Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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Технические характеристики на биомедицинские материалы компании Sigma-Aldrich

Виды товаров: биоразлагаемые полимеры, природные полимеры, блок-сополимеры, дендритные молекулы, гидрофильные полимеры, акриловые полимеры, эфирные полимеры, фторуглеродные полимеры, полистирольные полимеры, поливинилхлоридные полимеры, поли n-винилпирролидон, полимеры, полимерные микросферы и наночастицы, биосовместимые материалы и биочернила для 3D-биопечати и тканевой инженерии, наборы рецептур для доставки лекарств, реагенты, микрофлюидные устройства и наборы для скрининга нанополимеров и др.

Biomedical Polymers

Polymers are an important class of biomaterials that can be engineered to specifically interact with biological systems for therapeutic or diagnostic purposes. The molecular compositions and architectures of polymers can be tuned to enhance desired properties, such as biodegradability, biocompatibility, and mechanical strength.

- **BIODEGRADABLE POLYMERS**
- Biodegradable polymers are a special category of biopolymers that can undergo hydrolytic or **enzymatic** degradation and result in natural byproducts, such as gases, water, biomass, and inorganic salts. Biodegradable polymers are commonly used in controlled/sustained release drug delivery, tissue engineering and temporary prosthetic implants. We offer fit-for-purpose biodegradable polymers with a range of molecular weights and degradation rates.

- **NATURAL POLYMERS**
- Natural polymers are polymers from a natural source, with or without chemical modifications. Natural polymers and their derivatives are biodegradable and biocompatible. Their degradation rate is generally inversely proportional to the extent of chemical modification. Our comprehensive natural polymer portfolio covers gelatin, collagen, cellulose, starch, lignin, chitin and chitosan, and various polysaccharides for a wide range of biomedical applications.

- **BLOCK COPOLYMERS**
- Block copolymers undergo microphase separation and form ordered morphologies at equilibrium. These morphologies can be micelles, spheres, cylinders, lamellae, or surface patterning. Block copolymers with broader distributions of chain lengths are employed as surfactants/detergents and are useful in sol-gel chemistry and drug delivery applications.

- **DENDRITIC MOLECULES**
- We offer a diverse selection of dendritic molecules. Dendrimers, dendrons and linear dendritic molecules are a family of synthetic macromolecules containing many branches, and thus a multitude of peripheral groups. They adopt nanometer-scale dimensions, and can be ideal candidates for drug delivery, gene transfection applications.

423173
(Hydroxypropyl)methyl cellulose
average M_n ~120,000

423203
(Hydroxypropyl)methyl cellulose
average M_n ~86,000

423181
(Hydroxypropyl)methyl cellulose
average M_n ~90,000

423238
(Hydroxypropyl)methyl cellulose
average M_n ~10,000

308633
2-Hydroxyethyl cellulose
average M_w ~380,000

434973
2-Hydroxyethyl cellulose
average M_v ~720,000

434965
2-Hydroxyethyl cellulose
average M_v ~90,000

434981
2-Hydroxyethyl cellulose
average M_v ~1,300,000

909912
3arm-poly(lactide-*co*-glycolide)
average M_n 38,000-60,000, lactide:glycolide 55:45

909904
4arm-poly(lactide-*co*-glycolide)
average M_n 38,000-60,000, lactide:glycolide 55:45

923850
Alginate Aldehyde

20% aldehyde content, medium viscosity

923842
Alginate Aldehyde
35% aldehyde content, medium viscosity

912387
Alginate methacrylate
high viscosity, degree of methacrylation: 20-40%

913057
Alginate methacrylate
medium viscosity, degree of methacrylation: 10-30%

180947
Alginic acid sodium salt
powder

909157
Alkyne functionalized gelatin
degree of substitution > 80%

901456
Amine poly(ethylene glycol)-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5000, PLGA average M_n 15000, lactide:glycolide 50:50

907723
Azide functionalized gelatin
degree of substitution >80%

909882
Biotin-poly(ethylene glycol)-*b*-poly(lactide-*co*-glycolide)
PEG average M_n 2,000, PLGA average M_n 10,000, lactide:glycolide 50:50

806153
bis-MPA-Acetylene dendrimer
trimethylol propane core, generation 3

806129
bis-MPA-Azide dendrimer
trimethylol propane core, generation 3

806110
bis-MPA-Azide dendrimer
trimethylol propane core, generation 5

806137
bis-MPA-Azide dendrimer
trimethylol propane core, generation 1

806099
bis-MPA-COOH dendrimer
trimethylol propane core, generation 1

806064
bis-MPA-COOH dendrimer
trimethylol propane core, generation 2

806072
bis-MPA-COOH dendrimer
trimethylol propane core, generation 4

901322
Bis-MPA-NHBoc dendrimer
generation 4

805939
bis-MPA-OH dendrimer
trimethylol propane core, generation 2

911550
Bis-MPA-RAFT dendrimer
trimethylol propane core, generation 1

804614
Bovine Collagen Solution
Type I, Acid soluble telocollagen, 6 mg/mL, sterile filtered, BSE-Free, suitable for biomedical research

804622
Bovine Collagen Solution
Type I, 6 mg/mL, ≥95%, sterile filtered, BSE-Free, suitable for biomedical research

804592
Bovine Collagen Solution
Type I, 3 mg/mL, ≥95%, sterile filtered, BSE-Free, suitable for biomedical research

900743
Branched PEI-*g*-PEG
PEG M_n 5,000

900926
Branched PEI-*g*-PEG
PEG M_n 550

902071
Carboxylic acid poly(ethylene glycol)-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5000, PLGA average M_n 15000, lactide:glycolide (50:50)

915599
Carboxylic acid-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
PEG average M_n 2,000, PCL average M_n 5,000

901702
Carboxylic acid-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
PEG average M_n 5000, PCL average M_n 5000

909858
Carboxylic acid-poly(ethylene glycol)-*b*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA average M_n 20,000, lactide:glycolide 50:50

184659
Cellulose, cyanoethylated
extent of labeling: ~2.6 mol cyanoethylation per mol cellulose (D.S.)

417963
Chitosan
from shrimp shells, practical grade

419419
Chitosan
high molecular weight

448869
Chitosan
low molecular weight

448877
Chitosan
medium molecular weight

926167
Chitosan glycidyl methacrylate

Degree of methacrylation ~20%

523682
Chitosan oligosaccharide lactate
average M_n 5,000

922412
EncapGel™ sustained release hydrogel for drug delivery

799629
EncapGel-Cx Kit, chemically crosslinkable sIPN hydrogel kit

799610
EncapGel-UV Kit, photo-crosslinkable sIPN hydrogel kit

433837
Ethyl cellulose
viscosity 46 cP, 5 % in toluene/ethanol 80:20(lit.), extent of labeling: 48% ethoxyl

200697
Ethyl cellulose
viscosity 22 cP, 5 % in toluene/ethanol 80:20(lit.), extent of labeling: 48% ethoxyl

200689
Ethyl cellulose
viscosity 10 cP, 5 % in toluene/ethanol 80:20(lit.), extent of labeling: 48% ethoxyl

200654
Ethyl cellulose
viscosity 300 cP, 5 % in toluene/ethanol 80:20(lit.), extent of labeling: 48% ethoxyl

200646
Ethyl cellulose
viscosity 4 cP, 5 % in toluene/ethanol 80:20(lit.), extent of labeling: 48% ethoxyl

247499
Ethyl cellulose
viscosity 100 cP, 5 % in toluene/ethanol 80:20(lit.), extent of labeling: 48% ethoxyl

909769
Folate-poly(ethylene glycol)-*b*-poly(lactide-*co*-glycolide)
PEG average M_n 2,000, PLGA average M_n 10,000, lactide:glycolide 50:50

934798

Gelatin acrylate
gel strength 300 g Bloom, degree of substitution 60%

900496
Gelatin methacryloyl
gel strength 300 g Bloom, 80% degree of substitution

900629
Gelatin methacryloyl
gel strength 300 g Bloom, degree of substitution 40%

900628
Gelatin methacryloyl
gel strength 90-110 g Bloom, degree of substitution 60%

900741
Gelatin methacryloyl
gel strength 170-195 g Bloom, degree of substitution: 60%

900629
Gelatin methacryloyl
gel strength 300 g Bloom, degree of substitution 40%

924504
Gelatin Type A
300 Bloom, Low endotoxin

923869
Gelatin-Rhodamine B
gel strength 300 g Bloom, 1-10 µmol Rhodamine B per g gelatin

924199
GelMA-RB
60% methacrylation, 1 umol Rhodamine B per gram material

373885
Glycerol propoxylate-*block*-ethoxylate
average M_n ~5,300

926175
Glycol Chitosan Methacrylate
Degree of methacrylation ~45%

924474
Hyaluronic Acid
Low Viscosity, Low endotoxin

914800
Hyaluronic acid methacrylate
Degree of substitution: 10% - 30%, M_w 170,000-250,000

914568
Hyaluronic acid methacrylate
degree of substitution 20-50%, M_w 40-70 kDa

914304
Hyaluronic acid methacrylate
degree of substitution 20-50%, M_w 140-190 kDa

924490
Hyaluronic acid methacrylate
Low Viscosity, Low Endotoxin, 0.2 um sterile filtered, 0.2 µm, sterile-filtered

525944
Hydroxyethylcellulose ethoxylate, quaternized

191892
Hydroxypropyl cellulose
average M_w ~370,000, powder, 20 mesh particle size (99% through)

191906
Hydroxypropyl cellulose
average M_w ~1,000,000, powder, 20 mesh particle size (99% through)

191884
Hydroxypropyl cellulose
average M_w ~100,000, powder, 20 mesh particle size (99% through)

435007
Hydroxypropyl cellulose
average M_w ~80,000, average M_n ~10,000, powder, 20 mesh particle size (99% through)

686603
Hyperbranched bis-MPA polyester-16-hydroxyl, generation 2

≥97%

686581
Hyperbranched bis-MPA polyester-32-hydroxyl, generation 3
≥97%

686573
Hyperbranched bis-MPA polyester-64-hydroxyl, generation 4
≥97%

806307
Hyperbranched G3-PEG20k-OH

370959
Lignin, alkali

471003
Lignin, alkali

471054
Lignosulfonic acid calcium salt
average M_w ~18,000, average M_n ~2,500

471038
Lignosulfonic acid sodium salt
average M_w ~52,000, average M_n ~7,000

919373
Low endotoxin alginate
Medium viscosity

918652
Low endotoxin alginate solution
Medium viscosity, 0.2 µm, sterile-filtered

920037
Low endotoxin gelatin from bovine bone
gel strength 300 (bloom)

901757
Low endotoxin gelatin from porcine skin
gel strength 100 (Bloom), <10 EU/g

901756

Low endotoxin gelatin from porcine skin
gel strength 240-360 (Bloom), <10 EU/g Endotoxin

920010
Low endotoxin gelatin from porcine skin
gel strength >300 g Bloom

918644
Low endotoxin gelatin solution
gel strength (bloom 300)

920045
Low endotoxin GelMA
mol wt 95 kDa, degree of substitution 60%

918628
Low endotoxin GelMA
gel strength 300 (Bloom), degree of substitution 80%, GelMA Type B

922188
Low endotoxin GelMA
bloom 300, Type A, degree of substitution 80%

918636
Low endotoxin GelMA solution
gel strength 300 (bloom), degree of substitution 80%, 0.2 μm, sterile-filtered, GelMA Type B

920029
Low endotoxin non-gelling gelatin from porcine skin
M_W ≤6500

925462
Maleimide poly(ethylene glycol)-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA average M_n 15,000, lactide:glycolide 50:50

915343
Maleimide-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
PEG average M_n 5,000, PCL average M_n 10,000

902381
Maleimide-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
PEG average M_n 5000, PCL average M_n 5000

924482
Methacrylated Alginate

Medium Viscosity, Low endotoxin

900658
Methoxy poly(ethylene glycol)-*b*-poly(D,L-lactide)
5k-5k

900659
Methoxy poly(ethylene glycol)-*b*-poly(D,L-lactide)
5k-10k

900657
Methoxy poly(ethylene glycol)-*b*-poly(D,L-lactide)
2k-5k

900661
Methoxy poly(ethylene glycol)-*b*-poly(D,L-lactide)
4k-2.2k

900655
Methoxy poly(ethylene glycol)-*b*-poly(L-lactide)
2k-5k

900656
Methoxy poly(ethylene glycol)-*b*-poly(L-lactide)
5k-10k

900671
Methoxy poly(ethylene glycol)-*block*-poly(ε-caprolactone)
5k-2k

900672
Methoxy poly(ethylene glycol)-*block*-poly(ε-caprolactone)
5k-10k

900648
Methoxy poly(ethylene glycol)-*block*-poly(ε-caprolactone)
2k-5k

900649
Methoxy poly(ethylene glycol)-*block*-poly(ε-caprolactone)
2k-2k

435015
Methyl 2-hydroxyethyl cellulose

806730

Modified bovine gelatin type B-PEG-Cys
0.2 µm filtered

806749
Modified Bovine Gelatin type B-PEG-thiol
0.2 µm filtered

920819
mPEG functionalized alginate
5% +/- 2% PEGylation, PEG average M_n 1k

767700
***Mytilus edulis* foot protein-1**
1 mg/mL (in 1% citric acid), sterile

767719
***Mytilus edulis* foot protein-1**
10 mg/mL (in 1% citric acid)

933899
***N*-(2-Hydroxy) propyl-3-trimethylammonium chitosan chloride**
degree of quaternization 50%

909874
***N*-Hydroxysuccinimide ester-poly(ethylene glycol)-*b*-poly(D,L lactide)**
PEG average Mn 5,000, PDLA average Mn 16,000

901841
***N*-Hydroxysuccinimide ester-poly(ethylene glycol)-*b*-poly(ε-caprolactone)**
PEG average M_n 5,000, PCL average M_n 5,000

902241
***N*-Hydroxysuccinimide poly(ethylene glycol)-*block*-poly(lactide-*co*-glycolide)**
PEG average M_n 5000, PLGA average M_n 15000, lactide:glycolide 50:50

4270101
Novatach™ VLVG GRGDSP
GRGDSP-peptide coupled high G low MW sodium alginate, guluronic acid contentguluronic acid content ≥60 %

930482
Oligo(poly(ethylene glycol) fumarate)
average M_n 4,500

664138
PAMAM Dendrimer Kit, generations 0-3

664049
PAMAM Dendrimer Kit, generations 4-7

526142
PAMAM dendrimer, ethylenediamine core, generation 0

635871
PAMAM-succinamic acid dendrimer, 1,4-diaminobutane core, generation 4 solution
10 wt. % in H_2O

635898
PAMAM-succinamic acid dendrimer, 1,4-diaminobutane core, generation 5 solution
10 wt. % in H_2O

929611
PCL-PEG-PCL diacrylate
PCL average M_n 800, PEG average M_n 4000

929786
PCL-PEG-PCL diacrylate
PCL average M_n 200, PEG average M_n 1000

230286
Phosphonitrilic chloride trimer
99%

925640
Poly (ethylene glycol)-*block*-Poly (sulfobetaine methacrylate)
PEG average M_n 5000, PSBMA M_n 13,000

363502
Poly[(*R*)-3-hydroxybutyric acid]
natural origin

27826
Poly[(*R*)-3-hydroxybutyric acid-*co*-(*R*)-3-hydroxyvaleric acid]
~9:1

908533
Poly(D,L-lactide-*b*-glycolide) lactide:glycolide 50:50
diamine, viscosity 0.035 dL/g

908517

Poly(D,L-lactide-*b*-glycolide) lactide:glycolide 50:50
amine terminated, average M_n 5,000

430471
Poly(D,L-lactide-*co*-glycolide)
ester terminated, M_w 50,000-75,000

P2066
Poly(D,L-lactide-*co*-glycolide)
lactide:glycolide 65:35, M_w 40,000-75,000

802182
Poly(D,L-lactide-*co*-glycolide)
lactide:glycolide (50:50), ester terminated, average M_w 100,000

805726
Poly(D,L-lactide-*co*-glycolide)
lactide:glycolide 50:50, M_w 45,000 g/mol

900571
Poly(D,L-lactide-*co*-glycolide) ester terminated
lactide:glycolide 80:20, M_w 200,000

900664
Poly(D,L-lactide-*co*-glycolide)(50:50)-*b*-poly(ethylene glycol)
10k-2k

900662
Poly(D,L-lactide-*co*-glycolide)(85/15)-*b*-poly(ethylene glycol)-carboxylic acid
5k-13k

900327
Poly(D,L-lactide-*co*-trimethylene carbonate)
lactide:TMC 50:50, viscosity 1.5 dL/g

457639
Poly(D,L-lactide-*co*-caprolactone)
DL-lactide 40 mol %

457647
Poly(D,L-lactide-*co*-caprolactone)
DL-lactide 86 mol %

568562
Poly(L-lactide-*co*-caprolactone-*co*-glycolide)
L-lactide 70 %, average M_n ~50,000 by GPC

900321
Poly(L-lactide-*co*-caprolactone)
lactide:caprolactone 35:65, viscosity 1.5 dL/g

900312
Poly(L-lactide-*co*-caprolactone)
lactide:caprolactone 15:85, viscosity 1.5 dL/g

900300
Poly(L-lactide-*co*-caprolactone)
lactide:caprolactone 60:40, viscosity 1.5 dL/g

901021
Poly(L-lactide-*co*-glycolide)
10:90, viscosity 1.7 dL/g

900289
Poly(L-lactide-*co*-glycolide)
lactide:glycolide 20:80, viscosity 1.6 dL/g

915890
Poly((*R*)-3-hydroxybutyrate-*co*-(*R*)-3-hydroxyhexanoate)
natural origin, PHH content 15.2 %

916145
Poly((*R*)-3-hydroxybutyrate-*co*-(*R*)-3-hydroxyvalerate-*co*-(*R*)-3-hydroxyhexanoate)
natural origin, PHH content 4.1 %, PHV content 2.3 %

403105
Poly(3-hydroxybutyric acid-*co*-3-hydroxyvaleric acid)
natural origin, PHV content 8 mol %

916358
Poly(3-hydroxybutyric acid)
average M_n 10,000

915092
Poly(3-hydroxybutyric acid)
natural origin, average M_n ~500,000

652717
Poly(bis(4-carboxyphenoxy)phosphazene)

901007
Poly(caprolactone-*co*-glycolide)
30:70, viscosity 1.6 dL/g

900313
Poly(caprolactone-*co*-glycolide)
caprolactone:glycolide 45:55, viscosity 1.5 dL/g

901011
Poly(caprolactone-*co*-glycolide)
40:60, viscosity 1.6 dL/g

908525
Poly(*D*,*L*-lactide-*b*-glycolide) lactide:glycolide 75:25
amine (dihydrazide) terminated, average M_n 12,000

806358
Poly(D,L-lactide-co-glycolide) acid terminated
lactide:glycolide 75:25, M_w 6,000-10,000

901020
Poly(dioxanone-*co*-glycolide)
90:10, viscosity 2.0 dL/g

900653
Poly(ε-caprolactone)-*b*-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
5k-10k-5k

900670
Poly(ε-caprolactone)-*b*-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
2k-2k-2k

900669
Poly(ε-caprolactone)-*b*-poly(ethylene glycol)-*b*-poly(ε-caprolactone)
6k-6k-6k

901397
Poly(ethylene glycol) linear dendrimer
NHBoc terminated, PEG M_n 6000, generation 4

911364
Poly(ethylene glycol) linear dendrimer
carboxyl terminated, PEG M_n 10k, generation 4

911186
Poly(ethylene glycol) linear dendrimer

carboxyl terminated, PEG M_n 10K, generation 5

911240
Poly(ethylene glycol) linear dendron
carboxyl terminated, PEG M_n 10,000, generation 4

911313
Poly(ethylene glycol) linear dendron
carboxyl terminated, PEG M_n 10,000, generation 1

911321
Poly(ethylene glycol) linear dendron
carboxyl terminated, PEG M_n 10,000, generation 2

764779
Poly(ethylene glycol) methyl ether-*block*-poly(D,L lactide)
PEG average M_n 2,000, PDLLA average M_n 2,000

918962
Poly(ethylene glycol) methyl ether-*block*-poly(D,L lactide)
PEG average M_n 5000, PDLA average M_n 50000

918946
Poly(ethylene glycol) methyl ether-*block*-poly(D,L lactide)
PEG average M_n 5000, PDLLA average M_n 20000

764736
Poly(ethylene glycol) methyl ether-*block*-poly(D,L lactide)-*block*-decane
PEG average M_n 2,000, PDLLA average M_n 2,000

799041
Poly(ethylene glycol) methyl ether-*block*-poly(L-lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA average M_n 25,000, lactide:glycolide 50:50

764760
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 2,000, PLGA average M_n 11,500

764825
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG M_n 2,000, PLGA M_n 4,500

764752
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)

PEG average M_n 5,000, PLGA M_n 55,000

765139
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA M_n 7,000

911410
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA average M_n 10,000, lactide:glycolide 80:20

911429
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA average M_n 5,000, lactide:glycolide 80:20

900948
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA M_n 15,000, lactide:glycolide 50:50

900950
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA M_n 5,000, lactide:glycolide 50:50

900951
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA M_n 10,000, lactide:glycolide 50:50

900949
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA M_n 20,000, lactide:glycolide 50:50

913138
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 2,000, PLGA average M_n 10,000, lactide:glycolide 50:50

900921
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 2,000, PLGA M_n 3,000, lactide:glycolide 50:50

911399
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 2,000, PLGA average M_n 10,000, lactide:glycolide 80:20

900842
Poly(ethylene glycol) methyl ether-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA M_n 15,000, lactide:glycolide 80:20

435422
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~2,000

925632
Poly(ethylene glycol)-*block*-Poly(2-methacryloyloxyethyl phosphorylcholine)
PEG average M_n 5000,
PMPC Mn 21,000

570303
Poly(ethylene glycol)-*block*-poly(ε−caprolactone) methyl ether
PCL average M_n ~5,000, PEG average M_n ~5,000

570311
Poly(ethylene glycol)-*block*-poly(ε−caprolactone) methyl ether
PEG average M_n ~5,000, PCL average M_n ~13,000

570338
Poly(ethylene glycol)-*block*-poly(ε−caprolactone) methyl ether
PEG average M_n ~5,000, PCL average M_n ~32,000

925659
Poly(ethylene glycol)-*block*-poly(lactide-*alt*-glycolide)
PEG average M_n 5,000, PLGA M_n 15,000

435414
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~1,900

412325
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~8,400

435465
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~5,800

435465
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~5,800

435406
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)

average M_n ~1,100

542342
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~14,600

435414
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol)
average M_n ~1,900

915858
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol) diacrylate
average M_n ~5,800

914665
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol) diacrylate
average M_n ~14,600

901701
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol) diacrylate
average M_n ~12,500

914169
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol) dimethacrylate
average M_n ~12,500

913901
Poly(ethylene glycol)-*block*-poly(propylene glycol)-*block*-poly(ethylene glycol) dimethacrylate
average M_n ~14,600

659665
Poly(ethylene glycol)-*block*-polylactide methyl ether
PEG average M_n 350, PLA average M_n 1,000

659657
Poly(ethylene glycol)-*block*-polylactide methyl ether
PEG average M_n 750, PLA average M_n 1,000

915122
Poly(ethylene oxide)-*block*-poly(butylene oxide)
PEG average M_n 2,000, average M_n 2,000 (PBO)

915386
Poly(ethylene oxide)-*block*-poly(butylene oxide)

PEG average M_n 2,000, average M_n 5,000 (PBO)

933597
Poly(Guluronate)
low endotoxin

922692
Poly(lactide-*alt*-glycolide)
average M_n 20,000, 50:50 (lactide:glycolide)

922307
Poly(lactide-*alt*-glycolide)
average M_n 10000, lactide:glycolide 50:50

908843
Poly(lactide-*co*-glycolide)-*b*-poly(ethylene glycol)-*b*-poly(lactide-*co*-glycolide)
average M_n (1,600-1,500-1,600), lactide:glycolide 75:25

909076
Poly(lactide-*co*-glycolide)-*b*-poly(ethylene glycol)-*b*-poly(lactide-*co*-glycolide)
average M_n (1,700-1,500-1,700), lactide:glycolide (95:5)

764817
Poly(lactide-*co*-glycolide)-*block*-poly(ethylene glycol)-*block*-poly(lactide-*co*-glycolide)
average M_n (1100-1000-1100), lactide:glycolide 75:25

908630
Poly(lactide-*co*-glycolide)-Flamma Fluor near-IR
lactide:glycolide (50:50), M_n 20,000-30,000

908649
Poly(lactide-*co*-glycolide)-fluorescein
lactide:glycolide 50:50, M_n 10,000-20,000

908622
Poly(lactide-*co*-glycolide)-Rhodamine B
lactide:glycolide 50:50, M_n 10,000-30,000

932574
Poly(oligo(ethylene glycol) methyl ether methacrylate) 300
average M_w 40 kDa

900328
Poly(*p*-dioxanone-*co*-L-lactide)
viscosity 1.5 dL/g

435503
Poly(propylene glycol)-*block*-poly(ethylene glycol)-*block*-poly(propylene glycol)
average M_n ~3,300

435473
Poly(propylene glycol)-*block*-poly(ethylene glycol)-*block*-poly(propylene glycol)
average M_n ~2,000

657190
Poly(sebacic acid), diacetoxy terminated

900315
Poly(trimethylene carbonate-*co*-caprolactone)
TMC:PCL 90:10, viscosity 1.5 dL/g

900325
Poly(trimethylene carbonate-*co*-*p*-dioxanone-*co*-L-lactide)
TMC:PDO:Lactide 14:7:79, viscosity 1.5 dL/g

900293
Poly(trimethylene carbonate)
viscosity 1.75 dL/g

900288
Polycaprolactone
viscosity 2.2 dL/g

900825
Polycaprolactone
viscosity 0.40 dL/g

900820
Polycaprolactone
viscosity 1.7 dL/g

704105
Polycaprolactone
average M_n 45,000

440744
Polycaprolactone
average M_n 80,000

440752

Polycaprolactone
average M_w ~14,000, average M_n ~10,000 by GPC

914509
Polycaprolactone diacrylate
average M_n 10,000

802115
Polycaprolactone dimethacrylate
average M_n 800

914762
Polycaprolactone dimethacrylate
average M_n 5,000

915106
Polycaprolactone dimethacrylate
average M_n 10,000

189405
Polycaprolactone diol
average M_n ~530

189421
Polycaprolactone diol
average M_n ~2,000

900625
Polycaprolactone diol
average M_n 10,000

799556
Polycaprolactone trimethacrylate
average M_n 950

200387
Polycaprolactone triol
average M_n ~300

526320
Polycaprolactone-*block*-polytetrahydrofuran-*block*-polycaprolactone

911569
Polyester bis-MPA dendron
no. Surface Groups 4, NHBoc, 1 Biotin (core), generation 2

911275
Polyester bis-MPA dendron
2 carboxyl, 1 biotin (core), generation 1

901376
Polyester bis-MPA dendron
no. Surface Groups 8, 8 acetylene, 1 NHBoc (core), generation 3

911348
Polyester bis-MPA dendron
carboxyl, 1 biotin (core), generation 2, no. Surface Groups 4

911437
Polyester bis-MPA dendron
no. Surface Groups 8, 8 NHBoc, 1 biotin (core), generation 3

901355
Polyester bis-MPA dendron
16 acetylene, 1 NHBoc (core), generation 4

901311
Polyester bis-MPA dendron 2 NHBoc, 1 azide (core)
generation 1

911577
Polyester bis-MPA dendron 2 NHBoc, 1 Biotin (core)
generation 1

901393
Polyester bis-MPA dendron 2 NHBoc, 1 carboxyl (core)
generation 1

901297
Polyester bis-MPA dendron 4 NHBoc, 1 azide (core)
generation 2

911291
Polyester bis-MPA dendron 8 carboxyl, 1 biotin (core)
generation 3

901332
Polyester bis-MPA dendron 8 NHBoc, 1 azide (core)
generation 3

911518
Polyester bis-MPA dendron 8 NHBoc, 1 NHS (core)
generation 3

767123
Polyester bis-MPA dendron, 16 hydroxyl, 1 thiol
generation 4

911461
Polyester bis-MPA dendron, 2 NHBoc, 1 NHS (core)
generation 1

767301
Polyester bis-MPA dendron, 4 hydroxyl, 1 acetylene
generation 2, 95%

911488
Polyester bis-MPA dendron, 4 NHBoc
1 NHS (core), generation 2

686654
Polyester-32-hydroxyl-1-carboxyl bis-MPA dendron, generation 5
≥97%

686670
Polyester-8-hydroxyl-1-carboxyl bis-MPA dendron, generation 3
≥97%

459003
Polyethylene-*block*-poly(ethylene glycol)
average M_n ~575

458961
Polyethylene-*block*-poly(ethylene glycol)
average M_n ~1,400

457620
Polyglycolide
inherent viscosity 1.4dL/g

659630
Polylactide-*block*-poly(ethylene glycol)-*block*-polylactide
PLA average M_n 1,500, PEG average M_n 900

901910
Pyridyl disulfide-poly(ethylene glycol)-*b*-poly(ε-caprolactone)

PEG average M_n 5000, PCL average M_n 5000

925624
Redox Responsive Poly(ethylene glycol)-*block*-poly(ε-caprolactone)
PEG average M_n 5,000, PCL M_n 15,000

926248
Redox Responsive Poly(ethylene glycol)-*block*-poly(lactide-*alt*-glycolide)
PEG average M_n 5000, PLGA M_n 15000

769762
Resomer® C 209, Poly(caprolactone)
ester terminated

769754
Resomer® C 212, Poly(caprolactone)
ester terminated

769851
Resomer® LC 703 S, Poly(L-lactide-*co*-ε-caprolactone)
ester terminated, lactide:caprolactone 70:30

769894
Resomer® LG 824 S, Poly(L-lactide-co-glycolide)
ester terminated, Lactide: Glycolide 82:18, lactide:glycolide 82:12

769886
Resomer® LG 855 S, Poly(L-lactide-*co*-glycolide)
ester terminated, lactide:glycolide 85:15

769878
Resomer® LG 857 S, Poly(L-lactide-*co*-glycolide)
ester terminated, lactide:glycolide 85:15

719897
Resomer® RG 502 H, Poly(D,L-lactide-*co*-glycolide)
acid terminated, M_w 7,000-17,000

719889
Resomer® RG 502, Poly(D,L-Lactide-*co*-Glycolide)
lactide:glycolide 50:50, ester terminated, M_w 7,000-17,000

739952
Resomer® RG 503, Poly(D,L-lactide-*co*-glycolide)

lactide:glycolide 50:50, ester terminated, M_w 24,000-38,000

739944
Resomer® RG 504, Poly(D,L-lactide-co-glycolide)
lactide:glycolide 50:50, ester terminated, M_w 38,000-54,000

739960
Resomer® RG 505, Poly(D,L-lactide-co-glycolide)
ester terminated, M_w 54,000-69,000

769770
Resomer® RG 750 S, Poly(D,L-lactide-co-glycolide)
ester terminated, lactide:glycolide 75:25

769827
Resomer® RG 752 S, Poly(D,L-lactide-co-glycolide)
ester terminated, lactide:glycolide 75:25

769819
Resomer® RG 753 H, Poly(D,L-lactide-co-glycolide)
acid terminated

769800
Resomer® RG 753 S, Poly(D,L-lactide-co-glycolide)
ester terminated, Lactide: Glycolide 75:25, lactide:glycolide 75:25

769797
Resomer® RG 755 S, Poly(D,L-lactide-co-glycolide)
ester terminated

719927
Resomer® RG 756 S, Poly(D,L-lactide-co-glycolide)
ester terminated, lactide:glycolide 75:25, M_w 76,000-115,000

769789
Resomer® RG 757 S, Poly(D,L-lactide-co-glycolide)
ester terminated, Lactide: Glycolide 75:25, lactide:glycolide 75:25

739979
Resomer® RG 858 S, Poly(D,L-lactide-co-glycolide)
ester terminated, lactide:glycolide 85:15, M_w 190,000-240,000

925802
Silk fibroin

average mol wt 100 kDa (water soluble)

419273
Sodium carboxymethyl cellulose
average M_w ~90,000

419303
Sodium carboxymethyl cellulose
average M_w ~250,000, degree of substitution 0.9

419311
Sodium carboxymethyl cellulose
average M_w ~250,000, degree of substitution 0.7

419281
Sodium carboxymethyl cellulose
average M_w ~250,000, degree of substitution 1.2

419338
Sodium carboxymethyl cellulose
average M_w ~700,000

904643
Thiol functionalized gelatin

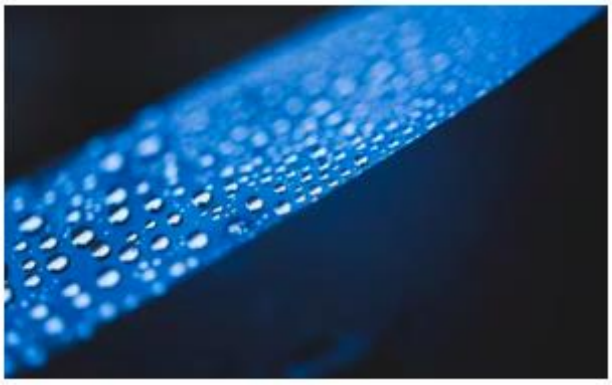
901941
Thiol poly(ethylene glycol)-*block*-poly(lactide-*co*-glycolide)
PEG average M_n 5,000, PLGA average M_n 15,000, lactide:glycolide 50:50

912034
Trimethyl chitosan
high molecular weight, degree of quaternization 30-70%

912700
Trimethyl chitosan
low molecular weight, degree of quaternization >50%

912034
Trimethyl chitosan
high molecular weight, degree of quaternization 30-70%

Hydrophobic Polymers



Hydrophobic, or water-resistant polymers, are materials that are insoluble in water or other polar solvents and include acrylics, epoxies, polyethylene, polystyrene, polyvinylchloride, polytetrafluorethylene, polydimethylsiloxane, polyesters, and polyurethanes. Our hydrophobic polymers are used as coatings, adhesives, fibers, films, and engineering plastics. Moreover, they are extensively employed as **biomedical polymers** for vascular grafts, implants, drug delivery, and ophthalmic applications.

Breakthroughs feel closer than ever with our comprehensive portfolio of hydrophobic polymers, classified according to chemical class and monomer functionality.

ACRYLIC POLYMERS

Acrylics include various acrylic, acrylonitrile, acrylamide, and maleic anhydride polymers. These homo- and co-polymers have rigid, flexible, hydrophilic, or hydrophobic properties. Most of these polymers are thermoplastics and can be readily converted into a desired shape by a thermal process. Hence, they are commonly used in polymer coatings, adhesives, and fibers.

ETHER POLYMERS

Ethers have ether functionality in the main chain. They tend to be flexible and provide impact resistance to bulk properties. Many polyethers have functional groups at their chain ends and are used to prepare higher molecular weight polymers. Thus, they could also be classified as macromonomers and are commonly used in the preparation of polyesters and polyurethanes. Poly(propylene glycol) polymers and oligomers (DOWANOL®) are included in this category.

FLUOROCARBON POLYMERS

Fluorocarbon polymers are unique materials in that the polymer is not "wet" by hydrophilic or hydrophobic materials. They have very low coefficients of friction and have outstanding chemical and thermal resistance properties. Copolymers can be melt-processed more readily than poly(tetra-fluoroethylene).

POLYSTYRENE POLYMERS

Polystyrene and its copolymers have found important applications as films, foams, and structural components. Copolymers with diene monomers are cross-linked to improve physical properties and generate thermoplastic elastomers. Polystyrene film is highly transparent to visible radiation and has a high refractive index.

POLY(VINYL CHLORIDE) POLYMERS

Poly(vinyl chloride) (PVC) is often highly plasticized to improve rheology for melt processing. It is highly susceptible to UV and high-temperature degradation and stabilizers are commonly added.

POLY(N-VINYLPYRROLIDONE) (PVP) POLYMERS

Poly(N-vinylpyrrolidone) (PVP) is a polar polymer with excellent film-forming and adhesion properties. It is commonly used in formulating hair sprays and hand creams as well as in the textile industry due to its affinity for many dyestuffs. PVP is a biocompatible polymer that has been used as a blood plasma substitute, although this application is becoming uncommon.

520462
Di(propylene glycol) dimethyl ether, mixture of isomers
≥99.1%

484202
Di(propylene glycol) methyl ether acetate, mixture of isomers
≥98%

429201
Nylon 6/6
pellets

531367
Poly[(isobutylene-*alt*-maleic acid, ammonium salt)-*co*-(isobutylene-*alt*-maleic anhydride)]
average M_W ~60,000

458147
Poly[trimethylolpropane/di(propylene glycol)-*alt*-adipic acid/phthalic anhydride], polyol
average M_n ~500

181501
Poly(1,4-butylene adipate)
average M_W ~12,000 by GPC

190942
Poly(1,4-butylene terephthalate)
average M_V ~38,000, pellets

181366

Poly(4-bromostyrene)
average M_w ~65,000 by GPC, powder

434124
Poly(4-chlorostyrene)
average M_w ~75,000 by GPC, powder

436216
Poly(4-vinylphenol)
M_w ~11,000

472344
Poly(4-vinylpyridine)
average M_w ~60,000

472352
Poly(4-vinylpyridine)
average M_w ~160,000

547689
Poly(4-vinylpyridine), cross-linked
Reillex® 402 ion-exchange resin, 2 % cross-linked with divinylbenzene

226963
Poly(4-vinylpyridine), cross-linked
2 % cross-linked with divinylbenzene, powder

473146
Poly(dicyclopentadiene-*co*-*p*-cresol)
solid

181919
Poly(ethylene adipate)
average M_w ~10,000 by GPC

438200
Poly(ethylene glycol-*ran*-propylene glycol)
average M_n ~12,000

438197
Poly(ethylene glycol-*ran*-propylene glycol)
M_n ~2,500

438189

Poly(ethylene glycol-*ran*-propylene glycol) monobutyl ether
average M_n ~3,900

182036
Poly(ethylene succinate)
average M_w 10,000

429252
Poly(ethylene terephthalate)
granular

426717
Poly(ethylene-*co*-acrylic acid)
acrylic acid 5 wt. %, beads

437239
Poly(ethylene-*co*-vinyl acetate)
vinyl acetate 18 wt. %, melt index 8 g/10 min (190°C/2.16kg), contains 200-900 ppm BHT as inhibitor

437247
Poly(ethylene-*co*-vinyl acetate)
vinyl acetate 12 wt. %, melt index 8 g/10 min (190°C/2.16kg)

340502
Poly(ethylene-*co*-vinyl acetate)
vinyl acetate 40 wt. %, melt index (41-63 dg/min (190°C/2.16kg)), contains 190-910 ppm inhibitor

531278
Poly(isobutylene-*alt*-maleic anhydride)
average M_w ~6,000, 12-200 mesh (85%)

202355
Poly(propylene glycol)
average M_n ~4,000

202347
Poly(propylene glycol)
average M_n ~2,700

202312
Poly(propylene glycol)
average M_n ~725

202304
Poly(propylene glycol)
average M_n ~425

202339
Poly(propylene glycol)
average M_n ~2,000

202320
Poly(propylene glycol)
average M_n ~1,000

406686
Poly(propylene glycol) bis(2-aminopropyl ether)
average M_n ~2,000

406694
Poly(propylene glycol) bis(2-aminopropyl ether)
average M_n ~4,000

406678
Poly(propylene glycol) bis(2-aminopropyl ether)
average M_n ~400

406651
Poly(propylene glycol) bis(2-aminopropyl ether)
average M_n ~230

406732
Poly(propylene glycol) diglycidyl ether
average M_n ~380

408352
Poly(propylene glycol) methacrylate
average M_n ~375

438111
Poly(propylene glycol) monobutyl ether
average M_n ~1,000

438146
Poly(propylene glycol) monobutyl ether
average M_n ~2,500

433497
Poly(propylene glycol), tolylene 2,4-diisocyanate terminated
average M_n ~2,300 (narrow MW distribution), isocyanate ~3.6 wt. %

182869
Poly(styrene-*co*-acrylonitrile)
average M_w ~185,000 by GPC, acrylonitrile 30 wt. %, powder

182850
Poly(styrene-*co*-acrylonitrile)
average M_w ~165,000 by GPC, acrylonitrile 25 wt. %, pellets

81377
Poly(tetrafluoroethylene)
beads

430935
Poly(tetrafluoroethylene)
powder (free-flowing), 1 µm particle size

430943
Poly(tetrafluoroethylene)
powder (free-flowing), ≤12 µm particle size

468096
Poly(tetrafluoroethylene)
powder, 35 µm particle size

182478
Poly(tetrafluoroethylene)
powder, >40 µm particle size

737992
Poly(tetrafluoroethylene)
powder, 200 µm particle size

738670
Poly(tetrafluoroethylene)
powder, ≥350 µm particle size

345296
Poly(tetrahydrofuran)
average M_n ~1,000

345334
Poly(tetrahydrofuran)
average M_n ~2,900

345326
Poly(tetrahydrofuran)
average M_n ~2,000, contains BHT as stabilizer

189553
Poly(vinyl chloride) carboxylated
average M_w ~220,000 by GPC, powder

182745
Poly(vinyl methyl ketone)
average M_w ~500,000 by GPC

182532
Poly(vinylbenzyl chloride), 60/40 mixture of 3- and 4-isomers
average M_n ~55,000, average M_w ~100,000 by GPC/MALLS, powder

427187
Poly(vinylidene fluoride-*co*-hexafluoropropylene)
pellets

427160
Poly(vinylidene fluoride-*co*-hexafluoropropylene)
average M_w ~400,000, average M_n ~130,000, pellets

427179
Poly(vinylidene fluoride-*co*-hexafluoropropylene)
average M_w ~455,000, average M_n ~110,000, pellets

347078
Poly(vinylidene fluoride)
average M_w ~530,000, pellets

347078
Poly(vinylidene fluoride)
average M_w ~530,000, pellets

182702
Poly(vinylidene fluoride)
average M_w ~534,000 by GPC, powder

427152
Poly(vinylidene fluoride)
average M_w ~180,000 by GPC, average M_n ~71,000, beads or pellets

205397
Polychloroprene

85% *trans*, 10% *cis*

700207
Polyetherimide
melt index 18 g/10 min (337 °C/6.6kg)

700193
Polyetherimide
melt index 9 g/10 min (337 °C/6.6kg)

428043
Polyethylene
low density, melt index 25 g/10 min (190°C/2.16kg)

427772
Polyethylene
average M_w ~4,000 by GPC, average M_n ~1,700 by GPC

547999
Polyethylene
High density, melt index 2.2 g/10 min (190 °C/2.16kg)

434264
Polyethylene
Ultra-high molecular weight, surface-modified, powder, 125 µm avg. part. size

434272
Polyethylene
Ultra-high molecular weight, surface-modified, powder, 34-50 µm particle size

429015
Polyethylene
Ultra-high molecular weight, average M_w 3,000,000-6,000,000

427985
Polyethylene
High density, melt index 12 g/10 min (190 °C/2.16kg)

428078
Polyethylene
Linear low density, melt index 1.0 g/10 min (190°C/2.16kg)

332119
Polyethylene
Medium density

428116
Polypropylene
Isotactic, average M_w ~12,000, average M_n ~5,000

427888
Polypropylene
Isotactic, average M_w ~250,000, average M_n ~67,000

428175
Polypropylene
Amorphous

427861
Polypropylene
Isotactic, average M_w ~340,000, average M_n ~97,000

81350
Polypropylene glycol
P 400

81380
Polypropylene glycol
P 2,000

182389
Polypropylene, isotactic
average M_w ~250,000 by GPC

665800
Polytetrafluoroethylene preparation
60 wt % dispersion in H_2O

677388
Polyvinylcyclohexane

528072
Propylene glycol diacetate
≥99.7%

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Poly(vinyl chloride) (PVC) is often highly plasticized to improve rheology for melt processing. It is highly susceptible to UV and high-temperature degradation and stabilizers are commonly added.

POLY(N-VINYLPYRROLIDONE)(PVP) POLYMERS

Poly(N-vinylpyrrolidone) (PVP) is a polar polymer with excellent film-forming and adhesion properties. It is commonly used in formulating hair sprays and hand creams as well as in the textile industry due to its affinity for many dyestuffs. PVP is a biocompatible polymer that has been used as a blood plasma substitute, although this application is becoming uncommon.

913235
Acetylated branched polyethylenimine solution 20% solution
20% acetylation, suitable for biomedical research

913375
Branched polyethylenimine solution
2mg/mL aqueous solution, suitable for biomedical research

545198
Cucurbit[5]uril hydrate
contains acid of crystalization

545201
Cucurbit[7]uril hydrate
contains acid of crystalization

545228
Cucurbit[8]uril hydrate
contains acid of crystalization

919012
PEI Prime™ linear polyethylenimine
suitable for gene delivery

458627
Poly[bis(2-chloroethyl) ether-*alt*-1,3-bis[3-(dimethylamino)propyl]urea] quaternized, solution
62 wt. % in H_2O

373974
Poly(2-ethyl-2-oxazoline)

average M_w ~500,000, PDI 3-4

372846
Poly(2-ethyl-2-oxazoline)
average M_w ~50,000, PDI 3-4

741884
Poly(2-ethyl-2-oxazoline)
average M_n 20,000, PDI <1.4

740713
Poly(2-ethyl-2-oxazoline)
average M_n 5,000, PDI ≤1.3

741906
Poly(2-ethyl-2-oxazoline)
average M_n 10,000, PDI ≤1.5

773360
Poly(2-ethyl-2-oxazoline) α-methyl, ω-2-hydroxyethylamine terminated
average M_n 2,000, PDI ≤1.2

795283
Poly(2-methyl-2-oxazoline), hydroxy terminated
average M_n 5,000, PDI <1.3

283215
Poly(allylamine hydrochloride)
average M_w ~17,500 (GPC vs. PEG std.)

283223
Poly(allylamine hydrochloride)
average M_w 50,000

479136
Poly(allylamine) solution
20 wt. % in H_2O

479144
Poly(allylamine) solution
average M_w ~65,000, 10 wt. % in H_2O

409030
Poly(diallyldimethylammonium chloride) solution

average M_w 400,000-500,000 (high molecular weight), 20 wt. % in H_2O

409022
Poly(diallyldimethylammonium chloride) solution
average M_w 200,000-350,000 (medium molecular weight), 20 wt. % in H_2O

188050
Poly(ethylene-*alt*-maleic anhydride)
average M_w 100,000-500,000, powder

482595
Poly(ethyleneimine) solution
average M_n ~1,200, average M_w ~1300 by LS, 50 wt. % in H_2O

181978
Poly(ethyleneimine) solution
average M_n ~60,000 by GPC, average M_w ~750,000 by LS, 50 wt. % in H_2O

408700
Poly(ethyleneimine) solution
average M_w 2,000 by LS, 50 wt. % in H_2O

03880
Poly(ethyleneimine) solution
~50% in H_2O

181099
Poly(methyl vinyl ether-*alt*-maleic acid)
average M_w ~1,980,000 by LS, average M_n ~960,000, powder

191124
Poly(methyl vinyl ether-*alt*-maleic acid)
average M_w ~216,000 by LS, average M_n ~80,000, powder

416320
Poly(methyl vinyl ether-*alt*-maleic anhydride)
average M_w ~1,080,000, average M_n ~311,000

416339
Poly(methyl vinyl ether-*alt*-maleic anhydride)
average M_w ~216,000, average M_n ~80,000

662631
Poly(styrene-*alt*-maleic acid) sodium salt solution
13 wt. % in H_2O

444464
Polyanetholesulfonic acid sodium salt

764647
Polyethylenimine hydrochloride
linear, average M_n 10,000, PDI ≤1.5

764892
Polyethylenimine hydrochloride
linear, average M_n 4,000, PDI ≤1.3

764965
Polyethylenimine hydrochloride
linear, average M_n 15,000, PDI <1.4

306185
Polyethylenimine, 80% ethoxylated solution
37 wt. % in H_2O

408719
Polyethylenimine, branched
average M_w ~800 by LS, average M_n ~600 by GPC

408727
Polyethylenimine, branched
average M_w ~25,000 by LS, average M_n ~10,000 by GPC, branched

765090
Polyethylenimine, linear
average M_n 10,000, PDI ≤1.3

764604
Polyethylenimine, linear
average M_n 2100, PDI <1.3

764582
Polyethylenimine, linear
average M_n 5,000, PDI ≤1.3

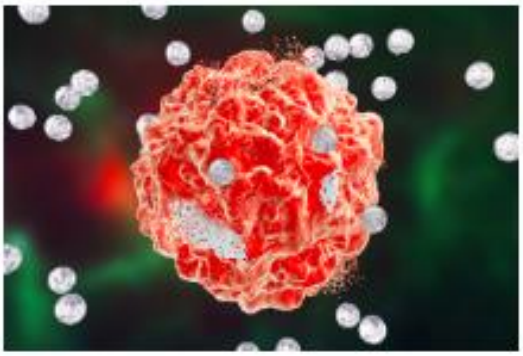
901034
Polyvinyl alcohol (PVA) blend printing filament
1.75 mm

901031
Polyvinyl alcohol (PVA) printing filament
2.85 mm

901029
Polyvinyl alcohol (PVA) printing filament
1.75 mm

900354
Ultroxa®: Poly(2-methyl-2-oxazoline) azide terminated
average M_n 10,000, PDI ≤1.2

Polymeric Microspheres & Nanoparticles



Novel **drug delivery systems** based on polymeric nanoparticles and microspheres as well as liposomes have demonstrated great potential in enhancing therapeutic effects of drugs. **Biodegradable polymers** with strong biocompatibilities such as poly(lactic-co-glycolic acid) (PLGA), polylactic acid (PLA), and polycaprolactone (PCL) have been widely used in developing particulate drug delivery systems. Active pharmaceutical ingredients (APIs), whether small molecules or **biologic compounds**, can be encapsulated into microspheres and nanoparticles or attached to a particle's surface for specific drug delivery applications such as sustained release, targeted drug delivery, and protection of APIs from premature degradation. Upon administrating drug-loaded biodegradable nanoparticles and microparticles, the biocompatable polymer degrades *in vivo* by hydrolysis of the ester backbone into non-toxic products. The drug release rate can be modulated by selecting the right type of polymer and adjusting the encapsulation process.

805173
Green Fluorescent PLGA microspheres
25 µm average diameter

805181
Green Fluorescent PLGA microspheres
2 µm average diameter

805165
Green Fluorescent PLGA microspheres
50 µm average diameter

805300
Green Fluorescent PLGA nanoparticles
500 nm average diameter

805211
Green Fluorescent PLGA nanoparticles
200 nm average diameter

805157
Green Fluorescent PLGA nanoparticles
100 nm average diameter

PCL20K
PCL Microspheres
20 µm average diameter

PCL30K
PCL Microspheres
30 µm average diameter

PCL50K
PCL Microspheres
50 µm average diameter

805114
PLGA microspheres
25 µm average diameter

805122
PLGA microspheres
50 µm average diameter

805130
PLGA microspheres
2 µm average diameter

LG30K
PLGA microspheres

30 µm average diameter

LG40K
PLGA microspheres
40 µm average diameter

LG1000
PLGA microspheres
1 µm average diameter

LG5000
PLGA microspheres
5 µm average diameter

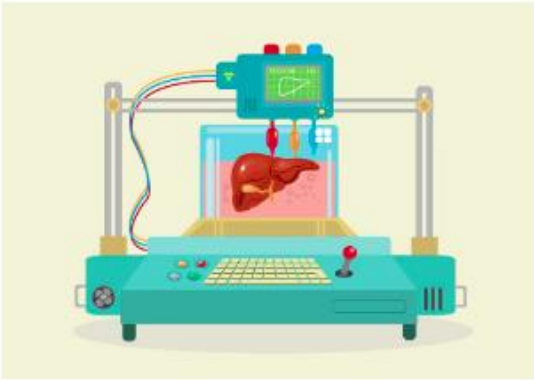
LG10K
PLGA microspheres
10 µm average diameter

LG20K
PLGA microspheres
20 µm average diameter

805106
PLGA nanoparticles
200 nm average diameter

805149
PLGA nanoparticles
500 nm average diameter
805092
PLGA nanoparticles
100 nm average diameter

3D Bioprinting



3D bioprinting is a novel technology that enables the generation of precisely controlled 3D tissue constructs with tissue-like complexity. 3D bioprinting is an additive manufacturing process which utilizes 3D printing techniques to build up materials and generate 3D tissue constructs in a layer by layer fashion.

Bioink, the material used in 3D bioprinting, contains living cells and **biomaterials** that mimic the extracellular matrix **(ECM)** environment to support cell adhesion, proliferation, and differentiation after printing. This emerging innovation has the potential to solve many critical unmet needs in medical research, with applications in cosmetics testing, drug discovery, *in vitro* models, and functional organ replacement.

We offer a comprehensive portfolio of biocompatible fit-for-purpose polymers, water-soluble photoinitiators, and additives specifically for 3D bioprinting and tissue engineering applications. Many of these specialty materials contain moieties that enable easy and fast crosslinking by exposure to UV or visible light, changes in pH, thermal methods like sample warming, or even by exposure to **culture media**.

PRODUCT FEATURES

- Our wide range of functionalized synthetic polymers with reactive end groups facilitate fabrication of functional hydrogels, even for those with limited chemistry knowledge.
- Our natural polymers, such as hyaluronic acid, chitosan, gelatin, alginate, and their derivatives, contain cross-linkable functional groups to recapitulate both mechanical and biochemical properties of the native extracellular matrix, and have the necessary surface chemistry for cell attachment, proliferation, and differentiation.
- Our thermally processable biodegradable polymers, such as polycaprolactones, polylactides and PLGAs, can be used for fabricating rigid structures. These materials have high strength and rigidity and provide structural support for tissue constructs designed to replicate bone.
- We are continuously adding to our ready-to-use bioinks for extrusion type 3D bioprinting. Our bioinks are based on a variety of biomaterials, including natural polymers, decellularized extracelluar matrix, synthetic polymers and synthetic peptides.

TISSUEFAB® BIOINKS

Our TissueFab® bioinks offer a complete suite of ready-to-use bioink formulations with step-by-step protocols are optimized for high printing fidelity, cell viability, and batch-to-batch reproducibility.

933872
Carboxymethyl cellulose glycidyl methacrylate
Degree of methacrylation ~10%

928623
Chamfered tips
33G, 0.25", 25/box, black

930024
Hyaluronic acid adipic dihydrazide (HA-ADH)

934119
Ovine collagen
SPDP functionalized, low endotoxin

934070
Ovine collagen
3 mg/ml solution, low endotoxin

934100
Ovine collagen
maleimide functionalized, low endotoxin

934097
Ovine collagen
methacrylate functionalized, low endotoxin

934089
Ovine collagen
lyophilized, low endotoxin

925217
TissueFab® - low endotoxin GelMA-UV bioink
0.2 µm filtered, suitable for 3D bioprinting applications

905410
TissueFab® bioink
Alg(Gel)ma -UV/365 nm

934178
TissueFab® bioink

(GelHAHep)MA Vis/405 nm, low endotoxin

☐
919926
TissueFab® bioink
Crosslinking solution, low endotoxin

☐
934437
TissueFab® bioink
(GelHep)MA Vis/ 405nm, low endotoxin

☐
906905
TissueFab® bioink
Sacrificial

☐
905429
TissueFab® bioink
(Gel)ma -UV/365 nm

☐
926035
TissueFab® bioink Bone UV/365 nm

☐
926086
TissueFab® bioink Bone Vis/405 nm

☐
926078
TissueFab® bioink Conductive
Vis/405 nm, low endotoxin

☐
926000
TissueFab® bioink kit
(Gel)ma Laminin -Vis/405 nm, low endotoxin

☐
926019
TissueFab® bioink kit
(Gel)ma Fibronection -Vis/405 nm, low endotoxin

927074
TissueFab® bioink kit
(Gel)ma Fibrin (Vis/405), low endotoxin

☐
934135
TissueFab® Sodium Persulfate Solution
low endotoxin

Drug Delivery Formulations and Technologies

DRUG DELIVERY FORMULATION AND PARTICLE SYNTHESIS MADE SIMPLE

Drug delivery formulations are essential for the delivery, efficacy and stability of many active pharmaceutical ingredients (APIs) and have become exceedingly important with recent advancements in therapeutics, including mRNA vaccines and other nucleic acids.

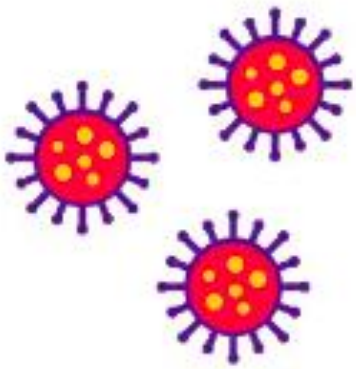
Our NanoFabTx™ formulation kits are designed for facile and reproducible synthesis of nano- to micro-sized drug-loaded particles. Detailed protocols with step-by-step instructions are provided for nanoformulation development, eliminating the need for lengthy trial-and-error optimization. NanoFabTx™ formulation kits and lipid mixes can be used with traditional nanoprecipitation or extrusion methods or can be combined with the NanoFabTx™ microfluidic device kits for rapid synthesis of well-defined drug delivery particles.

Potential applications of our NanoFabTx™ platform include:

- Delivery of small molecules and nucleic acids
- Screening and selection of optimal formulations for liposomes, nanoparticles, and microparticles
- Optimal particle size control and determination
- Drug-loading capacity and efficiency optimization

NanoFabTx™ Polymer Drug Formulation Kits for Drug-Encapsulated Particles Synthesis

Our NanoFabTx™ Drug Formulation Kits are designed to prepare specifically-sized polymeric micro- and nanoparticles for small molecule drug delivery. Each kit contains rationally selected polymers developed and tested by our formulation scientists. Our NanoFabTx™ Formulation Screening Kits make polymer selection and optimization easy by providing multiple polymers to choose from including PEGylated and non-PEGylated biodegradable polymers PLA, PLGA, and PCL.



NanoFabTx™ Lipid Mixes for Liposome Production

Liposomes are widely used for a range of therapeutics including small molecules, nucleic acids (mRNA, siRNA, DNA), proteins, and peptides. Our NanoFabTx™ lipid formulation mixes are curated lipid blends for liposome preparation. We offer a variety of lipid mixes to best suit your nanoformulation needs including PEGylated, cationic, and functionalized liposomes.

NanoFabTx™ Microfluidic Device Kits for Polymeric and Lipid Nanoparticle Synthesis

Microfluidic devices provide a platform for rapid and reproducible microparticle, nanoparticle, lipid nanoparticle, and liposome fabrication. Unlike traditional methods, microfluidics-based nanoparticle synthesis results in controlled particle size and small size distribution and can easily be scaled up to produce larger batch sizes needed for preclinical trials.

Our NanoFabTx™ microfluidic device kits include a pre-assembled microfluidic glass chip, tubing and accessories and can be directly connected to a syringe pump or pressurized pump system, such as Dolomite Microfluidics Mitos P-Pump. The NanoFabTx™ microfluidic device kits are designed to work together with our NanoFabTx™ drug formulation kits and lipid mixes.

935468
Aldehyde functionalized hyaluronic acid
Degree of functionalization ~40%

935441
Aldehyde functionalized hyaluronic acid

Degree of functionalization ~20%

936359
Chondroitin Sulfate A Methacrylate
15% methacrylated

935166
Hyaluronic acid
acid form, average M_w 25,000

930180
Linear polyglycerol solution
average M_n 10,000, in H_2O

934631
Microneedle loader set

934623
Microneedle spring applicator set

934461
Microneedle template
10x10 array, H 500 µm, base size 150 µm, 500 µm pitch

934453
Microneedle template
10x10 array, H 400 µm, base size 150 µm, 500 µm pitch

934593
Microneedle template
6x6 array, H 800 µm, base size 250 µm, 500µm pitch

930113
NanoFabTx™- COOH Lipid Mix
for synthesis of carboxyl functionalized liposomes

934216
NanoFabTx™ - Mannose Lipid Mix
for synthesis of mannose-targeted liposomes

924512
NanoFabTX™- NH_2 Lipid Mix
for synthesis of amine functionalized liposomes

922420
NanoFabTx™ - PEG Lipid Mix
for synthesis of PEGylated liposomes

934194
NanoFabTx™- PEG-RGD Lipid Mix
for synthesis of PEGylated RGD-functionalized liposomes

926345
NanoFabTx™-DC-Chol Lipid Mix
for synthesis of cationic (DC-cholesterol) liposomes

926027
NanoFabTX™-DOTAP Lipid Mix
for synthesis of cationic (DOTAP) liposomes

934208
NanoFabTx™ DBCO Lipid Mix
for synthesis of DBCO-functionalized liposomes

916609
NanoFabTx™ device accessory
end fittings for 1.6 mm tubings

917230
NanoFabTx™ device accessory
interface H

916986
NanoFabTx™ device accessory
top interface

916862
NanoFabTx™ device accessory
tubing, 100 µm FEP, 10 m, with ferrules

917877
NanoFabTx™ device accessory
in line filter

917737
NanoFabTx™ materials screening kit
for synthesis of polymeric nanoparticles

911860
NanoFabTx™ microfluidic - micro
device kit for synthesis of 1-5 µm particles

911879
NanoFabTx™ microfluidic - micro
device kit for synthesis of 10-30 µm particles

911593
NanoFabTx™ microfluidic - nano
device kit for synthesis of 100-200 nm nanoparticles and liposomes

912298
NanoFabTx™ microfluidic chip
for 10-30 µm particles

911925
NanoFabTx™ microfluidic chip
for 1-5 µm particles

911917
NanoFabTx™ microfluidic chip
for 100-200 nm particles

933090
NanoFabTx™ NanoFlash PEG-PCL drug formulation screening kit
for CIJ synthesis of nanoparticles

918881
NanoFabTx™ PEG-PCL drug formulation screening kit
for synthesis of PEGylated nanoparticles

920436
NanoFabTx™ PEG-PLA drug formulation screening kit
for synthesis of PEGylated nanoparticles

917796
NanoFabTx™ PEG-PLGA drug formulation screening kit
for synthesis of PEGylated nanoparticles

915408
NanoFabTx™ PEGylated nanoparticle formulation screening kit

918075

NanoFabTx™ PLA-nano
for synthesis of 100 and 200 nm particles

☐
912212
NanoFabTx™ PLGA-micro
for synthesis of 10-30 um particles

☐
912220
NanoFabTx™ PLGA-micro
for synthesis of 1-5 µm particles

☐
909637
NanoFabTx™ PLGA-nano
for synthesis of 100 and 200 nm particles

☐
917788
NanoFabTx™ reagent
PEGPCL-UH

919942
NanoFabTx™ reagent
PEGPLA-L-M

☐
919934
NanoFabTx™ reagent
PEGPLA-H-M

☐
912808
NanoFabTx™ reagent
PEGPLGA-50L

☐
912549
NanoFabTx™ reagent
PEGPCL-H

☐
913308
NanoFabTx™ reagent
PEGPLA-L

☐
911305
NanoFabTx™ reagent
Stabilizer-F

☐
915718
NanoFabTx™ reagent
PEGPLGA-75H

915203
NanoFabTx™ reagent
PEGPCL-L

915955
NanoFabTx™ reagent
PEGPLGA-50H

913049
NanoFabTx™ reagent
PEGPLGA-75L

907782
NanoFabTx™ reagent
PLGA-Nano

916382
NanoFabTx™ reagent
PCL Nano

929638
Poly(ethylene glycol) diacrylamide
M_n 3400, contains MEHQ as stabilizer

935921
Poly(glycerol sebacate)

936227
Poly(propylene fumarate)
contains contains ~20 wt% diethyl fumarate & 250 ppm MEHQ as inhibitor

934550
Silyl-ether based ROMP monomer
iPrSi

934542
Silyl-ether based ROMP Monomer
PhSi

934127
TissueFab® bioink SilkGel -Vis/405nm SPS crosslinking kit, low endotoxin

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
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Владимир (4922)49-43-18
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Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
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Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
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Симферополь (3652)67-13-56
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Сургут (3462)77-98-35
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Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
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Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

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