame retardant) or as chemical groups in the base polymer by use of reactive intermediates in the polymerization process (internal flame retardant). The code numbers in this standard are restricted to external flame retardants.

4. Terms and Abbreviated Terms

4.1 Plastics and Resins:⁶

Term	Abbreviated Term
Acrylonitrile/butadiene plastics	AB
Acrylonitrile-butadiene-acrylate plastics	ABA
Acrylonitrile-butadiene-styrene plastics	ABS
Acrylonitrile-chlorinated polyethylene-styrene plastics	ACPES
Acrylonitrile-ethylene-styrene plastics	AES
Acrylonitrile-methyl acrylate-acrylonitrile-butadiene rubber	AMAB
Acrylonitrile-methyl methacrylate plastics	AMMA
Acrylonitrile-styrene-acrylate plastics	ASA
Acrylonitrile/ethylene-propylene-diene/styrene	AEPDMS
Aromatic polyester	ARP
Carboxymethyl cellulose	CMC
Casein	CS
Caseine-formaldehyde resin	CSF
Cellulose acetate	CA
Cellulose acetate-butyrate	CAB
Cellulose acetate propionate	CAP
Cellulose formaldehyde	CEF
Cellulose nitrate	CN
Cellulose plastics, general	CE
Cellulose propionate	CP
Cellulose triacetate	CTA
Chlorinated poly(vinyl chloride)	CPVC
Chlorinated polyethylene	CPE
Cresol-formaldehyde resin	CF
Epoxy, epoxide	EP
Ethyl cellulose	EC
Ethylene-chlorotrifluoroethylene copolymer	E-CTFE
Ethylene-ethyl acrylate plastics	EEA
Ethylene-methacrylic acid plastics	EMA
Ethylene-propylene polymer	EPM
Ethylene-propylene-diene plastics	EPD
Ethylene-tetrafluoroethylene copolymer	ETFE
Ethylene-vinyl acetate plastics	EVA
Ethylene-vinyl alcohol copolymer	EVOH
Fluorocarbon perfluoromethoxy	MPA
Furan formaldehyde resin	FF
High density polyethylene plastics	HDPE
High impact-resistant polystyrene	HIPS
Impact resistant polystyrene	IPS
Linear low density polyethylene plastics	LLDPE
Linear medium density polyethylene plastics	LMDPE
Liquid crystal polymer	LCP
Low density polyethylene plastics	LDPE
Medium density polyethylene plastics	MDPE
Melamine-formaldehyde resin	MF
Melamine/phenol-formaldehyde resin	MPF
Methacrylate-butadiene-styrene plastics	MBS

Term	Abbreviated Term
Methyl cellulose	MC
Methyl methacrylate-acrylonitrile-butadiene-styrene resin	MMABS
Nylon (see also polyamide)	PA
Perfluoro(alkoxy alkane)	PFA
Perfluoro(ethylene-propylene) copolymer	FEP
Perfluoromethoxy resin	MFA
Phenol-formaldehyde resin	PF
Phenol-furfural resin	PFF
Poly(acrylic acid)	PAA
Poly(allyl diglycol carbonate)	PADC
Poly(aryl ether ketone)	PAEK
Poly(butyl acrylate)	PBA
Poly(butylene terephthalate)	PBT
Poly(cyclohexylenedimethylene cyclohexandicarboxylate), glycoland acid comonomer	PCCE
Poly(cyclohexylenedimethylene terephthalate)	PCT
Poly(cyclohexylenedimethylene terephthalate), acid comonomer	PCTA
Poly(cyclohexylenedimethylene terephthalate), glycol	PCTG
Poly(diallyl phthalate)	PDAP
Poly(ester urethane)	PAUR
Poly(ether block amide)	PEBA
Poly(ether sulfone)	PES
Poly(ether urethane)	PEUR
Poly(ethylene oxide)	PEOX
Poly(ethylene terephthalate)	PET ⁶
Poly(ethylene terephthalate) glycol comonomer	PETG
Poly(methyl methacrylate)	PMMA
Poly(methyl methacrylimide)	PMMI
Poly(methyl- α -chloroacrylate)	PMCA
Poly(phenyl sulfone)	PPSU
Poly(phenylene ether) (or Poly(phenylene oxide), a deprecated term)	PPE
Poly(phenylene sulfide)	PPS
Poly(phenylene sulfone)	PPSU
Poly(propylene oxide)	PPOX
Poly(vinyl acetate)	PVAC
Poly(vinyl alcohol)	PVOH
Poly(vinyl butyral)	PVB
Poly(vinyl carbazole)	PVK
Poly(vinyl chloride)	PVC
Poly(vinyl chloride-acetate)	PVCA
Poly(vinyl fluoride)	PVF
Poly(vinyl formal)	PVFM
Poly(vinyl pyrrolidone)	PVP
Poly(vinylidene chloride)	PVDC
Poly(vinylidene fluoride)	PVDF
Poly(ϵ -caprolactone)	PCL
Poly-4-methylpentene-1	PMP
Poly- α -methylstyrene	PMS
Poly-p-oxybenzoate	POB
Polyacrylonitrile	PAN
Polyamide (nylon)	PA
Polyamide 11	PA11
Polyamide 12	PA12
Polyamide 1212	PA1212
Polyamide 46	PA46
Polyamide 6	PA6
Polyamide 610	PA610
Polyamide 612	PA612
Polyamide 66	PA66
Polyamide 69	PA69
Polyamide-imide	PAI
Polyarylate	PAR
Polyaryl amide	PARA
Polyarylether	PAE
Polyarylsulfone	PASU
Polybutadiene-acrylonitrile	PBAN
Polybutadiene-styrene	PBS
Polybutene-1	PB
Polycarbonate	PC
Polychlorotrifluoroethylene	PCTFE
Polyester alkyd (or polyacrylate)	PAK

⁶ To prevent any confusion with or misuse of the registered trademark, PET[®] Milk, the guidelines of 8.1 shall be followed.

Term	Abbreviated Term	Term	Abbreviated Term
Polyetheretherketone	PEEK	Acrylonitrile-butadiene-acrylate plastics+polycarbonate	ABA+PC
Polyetheretherketoneketone	PEEKK	Acrylonitrile-butadiene-styrene plastics+poly(vinyl chloride)	ABS+PVC
Polyetherketonetherketoneketone	PEKEKK	Acrylonitrile-butadiene-styrene plastics+polyphenylene sulfone	ABS+PPSU
Polyetherketoneketone	PEKK	Acrylonitrile-butadiene-styrene plastics+polytetrafluoroethylene	ABS+PTFE
Polyetherimide	PEI	Acrylonitrile-butadiene-styrene plastics+styrene maleic anhydride	ABS+SMA
Polyetherketone	PEK	Acrylonitrile-butadiene-styrene plastics+thermoplastic polyurethane	ABS+TPU
Polyethylene	PE	Acrylonitrile-butadiene-styrene plastics+polyamide	ABS+PA
Poly(ethylene naphthalate)	PEN	Acrylonitrile-butadiene-styrene plastics+polycarbonate	ABS+PC
Polyhydroxy butyrate	PHB	Acrylonitrile-styrene-acrylate plastics+poly(methyl methacrylate)	ASA+PMMA
Polyimide	PI	Acrylonitrile-styrene-acrylate plastics+polycarbonate	ASA+PC
Polyimidesulfone	PISU		
Polyisobutylene	PIB		
Polyisocyanurate	PIR		
Polyketone	PK	Fully crosslinked elastomeric alloy	FCEA
Polymethacrylimide	PMI		
Polyoxymethylene, polyacetal	POM	Poly(butylene terephthalate)+poly(ethylene terephthalate)	PBT+PET ⁶
Polyphthalamide	PPA		Abbreviated
Polypropylene	PP	Poly(butylene terephthalate)+rubber	PBT+RBR
Polystyrene	PS	Poly(ethylene naphthalate)	PEN
Polysulfone	PSU	Poly(ethylene terephthalate)+poly(methyl methacrylate)	PET ⁶ +PMMA
Polytetrafluoroethylene	PTFE	Poly(ethylene terephthalate)+poly(phenylene sulfone)	PET ⁶ +PPSU
Polyurethane	PUR	Poly(ethylene terephthalate)+rubber	PET ⁶ +RBR
		Poly(phenylene ether)+impact resistant polystyrene	PPE+IPS
Saturated polyester plastic	SP	Poly(phenylene sulfide)+polytetrafluoroethylene	PPS+PTFE
Silicone plastics	SI	Poly(vinyl chloride)+chlorinated polyethylene	PVC+CPE
Styrene- α -methylstyrene plastic	SMS	Poly(vinyl chloride)+nitrile-butadiene rubber	PVC+NBR
Styrene-acrylonitrile plastic	SAN	Poly(vinyl chloride)+poly(methyl methacrylate)	PVC+PMMA
Styrene-butadiene plastic	SB	Poly(vinyl chloride) plastics+polyurethane	PVC+PUR
Styrene-butadiene-styrene block copolymer	SBS	Polyamide (amorphous) blend	PA +
Styrene-ethylene/butylene-styrene block copolymer	SEBS	Polyamide plastics+ethylene-methacrylic acid (ionomer)	PA+EMA
Styrene-ethylene/propylene-styrene block copolymer	SEPS	Polyamide+poly(phenylene ether)	PA+PPE
Styrene-isoprene-styrene block copolymer	SIS	Polyamide+polyethylene	PA+PE
Styrene-maleic anhydride plastics	S/MA	Polyamide+rubber	PA+RBR
Styrene-rubber plastics	SRP	Polyamide+styrene-acrylonitrile plastics	PA+SAN
		Polycarbonate+poly(butylene terephthalate)	PC+PBT
Thermoplastic elastomer	TPE	Polycarbonate+poly(ethylene terephthalate)	PC+PET ⁶
Thermoplastic elastomer, ether-ester	TEEE	Polycarbonate+polyethylene	PC+PE
Thermoplastic elastomer, fully crosslinked elastomer alloy	FCEA	Polycarbonate+styrene-maleic anhydride	PC+SMA
Thermoplastic elastomer, highly crosslinked thermoplastic vulcanizate	HCTPV	Polycarbonate+thermoplastic polyurethane	PC+TPU
Thermoplastic elastomer, olefinic	TEO	Polyoxymethylene+polytetrafluoroethylene	POM+PTFE
Thermoplastic elastomer, polyether block amide	PEBA	Polyoxymethylene+rubber	POM+RBR
Thermoplastic elastomer, styrenic	TES	Polyurethane+polyisocyanate	PUR+PIR
Thermoplastic elastomer styrenic, saturated	TESS	Styrene-maleic anhydride plastics+impact resistant polystyrene	SMA+IPS
Thermoplastic elastomer styrenic, unsaturated	TESU	Thermoplastic elastomer-chlorinated ethylene alloy	TECEA
Thermoplastic polyester	TPES		
Thermoplastic polyester:			
Copolyester [poly(aryl terephthalate)]	ARP		
Polyarylate [poly(aryl terephthalate)]—liquid crystal polymer	PAT		
Thermoplastic polyurethane	TPU		
Thermoplastic polyurethane, reinforced	RTPU		
Thermoset polyurethane	TSPU		
Ultra-high molecular weight polyethylene	UHMWPE		
Unsaturated polyester	UP		
Urea-formaldehyde resin	UF		
Vinyl chloride-ethylene resin	VCE		
Vinyl chloride-ethylene-methyl acrylate resin	VCEMA		
Vinyl chloride-ethylene-vinyl acetate resin	VCEVAC		
Vinyl chloride-methyl acrylate resin	VCMA		
Vinyl chloride-methyl methacrylate resin	VCMMA		
Vinyl chloride-octyl acrylate resin	VCOA		
Vinyl chloride-vinyl acetate resin	VCVAC		
Vinyl chloride-vinylidene chloride resin	VCVDC		
Vinylidene fluoride	VDF		

4.2 Blends and Alloys of Plastics:

Term	Abbreviated Term
Acrylonitrile-butadiene-acrylate plastics + poly(methyl methacrylate)	ABA+PMMA
Acrylonitrile-butadiene-acrylate plastics+poly(vinyl chloride)	ABA+PVC

4.3 Plastic and Resin Additives:

Term	Abbreviated Term
Alkylsulfonic acid ester	ASE
Benzyl butyl phthalate	BBP
Benzyl octyl adipate (benzyl 2-ethylhexyl adipate)	BOA
Benzyl octyl phthalate (benzyl 2-ethylhexyl phthalate)	BOP
Di-n-octyl phthalate	DNOP
Dibutylphthalate	DBP
Dibutyl sebacate	DBS
Dicapryl phthalate	DCP
Dicyclohexyl phthalate	DCHP
Didecyl phthalate	DDP
Diethyl phthalate	DEP
Diheptyl phthalate	DHP
Dihexyl phthalate	DHXP
Diisobutyl phthalate	DIBP
Diisodecyl adipate	DIDA
Diisodecyl phthalate	DIDP
Diisooctyl phthalate	DIHP
Diisohexyl phthalate	DIHXP
Diisononyl adipate	DINA
Diisononyl phthalate	DINP
Diisooctyl adipate	DIOA
Diisooctyl phthalate	DIOP
Diisopentyl phthalate	DIPP
Diisotridecyl phthalate	DITDP

5. Full List by Term and Abbreviated Term

Term	Abbreviated Term	Term	Abbreviated Term
Dimethyl phthalate	DMP	Acrylonitrile-butadiene-acrylate plastics+poly(methyl methacrylate)	ABA+PMMA
Dinonyl phthalate	DNP	Acrylonitrile-butadiene-acrylate plastics+poly(vinyl chloride)	ABA+PVC
Dioctyl adipate	DOA	Acrylonitrile-butadiene-acrylate plastics+polycarbonate	ABA+PC
Dioctyl azelate	DOZ	Acrylonitrile-butadiene-acrylate plastics	ABA
Dioctyl isophthalate (di-2-ethylhexyl isophthalate)	DOIP	Acrylonitrile-butadiene-styrene plastics+poly(vinyl chloride)	ABS+PVC
Dioctyl phthalate	DOP	Acrylonitrile-butadiene-styrene plastics+polyphenylene sulfone	ABS+PPSU
Dioctyl sebacate	DOS	Acrylonitrile-butadiene-styrene plastics+polytetrafluoro-ethylene	ABS+PTFE
Dioctyl terephthalate (di-2-ethylhexyl terephthalate)	DOTP	Acrylonitrile-butadiene-styrene plastics+styrene maleic anhydride	ABS+SMA
Diphenyl octyl phosphate	DPOF	Acrylonitrile-butadiene-styrene plastics+thermoplastic polyurethane	ABS+TPU
Diphenyl cresyl phosphate	DPCF	Acrylonitrile-butadiene plastics	AB
Diphenyl 2-ethylhexyl phosphate	DPOF	Acrylonitrile-butadiene-styrene plastics+polyamide	ABS+PA
Diundecyl phthalate	DUP	Acrylonitrile-butadiene-styrene plastics+polycarbonate	ABS+PC
Epoxidized linseed oil	ELO	Acrylonitrile-chlorinated polyethylene-styrene plastics	ACPES
Epoxidized soya bean oil	ESO	Acrylonitrile-ethylene-styrene plastics	AES
Heptyl nonyl undecyl adipate	HNUA	Acrylonitrile-methyl acrylate-acrylonitrile-butadiene rubber	AMAB
Heptyl nonyl undecyl phthalate	HNUP	Acrylonitrile-methyl methacrylate plastics	AMMA
Hexyl octyl decyl adipate	HXODA	Acrylonitrile-styrene-acrylate plastics+poly(methyl methacrylate)	ASA+PMMA
Hexyl octyl decyl phthalate	HXODP	Acrylonitrile-styrene-acrylate plastics+poly(vinyl chloride)	ASA+PVC
n-Octyl decyl trimellitate	ODTM	Acrylonitrile-styrene-acrylate plastics	ASA
Nonyl undecyl adipate	NUA	Acrylonitrile-styrene-acrylate plastics+polycarbonate	ASA+PC
Nonyl undecyl phthalate	NUP	Acrylonitrile/ethylene-propylene-diene/styrene plastics	AEPDMS
Octyl decyl adipate	ODA	Alkylsulfonic acid ester	ASE
Octyl decyl phthalate	ODP	Allyl diglycol carbonate	ADC
Tetraoctyl pyromellitate (tetra-2-ethylhexyl pyromellitate)	TOPM	Aromatic polyester	ARP
Trichloroethyl phosphate	TCEF	Benzyl butyl phthalate	BBP
Tricresyl phosphate (or tritolyl phosphate)	TCF	Benzyl octyl adipate (benzyl 2-ethylhexyl adipate)	BOA
Triheptyl trimellitate	THTM	Benzyl octyl phthalate (benzyl 2-ethylhexyl phthalate)	BOP
Triisooctyl trimellitate	TIOTM	Carboxymethyl cellulose	CMC
Trioctyl phosphate	TOF	Casein	CS
Trioctyl trimellitate (tri-2-ethylhexyl trimellitate)	TOTM	Caseine-formaldehyde resin	CSF
Triphenyl phosphate	TPP	Cellulose acetate	CA
Trixylyl phosphate	TXF	Cellulose acetate-butyrate	CAB
		Cellulose acetate-propionate	CAP
		Cellulose formaldehyde	CEF
		Cellulose nitrate	CN
		Cellulose plastics, general	CE
		Cellulose propionate	CP
		Cellulose triacetate	CTA
		Chlorinated poly(vinyl chloride)	CPVC
		Chlorinated polyethylene	CPE
		Chlorotrifluoroethylene	CTFE
		Cresol-formaldehyde resin	CF
		Di-n-octyl phthalate	DNOP
		Diallyl chlorendate (diallyl ester of 1,4,5,6,7,7-hexachloro-bicyclo-(2,2,1)-5-heptene-2,3-dicarboxylic acid)	DAC
		Diallyl fumarate	DAF
		Diallyl isophthalate	DAIP
		Diallyl maleate	DAM
		Diallyl phthalate (diallyl orthophthalate)	DAP
		Diallyl fumarate	DAF
		Diallyl isophthalate	DAIP
		Diallyl maleate	DAM
		Diallyl phthalate (diallyl orthophthalate)	DAP
		Dibutyl phthalate	DBP
		Dibutyl sebacate	DBS
		Dicapryl phthalate	DCP
		Dicyclohexyl phthalate	DCHP
		Didecyl phthalate	DDP
		Diethyl phthalate	DEP
		Diheptyl phthalate	DHP
		Dihexyl phthalate	DHXP
		Diisobutyl phthalate	DIBP
		Diisodecyl adipate	DIDA
		Diisodecyl phthalate	DIDP
		Diisohexyl phthalate	DIHP
		Diisohexyl phthalate	DIHXP
		Diisononyl adipate	DINA
		Diisononyl phthalate	DINP
		Diisooctyl adipate	DIOA

4.4 Monomers:

Term	Abbreviated Term
Allyl diglycol carbonate	ADC
Chlorotrifluoroethylene	CTFE
Diallyl chlorendate (diallyl ester of 1,4,5,6,7,7-hexachlorobicyclo-(2,2,1)-5-heptene-2,3-dicarboxylic acid)	DAC
Diallyl fumarate	DAF
Diallyl isophthalate	DAIP
Diallyl maleate	DAM
Diallyl phthalate (diallyl orthophthalate)	DAP
Methyl methacrylate	MMA
Tetrafluoroethylene	TFE
Triallyl cyanurate	TAC

4.5 Miscellaneous Plastics Terms:

Term	Abbreviated Term
General purpose	GP
Single stage	SS

NOTE 3—When listing one or more components, the order preferably should be in decreasing amount by mass. There are situations, however, where long standing usage indicates that this recommendation should not be followed. An example is ETFE.

Term	Abbreviated Term	Term	Abbreviated Term
Diisooctyl phthalate	DIOP	Poly(butylene terephthalate)+poly(phenylene ether)	PBT+PPE
Diisopentyl phthalate	DIPP	Poly(butylene terephthalate)+rubber	PBT+RBR
Diisotridecyl phthalate	DITDP	Poly(cyclohexylenedimethylene cyclohexandicarboxylate), glycol and acid comonomer	PCCE
Dimethyl phthalate	DMP	Poly(cyclohexylenedimethylene terephthalate)	PCT
Dinonyl phthalate	DNP	Poly(cyclohexylenedimethylene terephthalate), acid comonomer	PCTA
Diethyl adipate	DOA	Poly(cyclohexylenedimethylene terephthalate), glycol	PCTG
Diethyl azelate	DOZ	Poly(diallyl phthalate)	PDAP
Diethyl isophthalate (di-2-ethylhexyl isophthalate)	DOIP	Poly(ether urethane)	PAUR
Diethyl phthalate	DOP	Poly(ether block amide)	PEBA
Diethyl sebacate	DOS	Poly(ether sulfone)	PES
Diethyl terephthalate (di-2-ethylhexyl terephthalate)	DOTP	Poly(ether urethane)	PEUR
Diphenyl 2-ethylhexyl phosphate	DPOF	Poly(ethylene naphthalate)	PEN
Diphenyl cresyl phosphate	DPCF	Poly(ethylene oxide)	PEOX
Diphenyl octyl phosphate	DPOF	Poly(ethylene terephthalate)	PET ⁶
Diundecyl phthalate	DUP	Poly(ethylene terephthalate)+poly(methyl methacrylate)	PET ⁶ +PMMA
		Poly(ethylene terephthalate)+poly(phenylene sulfone)	PET ⁶ +PPSU
			PET ⁶ +RBR
Epoxidized linseed oil	ELO	Poly(ethylene terephthalate), glycol comonomer	PETG
Epoxidized soya bean oil	ESO	Poly(methyl methacrylate)	PMMA
Epoxy, epoxide	EP	Poly(methyl methacrylimide)	PMMI
Ethyl cellulose	EC	Poly(methyl- α -chloroacrylate)	PMCA
Ethylene-chlorotrifluoroethylene copolymer	E-CTFE	Poly(phenyl sulfone)	PPSU
Ethylene-ethyl acrylate plastics	EEA	Poly(phenylene ether) (or poly(phenylene oxide), a deprecated term)	PPE
Ethylene-methacrylic acid plastics	EMA	Poly(phenylene ether)+impact resistant polystyrene	PPE+IPS
Ethylene-propylene polymer	EPM	Poly(phenylene sulfide)	PPS
Ethylene-propylene-diene plastics	EPD	Poly(phenylene sulfide)+polytetrafluoroethylene	PPS+PTFE
Ethylene-tetrafluoroethylene copolymer	ETFE	Poly(phenylene sulfone)	PPSU
Ethylene-vinyl acetate plastics	EVA	Poly(propylene oxide)	PPOX
Ethylene-vinyl alcohol copolymer	EVOH	Poly(vinyl acetate)	PVAC
		Poly(vinyl alcohol)	PVOH
Fluorocarbon perfluoromethoxy	MFA	Poly(vinyl butyral)	PVB
Fully crosslinked elastomeric alloy	FCEA	Poly(vinyl carbazole)	PVK
Furan-formaldehyde resin	FF	Poly(vinyl chloride)	PVC
		Poly(vinyl chloride)+chlorinated polyethylene	PVC+CPE
General purpose	GP	Poly(vinyl chloride)+nitrile-butadiene rubber	PVC+NBR
		Poly(vinyl chloride)+poly(methyl methacrylate)	PVC+PMMA
Heptyl nonyl undecyl adipate	HNUA	Poly(vinyl chloride) plastics+polyurethane	PVC+PUR
Heptyl nonyl undecyl phthalate	HNUP	Poly(vinyl chloride-acetate)	PVCA
Hexyl octyl decyl adipate	HXODA	Poly(vinyl fluoride)	PVF
Hexyl octyl decyl phthalate	HXODP	Poly(vinyl formal)	PVFM
High density polyethylene plastics	HDPE	Poly(vinyl pyrrolidone)	PVP
High impact-resistant polystyrene	HIPS	Poly(vinylidene chloride)	PVDC
		Poly(vinylidene fluoride)	PVDF
Impact resistant polystyrene	IPS	Poly(ϵ -caprolactone)	PCL
		Poly-4-methyl pentene-1	PMP
		Poly- α -methylstyrene	PMS
Linear low density polyethylene plastics	LLDPE	Poly-p-oxybenzoate	POB
Linear medium density polyethylene plastics	LMDPE	Polyacrylonitrile	PAN
Liquid crystal polymer	LCP	Polyamide (amorphous) blend	PA +
Low density polyethylene plastics	LDPE	Polyamide (nylon)	PA
		Polyamide 11	PA11
Medium density polyethylene plastics	MDPE	Polyamide 12	PA12
Melamine-formaldehyde resin	MF	Polyamide 1212	PA1212
Melamine/phenol-formaldehyde resin	MPF	Polyamide 46	PA46
Methacrylate-butadiene-styrene plastics	MBS	Polyamide 6	PA6
Methyl cellulose	MC	Polyamide 610	PA610
Methyl methacrylate	MMA	Polyamide 612	PA612
Methyl methacrylate-acrylonitrile-butadiene-styrene resin	MMABS	Polyamide 66	PA66
		Polyamide 69	PA69
		Polyamide plastics+ethylene-methacrylic acid (ionomer)	PA+EMA
n-Octyl decyl trimellitate	ODTM	Polyamide+poly(phenylene ether)	PA+PPE
Nonyl undecyl adipate	NUA	Polyamide+polyethylene	PA+PE
Nonyl undecyl phthalate	NUP	Polyamide+rubber	PA+RBR
Nylon (See also <i>polyamide</i>)	PA	Polyamide+styrene-acrylonitrile plastics	PA+SAN
		Polyamide-imide	PAI
Octyl decyl adipate	ODA	Polyarylate	PAR
Octyl decyl phthalate	ODP	Polyaryl amide	PARA
		Polyarylether	PAE
Perfluoro(alkoxy alkane)	PFA	Polyarylsulfone	PAASU
Perfluoro(ethylene-propylene) copolymer	FEP	Polybutadiene-acrylonitrile	PBAN
Perfluoromethoxy resin	MFA	Polybutadiene-styrene	PBS
Phenol-formaldehyde resin	PF	Polybutene-1	PB
Phenol-furfural resin	PFF	Polycarbonate	PC
Poly(acrylic acid)	PAA		
Poly(allyl diglycol carbonate)	PADC		
Poly(aryl ether ketone)	PAEK		
Poly(butyl acrylate)	PBA		
Poly(butylene terephthalate)	PBT		
Poly(butylene terephthalate)+poly(ethylene terephthalate)	PBT+PET ⁶		

Abbreviated Term	Term	Abbreviated Term	Term
DBS	Dibutyl sebacate	NUA	Nonyl undecyl adipate
DCHP	Dicyclohexyl phthalate	NUP	Nonyl undecyl phthalate
DCP	Dicapryl phthalate		
DDP	Didecyl phthalate	ODA	Octyl decyl adipate
DEP	Diethyl phthalate	ODP	Octyl decyl phthalate
DHP	Diheptyl phthalate	ODTM	<i>n</i> -Octyl decyl trimellitate
DHXP	Dihexyl phthalate		
DIBP	Diisobutyl phthalate	PA	Polyamide (nylon)
DIDA	Diisodecyl adipate	PA	Nylon (see also polyamide)
DIDP	Diisodecyl phthalate	PA11	Polyamide 11
DIHP	Diisoheptyl phthalate	PA12	Polyamide 12
DIHXP	Diisohexyl phthalate	PA1212	Polyamide 1212
DINA	Diisononyl adipate	PA46	Polyamide 46
DINP	Diisononyl phthalate	PA6	Polyamide 6
DIOA	Diisooctyl adipate	PA610	Polyamide 610
DIOP	Diisooctyl phthalate	PA612	Polyamide 612
DIPP	Diisopentyl phthalate	PA66	Polyamide 66
DITDP	Diisotridecyl phthalate	PA69	Polyamide 69
DNOP	Di- <i>n</i> -octyl phthalate	PA+	Polyamide (amorphous) blend
DNP	Dinonyl phthalate	PA+EMA	Polyamide plastics+ethylene-methacrylic acid (ionomer)
DOA	Diocetyl adipate (di-2-ethylhexyl adipate)	PA+PE	Polyamide+polyethylene
DOIP	Diocetyl isophthalate (di-2-ethylhexyl isophthalate)	PA+PPE	Polyamide+poly(phenylene ether)
DOP	Diocetyl phthalate (di-2-ethylhexyl phthalate)	PA+RBR	Polyamide+rubber
DOS	Diocetyl sebacate (di-2-ethylhexyl sebacate)	PA+SAN	Polyamide+styrene-acrylonitrile
DOTP	Diocetyl terephthalate (di-2-ethylhexyl terephthalate)	PAA	Poly(acrylic acid)
DOZ	Diocetyl azelate (di-2-ethylhexyl azelate)	PADC	Poly(allyl diglycol carbonate)
DPCF	Diphenyl cresyl phosphate	PAE	Polyarylether ketone)
DPOF	Diphenyl 2-ethylhexyl phosphate	PAI	Polyamide-imide
DPOF	Diphenyl octyl phosphate	PAK	Polyester alkyd (or polyacrylate)
DUP	Diundecyl phthalate	PAN	Polyacrylonitrile
		PAR	Polyarylate
EC	Ethyl cellulose	PARA	Polyaryl amide
E-CTFE	Ethylene-chlorotrifluoroethylene copolymer	PASU	Polyarylsulfone
EEA	Ethylene-ethyl acrylate plastics	PAT	Polyester, thermoplastic; polyarylate [poly(aryl terephthalate)]
ELO	Epoxidized linseed oil	PAUR	Poly(ester urethane)
EMA	Ethylene-methacrylic acid plastics	PB	Polybutene-1
EP	Epoxy, epoxide	PBA	Poly(butyl acrylate)
EPD	Ethylene-propylene-diene plastics	PBAN	Polybutadiene-acrylonitrile
EPM	Ethylene-propylene polymer	PBS	Polybutadiene-styrene
ESO	Epoxidized soya bean oil	PBT	Poly(butylene terephthalate)
ETFE	Ethylene-tetrafluoroethylene copolymer	PBT+PET ⁶	Poly(butylene terephthalate)+poly(ethylene terephthalate)
EVA	Ethylene-vinyl acetate plastics	PBT+PPE	Poly(butylene terephthalate)+poly(phenylene ether)
EVOH	Ethylene-vinyl alcohol copolymer	PBT+RBR	Poly(butylene terephthalate)+rubber
		PC	Polycarbonate
FCEA	Thermoplastic elastomer, fully crosslinked elastomer alloy	PC+PBT	Polycarbonate+poly(butylene terephthalate)
FEP	Perfluoro(ethylene-propylene) copolymer	PC+PE	Polycarbonate+polyethylene
FF	Furan-formaldehyde resin	PC+PET ⁶	Polycarbonate+poly(ethylene terephthalate)
		PC+SMA	Polycarbonate+styrene-maleic anhydride
GP	General purpose	PC+TPU	Polycarbonate+thermoplastic polyurethane
		PCCE	Poly(cyclohexylenedimethylene cyclohexandicarboxylate), glycol and acid comonomer
HCTPV	Thermoplastic elastomer, highly crosslinked thermoplastic vulcanizate	PCL	Poly(ϵ -caprolactone)
HDPE	High-density polyethylene plastics	PCT	Poly(cyclohexylenedimethylene terephthalate)
HIPS	High impact-resistant polystyrene	PCTA	Poly(cyclohexylenedimethylene terephthalate), cid comonomer
HNUA	Heptyl nonyl undecyl adipate		
HNUP	Heptyl nonyl undecyl phthalate	PCTFE	Polychlorotrifluoroethylene
HXODA	Hexyl octyl decyl adipate	PCTG	Poly(cyclohexylenedimethylene terephthalate), glycol
HXODP	Hexyl octyl decyl phthalate	PDAP	Poly(diallyl phthalate)
		PE	Polyethylene
IPS	Impact-resistant polystyrene	PEBA	Thermoplastic elastomer, polyether block amide
		PEBA	Poly(ether block amide)
LCP	Liquid crystal polymer	PEEK	Polyetheretherketone
LDPE	Low density polyethylene plastics	PEEKK	Polyetheretherketoneketone
LLDPE	Linear low density polyethylene plastics	PEI	Polyetherimide
LMDPE	Linear medium density polyethylene plastics	PEK	Polyetherketone
		PEKEKK	Polyetherketonetherketoneketone
MBS	Methacrylate-butadiene-styrene plastics	PEKK	Polyetherketoneketone
MC	Methyl cellulose	PEN	Poly(ethylene naphthalate)
MDPE	Medium density polyethylene plastics	PEOX	Poly(ethylene oxide)
MF	Melamine-formaldehyde resin	PES	Poly(ether sulfone)
MFA	Perfluoromethoxy resin	PET ⁶	Poly(ethylene terephthalate)
MMA	Methyl methacrylate	PET ⁶ +PMMA	Poly(ethylene terephthalate)+poly(methyl methacrylate)
MMABS	Methyl methacrylate-acrylonitrile-butadiene-styrene resin	PET ⁶ +PPSU	Poly(ethylene terephthalate)+poly(phenylene sulfone)
MPA	Fluorocarbon perfluoromethoxy	PET ⁶ +RBR	Poly(ethylene terephthalate)+rubber
MPF	Melamine/phenol-formaldehyde resin	PETG	Poly(ethylene terephthalate) glycol comonomer
		PEUR	Poly(ether urethane)

Abbreviated Term	Term
PF	Phenol-formaldehyde resin
PFA	Perfluoro(alkoxy alkane)
PFF	Phenol-furfural resin
PHB	Polyhydroxy butyrate
PHBV	Polyhydroxy butyrate-polyhydroxy valerate
PI	Polyimide
PIB	Polyisobutylene
PIR	Polyisocyanurate
PISU	Polyimidesulfone
PK	Polyketone
PMCA	Poly(methyl- α -chloroacrylate)
PMI	Polymethacrylimide
PMMA	Poly(methyl methacrylate)
PMMI	Poly(methyl methacrylimide)
PMP	Poly-4-methylpentene-1
PMS	Poly- α -methylstyrene
POB	Poly-p-oxybenzoate
POM	Polyoxymethylene, polyacetal
POM+PTFE	Polyoxymethylene+polytetrafluoroethylene
POM+RBR	Polyoxymethylene+rubber
PP	Polypropylene
PPA	Polyphthalamide
PPE	Poly(phenylene ether) (or poly(phenylene oxide), a deprecated term)
PPE+IPS	Poly(phenylene ether)+impact-resistant polystyrene
PPOX	Poly(propylene oxide)
PPS	Poly(phenylene sulfide)
PPSU	Poly(phenyl sulfone)
PPS+PTFE	Poly(phenylene sulfide)+polytetrafluoroethylene
PS	Polystyrene
PSU	Polysulfone
PTFE	Polytetrafluoroethylene
PUR	Polyurethane
PUR+PIR	Polyurethane+polyisocyanate
PVAC	Poly(vinyl acetate)
PVOH	Poly(vinyl alcohol)
PVB	Poly(vinyl butyral)
PVC	Poly(vinyl chloride)
PVC+CPE	Poly(vinyl chloride)+chlorinated polyethylene
PVC+NBR	Poly(vinyl chloride)+nitrile-butadiene rubber
PVC+PMMA	Poly(vinyl chloride)+poly(methyl methacrylate)
PVC+PUR	Poly(vinyl chloride) plastics+polyurethane
PVCA	Poly(vinyl chloride-acetate)
PVDC	Poly(vinylidene chloride)
PVDF	Poly(vinylidene fluoride)
PVF	Poly(vinyl fluoride)
PVFM	Poly(vinyl formal)
PVK	Poly(vinyl carbazole)
PVP	Poly(vinyl pyrrolidone)
RTPU	Thermoplastic polyurethane, reinforced
S/MA	Styrene-maleic anhydride plastics
SAN	Styrene-acrylonitrile plastic
SB	Styrene-butadiene plastics
SBS	Styrene-butadiene-styrene block copolymer
SEBS	Styrene-ethylene/butylene-styrene block copolymer
SEPS	Styrene-ethylene/propylene-styrene block copolymer
SI	Silicone plastics
SIS	Styrene-isoprene-styrene block copolymer
SMA+IPS	Styrene-maleic anhydride+impact-resistant polystyrene
SMS	Styrene- α -methylstyrene plastic
SP	Saturated polyester plastic
SRP	Styrene-rubber plastics
SS	Single stage
TAC	Triallyl cyanurate
TCEF	Trichloroethyl phosphate
TCF	Tricresyl phosphate (or tritolyl phosphate)
TECEA	Thermoplastic elastomer-chlorinated ethylene alloy
TEEE	Thermoplastic elastomer, ether-ester
TEO	Thermoplastic elastomer, olefinic
TES	Thermoplastic elastomer, styrenic
TESS	Thermoplastic elastomer styrenic, saturated
TESU	Thermoplastic elastomer styrenic, unsaturated

Abbreviated Term	Term
TFE	Tetrafluoroethylene
THTM	Triheptyl trimellitate
TIOTM	Triisooctyl trimellitate
TOF	Trioctyl phosphate
TOPM	Tetraoctyl pyromellitate (tetra-2-ethylhexyl pyromellitate)
TOTM	Trioctyl trimellitate (tri-2-ethylhexyl trimellitate)
TPE	Thermoplastic elastomer
TPES	Thermoplastic polyester
TPP	Triphenyl phosphate
TPU	Thermoplastic polyurethane
TSPU	Thermoset polyurethane
TXF	Trixylyl phosphate
UF	Urea-formaldehyde resin
UHMWPE	Ultra-high molecular weight polyethylene
UP	Unsaturated polyester
VCE	Vinyl chloride-ethylene resin
VCEMA	Vinyl chloride-ethylene-methyl acrylate resin
VCEVAC	Vinyl chloride-ethylene-vinyl acetate resin
VCMA	Vinyl chloride-methyl acrylate resin
VCMMA	Vinyl chloride-methyl methacrylate resin
VCOA	Vinyl chloride-octyl acrylate resin
VCVAC	Vinyl chloride-vinyl acetate resin
VCVDC	Vinyl chloride-vinylidene chloride resin
VDF	Vinylidene fluoride

7. Code Numbers for Identifying Flame Retardant Compounds

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

7.1.1 Halogenated Compounds:

7.1.1.1 In compounds containing both aliphatic/alicyclic and aromatic groups, the group containing the halogen determines the code to be used.

Code	Compound
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 diphenylether and biphenyls)
17	aromatic brominated compounds (excluding brominated diphenylether and biphenyls) in combination with antimony compounds
18	polybrominated diphenylether
19	polybrominated diphenylether in combination with antimony compounds
20	polybrominated biphenyls
21	polybrominated biphenyls in combination with antimony compounds
22 to 24	not allocated
25	aliphatic fluorinated compounds
26 to 29	not allocated

7.2 Nitrogen Compounds:

Code	Compound
30	nitrogen compounds (including but not limited to melamine, melamine cyanurate, urea)
31 to 39	not allocated

7.3 Organic Phosphorus Compounds:

Code	Compound
40	halogen free organic phosphorus compounds
41	chlorinated organic phosphorus compounds
42	brominated organic phosphorus compounds

43 to not allocated
49

77 to 79 not allocated

7.4 Inorganic Phosphorus Compounds:

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

7.5 Metallic Oxides, Hydroxides, and Salts:

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

7.6 Boron and Zinc Compounds:

Code	Compound
70	inorganic boron compounds (excluding zinc borate)
71	organic boron compounds
72	zinc borate
73	inorganic zinc compounds (excluding zinc borate)
74	not allocated

7.7 Silica Compounds:

Code	Compound
75	inorganic silica compounds
76	organic silica compounds

7.8 Miscellaneous Compounds:

Code	Compound
80	graphite
81 to 89	not allocated
90 to 99	not allocated

8. Use of Abbreviated Terms

8.1 When abbreviated terms are used in publications or other written matter, their first occurrence in the text should be enclosed in parentheses and preceded by the written word or words being abbreviated. Subsequent references to such words in the article can then be made using the abbreviated term. For example, if one wishes to use PET⁶ as the acronym for poly(ethylene terephthalate), wording such as the following would be acceptable: "Poly(ethylene terephthalate) (PET⁶) is a crystalline plastic. PET⁶ offers many advantages in such articles as soft drink bottles."

8.2 Additional information on use of abbreviated terms, symbols and codes for flame retardants is included in Guide D 1972.

9. Keywords

9.1 abbreviated terms; code numbers; flame retardants; monomers; plastic blends and alloys; plastics; plasticizers; terminology symbols

APPENDIX

(Nonmandatory Information)

X1. A SUGGESTED SYSTEM FOR PREPARING ABBREVIATED TERMS FOR PLASTICS AND RELATED TERMS⁶

NOTE X1.1—The use of the following guide in establishing abbreviated terms for plastics and related terms will promote uniform and systematic standardization.⁷

X1.1 Use upper case letters for the main components in the order in which they occur in the plastics term for which an abbreviated term is being established, for example:

Poly(vinyl chloride) = PVC

X1.2 Use generic terms for family designations, for example:

nylon for polyamide plastics

X1.3 Use figures and letters to distinguish among plastics prepared from various condensation units in a homologous series, for example:

Poly(hexamethylene sebacamide) = PA 610 where, with aliphatic components, the first number(s) refers to the number of carbon atoms in the diamine and the second number(s) refers to

the number of carbon atoms in the diacid. It is the convention not to use any separator, such as a comma, dash, or virgule (solidus, /) between the numbers. In these systems there is no confusion when the separator is not used. With alicyclic or aromatic diamines or diacids, a letter acronym is usually used. For example:

meta-phenylene diamine = MPD

terephthalic acid = T

isophthalic acid = I

X1.4 The components in copolymers are separated by hyphens "-" in the term, but usually no separation is required in the abbreviated term. In cases where use of the hyphen may cause confusion, it is acceptable to use a virgule, "/", as the separator. The virgule also is correctly termed a solidus and often, incorrectly, referred to as a "slash" or "diagonal."

X1.5 The components in blends of polymers are separated by a plus sign, "+", in both the term and the abbreviated term.

X1.6 A more elaborate system for developing abbreviated terms for plastics and related materials has been standardized by ISO in ISO 1043.

⁷ Based in part on Proposals under Consideration by the Division of Plastics and High Polymers, IUPAC.

SUMMARY OF CHANGES

Committee D-20 has identified the location of selected changes to this terminology since the last issue that may impact the use of this terminology.

D 1600 – 97:

- (1) The scope was expanded with a new part to provide for inclusion of symbols and codes for flame retardant additives in plastics.
- (2) An ISO equivalence statement was added to the scope.
- (3) In Section 2, the list of referenced documents was expanded as needed to conform to the other changes.
- (4) A definition for “flame retardant” from ISO 472 was included in Section 2.
- (5) Section 7 was renumbered to Section 8, retitled, and additional information was added to provide reference to the standard that provides instructions for marking plastics prod-

ucts so that the new code numbers can be implemented.

- (6) A new Section 7 was added to add codes numbers for different classes of flame retardants.
- (7) Keywords were added in a new Section 9.

D 1600 – 98:

- (1) Poly(ethylene naphthalate) (PEN) and perfluoromethoxy resin (MFA) were added.

D 1600 – 99:

- (1) Added PCL.
- (2) E-CTFE, FCEA, HCTPV, MPA, PPSU, and VDF added editorially.

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