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SUBCOMMITTEE ON POLYMER TERMINOLOGY

Abbreviations of Polymer Names and Guidelines for Abbreviating Polymer Names

(IUPAC Recommendations 20XX)*

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Abstract: This document provides some basic rules and guidelines regarding the
use and creation of abbreviations for the names of polymers. An extended list of
currently used abbreviations for polymers and polymeric materials is appended.

Keywords: abbreviations; polymer names; IUPAC Polymer Division.

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XX.

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1 INTRODUCTION

Abbreviations are commonly used by authors of manuscripts to avoid repetition of lengthy polymer names, and for the benefit of the editors and readers of scientific and professional journals and other written materials. People working within industry use a well-established ISO list of abbreviations of polymer names which contains more than hundred entries (138 in ISO 1043-1:2011 [1]). In fact, mainly selected on the basis of the scale of production, the ISO abbreviations are used in industry, standards, trade, and legislation. On the other hand, scientific and professional journals in the polymer field deal with several hundreds of polymers annually, including many new ones, some with complicated structures. Thus, IUPAC has also recognised the importance of abbreviations and has published recommendations on the use of common abbreviations for polymer names [2, 3].

It is impossible to derive a systematic and unique abbreviation from a polymer name while maintaining a one-to-one correspondence that makes it self-explanatory. Ad hoc abbreviations of polymer names are produced in daily research activities and those presently in widespread use have been constructed for convenience and ready comprehension. Nonetheless, it is incontestable that any abbreviation has to be explained whenever it occurs for the first time in a text [4]. However, in order to minimize any difference in the abbreviations used for the same polymer from one author to another, three fundamental rules and some elaborating guidelines for creating an abbreviation from a polymer name are proposed in this document. Full respect is accorded to existing and widely accepted abbreviations (see Appendix) so these rules and guidelines are mainly directed towards abbreviating names of newly synthesized polymers as may in future be described in scientific and professional journals.

In order to receive widespread acceptance, the abbreviations for the names of polymers, especially those of newly-synthesized polymers, should be concise, clear and distinguishable from abbreviations that are already accepted [3]. They should use as few letters as possible and the combinations of letters should come from the initials of the names of the comprising monomers or constitutional units in the order in which they appear in the name of the polymer. If possible, they should also evoke in readers a prompt and clear recognition of their full names. It should be noted here that an abbreviation is different from an acronym. An abbreviation is simply a shortened or contracted form of a word, words or a phrase, which is only used written but not spoken as such, whilst an acronym is made from a series of initial letters or parts of a group of words, spoken as such and sometimes even forming a pronounceable word. Some abbreviations of polymer names might therefore also be acronyms.

The commonly accepted and currently used abbreviations of polymer names that are listed in the Appendix are referenced to the organization that approved and adopted them and the year of publication. In some instances, variants are presented. This list, though extensive, is certainly not exhaustive.

2 RULES

Rule 1. Each abbreviation of a polymer name shall be fully defined the first time it appears in the text of publications or other written material [4].

Rule 2. No abbreviations of polymer names shall be used in titles of publications [4].

Rule 3. Starting from either the source-based, structure-based or traditional polymer name, an abbreviation shall be constructed by retaining P from the prefix 'poly', followed by capital letters indicating the important parts of the name being abbreviated and retaining, if deemed essential, parentheses, locants, connectives, prefixes, and chain configurational indicators such as *co*, *block*, *stat*, *R*, *S*, etc.

Note: In scientific publications, the letter P at the beginning of the abbreviation is basic and should be applied to all polymers irrespective of ISO [1] adopting abbreviations for copolymers that do not use it. For example, poly(butadiene-acrylonitrile) should be abbreviated to PBAN, instead of AB abbreviated from acrylonitrile-butadiene copolymer by ISO [1]. The only allowed exception to this rule is for polymers for which the prefix 'poly' is itself prefixed.

Examples:

poly(ethylene terephthalate)	PET
poly(styrene- <i>co</i> -acrylonitrile)	P(S- <i>co</i> -AN) or P(S-AN) or PSAN
poly[(butyl methacrylate)- <i>co</i> -styrene]	P(BMA- <i>co</i> -S) or P(BMA-S)
poly(<i>R</i> -methyloxirane)	PR-MO
poly{ <i>R</i> -[oxy(1-methylethane-1,2-diyl)]}	PR-OME
poly{ <i>S</i> -[oxy(1-methylethane-1,2-diyl)]}	PS-OME
poly(hexa-1,3-diene)	PH1,3D
poly(hexa-1,5-diene)	PH1,5D

3 GUIDELINES**3.1.**

Where there might be ambiguity, one or more letters and locants of the full source-based name of the polymer should be used to make the abbreviation distinguishable from those of other polymers. Both consonants and vowels can be used without preferences.

Examples:

poly(buta-1,2-diene)	PB12D
poly(buta-1,3-diene)	PB13D
poly[(2-chlorophenyl)acetylene]	P2CPA
poly(1-chloro-2-phenylacetylene)	P1C2PA
poly[1-chloro-2-(2-chlorophenyl)acetylene]	P1C2CPA
poly(<i>N</i> -ethylaniline)	PNEANI
poly(2-ethylaniline)	P2EANI

3.2.

For copolymers, the abbreviations for monomer names are given in parentheses after P and if required for the sake of clarity or to avoid ambiguity, a hyphen or hyphens and connectives should be used to separate them. The use of parentheses is applied to all copolymers with the exception of block and graft copolymers.

The italicized connectives and prefixes used in copolymer source-based names should be retained in the abbreviations in their properly abbreviated form. These connectives and prefixes should also be in positions that correspond to those in the full name of the copolymer. A use of approved short versions of the connectives is strongly recommended: *-a-* for *-alt-*, *-b-* for *-block-* and *-g-* for *-graft-*. Connectives such as *-co-*, *-ran-*, *-per-* and *-stat-* should be used without further abbreviation.

Examples:

poly[styrene- <i>stat</i> -(methyl methacrylate)]	P(S- <i>stat</i> -MMA) or P(S-MMA)
polystyrene- <i>graft</i> -poly(methyl methacrylate)	PS- <i>g</i> -PMMA.
polybutadiene- <i>graft</i> -poly[(acrylonitrile- <i>co</i> -styrene)]	PB- <i>g</i> -P(AN- <i>co</i> -S) or PB- <i>g</i> -P(AN-S)
polystyrene- <i>block</i> -poly(buta-1,3-diene)	PS- <i>b</i> -PB
polystyrene- <i>block</i> -polybuta-1,3-diene- <i>block</i> -polystyrene	PS- <i>b</i> -PB- <i>b</i> -PS.
poly[styrene- <i>alt</i> -(maleic anhydride)]	P(S- <i>a</i> -MAH)
polystyrene- <i>block</i> -poly(buta-1,3-diene)	PS- <i>b</i> -PB
polystyrene- <i>block</i> -poly(buta-1,3-diene)- <i>block</i> -polystyrene	PS- <i>b</i> -PB- <i>b</i> -PS
polystyrene- <i>graft</i> -poly(methyl methacrylate)	PS- <i>g</i> -PMMA
poly[styrene- <i>stat</i> -(methyl methacrylate)]	P(S- <i>stat</i> -MMA), P(S-MMA)

3.3.

Prefixes and connectives characterizing the constitution or assembly of polymer molecules, such as *star-*, *comb-*, *net-* (network), *ipn-* (interpenetrating polymer network) and *sipn-* (semi-interpenetrating polymer network), may be used as such. Some adjectives and nouns can be shortened to make prefixes, for example *cyc-* (cyclic), *br-* (branched), *hybr-* (hyperbranched) and *compl-* (polymer-polymer complex).

Examples:

6-arm <i>star</i> -poly(ϵ -caprolactone)	<i>star</i> -6-P ϵ -CL or <i>star</i> -6-PCL
polystyrene- <i>comb</i> -[polyacrylonitrile; poly(methyl methacrylate)]	PS- <i>comb</i> -(PAN;PMMA)
<i>net</i> -poly[styrene- <i>co</i> -(1,3-divinylbenzene)]	<i>net</i> -P(S- <i>co</i> -1,3-DVB) or <i>net</i> -P(S-1,3-DVB)
<i>net</i> -poly[styrene- <i>co</i> -(1,4-divinylbenzene)]	<i>net</i> -P(S- <i>co</i> -1,4-DVB) or <i>net</i> -P(S-1,4-DVB)
(<i>net</i> -polybuta-1,3-diene)- <i>ipn</i> -(<i>net</i> -polystyrene)	(<i>net</i> -PB)- <i>ipn</i> -(<i>net</i> -PS)
<i>net</i> -poly(phenol- <i>co</i> -formaldehyde)	<i>net</i> -P(P- <i>co</i> -F), or P(P-F)
<i>net</i> -poly(diallyl phthalate)	<i>net</i> -PDAP, or PDAP
<i>br</i> -poly[styrene- <i>co</i> -(1,3-divinylbenzene)]	<i>br</i> -P(S- <i>co</i> -1,3DVB) or <i>br</i> -P(S-1,3DVB)
<i>hybr</i> -poly[styrene- <i>co</i> -(1,3-divinylbenzene)]	<i>hybr</i> -P(S- <i>co</i> -1,3DVB) or <i>hybr</i> -P(S-1,3DVB)
polyaniline- <i>compl</i> -poly(styrenesulfonic acid)	PANI- <i>compl</i> -PSSA

3.4.

For polymers that differ in configuration of chains, qualifiers such as atactic, isotactic, and syndiotactic are abbreviated to their initial letters in italic font, i.e., *at*, *it* and *st*. For those including chiral constitutional repeating units, stereodescriptors for enantiomers such as *R* or *S* and/or *L* or *D* are retained unchanged, as are descriptors (*RS*) or DL used for racemates.

Examples:

atactic polypropylene	<i>at</i> -PP
isotactic poly(methyl methacrylate)	<i>it</i> -PMMA
syndiotactic polystyrene	<i>st</i> -PS
poly(DL-lactic acid)	P(DL-LA) or P[(<i>RS</i>)-LA]
poly(L-lactic acid) also poly[(<i>S</i>)-lactic acid]	P(L-LA) or PS-LA

3.5.

Abbreviated structure-based polymer names are based on the systematic names of the constitutional repeating units (CRUs) instead of those of monomers.

Note: The most commonly used names for polymers are source-based names in which the name of a monomer, real or hypothetical, follows the prefix 'poly'. However, IUPAC has introduced the structure-based nomenclature as an alternative naming system, which is based on a method of naming the sequence of constitutional or structural units that represent the repeating pattern of the structure of a macromolecule. Examples of abbreviations of source-based and structure-based names of the same polymers are as follows:

Source-based	Polymer name	Abbreviation	
	Structure-based	Source-based	Structure-based
polyethene polyethylene (retained name)	poly(methylene)	PE	PM
polypropene	poly(1-methylethane-1,2-diyl)	PP	PME
poly(2-methylpropene) polyisobutene (retained name)	poly(1,1-dimethylethane-1,2-diyl)	PMP, PIB	PDME
poly(ethylene oxide), polystyrene	poly(oxyethane-1,2-diyl) poly(1-phenylethane-1,2-diyl)	PEO PS	POE PPE
poly(1,4-phenylene oxide)	poly(oxy-1,4-phenylene)	PPO	POP
polystyrene- <i>block</i> -polyacrylonitrile	poly(1-phenylethane-1,2-diyl)- poly(1-cyanoethane-1,2-diyl)	PS- <i>b</i> - PAN	PPE-PCE

3.6.

Abbreviations of generic source-based polymer names shall conform to the format of these names. They should start with the abbreviated polymer class (generic) name, followed by the colon and the abbreviated name(s) of monomer(s) complete with qualifiers (if needed).

Examples:

polymethacrylate:(glycidyl methacrylate)	PMA:GMA
polyether:(glycidyl methacrylate)	PE:GMA
polyimide:[(pyromellitic dianhydride)- <i>alt</i> -(4,4'-oxydianiline)]	PI:(PMDA- <i>a</i> -ODA)
polyamide acid:[(pyromellitic dianhydride)- <i>alt</i> -(4,4'-oxydianiline)]	PAA:(PMDA- <i>a</i> -ODA)
polymethacrylate:(oxiranylmethyl methacrylate)	PMA:OMMA
polyether:(oxiranylmethyl methacrylate)	PE:OMMA

4 MEMBERSHIP OF SPONSORING BODIES

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Membership of the Subcommittee on Polymer Terminology (until 2005, the Subcommittee on Macromolecular Terminology) during the preparation of this report (2006-XX) was as follows:

Chair: R. G. Jones (UK); **Secretary:** M. Hess (Germany), 2006-7; T. Kitayama (Japan) 2008-9; R. C. Hiorns (France), from 2010; **Members:** G. Allegra (Italy); M. Barón (Argentina); T. Chang (Korea); C. dos Santos (Brazil); A. Fradet (France); K. Hatada (Japan); J. He (China); K.-H. Hellwich (Germany); P. Hodge (UK); K. Horie * (Japan); A. D. Jenkins (UK); J.-I. Jin (Korea); J. Kahovec (Czech Republic); P. Kratochvíl (Czech Republic); P. Kubisa (Poland); I. Meisel (Germany); W. V. Metanowski *(USA); S. V. Meille (Italy); I. Mita *(Japan); G. Moad (Australia); W. Mormann (Germany); C. Ober (USA); S. Penczek (Poland); L. P. Rebelo (Portugal); M. Rinaudo (France); I. Schopov (Bulgaria); M. Schubert (USA); F. Schué (France); V. P. Shibaev (Russia); S. Słomkowski (Poland); R. F. T. Stepto (UK); D. Tabak (Brazil); J.-P. Vairon (France); M. Vert (France); J. Vohlidal (Czech Republic); E. S. Wilks (USA); W. J. Work (USA).

* Deceased

5 REFERENCES

1. ISO 1043-1, 2011 Plastics — Symbols and Abbreviated Terms — Part 1: Basic polymers and their special characteristics.
2. List of Standard Abbreviations (Symbols) for Synthetic Polymers and Polymer Materials, (IUPAC 1974), *Pure Appl. Chem.* **40**, 475 (1974).
3. Use of Abbreviations for Names of Polymeric Substances, (IUPAC Recommendations 1986), *Pure Appl. Chem.*, **59**, 691 (1987).
4. Use of Abbreviations in the Chemical Literature, (IUPAC Recommendations 1979), *Pure Appl. Chem.* **52**, 2229 (1980).
5. ASTM D1600-08 Standard Terminology for Abbreviated Terms Relating to Plastics.
6. Abbreviations for Thermoplastics, Thermosets, Elastomers, Fibers, and Additives, *Polymer News*, **9**, 101 (1983).

6 APPENDIX

EXTENDED LIST OF CURRENTLY USED ABBREVIATIONS FOR POLYMER NAMES

APPENDIX: EXTENDED LIST OF CURRENTLY USED ABBREVIATIONS FOR POLYMER NAMES

Notes:

- IUPAC Rule 3 and Guideline 3.2a recommend the use of the letter P at the beginning of the abbreviation for both homopolymers and copolymers. So, in cases of abbreviating copolymer names in scientific publications, IUPAC recommend the use of the letter P at the beginning of their abbreviations usually followed by the abbreviated monomer names in parenthesis with a hyphen or hyphens and connectives separating them, in spite of the examples listed below based on ISO abbreviations.
- Those labeled "2" are collected from IUPAC, Commission on Macromolecular Nomenclature, Use of Abbreviations for Names of Polymeric Substances, (Recommendations 1986), *Pure Appl. Chem.*, 69, 691 (1987).
- Those labeled "3" are abbreviations for polymer names that are consistent with the guidelines in the present IUPAC Recommendations.
- IUPAC name may include structure-based names, traditional names, retained names, and generic names, in addition to source-based names.
- Names listed in this column are for understanding the origin of existing abbreviations, although they are not consistent with IUPAC nomenclature.
- ISO 1043-1, 2011 Plastic — Symbols and Abbreviated Terms — Part 1: Basic polymers and their special characteristics.
- ASTM D1600-08 Standard Terminology for Abbreviated Terms Relating to Plastics.

Abbreviation	IUPAC abbreviation ^{2,3}	IUPAC name ⁴	Name of polymer on which abbreviation is based ⁵	Source ^{6,7}
AB		poly(acrylonitrile- <i>stat</i> -butadiene)	acrylonitrile-butadiene copolymer	6, 7
ABA		poly(acrylonitrile- <i>stat</i> -butadiene- <i>stat</i> -acrylate)	acrylonitrile-butadiene-acrylate copolymer	7
ABAK		poly(acrylonitrile- <i>stat</i> -butadiene- <i>stat</i> -acrylate)	acrylonitrile-butadiene-acrylate copolymer	6
ABS		poly(acrylonitrile- <i>co</i> -butadiene- <i>co</i> -styrene)	acrylonitrile-butadiene-styrene copolymer	6, 7
ACPES		polyacrylonitrile- <i>graft</i> -poly(chlorinated polyethylene)- <i>graft</i> -polystyrene	acrylonitrile-chlorinated polyethylene-styrene copolymer	7
ACS		polyacrylonitrile- <i>graft</i> -poly(chlorinated polyethylene)- <i>graft</i> -polystyrene	acrylonitrile-(chlorinated polyethylene)-styrene copolymer	6
AEPDMS		polyacrylonitrile- <i>graft</i> -poly(ethene- <i>co</i> -propene- <i>co</i> -diene)- <i>graft</i> -polystyrene	acrylonitrile-(ethene-propene-diene)-styrene copolymer	7
AEPDS		polyacrylonitrile- <i>graft</i> -poly(ethene- <i>co</i> -propene- <i>co</i> -diene)- <i>graft</i> -polystyrene	acrylonitrile-(ethene-propene-diene)-styrene copolymer	6

1				
2				
3				
4				
5	AES	polyacrylonitrile- <i>graft</i> -polyethene- <i>graft</i> -polystyrene	acrylonitrile-ethene-styrene copolymer	7
6	AMAB	polyacrylonitrile- <i>graft</i> -poly(methyl	acrylonitrile-methyl	7
7		methacrylate)- <i>graft</i> -polyacrylonitrile- <i>graft</i> -polybutadiene	methacrylate-acrylonitrile-butadiene	
8			copolymer	
9				
10	AMMA	polyacrylonitrile- <i>graft</i> -poly(methyl methacrylate)	acrylonitrile-(methyl methacrylate) copolymer,	6, 7
11			acrylonitrile-methyl methacrylate	
12			copolymer	
13				
14	ARP		aromatic polyester	7
15	ARP		thermoplastic polyester: copolyester [poly(aryl	7
16			terephthalate)]	
17				
18	ASA	poly(acrylonitrile- <i>stat</i> -styrene- <i>stat</i> -acrylate)	acrylonitrile-styrene-acrylate copolymer	6, 7
19	CA	cellulose acetate	cellulose acetate	6, 7
20	CAB	cellulose acetate butyrate	cellulose acetate butyrate, cellulose	6, 7
21			acetate-butyrate	
22				
23	CAP	cellulose acetate propionate	cellulose acetate propionate	6, 7
24	CEF	<i>net</i> -(cellulose- <i>co</i> -formaldehyde)	cellulose formaldehyde copolymer	6, 7
25	CF	<i>net</i> -(cresol- <i>co</i> -formaldehyde)	cresol-formaldehyde copolymer	6, 7
26	CMC	carboxymethyl cellulose	carboxymethyl cellulose	6, 7
27				
28	CN	cellulose nitrate	cellulose nitrate	6, 7
29	COC		cycloolefin copolymer	6
30	CP	cellulose propionate	cellulose propionate	6, 7
31	CPE	polyethene- <i>mod</i> -chloro	chlorinated polyethylene	7
32	CPVC	poly(chloroethene)- <i>mod</i> -chloro	chlorinated poly(vinyl chloride)	7
33				
34	CS	casein	casein	7
35	CSF	<i>net</i> -(casein- <i>co</i> -formaldehyde)	casein-formaldehyde copolymer	7
36	CTA	cellulose triacetate	cellulose triacetate	6, 7
37	EAA	poly[ethene- <i>stat</i> -(acrylic acid)]	ethene-(acrylic acid) copolymer	6
38				
39	EBAK	poly[ethene- <i>stat</i> -(butyl acrylate)]	ethene-(butyl acrylate) copolymer	6
40	EC	ethyl cellulose	ethyl cellulose	6, 7
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5	E-CTFE	poly(ethene- <i>co</i> -chlorotrifluoroethene)	ethene-chlorotrifluoroethene copolymer	7
6	EEA	poly[ethene- <i>stat</i> -(ethyl acrylate)]	ethene-ethyl acrylate copolymer	7
7	EEAK	poly[ethene- <i>stat</i> -(ethyl acrylate)]	ethene-(ethyl acrylate) copolymer	6
8	EMA	poly[ethene- <i>stat</i> -(methacrylic acid)]	ethene-(methacrylic acid) copolymer,	6, 7
9			ethylene-methacrylic acid copolymer	
10				
11	EP		epoxy, epoxide copolymer	6, 7
12	E/P ⁶	polyethene- <i>block</i> -polypropylene	ethylene-propylene copolymer	6
13	EPD	poly(ethene- <i>ran</i> -propene- <i>ran</i> -diene)	ethene-propene-diene copolymer	7
14	EPM	polyethene- <i>block</i> -polypropylene	ethylene-propylene copolymer	7
15	ETFE	poly(ethene- <i>co</i> -tetrafluoroethene)	ethene-tetrafluoroethene copolymer	6, 7
16	EVA	poly[ethylene- <i>stat</i> -(vinyl acetate)]	ethylene-vinyl acetate copolymer	7
17	EVAC	poly[ethylene- <i>stat</i> -(vinyl acetate)]	ethene-(vinyl acetate) copolymer	6
18	EVOH	poly[ethene- <i>co</i> -(vinyl alcohol)]	ethene-(vinyl alcohol) copolymer,	6, 7
19			ethylene-vinyl alcohol copolymer	
20				
21				
22	FECA		thermoplastic elastomer, fully crosslinked	7
23			elastomer alloy	
24				
25	FEP	poly(hexafluoropropylene- <i>co</i> -tetrafluoroethylene)	perfluoro(ethylene-propylene) copolymer	6, 7
26	FF	poly(furan- <i>alt</i> -formaldehyde)	furan-formaldehyde copolymer	6, 7
27	HBV		poly(3-hydroxybutyrate)- <i>co</i> -(3-hydroxyvalerate)	6
28	HCTPV		thermoplastic elastomer, highly crosslinked	7
29			thermoplastic vulcanizate	
30				
31	HDPE		high-density polyethylene	7
32	HIPS		high impact-resistant polystyrene	7
33	IPS		impact-resistant polystyrene	7
34	LCP		liquid-crystal polymer	6, 7
35	LDPE		low-density polyethylene	7
36	LLDPE		linear low-density polyethylene	7
37	LMDPE		linear medium-density polyethylene	7
38	MABS	poly[(methyl methacrylate)- <i>co</i> -acrylonitrile- <i>co</i> -butadiene- <i>co</i> -styrene]	(methyl	6
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4				
5			methacrylate)-acrylonitrile-butadiene-styre	
6			ne copolymer	
7	MMABS		methyl	7
8			methacrylate-acrylonitrile-butadiene-styrene	
9			copolymer	
10				
11	MBS	poly(methyl methacrylate)- <i>block</i> -polybutadiene- <i>block</i> -polystyrene	(methyl methacrylate)-butadiene-styrene	6
12			copolymer,	
13	MBS	poly methacrylate- <i>block</i> -polybutadiene- <i>block</i> -polystyrene	methacrylate-butadiene-styrene copolymer	7
14	MC	methyl cellulose	methyl cellulose	6, 7
15	MDPE		medium-density polyethylene	7
16	MF	<i>net</i> -(melamine- <i>co</i> -formaldehyde)	melamine-formaldehyde copolymer	6, 7
17	MFA		perfluoromethoxy copolymer	7
18	MMABS	poly[(methyl methacrylate)- <i>co</i> -acrylonitrile- <i>co</i> -butadiene- <i>co</i> -styrene]	methyl	7
19			methacrylate-acrylonitrile-butadiene-styrene	
20			copolymer	
21	MP	<i>net</i> -(melamine- <i>co</i> -phenol)	melamine-phenol copolymer	6
22	MPA		fluorocarbon perfluoromethoxy	7
23	MPF	<i>net</i> -(melamine- <i>co</i> -phenol- <i>co</i> -formaldehyde)	melamine/phenol-formaldehyde copolymer	7
24	MSAN	poly(α -methyl styrene- <i>stat</i> -acrylonitrile)	α -methylstyrene-acrylonitrile copolymer	6
25	PA	polyamide	polyamide	6, 7
26	PA11	poly(11-amino undecanoic acid), polyundecanoamide	polyamide 11	7
27	PA12	polylauryllactam	polyamide 12	7
28	PA1212	poly(dodecamethylene dodecamide)	polyamide 1212	7
29	PA46	poly(tetramethylene adipamide)	polyamide 46	7
30	PA6	poly(ϵ -caprolactam), poly(hexano-6-lactam)	polyamide 6	7
31	PA610	poly(hexamethylene sebacamide)	polyamide 610	7
32	PA612	poly(hexamethylene laurylamide)	polyamide 612	7
33	PA66	poly(<i>n,n'</i> -hexamethylene adipamide)	polyamide 66	7
34	PA69	poly(hexamethylene azelamide)	polyamide 69	7

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5	PAA	3	poly(acrylic acid)	poly(acrylic acid)	6, 7
6	PADC		poly(oxydiethane-2,1-diyl diprop-2-en-1-yl biscarbonate)	poly(allyl diglycol carbonate)	7
7	PAE	3	polyarylether	polyarylether	7
8	PAEK	3	poly(aryletherketone)	polyaryletherketone, poly(aryl ether ketone)	6, 7
9	PAI	3	poly(amide-imide)	polyamideimide, polyamide-imide	6, 7
10	PAK		polyacrylate	polyacrylate, polyester alkyd	6, 7
11	PAN	2, 3	polyacrylonitrile	polyacrylonitrile	6, 7
12	PAR	3	polyarylate	polyarylate	6, 7
13	PARA	3	polyarylamide	polyarylamide, polyaryl amide	6, 7
14	PASU	3	poly(arylsulfone)	polyarylsulfone	7
15	PAT		poly(aryl terephthalate)	poly(aryl terephthalate)	7
16	PAT	3	poly(alkylthiophenes)-1,5-diyl	poly(alkylthiophenes)-1,5-diyl	
17	P3AT	3	poly(3-alkylthiophenes)	poly(3-alkylthiophenes)	
18	PAUR		polyesterurethane	poly(ester urethane)	7
19	PB	3	poly(1-butene), polybutylene	polybutene, polybutene-1	6, 7
20	PBA	3	poly(butyl acrylate)	poly(butyl acrylate)	7
21	PBAK		poly(butyl acrylate)	poly(butyl acrylate)	6
22	PBAN	3	poly(buta-1,3-diene- <i>co</i> -acrylonitrile), poly(butadiene-acrylonitrile)	polybutadiene-acrylonitrile	7
23	PBD	3	poly(buta-1,3-diene), polybutadiene	1,2-polybutadiene	6
24	PB12D	3	poly(buta-1,2-diene), poly(1-vinylethane-1,2-diyl)		
25	PB14D	3	poly(buta-1,4-diene), poly(1-butene-1,4-diyl)		
26	PBI	3	poly(benzimidazole)	poly(benzimidazole)	
27	PBMA	3	poly(butyl methacrylate)	poly(butyl methacrylate)	
28	PBN	3	poly(tetramethylene naphthalene-1,8-diyl), poly(butylene naphthalate)	poly(butylene naphthalate)	6
29	PBS			poly(butylene succinate)	6
30	PBS	3	poly(butadiene- <i>co</i> -styrene)	polybutadiene-styrene	7
31	PBSA			poly(butylene succinate adipate)	6
32	PBT	3	poly(tetramethylene terephthalate)	poly(butylene tererphthalate)	6, 7
33	PC	3	bisphenol-A polycarbonate	polycarbonate	6, 7
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5	PCCE		poly(cyclohexane-1,4-diylbismethylene cyclohexane-1,4-dicarboxylate)	poly(cyclohexylene dimethylene cyclohexanedicarboxylate)	6, 7
6					
7	PCL	3	polycaprolactone	polycaprolactone, poly(ϵ -caprolactone)	6, 7
8	PCO			polycycloolefin	6
9					
10	PCT		poly(cyclohexane-1,4-diylbismethylene terephthalate)	poly(cyclohexylene dimethylene terephthalate)	6, 7
11	PCTA		poly(cyclohexane-1,4-diylbismethylene terephthalate)	poly(cyclohexylene dimethylene terephthalate), acid comonomer	7
12					
13	PCTFE	2, 3	poly(chlorotrifluoroethene)	polychlorotrifluoroethylene	6, 7
14	PCTG		poly(cyclohexylenedimethylene terephthalate)- <i>mod</i> -ethylene glycol	poly(cyclohexylene dimethylene terephthalate), glycol	7
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17	PDAP	3	poly(diallyl phthalate)	poly(diallyl phthalate)	6, 7
18	PDCPD	3	poly(dicyclopentadiene)	polydicyclopentadiene	6
19	PDHS	3	polydi-n-hexylsilane		
20	PDLA	3	poly(D-lactic acid)	poly(D-lactic acid), poly(<i>r</i> -lactic acid)	
21	PDMS	3	polydimethylsiloxane		
22	PE	2, 3	polyethene, polyethylene	polyethene, polyethylene	6, 7
23	PE-C		polyethene- <i>mod</i> -chloro	polyethylene, chlorinated	6
24	PE-HD			polyethylene, high-density	6
25	PE-LD			polyethylene, low density	6
26	PE-LLD			polyethylene, linear low density	6
27	PE-MD			polyethylene, medium density	6
28	PE-UHMW			polyethylene, ultra high molecular weight	6
29	PE-VLD			polyethylene, very low density	6
30	PEBA			poly(ether block amide)	7
31	PEC	3	polyestercarbonate	polyestercarbonate	6
32	PEDOT		poly[3,4-(ethylenedioxy)thiophene]}		
33	PEEK	3	polyetheretherketone	polyetheretherketone, polyetheretherketone	6, 7
34	PEEKK	3	polyetheretherketoneketone	poly(ether ether ketone ketone), polyetheretherketoneketone	7
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5	PEKEKK	3	polyetherketoneetherketoneketone	poly(ether ketone ether ketone ketone), polyetherketoneetherketoneketone	7
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7	PEEST	3	polyetherester	polyetherester	6
8	PEI	3	polyetherimide	polyetherimide	6, 7
9	PEK	3	polyetherketone	polyetherketone	6, 7
10	PEK	3	polyetherketone	polyetherketone	6, 7
11	PEKK	3	polyetherketoneketone	poly(ether ketone ketone), polyetherketoneketone	7
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14	PEN	3	poly(ethylene naphthalate)	poly(ethylene naphthalate)	6, 7
15	PEO	2, 3	poly(ethylene oxide)	poly(ethylene oxide)	
16	PEOX		poly(ethylene oxide)	poly(ethylene oxide), poly(oxyethylene)	6, 7
17	PES			poly(ethylene succinate)	6
18	PESTUR	3	polyesterurethane	polyesterurethane	6
19	PESU	3	polyethersulfone	polyethersulfone, poly(ether sulfone)	6, 7
20	PET	3	poly(ethylene terephthalate)	poly(ethylene terephthalate)	6, 7
21	PET	3	poly(ethylene terephthalate)	poly(ethylene terephthalate)	6, 7
22	PETG		poly(ethylene terephthalate)- <i>mod</i> -ethylene glycol	poly(ethylene terephthalate) glycol comonomer	7
23	PETG		poly(ethylene terephthalate)- <i>mod</i> -ethylene glycol	poly(ethylene terephthalate) glycol comonomer	7
24	PETP	2	poly(ethylene terephthalate)	poly(ethylene terephthalate)	
25	PEUR	3	polyetherurethane	polyetherurethane, poly(ether urethane)	6, 7
26	PF		polyformaldehyde	phenol-formaldehyde copolymer	6, 7
27	PFA			perfluoro(alkyl vinyl ether)-tetrafluoroethylene copolymer	6
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30	PFA			perfluoro(alkoxy alkane)	7
31	PFF		<i>net</i> -(phenol- <i>co</i> -furfural)	phenol-furfural copolymer	7
32	PHA			polyhydroxyalkanoate	6
33	PHA			polyhydroxyalkanoate	6
34	PHB		poly(3-hydroxybutanoate)	poly(3-hydroxybutyrate), polyhydroxy butyrate	6, 7
35	P3HB	3	poly(3-hydroxybutanoate)		
36	P3HT	3	poly(3- <i>n</i> -hexylthiophene)		
37	PI	3	polyimide	polyimide	6, 7
38	PI	3	polyimide	polyimide	6, 7
39	PIB	2, 3	poly(2-methylpropene), polyisobutylene, polyisobutene	polyisobutylene	6, 7
40	PIP	3	poly(imino-1,4-phenylene)		
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5	PIR		polyisocyanurate	polyisocyanurate	6, 7
6	PISU	3	polyimidesulfone	polyimidesulfone	7
7	PK	3	polyketone	polyketone	6, 7
8	PLA	3	poly(lactic acid), polylactide	poly(lactic acid), polylactide	
9	PLLA	3	poly(L-lactic acid)	poly(L-lactic acid), poly[(s)-lactic acid]	
10	PMA	3	poly(methyl acrylate)	poly(methyl acrylate)	
11	PMCA	3	poly(methyl-2-chloroacrylate)	poly(methyl- α -chloroacrylate)	7
12	PMHS	3	polymethyl-n-hexylsilane		
13	PMI	3	poly(methacryl imide)	polymethacrylimide	6, 7
14	PMMA	2, 3	poly(methyl methacrylate)	poly(methyl methacrylate)	6, 7
15	PMMI	3	poly(methyl methacryl imide)	poly(<i>n</i> -methylmethacrylimide), poly(methyl methacrylimide)	6, 7
16	PMP	3	poly(4-methylpent-1-ene)	poly(4-methylpent-1-ene), poly-4-methylpentene-1	6, 7
17	PMPS	3	polymethylphenylsilane		
18	PMS	3	poly(methyl styrene), poly(isopropenylbenzene), poly[(1-methylvinyl)benzene], poly(2-phenylpropene)	poly(α -methylstyrene), poly- α -methylstyrene	6, 7
19	POB		poly(4-hydroxybenzoate)	poly- <i>p</i> -oxybenzoate	7
20	POM	2, 3	poly(oxymethylene), polyformaldehyde	polyoxymethylene, polyacetal, polyformaldehyde	6, 7
21	PP	2, 3	polypropene, polypropylene	polypropylene	6, 7
22	PP-HI			polypropene, high-impact	6
23	PPA	3	polyphthalamide	polyphthalamide	7
24	PPE	3	poly(1,4-phenylene ether)	poly(phenylene ether)	6, 7
25	PPO	3	poly(phenylene oxide)		
26	PPOX		poly(propylene oxide)	poly(propylene oxide)	6, 7
27	PPS	3	poly(<i>p</i> -phenylene sulfide)	poly(phenylene sulfide)	6, 7
28	PPSU	3	poly(<i>p</i> -phenylene sulfone)	poly(phenylene sulfone), poly(phenyl sulfone)	6, 7
29	PPTA	3	poly(<i>p</i> -phenylene terephthalamide)	poly(<i>p</i> -phenylene terephthalamide)	
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5	PS	2, 3	polystyrene	polystyrene	6, 7
6	PSS		poly(4-vinylbenzenesulfonic acid)	poly(styrene sulfonate)	
7	PS-S			polystyrene, sulfonated	6
8	PSU	3	polysulfone	polysulfone	6, 7
9	PTFE	2, 3	poly(tetrafluoroethene), poly(tetrafluoroethylene)	polytetrafluoroethylene	6, 7
10	PTT	3	poly(trimethylene terephthalate)	poly(trimethylene terephthalate)	6
11	PUR	3	polyurethane	polyurethane	6, 7
12	PVAC	2, 3	poly(vinyl acetate)	poly(vinyl acetate)	6, 7
13	PVAL	2, 3	poly(vinyl alcohol)	poly(vinyl alcohol)	6
14	PVB	3	poly(vinyl butyral)	poly(vinyl butyral)	6, 7
15	PVC	2, 3	poly(vinyl chloride)	poly(vinyl chloride)	6, 7
16	PVCA	3	poly(vinyl chloride-acetate)	poly(vinyl chloride-acetate)	7
17	PVC-C		poly(vinyl chloride)- <i>mod</i> -chloro	poly(vinyl chloride), chlorinated	6
18	PVDC	2, 3	poly(vinylidene chloride), poly(1,1-dichloroethene)	poly(vinylidene chloride)	6, 7
19	PVDF	2, 3	poly(vinylidene fluoride), poly(1,1-difluoroethene)	poly(vinylidene fluoride)	6, 7
20	PVF	2, 3	poly(vinyl fluoride)	poly(vinyl fluoride)	6, 7
21	PVFM	3	poly(vinyl formal)	poly(vinyl formal)	6, 7
22	PVK		poly(<i>n</i> -vinylcarbazole)	poly(<i>n</i> -vinylcarbazole), poly- <i>n</i> -vinylcarbazole, poly(vinyl carbazole)	6, 7
23	PVOH		poly(vinyl alcohol)	poly(vinyl alcohol)	7
24	PVP		poly(<i>n</i> -vinylpyrrolidone)	poly(<i>n</i> -vinylpyrrolidone), poly(vinyl pyrrolidone)	6, 7
25	SAN		poly(styrene- <i>stat</i> -acrylonitrile)	styrene-acrylonitrile copolymer	6, 7
26	SB		poly(styrene- <i>stat</i> -butadiene)	styrene-butadiene copolymer	6, 7
27	SBS		polystyrene- <i>block</i> -polybutadiene- <i>block</i> -polystyrene	styrene-butadiene-styrene block copolymer	7
28	SEBS		polystyrene- <i>block</i> -poly(ethene-co-butadiene)- <i>block</i> -polystyrene)	styrene-ethene/butadiene-styrene block copolymer	7
29	SEPS		polystyrene- <i>block</i> -poly(ethene-co-propene)- <i>block</i> -polystyrene)	styrene-ethene/propene-styrene block copolymer	7
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5	SI		silicone polymer	6
6	SIS	polystyrene- <i>block</i> -polyisoprene- <i>block</i> -polystyrene	styrene-isoprene-styrene block copolymer	7
7	SMAH	poly[styrene- <i>alt</i> -(maleic anhydride)]	styrene-(maleic anhydride) copolymer	6
8	S/MA	poly[styrene- <i>alt</i> -(maleic anhydride)]	styrene-maleic anhydride copolymer	7
9	SMS	poly[styrene- <i>stat</i> -(α -methylstyrene)]	styrene- α -methylstyrene copolymer	6, 7
10	SP		saturated polyester	7
11	TEEE		thermoplastic elastomer, ether-ester	7
12	TEO		thermoplastic elastomer, olefinic	7
13	TES		thermoplastic elastomer, styrenic	7
14	TESS		thermoplastic elastomer, styrenic, saturated	7
15	TESU		thermoplastic elastomer, styrenic, unsaturated	7
16	TPE		thermoplastic elastomer	7
17	TPES		thermoplastic polyester	7
18	TPU		thermoplastic polyurethane	7
19	TSPU		thermoset polyurethane	7
20	UF	<i>net</i> -(urea- <i>co</i> -formaldehyde)	urea-formaldehyde copolymer	6, 7
21	UHMWPE		ultra-high molecular weight polyethylene	7
22	UP		unsaturated polyester copolymer	6, 7
23	VCE	poly(vinyl chloride- <i>stat</i> -ethene)	(vinyl chloride)-ethylene copolymer, vinyl chloride-ethylene copolymer	6, 7
24	VCEMA	poly[(vinyl chloride)- <i>stat</i> -ethene- <i>stat</i> -(methyl acrylate)]	vinyl chloride-ethene-methyl acrylate copolymer	7
25	VCEMAK	poly[(vinyl chloride)- <i>stat</i> -ethene- <i>stat</i> -(methyl acrylate)]	(vinyl chloride)-ethylene-(methyl acrylate) copolymer	6
26	VCEVAC	poly[(vinyl chloride)- <i>stat</i> -ethene- <i>stat</i> -(vinyl acetate)]	(vinyl chloride)-ethylene-(vinyl acetate) copolymer, vinyl chloride-ethylene-vinyl acetate copolymer	6, 7
27	VCMA	poly[(vinyl chloride)- <i>stat</i> -(methyl acrylate)]	vinyl chloride-methyl acrylate copolymer	7
28	VCKMAK	poly[(vinyl chloride)- <i>stat</i> -(methyl acrylate)]	(vinyl chloride)-(methyl acrylate) copolymer	6

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5	VCMA	poly[(vinyl chloride)- <i>stat</i> -(methyl methacrylate)]	(vinyl chloride)-(methyl methacrylate)	6, 7
6			copolymer, vinyl chloride-methyl	
7			methacrylate copolymer	
8				
9	VCOA	poly[(vinyl chloride)- <i>stat</i> -(octyl acrylate)]	vinyl chloride-octyl acrylate copolymer	7
10	VCOAK	poly[(vinyl chloride)- <i>stat</i> -(octyl acrylate)]	(vinyl chloride)-(octyl acrylate) copolymer	6
11	VCVAC	poly[(vinyl chloride)- <i>stat</i> -(vinyl acetate)]	(vinyl chloride)-(vinyl acetate) copolymer, vinyl	6, 7
12			chloride-vinyl acetate copolymer	
13				
14	VCVDC	poly[(vinyl chloride)- <i>stat</i> -(vinylidene chloride)]	(vinyl chloride)-(vinylidene chloride)	6, 7
15			copolymer, vinyl chloride-vinylidene	
16			chloride copolymer	
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18	VDF		vinylidene fluoride	7
19	VE	poly(vinyl- <i>co</i> -ester)	vinyl ester copolymer	6
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