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List of keywords for polymer science (IUPAC Technical Report)

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Abstract: This paper provides a list of the most important terms from all areas of polymer science including polymer chemistry, polymer physics, polymer technology and polymer properties. These have been assembled into a representative list of terms that serves as an IUPAC recommended list of keywords for polymer science.

Keywords: IUPAC; keyword; polymer science.

CONTENTS

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1 Introduction

Internet searches of scientific literature return results based mainly on electronic engines, which work to identify relevant keywords. These keywords are supplied by the authors of publications. The selection of keywords that best describe the content of a publication is therefore very important. Some publishers of journals related to polymer science provide a recommended list of keywords from which authors must select the most relevant terms. Wiley, for example does this [1]. Some publishers, on the other hand, give authors license to provide their own keywords, while others provide a non-binding list of keywords, *i.e.* authors may use it or ignore it as they prefer. In addition to these variations, different authors place a different emphasis on the selection of keywords. Some take it as a serious exercise and strive to provide keywords that genuinely encapsulate the contents of their article, while others regard keywords as a nuisance and do not particularly care if they are a "low precision" guide to the content of their publication. Furthermore, as science is a dynamic discipline, newly discovered phenomena are constantly giving rise to new terms that may not be included in existing lists of keywords. All these factors introduce a degree of ambiguity which, in turn, makes searching the literature by keywords less accurate.

For these reasons it is worthwhile to collect the most salient terms from all areas of polymer science, *i.e.* polymer chemistry, polymer physics, polymer technology, and polymer properties, and then to assemble these terms into a representative list that may serve as an IUPAC-recommended list of keywords for polymer science. This is the aim of this paper. Ideally, all polymer-related journals would employ this list and would insist on authors selecting from it, except where terms are newly coined, in which event – if prudent – they would be added to the list, making it an evolving document. This would ultimately result in a streamlined search tool: faster, more comprehensive, and more accurate.

The following list was created by a task-group of the IUPAC Polymer Division, which collected the most relevant terms, identified on the basis of:

a. terms from IUPAC Polymer Division recommendations given in the IUPAC Compendium of Polymer Terminology and Nomenclature (the "Purple Book") [2];
b. lists of keywords for Wiley journals [1] (*J. Polym. Sci. A Polym. Chem.* [3], *J. Polym. Sci. B Polym. Phys.* [4], *J. Appl. Polym. Sci.* [5], *Polym. Int.* [6], *Macromol. Chem. Phys.* [7]);
c. titles of chapters and sections in the *Encyclopedia of Polymer Science and Technology* [8], *Comprehensive Polymer Science* [9], *Ulmann's Encyclopedia of Industrial Chemistry* [10];
d. terms that appeared as keywords in the most cited (usually more than 500 citations) polymer-related papers (on the basis of ISI Web of Knowledge [11]);
e. terms that appeared as keywords in publications in *Prog. Polym. Sci.* [12] in the period 2008–2015; and
f. terms from the *Polymer Science Dictionary* [13].

The list was divided into six categories and entries were arranged alphabetically within them, with categories for keywords related to: polymer synthesis and polymerization mechanisms; reactions of polymers; polymer class names and common polymer names; polymer additives and composites; polymer structure, processing, properties and applications; and polymer characterization methods. In addition, the complete alphabetical list is included at the end of this paper. Where appropriate, authors may choose to insert their own polymer-specific keyword. This should be done in accord with recent IUPAC nomenclature recommendations [14, 15].

The generation of new keywords was avoided where possible in order to avoid confusion; however, where new keywords are required, it is recommended that they conform to definitions given in the IUPAC Compendium of Polymer Terminology and Nomenclature (the "Purple Book"). The spellings of American English are recommended as these are more commonly used, and for searching efficiency it is obviously preferable if workers adhere to the forms of a particular variant of English. It is also recommended that the singular form be used.

2 List of keywords arranged into categories

2.1 Keywords related to polymer synthesis and polymerization mechanisms

activated monomer
activation energy
activator generated by electron transfer atom transfer radical polymerization (AGET-ATRP)
activator regenerated by electron transfer atom transfer radical polymerization (ARGET-ATRP)
acyclic diene metathesis polymerization (ADMET)
anionic polymerization
anionic ring-opening polymerization
asymmetric polymerization
atom transfer radical polymerization (ATRP)

branching
bulk polymerization

catalyst
catalyst transfer polymerization (CTP)
cationic polymerization
cationic ring-opening polymerization
chain polymerization
chain scission
chain transfer
click reaction
cobalt-mediated radical polymerization
condensative chain polymerization (CCP)
controlled anionic polymerization
controlled cationic polymerization
controlled ionic polymerization
controlled polymerization
controlled radical polymerization (CRP)
convergent approach
coordination polymer
coordination polymerization
coordination ring-opening polymerization
copolymerization
coupling
crosslinking
cyclization

degenerative chain transfer radical polymerization
degradation
degree of polymerization
depolymerization
dispersion polymerization
divergent approach

electrochemical polymerization
emulsion polymerization
enzymatic polymerization
equilibrium polymerization

functional polymer
functionality

gas-phase polymerization
gel effect
gel point
gelation
grafting
grafting from
grafting through
grafting to
group transfer polymerization (GTP)

heat of polymerization
heterogeneous polymerization
homogeneous polymerization

inclusion
inhibitor
initiation of polymerization
intercalation
interfacial polymerization
iodine-transfer polymerization (ITP)
ionic liquid
ionic polymerization
irradiation

kinetics
Kumada catalyst transfer polymerization (KCTP)

ligand
living anionic polymerization
living cationic polymerization
living coordination polymerization
living ionic polymerization
living polymer
living polymerization

macroinitiator
macromonomer
mechanism
metal-free catalyst
metallocene catalyst
metathesis polymerization

microemulsion polymerization
miniemulsion polymerization
molar mass
molar mass dispersity

nitroxide mediated polymerization

olefin polymerization catalyst
organobismuthine-mediated radical polymerization (BIRP)
organometallic-mediated radical polymerization (OMRP)
organostibane-mediated radical polymerization (SBRP)
organotellurium-mediated radical polymerization (TERP)
oxidative polymerization

photoinitiated polymerization
photopolymerization
plasma polymerization
polyaddition
polycondensation
post-metallocene catalyst
precipitation polymerization
prepolymer
propagation
pseudo-ionic polymerization

quantum chemistry

radiation polymerization
radical polymerization
rate of polymerization
reactive injection molding
reactivity ratio (in copolymerization)
reverse atom transfer radical polymerization (reverse ATRP)
reverse iodine-transfer polymerization (RITP)
reversible-addition-fragmentation chain-transfer polymerization (RAFT)
reversible addition-fragmentation radical polymerization (RAFRP)
reversible deactivation anionic polymerization (RDAP)
reversible deactivation cationic polymerization (RDCP)
reversible deactivation coordination polymerization (RDCP)
reversible deactivation ionic polymerization (RDIP)
reversible deactivation polymerization (RDP)
reversible deactivation radical polymerization (RDRP)
reversible polymerization
ring-opening metathesis polymerization (ROMP)
ring-opening polymerization

sequential polymerization
sol-gel
solid-phase synthesis
solid-state polymerization

solution polymerization
stable radical mediated polymerization
stereospecific polymerization
surface-initiated polymerization
suspension polymerization

telomerization
template
template polymerization
termination
thermodynamics
thiocarbonyl-mediated radical polymerization (TMRP)
transition-metal-mediated radical polymerization

Ziegler-Natta catalyst
Ziegler-Natta polymerization

2.2 Keywords related to reactions of polymers

aminolysis

biodegradation

chemical modification
composting
conjugate
conjugation

degradation

enzymatic degradation

functionalization

hydrolysis

metabolization
modification
molecular recognition

oxidation

PEGylation
photodegradation
post-polymerization functionalization
pyrolysis

reactive processing
recycling

thermal degradation
tissue engineering

vulcanization

2.3 Keywords related to polymer class names and common polymer names

acrylic polymer
aliphatic polyester
aromatic polyester
alternating copolymer
amphiphilic polymer
aramid

biomaterial
biomedical polymer
biopolymer

carbohydrate
cellulose
chitin
chitosan
collagen
copolymer
cyclodextrin

dendrimer
dendritic polymer
dextran

epoxy

fluoropolymer

gelatin
graphene

hydrophilic polymer
hydrophobic polymer
hyperbranched polymer

inorganic polymer
ion-exchange polymer
ionic polymer
ionomer

ladder

metal-containing
metal-organic
nanocomposite

natural rubber
nylon

oligomer
organic-inorganic hybrid material

polyacetylene
polyacrylate
polyacrylamide
polyacrylonitrile
polyamide
polyaniline
polycarbonate
polyelectrolyte
polyester
poly(ester amide)
polyether
polyethylene
polyfluorene
polyhydroxyalkanoate
polyimide
polyisobutylene
polylactide
polymer electrolyte
polymethacrylate
polyolefin
poly(oxirane)
polyphenylene
poly(phenylene diamine)
poly(phenylene vinylene)
polyphosphazene
polypropylene
polypyrrole
polyrotaxane
polysaccharide
polysilane
polysiloxane
polystyrene
polythiophene
polyurea
polyurethane
poly(vinyl alcohol)
poly(vinyl chloride)
poly(vinyl ether)
preceramic polymer
protein

random copolymer
reinforced polymer
renewable resource

responsive polymer
rubber

semiconducting polymer
shape memory polymer
silicon polymer
silsesquioxane
smart polymer
star polymer
starch
statistical copolymer
superabsorbent polymer
supramolecular polymer

thermoplastic elastomer
thermoplastic polymer
thermoset
thermosetting polymer

unsaturated polyester

water soluble polymer

2.4 Keywords related to polymer additives and composites

acid neutralizer
additive
adhesion promotor
adhesive
alumina
anti-blocking agent
anti-fogging agent
anti-microbial additive
antioxidant
antistatic agent

blowing agent

carbon black
carbon fiber
carbon nanotube
catalyst deactivator
catalyst quencher
clay
colorant
compatibilizer
coupling agent
crosslinking agent

defoaming agent
degradation promoter
dispersing agent
drug
dye

filler
flame retardant
foaming agent
fullerene

glass fiber
graphene
graphene oxide

heat stabilizer

impact modifier

light stabilizer
lubricant

mold release agent
montmorillonite

nanotube
nucleation agent

optical brightener

pigment
plasticizer
processing aid

reinforcement

scavenger
stabilizer
surfactant

2.5 Keywords related to polymer structure, processing, properties and applications

ablation
adhesion
adsorbent
adsorption
aggregate
aggregation
aging

alpha transition
amorphous polymer
anisotropy
annealing
aspect ratio
association
atactic

barrier property
beta transition
bioadhesion
biocompatible polymer
biodegradable polymer
biological application
biomedical application
biomimetic polymer
birefringence
blend
block copolymer
branched polymer
brittle
brush
bulk-heterojunction (BHJ)

casting
cellular
charge transfer
charge transport
chiral
coating
coil
colloid
comb
compatibility
composite
compost
compression
conducting polymer
configuration
conformation
controlled release
conjugated polymer
core-shell
crack
craze
crazing
creep
critical solution temperature
crosslink
crystal structure

crystallinity
crystallization
curing
cyclic

damping
density
diblock copolymer
dielectric property
diffusion
dispersity
drug delivery
ductility
durability
dynamic-mechanical property

elasticity
elasticity modulus
elastomer
electrical property
electroactive polymer
electrospinning
elongation
encapsulation
engineering polymer
entanglements
environmental corrosion
etching
excluded volume
extended chain
extrusion

fatigue
ferroelectric
fiber
film
fire (flame) retardancy
flexural strength
fluorescence
fluorescent polymer
flocculation
flow
foam
fracture
free volume
friction
fuel cell

gas permeation
gel (polymer gel)

glass transition
glass transition temperature
graft

hardness
high-performance
hybrid nanocomposite
hybrid polymeric material
hydrodynamic radius
hydrogel
hydrophile
hydrophilicity
hydrophobe
hydrophobicity
hysteresis

impact resistant
impact strength
implant
injectable hydrogel
injection molding
interface
intermolecular cohesion
interpenetrating network
interphase
ionic conductivity
isotactic

lamellar
Langmuir-Blodgett film
latex
lattice
layer
layer growth
light-emitting property
liquid crystal polymer
liquid-crystalline polymer
lithography
loss modulus
lower critical solution temperature (LCST)
luminescence

macrocycle
magnetic
mechanical property
melt
membrane
metallopolymer
micelle
microstructure

miscibility
mixed binary brush
mixing
modulus
molding
molecular dynamics
molecularly imprinted polymer
monolayer
morphology

nanofiber
nanofiller
nanofoam
nanogel
nanoparticle
nanostructure
network
non-linear optical property
nucleation

optical anisotropy
optical property
optical activity
organic electronics
organic field-effect transistor (OFET)
organic light-emitting diode (OLED)
organic photovoltaics (OPVs)
orientation

π-conjugated polymer

permanent network
pharmacological application
phase behavior
phase separation
phase transition
phosphorescence
photoactive polymer
photonic crystal
photoresist
photosensitive polymer
photovoltaic application
piezoelectric
polarization
polyanion
polycation
polymer brush
polymer film
polymer light emitting diode (PLED)
polymer melt

polymer solar cell
polymeric membrane
polymeric microsphere
polymeric scaffold
polymersome
pressure-sensitive adhesive
processing

radius of gyration
reactive extrusion
refractive index
relaxation
reptation
rheology
rigid
rubber elasticity

scratch resistance
segmented copolymer
self-assembly
semicrystalline
shear
sol-gel transition
solubility
spin coating
stabilization
stiffness
storage modulus
strain
strain recovery
stress
stress-strain
surface modification
surface property
syndiotactic
swelling
swelling pressure

temporary network
tensile strength
thermal property
thermal stability
thermal transition
thermomechanical property
thermo-responsiveness
theta condition
toughness
transport property

upper critical solution temperature (UCST)

vesicle
viscoelastic property
viscosity

wear
weathering

yield strength (yielding)
Young modulus

2.6 Keywords related to polymer characterization methods

atomic force microscopy (AFM)

calorimetry
capillary electrophoresis
chemical corrosion
chromatography
circular dichroism (CD)
cloud point determination
computer simulation
conductometry
cyclic voltammetry (CV)

degree of swelling
dielectric spectroscopy
differential scanning calorimetry (DSC)
differential thermal analysis (DTA)
dilatometry
dynamic light scattering (DLS)
dynamic-mechanical analysis (DMA)
dynamic-mechanical thermal analysis (DMTA)

electron diffraction
electron paramagnetic spin resonance (EPR or ESR)
electrophoresis
electrospray ionization (ESI)

field-flow fractionation (FFF)
fourier transform infrared (FTIR) spectroscopy
fractionation
fracture analysis

gel permeation chromatography (GPC)

impact resistance
impact test
implant testing
infrared (IR) spectroscopy

light scattering

mass spectrometry
matrix assisted laser desorption/ionization (MALDI)
microindentation
modeling
molar mass dispersity
molar mass distribution
Monte Carlo simulation
multi-angle laser light scattering (MALLS)
multidimensional nuclear magnetic resonance (NMR) spectroscopy

nanoindentation
near edge X-ray absorption fine structure (NEXAFS) spectroscopy
near infrared (NIR) spectroscopy
neutron scattering
nuclear magnetic resonance (NMR)

optical rotation
osmometry

polarimetry
porosimetry
potentiometry

Raman spectroscopy

scanning electron microscopy (SEM)
size exclusion chromatography (SEC)
small angle neutron scattering (SANS)
small angle X-ray scattering (SAXS)
solid-state nuclear magnetic resonance (SS-NMR)
spectropolarimetry
static light scattering (SLS)

test method
thermal analysis
thermogravimetric analysis
tomography
transmission electron spectroscopy (TEM)

ultracentrifugation
UV spectroscopy

viscometry

wide angle X-ray scattering (WAXS)

X-ray diffraction (XRD)
X-ray photoelectron spectroscopy (XPS)
X-ray spectroscopy

3 Alphabetical list of keywords

ablation
acid neutralizer
acrylic polymer
activated monomer
activation energy
activator generated by electron transfer atom transfer radical polymerization (AGET-ATRP)
activator regenerated by electron transfer atom transfer radical polymerization (ARGET-ATRP)
acyclic diene metathesis polymerization (ADMET)
additive
adhesion
adhesion promotor
adhesive
adsorbent
adsorption
aggregate
aggregation
aging
aliphatic poliester
alpha transition
alternating copolymer
alumina
aminolysis
amorphous polymer
amphiphilic polymer
anionic polymerization
anionic ring-opening polymerization
anisotropy
annealing
anti-blocking agent
anti-fogging agent
anti-microbial additive
antioxidant
antistatic agent
aramid
aromatic polyester
aspect ratio
association
asymmetric polymerization
atactic
atom transfer radical polymerization (ATRP)
atomic force microscopy (AFM)

barrier property
beta transition
bioadhesion
biocompatible polymer
biodegradable polymer
biodegradation

biological application
biomaterial
biomedical application
biomedical polymer
biomimetic polymer
biopolymer
birefringence
blend
block copolymer
blowing agent
branched polymer
branching
brittle
brush
bulk polymerization
bulk-heterojunction (BHJ)

calorimetry
capillary electrophoresis
carbohydrate
carbon black
carbon fiber
carbon nanotube
casting
catalyst
catalyst deactivator
catalyst quencher
catalyst transfer polymerization (CTP)
cationic polymerization
cationic ring-opening polymerization
cellular
cellulose
chain polymerization
chain scission
chain transfer
charge transfer
charge transport
chemical corrosion
chemical modification
chiral
chitin
chitosan
chromatography
circular dichroism (CD)
clay
click reaction
cloud point determination
coating
cobalt-mediated radical polymerization
coil

collagen
colloid
colorant
comb
compatibility
compatibilizer
composite
compost
composting
compression
computer simulation
condensative chain polymerization (CCP)
conducting polymer
conductometry
configuration
conformation
conjugate
conjugated polymer
conjugation
controlled anionic polymerization
controlled cationic polymerization
controlled ionic polymerization
controlled polymerization
controlled radical polymerization (CRP)
controlled release
convergent approach
coordination polymer
coordination polymerization
coordination ring-opening polymerization
copolymer
copolymerization
core-shell
coupling
coupling agent
crazing
creep
critical solution temperature
crosslink
crosslinking
crosslinking agent
crystal structure
crystallinity
crystallization
curing
cyclic
cyclic voltammetry (CV)
cyclization
cyclodextrin

damping
defoaming agent

degenerative chain transfer radical polymerization
degradation
degradation promoter
degree of polymerization
degree of swelling
dendrimer
dendritic polymer
density
depolymerization
dextran
diblock copolymer
dielectric property
dielectric spectroscopy
differential scanning calorimetry (DSC)
differential thermal analysis (DTA)
diffusion
dilatometry
dispersing agent
dispersion polymerization
dispersity
divergent approach
drug
drug delivery
ductility
durability
dye
dynamic light scattering (DLS)
dynamic-mechanical analysis (DMA)
dynamic-mechanical property
dynamic-mechanical thermal analysis (DMTA)

elasticity
elasticity modulus
elastomer
electrical property
electroactive polymer
electrochemical polymerization
electron diffraction
electron paramagnetic spin resonance (EPR or ESR)
electrophoresis
electrospinning
electrospray ionization (ESI)
elongation
emulsion polymerization
encapsulation
engineering polymer
entanglements
environmental corrosion
enzymatic degradation
enzymatic polymerization

epoxy
equilibrium polymerization
etching
excluded volume
extended chain
extrusion

fatigue
ferroelectric
fiber
field-flow fractionation (FFF)
filler
film
fire (flame) retardancy
flame retardant
flexural strength
flocculation
flow
fluorescence
fluorescent polymer
fluoropolymer
foam
foaming agent
fourier transform infrared (FTIR) spectroscopy
fractionation
fracture
fracture analysis
free volume
friction
fuel cell
fullerene
functional polymer
functionality
functionalization

gas permeation
gas-phase polymerization
gel (polymer gel)
gel effect
gel permeation chromatography (GPC)
gel point
gelatin
gelation
glass fiber
glass transition
glass transition temperature
graft
grafting
grafting from
grafting through

grafting to
graphene
graphene oxide
group transfer polymerization (GTP)

hardness
heat of polymerization
heat stabilizer
heterogeneous polymerization
high-performance
homogeneous polymerization
hybrid nanocomposite
hybrid polymeric material
hydrodynamic radius
hydrogel
hydrolysis
hydrophile
hydrophilic polymer
hydrophilicity
hydrophobe
hydrophobic polymer
hydrophobicity
hyperbranched
hysteresis

impact modifier
impact resistance
impact resistant
impact strength
impact test
implant
implant testing
inclusion
infrared (IR) spectroscopy
inhibitor
initiation of polymerization
injectable hydrogel
injection molding
inorganic polymer
intercalation
interface
interfacial polymerization
intermolecular cohesion
interpenetrating network
interphase
iodine-transfer polymerization (ITP)
ion-exchange polymer
ionic conductivity
ionic liquid
ionic polymer

ionic polymerization
ionomer
irradiation
isotactic

kinetics
Kumada catalyst transfer polymerization (KCTP)

ladder
lamellar
Langmuir-Blodgett film
latex
lattice
layer
layer growth
ligand
light scattering
light-emitting property
light stabilizer
liquid crystal polymer
liquid-crystalline polymer
lithography
living anionic polymerization
living cationic polymerization
living coordination polymerization
living ionic polymerization
living polymer
living polymerization
loss modulus
lower critical solution temperature (LCST)
lubricant
luminescence

macrocycle
macroinitiator
macromonomer
magnetic
mass spectrometry
matrix assisted laser desorption/ionization (MALDI)
mechanical property
mechanism
melt
membrane
metabolization
metal-containing
metal-free catalyst
metal-organic
metallocene catalyst
metallopolymer

metathesis polymerization
micelle
microemulsion polymerization
microindentation
microstructure
miniemulsion polymerization
miscibility
mixed binary brush
mixing
modeling
modification
modulus
molar mass
molar mass dispersity
molar mass distribution
mold release agent
molding
molecular dynamics
molecular recognition
molecularly imprinted polymer
monolayer
Monte Carlo simulation
montmorillonite
morphology
multi-angle laser light scattering (MALLS)
multidimensional nuclear magnetic resonance (NMR) spectroscopy

nanocomposite
nanofiber
nanofiller
nanofoam
nanogel
nanoindentation
nanoparticle
nanostructure
nanotube
natural rubber
near edge X-ray absorption fine structure (NEXAFS) spectroscopy
near infrared (NIR) spectroscopy
network
neutron scattering
nitroxide mediated polymerization
non-linear optical property
nuclear magnetic resonance (NMR)
nucleation
nucleation agent
nylon

olefin polymerization catalyst
oligomer

optical anisotropy
optical brightener
optical property
optical rotation
organic electronics
organic field-effect transistor (OFET)
organic light-emitting diode (OLED)
organic photovoltaics (OPVs)
organic-inorganic hybrid material
organobismuthine-mediated radical polymerization (BIRP)
organometallic-mediated radical polymerization (OMRP)
organostibane-mediated radical polymerization (SBRP)
organotellurium-mediated radical polymerization (TERP)
orientation
osmometry
oxidation
oxidative polymerization

π-conjugated polymer

PEGylation
permanent network
phase behavior
phase separation
phase transition
phosphorescence
photoactive polymer
photodegradation
photoinitiated polymerization
photonic crystal
photopolymerization
photoresist
photosensitive polymer
photovoltaic application
piezoelectric
pigment
plasma polymerization
plasticizer
polyacetylene
polyacrylamide
polarimetry
polarization
polyacrylate
polyacrylonitrile
polyaddition
polyamide
polyaniline
polyanion
polycarbonate
polycation

polycondensation
polyelectrolyte
polyester
poly(ester amide)
polyether
polyethylene
poly(oxirane)
polyfluorene
polyhydroxyalkanoate
polyimide
polyisobutylene
polylactide
polymer brush
polymer electrolyte
polymer film
polymer light emitting diode (PLED)
polymer melt
polymer solar cell
polymeric membrane
polymeric microsphere
polymeric scaffold
polymersome
polymethacrylate
polyolefin
polyphenylene
poly(phenylene diamine)
poly(phenylene vinylene)
polyphosphazene
polypropylene
polypyrrole
polyrotaxane
polysaccharide
polysilane
polysiloxane
polystyrene
polythiophene
polyurea
polyurethane
poly(vinyl alcohol)
poly(vinyl chloride)
poly(vinyl ether)
porosimetry
post-metallocene catalyst
post-polymerization funcrionalization
potentiometry
preceramic polymer
precipitation polymerization
prepolymer
pressure-sensitive adhesive
processing

processing aid
propagation
protein
pseudo-ionic polymerization
pyrolysis

quantum chemistry

radiation polymerization
radical polymerization
radius of gyration
Raman spectroscopy
random copolymer
rate of polymerization
reactive extrusion
reactive injection molding
reactive processing
reactivity ratio (in copolymerization)
recycling
refractive index
reinforcement
reinforced polymer
relaxation
renewable resource
reptation
responsive polymer
reverse atom transfer radical polymerization (reverse ATRP)
reverse iodine-transfer polymerization (RITP)
reversible addition-fragmentation chain-transfer polymerization (RAFT)
reversible addition-fragmentation radical polymerization (RAFRP)
reversible deactivation anionic polymerization (RDAP)
reversible deactivation cationic polymerization (RDCP)
reversible deactivation coordination polymerization (RDCP)
reversible deactivation ionic polymerization (RDIP)
reversible deactivation polymerization (RDP)
reversible deactivation radical polymerization (RDRP)
reversible polymerization
rheology
rigid
ring-opening metathesis polymerization (ROMP)
ring-opening polymerization
rubber
rubber elasticity

scanning electron microscopy (SEM)
scavenger
scratch resistance
segmented copolymer
self-assembly
semiconducting polymer

semicrystalline
sequential polymerization
shape memory polymer
shear
silicon polymer
silsesquioxane
size exclusion chromatography (SEC)
small angle neutron scattering (SANS)
small angle X-ray scattering (SAXS)
smart polymer
sol-gel transition
solid-phase synthesis
solid-state nuclear magnetic resonance (SS-NMR)
solid-state polymerization
solubility
solution polymerization
spectropolarimetry
spin coating
stabilization
stabilizer
stable radical mediated polymerization
star polymer
starch
static light scattering (SLS)
statistical copolymer
stereospecific polymerization
stiffness
storage modulus
strain
strain recovery
stress
stress-strain
superabsorbent polymer
supramolecular polymer
surface-initiated polymerization
surface modification
surface property
surfactant
suspension polymerization
swelling
swelling pressure

telomerization
template
template polymerization
tensile strength
termination
test method
thermal analysis
thermal degradation

thermal property
thermal stability
thermal transition
thermomechanical property
thermo-responsiveness
thermodynamics
thermogravimetric analysis
thermoplastic elastomer
thermoset
thermosetting polymer
theta condition
thiocarbonyl-mediated radical polymerization (TMRP)
tissue engineering
tomography
toughness
transition-metal-mediated radical polymerization
transmission electron spectroscopy (TEM)
transport property

ultracentrifugation
unsaturated polyester
upper critical solution temperature (UCST)
UV spectroscopy

vesicle
viscoelastic property
viscometry
viscosity
vulcanization

water soluble polymer
wear
weathering
wide angle X-ray scattering (WAXS)

X-ray diffraction (XRD)
X-ray photoelectron spectroscopy (XPS)
X-ray spectroscopy

yield strength (yielding)
Young modulus

Ziegler-Natta catalyst
Ziegler-Natta polymerization

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‡ Deceased.