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

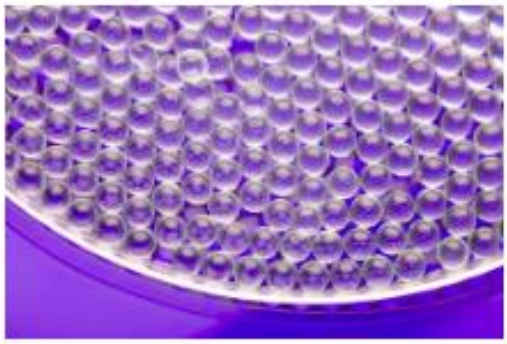
Россия +7(495)268-04-70 **Казахстан** +7(7172)727-132 **Киргизия** +996(312)96-26-47

www.sigmaaldrich.nt-rt.ru | | scx@nt-rt.ru

Технические характеристики на тиолы, неорганические наночастицы, металлические наночастицы, органические полевые транзисторы, электронные химикаты компании Sigma-Aldrich

Виды товаров: тиолы, золотые поверхности, алкилтиолы, функционализированные тиолы, дитиолы, кольцевые тиолы, защищенные тиолы, наноимпринтная литография, фосфоновые кислоты и оксидные поверхности, неорганические наночастицы, металлические наночастицы, решения для гальванических и химических гальванических покрытий, формулированные травители, кислоты сверхвысокой чистоты, карбораны, фториды, специальные газы, примеси, растворители полупроводникового класса, монокристаллические подложки и др.

Self-Assembly & Contact Printing



MOLECULAR SELF-ASSEMBLY

Molecular self-assembly (MSA) is the assembly of molecules without guidance or management from an outside source. Self-assembly can occur spontaneously in nature. One such example is the self-assembly of the lipid bilayer membrane in cells. The accurate and controlled application of intermolecular forces can lead to new and previously unachievable nanostructures.

In self-assembly, the final (desired) structure is 'encoded' in the shape and properties of the molecules that are used. Self-assembled monolayers (SAMs) use relatively weak intermolecular interactions between certain types of organic molecules as the driving assembly force, including the electrostatic interaction between oppositely charged polyelectrolytes, the affinity between thiols and gold surfaces or between phosphonic acids and oxidic surfaces.

THIOLS AND GOLD SURFACES

Several forces drive the assembly of alkyl thiols on a gold surface. In addition to the strong sulfur-gold interactions (~45 kcal/mol) allowing relatively strong bonding of the film-forming molecules to the surface, the hydrophobic interactions between carbon and hydrogen atoms in the alkyl thiol molecules also significantly lower the overall surface energy especially when the alkyl chain contains at least ten carbon atoms.

We offer various high purity thiol materials for a wide variety of self-assembly applications from soft lithography to chemical and biological detection, categorized by the type of thiol groups:

- Alkyl thiols (-CH3 terminated)
- Functionalized thiols
- Dithiols
- Ring thiols
- Protected thiols

PHOSPHONIC ACIDS AND OXIDE SURFACES

We offer a selection of phosphate and phosphonate materials to the choice of the substrate used for the preparation of self-assembled monolayers beyond gold. Our polar

acidic molecules interact with diverse metal-oxide surfaces (e.g., Al_2O_3, Ta_2O_5, NbO_5, ZrO_2 and TiO_2) and form films with a similar degree of ordering as for alkyl thiol SAMs on gold.

NANOIMPRINT LITHOGRAPHY

Nanoimprint lithography (NIL) is a technique to generate micro- and nanostructures in hard polymers by pressing a rigid master containing surface-relief feature into a thin thermoplastic polymer film that is then heated close to or, more generally, above T_g. It has the potential to produce nanodevices in a high-throughput manner, does not require sophisticated tools, and allows nanoscale replication for data storage.

We offer a range of nanoimprinting materials, e.g. poly(methyl methacrylate) (PMMA), and other thermoplastic and thermosetting polymers (such as Polydimethylsiloxane PDMS and polyphthalaldehyde) to optimize the imprinting and subsequent **etching steps**.

SOFT LITHOGRAPHY

Soft lithography uses micromolding and embossing of 'soft' elastomers to fabricate or replicate structures. In microcontact printing (mCP), a monolayer of a material is printed off an elastomeric stamp made of poly(dimethylsiloxane) (PDMS) after forming conformal contact between stamp and substrate. Sub-micron surface relief structures can easily be introduced in PDMS by curing the polymers against a lithographically prepared master. The advantage of mCP is the ability to pattern surfaces chemically at the sub-micron level. An elastomeric stamp is inked with small molecules (thiols or silanes) and pressed against a clean substrate (gold or silicon wafer). Where the stamp is in contact with the surface, a monolayer of material is transferred to the substrate. A second thiol or silane is then used to fill in the background to provide a chemically patterned surface.

77367
(−)-Ethyl L-lactate
photoresist grade, ≥99.0%

733385
(11-Mercaptoundecyl)-*N*,*N*,*N*-trimethylammonium bromide

675105
(11-Mercaptoundecyl)hexa(ethylene glycol)
90%

674508
(11-Mercaptoundecyl)tetra(ethylene glycol)
90%

SIK7716-10
(12-Dodecylphosphonic acid)N,N-Dimethyl-N-octadecyl ammonium bromide
≥95%

SIK7717-10
(12-Dodecylphosphonic acid)N,N-Dimethyl-N-octadecyl ammonium chloride
≥95%

SIK7712-10
(12-Dodecylphosphonic acid)pyridinium bromide
≥95%

SIK7731-10
(12-Dodecylphosphonic acid)pyridinium chloride
97%

SIK7709-10
(12-Dodecylphosphonic acid)triethylammonium bromide
≥95%

SIK7718-10
(12-Dodecylphosphonic acid)triethylammonium chloride
≥95%

685437
(12-Phosphonododecyl)phosphonic acid
97%

SIK7903-10
(12-Phosphonododecyl)phosphonic acid
98%

440140
(3-Aminopropyl)triethoxysilane
99%

281778
(3-Aminopropyl)trimethoxysilane
97%

440183
(3-Chloropropyl)trimethoxysilane
≥97%

440167
(3-Glycidyloxypropyl)trimethoxysilane
≥98%

175617
(3-Mercaptopropyl)trimethoxysilane
95%

527068
(4-Iodophenyl)diphenylsulfonium triflate

526975
(4-Phenoxyphenyl)diphenylsulfonium triflate

527009
(4-Phenylthiophenyl)diphenylsulfonium triflate

440817
1-[3-(Trimethoxysilyl)propyl]urea
97%

659452
1-Adamantanethiol
95%

719234
1-Adamantanethiol
99% (GC)

705233
1-Decanethiol
99%

D1602
1-Decanethiol
96%

471364
1-Dodecanethiol
≥98%

674516
1-Hexadecanethiol

99%

739286
1-Hexanethiol
99% (GC)

234192
1-Hexanethiol
95%

328375
1-Mercapto-2-propanol
95%

SIK7719-10
1-Methyl-1,2,4-(dodecylphosphonic acid)triazolium bromide
97%

SIK7706-10
1-Methyl-3-(dodecylphosphonic acid)imidazolium bromide
≥95%

674273
1-Nonanethiol
99%

O1858
1-Octadecanethiol
98%

74731
1-Octadecanethiol
purum, ≥95.0% (GC)

471836
1-Octanethiol
≥98.5%

P7908
1-Pentanethiol
98%

P50757
1-Propanethiol
99%

87193
1-Tetradecanethiol
≥98.0% (GC)

510467
1-Undecanethiol
98%

SIK7911-10
[1,1′-Biphenyl]-4,4′-diylbis(phosphonic acid)
97%

708488
1,1′,4′,1″-Terphenyl-4-thiol
97%

674281
1,11-Undecanedithiol
99%

674400
1,16-Hexadecanedithiol
99%

447250
1,2-Bis(triethoxysilyl)ethane
96%

SIK41005-20
1,4-Bis(trimethoxysilyl)benzene
95%

452246
1,6-Bis(trichlorosilyl)hexane
97%

H12005
1,6-Hexanedithiol
96%

O3605
1,8-Octanedithiol
≥97%

SIK7110-10

10-Undecynylphosphonic acid
≥95%

717223
11-(1*H*-pyrrol-1-yl)undecane-1-thiol
96%

SIK7509-10
11-(2-Bromoisobutyrate)-undecyl-1-phosphonic acid
≥95%

738905
11-(Ferrocenyl)undecanethiol
95%

674176
[11-(Methylcarbonylthio)undecyl]tetra(ethylene glycol)
95%

SIK4523-30
11-Acetateundecyltriethoxysilane
≥95%

SIK4522-20
11-Acetateundecyltrimethoxysilane
≥95%

674397
11-Amino-1-undecanethiol hydrochloride
97%

SIK4711-30
11-Azidoundecyltriethoxysilane
≥95%

701335
11-Bromo-1-undecanethiol
99%

777161
11-Hydroxyundecylphosphonic acid
≥95% (GC)

447528
11-Mercapto-1-undecanol
97%

674249
11-Mercapto-1-undecanol
99%

450561
11-Mercaptoundecanoic acid
95%

674427
11-Mercaptoundecanoic acid
98%

674311
11-Mercaptoundecylphosphoric acid
90%

SIK7503-10
11-Methylundecanoatephosphonic acid
≥95%

SIK4405-30
11-Pentafluorophenoxyundecyltriethoxysilane
≥95%

SIK4404-20
11-Pentafluorophenoxyundecyltrimethoxysilane
≥95%

678031
11-Phosphonoundecanoic acid
96%

795739
11-Phosphonoundecyl acrylate

SIK7701-10
12-Aminododecylphosphonic acid hydrochloride salt
≥95%

SIK7710-10
12-Azidododecylphosphonic acid
≥95%

675067
12-Mercaptododecanoic acid
96%

745855
12-Mercaptododecylphosphonic acid
95%

777188
12-Pentafluorophenoxydodecylphosphonic acid
99% (GC)

SIK1103-10
12,12,13,13,14,14,15,15,15-Nonafluoropentadecane-1-thiol
97%

SIK4119-20
12,12,13,13,14,14,15,15,15-Nonafluoropentadecylmethoxysilane
95%

SIK7120-10
12,12,13,13,14,14,15,15,15-Nonafluoropentadecylphosphonic acid
97%

SIK4120-30
12,12,13,13,14,14,15,15,15-Nonafluoropentadecyltriethoxysilane
95%

SIK7121-10
12,12,13,13,14,14,15,15,16,16,17,17-Tridecafluoroseptadecylphosphonic acid
95%

SIK1102-10
12,12,13,13,14,14,15,15,16,16,17,17,17-Tridecafluoroheptadecane-1-thiol
97%

SIK4117-30
12,12,13,13,14,14,15,15,16,16,17,17,17-Tridecafluoroheptadecyltriethoxysilane
95%

SIK4116-20
12,12,13,13,14,14,15,15,16,16,17,17,17-Tridecafluoroheptadecyltrimethoxysilane
95%

SIK1101-10
12,12,13,13,14,14,15,15,16,16,17,17,18,18,19,19,19-Heptadecafluorononadecanethiol

97%

SIK7122-10
12,12,13,13,14,14,15,15,16,16,17,17,18,18,19,19,19-Heptadecafluorononadecylphosphonic acid
95%

SIK4113-30
12,12,13,13,14,14,15,15,16,16,17,17,18,18,19,19,19-heptadecafluorononadecyltriethoxysilane
98%

SIK4112-20
12,12,13,13,14,14,15,15,16,16,17,17,18,18,19,19,19-heptadecafluorononadecyltrimethoxysilane
97%

448303
16-Mercaptohexadecanoic acid
90%

674435
16-Mercaptohexadecanoic acid
98%

660493
1*H*,1*H*,2*H*,2*H*-Perfluorodecanethiol
97%

658758
1*H*,1*H*,2*H*,2*H*-Perfluorodecyltriethoxysilane
97%

729965
1*H*,1*H*,2*H*,2*H*-Perfluorododecyltrichlorosilane
97%

737461
1*H*,1*H*,2*H*,2*H*-Perfluorooctanephosphonic acid
95%

667420
1*H*,1*H*,2*H*,2*H*-Perfluorooctyltriethoxysilane
98%

530964
2-(4-Methoxystyryl)-4,6-bis(trichloromethyl)-1,3,5-triazine
98%

669148
2-Ethylhexanethiol
97%

465178
2,2'-(Ethylenedioxy)diethanethiol
95%

737917
2,3,4,5,6-Pentafluorobenzylphosphonic acid
97%

278386
2,4,7,9-Tetramethyl-5-decyne-4,7-diol, mixture of (±) and *meso*
98%

125377
3-(Triethoxysilyl)propionitrile
97%

739294
3-Amino-1-propanethiol hydrochloride
technical grade

371890
3-Aminopropyl(diethoxy)methylsilane
97%

374156
3-Cyanopropyltriethoxysilane
98%

539252
3-Glycidoxypropyldimethoxymethylsilane
97%

405736
3-Mercapto-1-propanol
95%

M5801
3-Mercaptopropionic acid
≥99%

391174

3-Oxabicyclo[3.1.0]hexane-2,4-dione
98%

SIK7119-10
3,3,4,4,5,5,6,6-Nonafluorohexylphosphonic acid
99%

SIK7112-10
3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctylphosphonic acid
≥95%

SIK7114-10
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Heptadecafluorodecylphosphonic acid
≥95%

760080
4′-Mercaptobiphenylcarbonitrile
97% (GC)

706329
4-Mercaptobenzoic acid
99%

701696
4,4′-Dimercaptostilbene
>96%

460036
5-Norbornene-2-*endo*,3-*exo*-dicarboxylic acid
97%

682527
6-(Ferrocenyl)hexanethiol

733679
6-Amino-1-hexanethiol hydrochloride

SIK7701-11
6-Aminohexylphosphonic acid hydrochloride salt
≥95%

SIK7301-11
6-Hydroxyhexylphosphonic acid
97%

725226
6-Mercapto-1-hexanol
99%

451088
6-Mercapto-1-hexanol
97%

674974
6-Mercaptohexanoic acid
90%

693839
6-Phosphonohexanoic acid
97%

745774
8-Amino-1-octanethiol hydrochloride
95%

706922
8-Mercapto-1-octanol
98%

675075
8-Mercaptooctanoic acid
95%

698768
9-Mercapto-1-nonanol
96%

654892
Aldrich® Negative Photoresist Kit I

155071
Azidotrimethylsilane
95%

763969
Benzene-1,4-dithiol
99% (GC)

752207
Biphenyl-4-thiol

97%

673099
Biphenyl-4,4′-dithiol
95%

701300
Bis(11-azidoundecyl) disulfide
99% (HPLC)

381454
Butyl 3-mercaptopropionate
98%

737933
Butylphosphonic acid

216704
***cis*-5-Norbornene-*endo*-2,3-dicarboxylic acid**
98%

247634
***cis*-5-Norbornene-*endo*-2,3-dicarboxylic anhydride**
99%

548006
***cis*-5-Norbornene-*exo*-2,3-dicarboxylic anhydride**
95%

737925
Decylphosphonic acid
97%

348279
Diallyldimethylammonium chloride solution
65 wt. % in H_2O

D61504
Dichlorodiphenylsilane
97%

435171
Diethoxy(3-glycidyloxypropyl)methylsilane
97%

175595
Diethoxydimethylsilane
97%

40120
Diethoxydimethylsilane
purum, ≥97.0% (GC)

446203
Dimethoxymethylvinylsilane
97%

127396
Diphenyliodonium nitrate

530972
Diphenyliodonium triflate
electronic grade, ≥99%

D213705
Diphenylsilanediol
95%

44237
Dodecyltriethoxysilane
technical

254371
Ethoxytrimethylsilane
98%

736244
Hexadecylphosphonic acid
97%

86944
Hexamethyldisilazane
produced by Wacker Chemie AG, Burghausen, Germany, ≥97.0% (GC)

750034
Hexylphosphonic acid
95%

SIK7407-10.4
Hydria

SIK7407-10.7
Hydria in water

M6182
Mercaptosuccinic acid
97%

253006
Methoxytrimethylsilane
99%

108987
Methyl 3-mercaptopropionate
98%

440809
***N*-[3-(Trimethoxysilyl)propyl]aniline**

795755
***n*-Dodecylphosphonic acid**

531111
***N*-Hydroxy-5-norbornene-2,3-dicarboximide perfluoro-1-butanesulfonate**
electronic grade, ≥99% trace metals basis

226378
***N*-Hydroxy-5-norbornene-2,3-dicarboxylic acid imide**
97%

531081
***N*-Hydroxynaphthalimide triflate**
electronic grade, ≥99%

651796
Negative photoresist I

651788
Negative resist developer I

651761
Negative resist remover I

651974

Negative resist thinner I

792438
NTA terminal-SAM formation reagent

305391
Octadecylamine
≥99% (GC)

715166
Octadecylphosphonic acid
97%

235695
Octamethylcyclotetrasiloxane
98%

539279
Octenyltrichlorosilane, mixture of isomers
96%

735914
Octylphosphonic acid
97%

SIK7124-10.4
Oleoxein +

909831
Oleylamine

704709
***p*-Terphenyl-4,4″-dithiol**
95%

SIK7909-10
p-Xylylenebisphosphonic acid
≥95%

480320
Poly[dimethylsiloxane-*co*-[3-(2-(2-hydroxyethoxy)ethoxy)propyl]methylsiloxane]
viscosity 75 cSt (lit.)

480304

Poly[dimethylsiloxane-*co*-(3-aminopropyl)methylsiloxane]
eq. wt. 4,400 Amine

474576
Poly(4-vinylphenol-*co*-methyl methacrylate)

482048
Poly(dimethylsiloxane-*co*-diphenylsiloxane), divinyl terminated
average M_n ~9,300

482196
Poly(dimethylsiloxane-*co*-methylhydrosiloxane), trimethylsilyl terminated
average M_n ~950, methylhydrosiloxane 50 mol %

482374
Poly(dimethylsiloxane-*co*-methylhydrosiloxane), trimethylsilyl terminated
average M_n ~13,000, methylhydrosiloxane 3-4 mol %

481688
Poly(dimethylsiloxane), bis(3-aminopropyl) terminated
average M_n ~2,500

481696
Poly(dimethylsiloxane), bis(3-aminopropyl) terminated
average M_n ~27,000

481246
Poly(dimethylsiloxane), bis(hydroxyalkyl) terminated
average M_n ~5,600

481653
Poly(dimethylsiloxane), chlorine terminated
average M_n ~3,000

480282
Poly(dimethylsiloxane), diglycidyl ether terminated
average M_n ~800

423785
Poly(dimethylsiloxane), hydride terminated
average M_n ~580

482145
Poly(dimethylsiloxane), hydride terminated
average M_n ~24,000

482064
Poly(dimethylsiloxane), hydride terminated
average M_n ~17,500

482005
Poly(dimethylsiloxane), hydroxy terminated
average M_n ~110,000, viscosity ~50,000 cSt

481963
Poly(dimethylsiloxane), hydroxy terminated
viscosity ~750 cSt

481955
Poly(dimethylsiloxane), hydroxy terminated
viscosity ~65 cSt

482161
Poly(dimethylsiloxane), hydroxy terminated
viscosity 3,500 cSt

432997
Poly(dimethylsiloxane), hydroxy terminated
viscosity 18,000-22,000 cSt

480290
Poly(dimethylsiloxane), monoglycidyl ether terminated
average M_n ~5,000

480355
Poly(dimethylsiloxane), monohydroxy terminated
average M_n ~4,670

433012
Poly(dimethylsiloxane), vinyl terminated
average M_w ~25,000, viscosity 850-1,150 cSt (25 °C)(lit.)

430862
Poly(ethylene-*co*-glycidyl methacrylate)
pellets, melt index 5 g/10 min (190°C/2.16kg)

433640
Poly(ethylene-*co*-methyl acrylate-*co*-glycidyl methacrylate)
pellets

176206
Poly(methylhydrosiloxane)
average M_n 1,700-3,200

482382
Poly(methylhydrosiloxane), trimethylsilyl terminated
average M_n ~390

900029
Polyphthalaldehyde
Linear

SIK7903-10.4
Primeria 7903

SIK7903-10.7
Primeria 7903 in water

706930
***S*-(11-Bromoundecyl) thioacetate**

760714
***S*-(4-Bromobutyl) thioacetate**
96% (GC)

718351
***S*,*S'*-[1,4-Phenylenebis(2,1-ethynediyl-4,1-phenylene)]bis(thioacetate)**
97% (HPLC)

746622
SAM Formation reagent for biotin terminated monolayer on gold surface

746614
SAM Formation reagent for carboxylic acid terminated monolayer on gold surface

471585
***tert*-Dodecylmercaptan**
mixture of isomers, 98.5%

736414
Tetradecylphosphonic acid
98%

87682

Tetramethyl orthosilicate
purum, ≥98.0% (GC)

448931
Trichloro(1*H*,1*H*,2*H*,2*H*-perfluorooctyl)silane
97%

104817
Trichloro(octadecyl)silane
≥90%

235725
Trichloro(octyl)silane
97%

420034
Trichloro(phenethyl)silane
95%

440213
Triethoxy(octyl)silane
97%

175560
Triethoxyvinylsilane
97%

673110
Triethylene glycol mono-11-mercaptoundecyl ether
95%

413321
Trimethoxy[2-(7-oxabicyclo[4.1.0]hept-3-yl)ethyl]silane
98%

551635
Trimethoxy[3-(methylamino)propyl]silane
95%

438340
Trimethoxy(2-phenylethyl)silane
98%

376213
Trimethoxy(octadecyl)silane
technical grade

376221
Trimethoxy(octyl)silane
96%

435651
Trimethoxyphenylsilane
≥94%

104744
Trimethoxyphenylsilane
97%

414026
Trimethylsilyl polyphosphate

526940
Triphenylsulfonium triflate

235768
Vinyltrimethoxysilane
98%

440221
Vinyltrimethoxysilane
97%

Inorganic & Metallic Nanomaterials

Nanomaterials are defined as particles having one of their dimensions ≤100 nm. Nanoparticles have a high surface to volume ratio, which allows an incredible amount of cargo on the surface. Our inorganic and metallic nanomaterials are used in a variety of applications from sensors and solar cells to biomedical applications. Our nanomaterials are available in a wide range of sizes and shapes, such as nanorods, nanospheres, and nano-urchins, and formulations/dispersions, including, nanopowders, pastes and suspensions. In addition, we carry functionalized nanoparticles and nanoparticle kits geared towards advanced applications. Unleash the potential of these powerful materials in your research.

INORGANIC NANOPARTICLES

Inorganic nanoparticles are non-toxic and biocompatible, hydrophilic and highly stable compared to organic materials. We offer a variety of inorganic nanoparticles to enhance your research including silica, fluorescent and nanodiamond nanoparticles.

Our silica products come in a variety of modifications to suit your research needs. Whether it is ultra-stable fluorescence, mesoporous, non-porous, or a functionalized surface, we offer a wide selection of sizes to choose from.

We offer fluorescent nanoparticles, such as conjugated polymer nanoparticles, which are comprised of a semiconductor light emitting polymer (LEP) core encapsulated within a biocompatible surfactant. Their enhanced stability makes them an excellent choice for multi-modal MRI for cellular imaging.

METALLIC NANOPARTICLES

When prepared and modified with select chemical functional groups, metallic nanoparticles (e.g. gold, silver, iron) offer a wide range of applications in sensing, batteries, diagnostics, and therapeutics.

Gold and Iron Oxide Kits

Take advantage of the unique optical and biocompatible properties of our gold nanoparticles, gold nano-urchins, and iron oxide nanoparticles without demanding synthesis steps. We offer maleimide and N-hydroxysuccinimide (NHS) functionalized kits for one-step conjugation of oligos, antibodies, proteins and peptides. Our gold nanoparticles can be used to target cells for imaging, photothermal therapy and drug delivery, to detect biomarkers, and for immunoassays (including lateral flow assays). Our iron oxide nanoparticles are optimal for cell and biomolecular separation, gene delivery, drug release, magnetic resonance imaging (MRI) and hyperthermia applications.

910988
Allyl germanane

919241
Aluminum cerium oxide
nanopowder, ≤120 nm particle size (BET), 99% trace metals basis

593044
Aluminum nitride
nanopowder, <100 nm particle size

642991
Aluminum oxide
nanoparticles, 30-60 nm particle size (TEM), 20 wt. % in H_2O

551643
Aluminum oxide
nanowires, diam. × L 2-6 nm × 200-400 nm

544833
Aluminum oxide
nanopowder, <50 nm particle size (TEM)

718475
Aluminum oxide
nanopowder, 13 nm primary particle size (TEM), 99.8% trace metals basis

934054
Aluminum oxide
gamma phase, nanopowder, 5 nm avg. part. size, 99.95% trace metals basis

934062
Aluminum oxide
alpha phase, nanopowder, 135 nm avg. part. size, 99.9% trace metals basis

914681
Aluminum oxide milled nanofibers alpha alumina

913499
Aluminum oxide nanofibers

634131
Aluminum titanate
nanopowder, <25 nm particle size (BET), 98.5% trace metals basis

549541
Antimony tin oxide
nanopowder, <50 nm particle size, ≥99.5% trace metals basis

637173

Antimony(III) oxide
nanopowder, <250 nm particle size (TEM), ≥99.9% trace metals basis

637602
Barium ferrite
nanopowder, <100 nm particle size (BET), >97% trace metals basis

467634
Barium titanate(IV)
nanopowder (cubic crystalline phase), <100 nm particle size (BET), ≥99% trace metals basis

745952
Barium titanate(IV)
nanopowder (cubic), 50 nm (SEM), 99.9% trace metals basis

637017
Bismuth(III) oxide
nanopowder, 90-210 nm particle size, 99.8% trace metals basis

790532
Boron nitride
nanopowder, <150 nm avg. part. size (TEM), 99% trace metals basis

919500
Boron nitride nanotubes
multiwalled, powder, >80%

912085
Boron nitride nanotubes
Multiwalled, powder, >90%

634182
Calcium oxide
nanopowder, <160 nm particle size (BET), 98%

693871
Calcium phosphate, amorphous
nanopowder, <150 nm particle size (BET)

633801
Calcium titanate
nanopowder, <100 nm particle size (BET), 99% trace metals basis

631965
Calcium zirconate
nanopowder, <50 nm particle size (BET), 99.7% trace metals basis

633100
Carbon
nanopowder, <100 nm particle size (TEM)

699624
Carbon, mesoporous
nanopowder, graphitized, less than 250 ppm Al, Ti, Fe, Ni, Cu, and Zn combined

OCNQSS490
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 490 nm, 1 µM

OCNQSS525
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 525 nm, 1 µM

OCNQSS540
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 540 nm, 1 µM

OCNQSS560
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 560 nm, 1 µM

OCNQSS580
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 580 nm, 1 µM

OCNQSS600
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 600 nm, 1 µM

OCNQSS620
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 620 nm, 1 µM

OCNQSS645
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 645 nm, 1 µM

OCNQSS665
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 665 nm, 1 µM

OCNQSS450
Cd-based Core/Shell Quantum Dots with Streptavidin
fluorescence λ_{em} 450 nm, 1 μM

914940
Cerium Zirconium Oxide Milled Nanofiber (Ce:Zr ratio 50:50)

912239
Cerium Zirconium oxide nanofiber (Ce:Zr ratio 50:50)

700290
Cerium(IV) oxide
nanopowder, <50 nm particle size (BET), 99.95% trace rare earth metals basis

643009
Cerium(IV) oxide, dispersion
nanoparticles, <25 nm particle size, 10 wt. % in H_2O

634174
Cerium(IV)-zirconium(IV) oxide
nanopowder, <50 nm particle size (BET), 99.0% trace metals basis

633631
Cobalt aluminum oxide
nanopowder, <50 nm particle size (BET), ≥99% trace metals basis (BET)

773352
Cobalt iron oxide
nanopowder, 30 nm particle size (TEM), 99% trace metals basis

637025
Cobalt(II,III) oxide
nanopowder, <50 nm particle size (SEM), 99.5% trace metals basis

933783
Cobalt(II) oxide
nanopowder, 50 nm avg. part. size, ≥99.5% trace metals basis

924121
Conjugated Polymer Nanoparticles incorporating iron oxide
fluorescence λ_{em} 510B nm, 100 μg/mL in H_2O

774081

Copper
nanopowder, 25 nm particle size (TEM)

774103
Copper
nanopowder, 60-80 nm particle size (SAXS), ≥99.5% trace metals basis

774111
Copper
nanopowder, 40-60 nm particle size (SAXS), ≥99.5% trace metals basis

641723
Copper iron oxide
nanopowder, <100 nm particle size (BET), 98.5% trace metals basis

641650
Copper zinc iron oxide
nanopowder, <100 nm particle size (BET), 98.5% trace metals basis

544868
Copper(II) oxide
nanopowder, <50 nm particle size (TEM)

636444
Diamond
nanopowder, <10 nm particle size (TEM), ≥95% trace metals basis

636428
Diamond
nanopowder, <10 nm particle size (TEM), ≥97% trace metals basis

637289
Dysprosium(III) oxide
nanopowder, <100 nm particle size, 99.9% trace metals basis

637343
Erbium(III) oxide
nanopowder, <100 nm particle size (BET), ≥99.9% trace metals basis

634298
Europium(III) oxide
nanopowder, <150 nm particle size (TEM), 99.5% trace metals basis

798169
Fluorescent nanodiamond
Nitrogen vacancy ~2.5 ppm NV centers, 70 nm avg. part. size, 1 mg/mL in deionized water

798150
Fluorescent nanodiamond
Nitrogen vacancy ~3ppm NV centers, 90 nm avg. part. size, 1 mg/mL in deionized water

798134
Fluorescent nanodiamond
Nitrogen vacancy ~3ppm NV centers, 100 nm avg. part. size, 1 mg/mL in deionized water

798088
Fluorescent nanodiamond
Nitrogen vacancy ~3 ppm NV centers, 120 nm avg. part. size, 1 mg/mL in deionized water

798142
Fluorescent nanodiamond
Nitrogen vacancy ~1.5ppm NV centers, 100 nm avg. part. size, 1 mg/mL in deionized water

901799
Fluorescent nanodiamond
Nitrogen vacancy ~3 ppm NV centers, 140 nm avg. part. size, amine functionalized, powder

900174
Fluorescent nanodiamond
Nitrogen vacancy 3 ppm NV/particle, 100 nm avg. part. size (DLS), 1 mg/mL in deionized water, hydroxylated

900172
Fluorescent nanodiamond
Nitrogen vacancy ≤4 NV/particle, 35 nm avg. part. size (DLS), 1 mg/mL in deionized water, carboxylated

900173
Fluorescent nanodiamond
Nitrogen vacancy >60 NVN/particle, 70 nm avg. part. size (DLS), 1 mg/mL in deionized water

901800
Fluorescent nanodiamond
nitrogen vacancy ~3 ppm NV centers, 140 nm avg. part. size, carboxylic acid functionalized, PEG 3000 coated, 1 mg/mL in deionized water

901802
Fluorescent nanodiamond
nitrogen vacancy ~3 ppm, 140 nm avg. part. size, amine functionalized, PEG 3000 coated, 1 mg/mL in deionized water

797863
Fluorescent silica nanobeads

120 nm, lyophilized

797936
Fluorescent silica nanobeads
50 nm, lyophilized

797928
Fluorescent silica nanobeads
25 nm, lyophilized

797898
Fluorescent silica nanobeads
90 nm, lyophilized

637335
Gadolinium(III) oxide
nanopowder, <100 nm particle size (BET), 99.8% trace metals basis

906026
Germanane

636347
Gold
nanopowder, <100 nm particle size, 99.9% trace metals basis

900554
Gold coated glass slide
layer thickness 100 nm , gold, size 75 mm × 25 mm × 1 mm

900495
Gold nano-urchins
100 nm, NHS ester functionalized, conjugation kit

900486
Gold nano-urchins
70 nm, maleimide functionalized, conjugation kit

928275
Gold nanoparticles
20 nm diameter, azide functionalized, 1ml, OD 50, in water

928119
Gold nanoparticles
40 nm diameter, alkyne functionalized, 1 ML, OD 50, in water

928089
Gold nanoparticles
15 nm diameter, alkyne functionalized, 1 ML, OD 50, in water

928100
Gold nanoparticles
30 nm diameter, Alkyne functionalized, 1 ML, OD 50, in water

928143
Gold nanoparticles
70 nm diameter, alkyne functionalized, 1 ML, OD 50, in water

900475
Gold nanoparticles
20 nm, NHS ester functionalized, conjugation kit

900458
Gold nanoparticles
5 nm, maleimide functionalized, conjugation kit

900459
Gold nanoparticles
10 nm, maleimide functionalized, conjugation kit

900469
Gold nanoparticles
100 nm, maleimide functionalized, conjugation kit

900461
Gold nanoparticles
20 nm, maleimide functionalized, conjugation kit

900463
Gold nanoparticles
40 nm, maleimide functionalized, conjugation kit

900476
Gold nanoparticles
30 nm, NHS ester functionalized, conjugation kit

900481
Gold nanoparticles
80 nm, NHS ester functionalized, conjugation kit

900470
Gold nanoparticles

5 nm, NHS ester functionalized, conjugation kit

900473
Gold nanoparticles
10 nm, NHS ester functionalized, conjugation kit

900478
Gold nanoparticles
50 nm, NHS ester functionalized, conjugation kit

900483
Gold nanoparticles
100 nm, NHS ester functionalized, conjugation kit

900474
Gold nanoparticles
15 nm, NHS ester functionalized, conjugation kit

928127
Gold nanoparticles
50 nm diameter, Alkyne functionalized, 1 ML, OD 50, in water

927899
Gold nanoparticles
15 nm diameter, Ni-NTA functionalized, 1 ML, OD 50, in water

928135
Gold nanoparticles
60 nm diameter, Alkyne functionalized, 1 ML, OD 50, in water

928097
Gold nanoparticles
20 nm diameter, alkyne functionalized, 1 ML, OD 50, in water

928194
Gold nanoparticles
100 nm diameter, azide functionalized, 1ml, OD 50, in water

928224
Gold nanoparticles
70 nm diameter, azide functionalized, 1ml, OD 50, in water

927872
Gold nanoparticles
5 nm diameter, Ni-NTA functionalized, 1 ML, OD 50, in water

900477
Gold nanoparticles
40 nm, NHS ester functionalized, conjugation kit

928259
Gold nanoparticles
40 nm diameter, azide functionalized, 1ml, OD 50, in water

928267
Gold nanoparticles
30 nm diameter, azide functionalized, 1ml, OD 50, in water

928062
Gold nanoparticles
5 nm diameter, alkyne functionalized, 1 ML, OD 50, in water

928240
Gold nanoparticles
50 nm diameter, azide functionalized, 1 ML, OD 50, in water

928232
Gold nanoparticles
60 nm diameter, azide functionalized, 1ml, OD 50, in water

928178
Gold nanoparticles
90 nm diameter, alkyne functionalized, 1ml, OD 50, in water

928186
Gold nanoparticles
100 nm diameter, Alkyne functionalized, 1ml, OD 50, in water

927848
Gold nanoparticles
15 nm diameter, azide functionalized, 1ml, OD 50, in water

927902
Gold nanoparticles
20 nm diameter,
Ni-NTA functionalized, 1ml

, OD 50, in water

927945
Gold nanoparticles
60 nm diameter, Ni-NTA functionalized, 1 ML, OD 50, in water

927953
Gold nanoparticles
70 nm diameter, Ni-NTA functionalized, 1ml, OD 50, in water

927961
Gold nanoparticles
80 nm diameter, Ni-NTA functionalized, 1 ML, OD 50, in water

927929
Gold nanoparticles
40 nm diameter, Ni-NTA functionalized, 1 ML, OD 50, in water

927910
Gold nanoparticles
30 nm diameter, Ni-NTA functionalized, 1 ML, OD 50, in water

928070
Gold nanoparticles
10 nm diameter, alkyne functionalized, 1 ML, OD 50, in water

900203
Hydroxyapatite
powder, 10 µm

900204
Hydroxyapatite
powder, 5 µm

544876
Indium tin oxide
nanopowder, <50 nm particle size

747939
Indium tin oxide
≥99.5% trace metals basis, 18 nm particle size (SEM), 20 wt. % in H_2O

632317
Indium(III) oxide
nanopowder, <100 nm particle size (TEM), 99.9% trace metals basis

637149
Iron nickel oxide

nanopowder, <50 nm particle size (APS), ≥98% trace metals basis

796093
Iron oxide hydroxide
aqueous nanoparticle dispersion, <5 nm (DLS), 20% solids by weight, pH ~3, 99.5% trace metals basis

677426
Iron-nickel alloy
nanopowder, <100 nm particle size (BET), ≥97%

637106
Iron(II,III) oxide
nanopowder, 50-100 nm particle size (SEM), 97% trace metals basis

544884
Iron(III) oxide
nanopowder, <50 nm particle size (BET)

790346
ITO
30 nm (SEM)

634271
Lanthanum(III) oxide
nanopowder, <100 nm particle size (TEM), 99% trace metals basis

702277
Lithium titanate, spinel
nanopowder, <200 nm particle size (BET), >99%

677396
Magnesium aluminate, spinel
nanopowder, <50 nm particle size (BET)

549649
Magnesium oxide
nanopowder, ≤50 nm particle size (BET)

926698
***MCM-41* 100nm nanoparticle**

pore size 30 Å, 1% in water (dispersion)

902462
Molybdenum(IV) disulfide
lithium intercalated

804169
Molybdenum(IV) sulfide
nanopowder, 90 nm diameter (APS), 99% trace metals basis

775703
Molybdenum(VI) oxide
nanopowder, 100 nm (TEM), 99.5% trace metals basis

682659
Nanoclay, hydrophilic bentonite

682632
Nanoclay, surface modified
contains 15-35 wt. % octadecylamine, 0.5-5 wt. % aminopropyltriethoxysilane

682608
Nanoclay, surface modified
contains 25-30 wt. % trimethyl stearyl ammonium

682624
Nanoclay, surface modified
contains 35-45 wt. % dimethyl dialkyl (C14-C18) amine

634611
Neodymium(III) oxide
nanopowder, <100 nm particle size (BET), 99.9% trace metals basis

577995
Nickel
nanopowder, <100 nm avg. part. size, ≥99% trace metals basis

641669
Nickel zinc iron oxide
nanopowder, <100 nm particle size (BET), ≥99% trace metals basis

637130

Nickel(II) oxide
nanopowder, <50 nm particle size (TEM), 99.8% trace metals basis

774545
Nickel(II) oxide
nanowires, diam. × L ~20 nm × 10 µm

686468
Palladium
nanopowder, <25 nm particle size (TEM), ≥99.5%

685453
Platinum
nanopowder, <50 nm particle size (TEM)

771937
Platinum
nanopowder, 200 nm particle size (SEM), 99.9% (metals basis)

900556
Rare earth doped upconversion nanoparticles
fluorescence λ_{em} 540 nm (main peak), 10 mg/mL in toluene

900544
Rare earth doped upconversion nanoparticles
fluorescence λ_{em} 474 nm (main peak), 10 mg/mL in toluene

70253
Sepiolite
powder

718483
Silica
nanopowder, 99.8% trace metals basis

748161
Silica
nanoparticles, mesoporous, 200 nm particle size, pore size 4 nm

904368
Silica
monodisperse, non-porous, 10 µm

913855
Silica

mesoporous SBA-15, <150 µm particle size, pore size 12 nm, Hexagonal pore morphology

904406
Silica
monodisperse, non-porous, 750 nm

904465
Silica
monodisperse, non-porous, 2.0 µm

904392
Silica
monodisperse, non-porous, 200 nm

904414
Silica
monodisperse, non-porous, 150 nm

904422
Silica
monodisperse, non-porous, 300 nm

904430
Silica
monodisperse, non-porous, 400 nm

904384
Silica
monodisperse, non-porous, 50 µm

805890
Silica
mesoporous, 0.5 µm particle size, pore size ~2 nm

806889
Silica
mesoporous, 1 µm particle size, pore size ~4 nm

806803
Silica
mesoporous SBA-15, <150 µm particle size, pore size 4 nm, Hexagonal pore morphology

806854
Silica
mesoporous SBA-15, <150 µm particle size, pore size 8 nm, Hexagonal pore morphology

904341
Silica
monodisperse, non-porous, 3.0 µm

904457
Silica
monodisperse, non-porous, 1.0 µm

914347
Silica
monodisperse, non-porous, 70 µm

914878
Silica
mesoporous, 200 nm particle size, pore size ~2 nm

808989
Silica
mesoporous, 0.5 µm particle size, pore size ~4 nm

904449
Silica
monodisperse, non-porous, 500 nm

904376
Silica
monodisperse, non-porous, 20 µm

806587
Silica
mesoporous, 2 µm particle size, pore size ~2 nm

806765
Silica
mesoporous, 3 µm particle size, pore size ~2 nm

806951
Silica
mesoporous, 3 µm particle size, pore size ~4 nm

806862
Silica
mesoporous SBA-15, <150 µm particle size, pore size 6 nm, Hexagonal pore morphology

806900

Silica
mesoporous, 2 µm particle size, pore size ~4 nm

805467
Silica
mesoporous MCM-48, 15 µm particle size, pore size 3 nm, Cubic pore morphology

913855
Silica
mesoporous SBA-15, <150 µm particle size, pore size 12 nm, Hexagonal pore morphology

904392
Silica
monodisperse, non-porous, 200 nm

914150
Silica dioxide- sorbent milled nanofiber

912492
Silica dioxide- sorbent nanofiber

914657
Silica dioxide- vitreous milled nanofiber

912999
Silica dioxide- vs nanofiber

913944
Silica dioxide-electrospun milled nanofibers

914614
Silica mesoporous SBA-15
<150 µm particle size, pore size 10 nm, Hexagonal pore morphology

560979
Silica, mesostructured
MSU-F (cellular foam)

643645
Silica, mesostructured
MCM-41 type (hexagonal)

777242
Silica, mesostructured

SBA-15, 99% trace metals basis

633097
Silicon
nanopowder, <100 nm particle size (TEM), ≥98% trace metals basis

933759
Silicon
nanoparticles, 10 nm avg. part. size, ≥99% trace metals basis, battery grade

933767
Silicon
nanoparticles, 40 nm avg. part. size, ≥99% trace metals basis

594911
Silicon carbide
nanopowder, <100 nm particle size

776742
Silicon carbide
nanofiber, D <2.5 µm, L/D ≥ 20, 98% trace metals basis

637246
Silicon dioxide
nanopowder (spherical, porous), 5-20 nm particle size (TEM), 99.5% trace metals basis

637238
Silicon dioxide
nanopowder, 10-20 nm particle size (BET), 99.5% trace metals basis

922587
Silicon Dioxide (Silica) - Nanofibers
diam. × L ~425 nm (±50 nm) × infinity

636703
Silicon nitride
nanopowder, <50 nm particle size (spherical), ≥98.5% trace metals basis

576832
Silver
nanopowder, <100 nm particle size, contains PVP as dispersant, 99.5% trace metals basis

484059
Silver

nanopowder, <150 nm particle size, 99% trace metals basis

908460
Silver nano ink, aerosol jet printable

576824
Silver-copper alloy
nanopowder, <100 nm particle size

517011
Strontium titanate
nanopowder, <100 nm particle size, 99% trace metals basis

OCNMM3-1.5
SuperMag multitube magnetic separator
10-30 nm (Iron oxide nanoparticles)

549657
Tin(IV) oxide
nanopowder, ≤100 nm avg. part. size

910708
Titanium aluminium carbide 211
≥80%, ≤200 µm particle size

910821
Titanium aluminium carbide 211
≥80%, ≤100 µm particle size

910767
Titanium aluminium carbide 312
≥90%, ≤100 µm particle size

910740
Titanium aluminium carbide 312
≥90%, ≤200 µm particle size

910775
Titanium aluminium carbide 312
≥90%, ≤40 µm particle size

636967
Titanium carbide
nanopowder, ≤200 nm particle size (SEM)

924962
Titanium Carbide ($Ti_3C_2T_x$)
Few layer MXene

636959
Titanium carbonitride
nanopowder, <150 nm particle size (spherical), ≥97% trace metals basis

799289
Titanium dioxide
nanotubes, 25 nm average diameter, powder

914401
Titanium dioxide milled nanofibers
anatase/rutile

913480
Titanium dioxide nanofibers

641731
Titanium silicon oxide
nanopowder, <50 nm particle size (BET), 99.8% trace metals basis

718467
Titanium(IV) oxide
nanopowder, 21 nm primary particle size (TEM), ≥99.5% trace metals basis

774529
Titanium(IV) oxide
nanowires, diam. × L ~10 nm × 10 µm

774510
Titanium(IV) oxide
nanowires, diam. × L ~100 nm × 10 µm

637254
Titanium(IV) oxide, anatase
nanopowder, <25 nm particle size, 99.7% trace metals basis

791326
Titanium(IV) oxide, brookite
nanopowder, <100 nm, 99.99% trace metals basis

634662
Titanium(IV) oxide, mixture of rutile and anatase
nanopowder, <100 nm particle size (BET), 99.5% trace metals basis

700347
Titanium(IV) oxide, mixture of rutile and anatase
nanoparticles, <150 nm particle size (volume distribution, DLS), dispersion, 40 wt. % in H_2O, 99.5% trace metals basis

637262
Titanium(IV) oxide, rutile
nanopowder, <100 nm particle size, 99.5% trace metals basis

900205
Tricalcium phosphate
powder, 4 µm, ≥80 m^2g

693898
Tricalcium phosphate hydrate
nanopowder, <200 nm particle size (BET)

905992
Tungsten (IV) diselenide
lithium intercalated

903841
Tungsten (IV) disulfide
lithium intercalated

778346
Tungsten(IV) carbide
nanopowder, hexagonal, 150-200 nm, ≥99% trace metals basis

790583
Tungsten(IV) sulfide
nanopowder, 90 nm avg. part. size (SEM), 99% trace metals basis

774537
Tungsten(VI) oxide
nanowires, diam. × L ~50 nm × 10 µm

550086
Tungsten(VI) oxide
nanopowder, <100 nm particle size (TEM)

797901
Ultrastable fluorescent silica nanobeads
25 nm, lyophilized

797871
Ultrastable fluorescent silica nanobeads
120 nm, lyophilized

797952
Ultrastable fluorescent silica nanobeads
50 nm, lyophilized

797901
Ultrastable fluorescent silica nanobeads
25 nm, lyophilized

926612
Upconversion Nanoparticles
$NaYF_4$,Yb,Tm@$NaYF_4$,Yb,Nd, Oil soluble core shell upconversion nanoparticle, 808 excited, blue light

926647
Upconversion Nanoparticles
$NaYF_4$,Yb,Er@$NaYF_4$,Yb,Nd, Oil soluble core shell,808 excitation, green

926566
Upconversion Nanoparticles
$NaYF_4$-Yb,Er@$NaYF_4$, PEG-NH_2 modified core-shell, 980 excitation, green light

926604
Upconversion Nanoparticles
$NaYF_4$-Yb,Er@$NaYF_4$, PEG-COOH modified core-shell, fluorescence λ_{ex} 980 nm, green light

926639
Upconversion Nanoparticles
NaYF4:Yb,Tm@NaYF4, Oil soluble core shell, 980 excitation, blue light

926620

Upconversion Nanoparticles
$NaYF_4$:Yb,Er@$NaYF_4$, Oil soluble core-shell, fluorescence λ_{ex} 980, green light

926523
Upconversion Nanoparticles
$NaYF_4$,Yb,Tm@$NaYF_4$ Yb, Nd, PEG-NH_2 modified core-shell, fluorescence λ_{ex} 808 nm, blue light

926531
Upconversion Nanoparticles
$NaYF_4$,Yb,Er@$NaYF_4$,Yb,Nd, PEG-NH_2 modified core-shell, 808 excitation, green light

926515
Upconversion Nanoparticles
Silica coated $NaYF_4$-Yb,Er@$NaYF_4$, fluorescence λ_{ex} 980 nm, green light

926590
Upconversion Nanoparticles
$NaYF_4$-Yb,Tm@$NaYF_4$, PEG-COOH modified core-shell, fluorescence λ_{ex} 980, blue light

926671
Upconversion Nanoparticles
Silica coated $NaYF_4$,Yb,Tm@NaYF4,Yb,Nd, 808 excited, blue light

926574
Upconversion Nanoparticles
$NaYF_4$,Yb,Tm@$NaYF_4$,Yb,Nd, PEG-COOH modified core-shell, fluorescence λ_{ex} 808 nm, blue light

926663
Upconversion Nanoparticles
Silica coated NaYF4,Yb,Er@NaYF4,Yb,Nd, 808 excited, green

926655
Upconversion Nanoparticles
Silica coated $NaYF_4$-Yb,Tm@NaYF4, 980 excitation, blue light

926582
Upconversion Nanoparticles
$NaYF_4$,Yb,Er@$NaYF_4$,Yb,Nd, PEG-COOH modified core-shell, 808 excitation, green light

926558

Upconversion Nanoparticles
NaYF4-Yb,Tm@NaYF4, PEG-NH2 modified core-shell ucnps,980 excitation, blue light

920177
Vanadium (V) oxide nanosheets

637300
Ytterbium(III) oxide
nanopowder, <100 nm particle size (BET), ≥99.7% trace metals basis

634638
Yttrium aluminum oxide
nanopowder, <150 nm particle size (TEM), 99% trace metals basis

544892
Yttrium(III) oxide
nanopowder, <50 nm particle size

578002
Zinc
nanopowder, 40-60 nm avg. part. size, ≥99% trace metals basis

633844
Zinc iron oxide
nanopowder, <100 nm particle size (BET), >99% trace metals basis

544906
Zinc oxide
nanopowder, <100 nm particle size

773999
Zinc oxide
nanowires, size × L × 1 μm

634409
Zinc titanate
nanopowder, <100 nm particle size (BET), 99% trace metals basis

913510
Zirconium oxide nanofibers

643122
Zirconium(IV) oxide
nanoparticles, dispersion, <100 nm particle size (BET), 5 wt. % in H_2O

643025
Zirconium(IV) oxide
nanoparticles, dispersion, <100 nm particle size (BET), 10 wt. % in H_2O

544760
Zirconium(IV) oxide
nanopowder, <100 nm particle size (TEM)

916269
ZrO_2 nanoparticles
5 nm (core), Propylene glycol methyl ether acetate (PGMEA) 50 wt. %, high surface coverage capping materials

915262
ZrO_2 nanoparticles
5 nm (core), methacrylate functionalized, 50 wt. % in propylene glycol methyl ether acetate (PGMEA), medium surface coverage capping materials

916501
ZrO_2 nanoparticles
5 nm (core), acrylate functionalized, Ethyl Acetate 50 wt. %, medium surface coverage capping materials

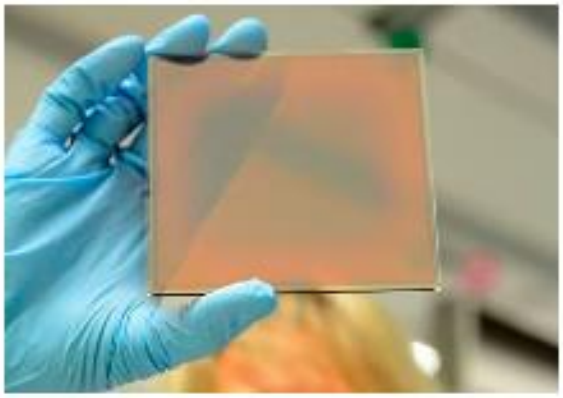
916528
ZrO_2 nanoparticles
5 nm (core), methacrylate functionalized, Ethyl Acetate 50 wt. %, high surface coverage capping materials

915750
ZrO_2 nanoparticles
5 nm (core), methacrylate functionalized, 50 wt. % in ethyl acetate, medium surface coverage capping materials

915505
ZrO_2 nanoparticles
5 nm (core), methacrylate functionalized, 50 wt. % in propylene glycol methyl ether acetate (PGMEA)

915491
ZrO_2 nanoparticles
5 nm (core), 50 wt. % in propylene glycol methyl ether acetate (PGMEA), low surface coverage capping materials

OFET & OPV Materials



We offer a wide range of materials for OFET & OPV applications, such as carbon nanomaterials, conductive polymers, p-type and n- type semiconductor polymers, inks for printed electronics, ready-to-use conductive substrates, self-assembly materials, and small organic molecules.

ORGANIC FIELD EFFECT TRANSISTORS

We offer a wide range of high-purity, high-performance p-type and n-type organic semiconductor materials and inks (including small molecules, polymers), organic conductors and dielectric materials, as well as building blocks for making new active materials used in OFETs. We also offer a series of **prefabricated electrodes** for fast prototyping of OFETs, requiring only one simple step of applying your semiconducting materials:

- backgated
- high channel width to length (W/L) ratio
- one dice with multiple varied W/L ratio devices
- high reliability and reproducibility
- reliable ohmic source/drain contacts
- selection of dielectric thickness and device configuration
- matching testing equipment with reliable pad contact without the need of a probe station

ORGANIC PHOTOVOLTAICS

Organic photovoltaic (OPV) technology is a rapidly growing field due to recent breakthroughs in innovative materials and design optimization. Novel production processes employ high-throughput, large-volume printing on lightweight, flexible plastic substrates for low-cost solar energy devices. Advances to OPV performance have widely been contributed to the use of donor-acceptor (DA) polymers.

915777
1-Ethyl-3-methylimidazolium tetracyanoborate Solarpur®

149063
1,3-Bis[4-(dimethylamino)phenyl]-2,4-dihydroxycyclobutenediylium dihydroxide, bis(inner salt)
Dye content 90 %

687545
1*H*-Pyrrole-1-propionic acid

97%

777293
2-{[7-(5-*N*,*N*-Ditolylaminothiophen-2-yl)-2,1,3-benzothiadiazol-4-yl]methylene}malononitrile
99% (HPLC)

547905
2,2′:5′,2″:5″,2‴-Quaterthiophene
96%

757233
2,4-Bis[4-(*N*,*N*-diphenylamino)-2,6-dihydroxyphenyl]squaraine
98%

767743
2,5-Dihydro-3,6-di-2-thienyl-pyrrolo[3,4-*c*]pyrrole-1,4-dione
97%

729078
3,4-Ethylenedithiothiophene

776734
4-(2,3-Dihydro-1,3-dimethyl-1*H*-benzimidazol-2-yl)-*N*,*N*-dimethylbenzenamine
97% (HPLC)

764639
5,5‴-Bis(tridecafluorohexyl)-2,2′:5′,2 ″:5″,2‴-quaterthiophene

716006
6,13-Bis(triisopropylsilylethynyl)pentacene
≥99% (HPLC)

704326
[6.6] Diphenyl C_{62} bis(butyric acid methyl ester)(mixture of isomers)
99.5%

594687
α-Sexithiophene

L754080
ADT
Aldrich^{CPR}, sublimed

FIPMS176

Back-gated OFET Substrate
n-doped silicon wafer with 230 nm SiO2 gate-insulator, chips (diced)

667846
BBL

362026
Bis(ethylenedithio)tetrathiafulvalene
98%

906824
BT-CIC
≥98%

906379
COi8DFIC
≥98%

546127
Coumarin 30
Dye content 99 %

745944
D102 Dye
95% (HPLC)

736015
D149 Dye
98% (HPLC)

745618
D205 Dye
95% (HPLC)

900774
Di-PDI

695637
Dibenzotetrathiafulvalene
97%

767638
Dinaphtho[2,3-b:2′,3′-*f*]thieno[3,2-*b*]thiophene
sublimed grade, 99%

772372
DTS(PTTh$_2$)$_2$

900853
EH-IDTBR

906972
F-M
≥98%

900854
FBR

805238
FK 102 Co(II) PF_6 salt

805254
FK 102 Co(III) PF_6 salt

805203
FK 102 Co(III) TFSI salt

805386
FK 209 Co(II) TFSI salt

805408
FK 209 Co(III) PF_6 salt

805394
FK 209 Co(III) TFSI salt

932604
Ge-OMe TPA

912891
High surface area conducting polyaniline

912573
High surface area conducting polypyrrole

918334
High-performance silicon anode
100 nm silicon particles in crosslinked conducting polyanaline matrix

912409
High-performance silicon anode
1 micron silicon particles in crosslinked conducting polyanaline matrix

☐
900902
Hyflon® AD 40H

☐
900897
Hyflon® AD 40H SF
high purity

☐
900901
Hyflon® AD 40L

☐
900900
Hyflon® AD 60

☐
910635
IDT-2Br
≥99%

☐
913006
IEICO
≥99%

☐
913774
IEICO-4Cl
≥99%

☐
914029
IEICO-4F
≥99%

☐
900799
ITIC

☐
906387
ITIC-Cl

☐
900803
ITIC-DM

☐

901423
ITIC-F

901058
J51

668184
***N*-Methylfulleropyrrolidine**
99% (HPLC)

264229
***N*,*N*′-Bis(2,5-di-*tert*-butylphenyl)-3,4,9,10-perylenedicarboximide**
Dye content 97 %

776289
***N*,*N*′-Bis(3-pentyl)perylene-3,4,9,10-bis(dicarboximide)**
98% (HPLC)

663913
***N*,*N*′-Dioctyl-3,4,9,10-perylenedicarboximide**
98%

663921
***N*,*N*′-Dipentyl-3,4,9,10-perylenedicarboximide**
98%

900810
O-IDTBR

901099
PBDB-T

906352
PBDB-T-2Cl

906336
PBDB-T-2F

906344
PBDB-T-SF
M_W ≥80,000

901871
PBDTS-TDZ

901067
PBDTTT-C-T

753963
PBTTT-C12

753971
PBTTT-C14

754005
PCPDTBT
average M_w 7,000-20,000

901097
PDBT-T1

901143
PDI-DPP-PDI

754013
PFO-DBT
average M_w 10,000-50,000

469610
Poly[4,5-difluoro-2,2-bis(trifluoromethyl)-1,3-dioxole-*co*-tetrafluoroethylene]
dioxole 65 mol %

469629
Poly[4,5-difluoro-2,2-bis(trifluoromethyl)-1,3-dioxole-*co*-tetrafluoroethylene]
dioxole 87 mol %

182354
Poly(1,4-phenylene sulfide) average M_n ~ 10,000, powder | 25212-74-2
average M_n ~10,000, powder

696897
Poly(3-octylthiophene-2,5-diyl-*co*-3-decyloxythiophene-2,5-diyl)

675288
Poly(3,4-ethylenedioxythiophene)
nanoparticles, dispersion, in H_2O

678392
Poly(3,4-ethylenedioxythiophene) hydrate
nanotubes

649805
Poly(3,4-ethylenedioxythiophene)-*block*-poly(ethylene glycol) solution
1 wt % dispersion in nitromethane, contains perchlorate as dopant

768618
Poly(3,4-ethylenedioxythiophene)-poly(styrenesulfonate)
dry re-dispersible pellets

768618
Poly(3,4-ethylenedioxythiophene)-poly(styrenesulfonate)
dry re-dispersible pellets

436224
Poly(4-vinylphenol)
average M_w ~25,000

530689
Polyaniline (emeraldine base)
average M_w ~65,000

556378
Polyaniline (emeraldine base)
average M_w ~20,000

476706
Polyaniline (emeraldine base)
average M_w ~10,000

556386
Polyaniline (emeraldine base)
average M_w ~50,000

556459
Polyaniline (emeraldine base)
average M_w ~5,000

576379
Polyaniline (emeraldine base)
average M_w ~100,000

530565

Polyaniline (emeraldine salt)
composite (20 wt.% polyaniline on carbon black)

561126
Polyaniline (emeraldine salt) short chain, grafted to lignin
powder

530573
Polypyrrole
doped, conductivity 30 S/cm (bulk), extent of labeling: 20 wt. % loading, composite with carbon black

482552
Polypyrrole
doped, 5 wt % dispersion in H_2O, conductivity >0.005 S/cm (dried cast film)

578177
Polypyrrole
doped, conductivity 0.5-1.5 S/cm (pressed pellet, typical), extent of labeling: ~5 wt. % loading, coated on titanium dioxide

577030
Polypyrrole
conductivity 10-50 S/cm (pressed pellet)

906921
PQT-12

772410
PTB7
average M_W 80,000-200,000, PDI ≤3.0

794333
PTB7-Th

P11255
PTCDA
97%

924385
Silicon Tetrabiphenyl MeOTAD

754102
TES-ADT
>99% (HPLC)

911216
TU-1

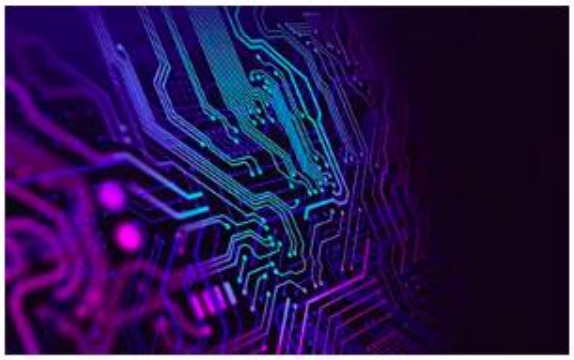
911135
TU-3

912751
Y5
≥99%

908509
Y6

913251
Y7
≥99%

Electronic Chemicals & Etchants



Specialty chemicals are used to enhance the technological performance and cost efficiency of electronic components and devices to keep pace with the dynamic electronics industry. Semiconductor device fabrication requires a series of complicated steps performed in a highly controlled manner, from cleaning, etching, and photolithography, to chemical-mechanical planarization and wet processing. The number of process steps and material layers increase in accordance with semiconductor engineering complexity.

We provide a broad range of high-quality electronic chemicals with electronic grade purity (up to 99.999% pure, trace metals basis) for every step in the production of electronic products, such as integrated circuits, printed circuit boards, silicon wafers, packaging and flat panel displays. No matter the stage you're at, we have precisely what you need.

- Electroplating & electroless plating solutions
- Formulated etchants
- Ultra-high purity acids
- Carboranes
- Fluorides
- Specialty gases

- Dopants
- Semiconductor grade solvents
- Single crystal substrates

Our ready-to-use electroless plating solutions for gold, nickel, silver, and zinc, as well as electroplating solutions for low stress and pinhole-free nickel, Invar (nickel-iron alloy) and high-speed copper keep your work flowing.

Our etchants are formulated to remove substrates without damaging underlying layers and to obtain selective etching of aluminum, copper, gold, chromium, tungsten, tantalum, and ceramic films, and feature:

Controllable, steady etching rate

Compatible with various photoresists

Minimum undercutting

Minimum residue

324744
Fluorophosphoric acid solution
70 wt. % in H_2O

372757
Fluorosilicic acid solution
20-25 wt. % in H_2O

236535
Fluorosulfonic acid
purified by triple-distillation

332461
Graphite
flakes

808091
Graphite
flakes, 99% Carbon, −100 mesh (≥80%), natural

808067
Graphite
flakes, 99% carbon basis, -325 mesh particle size (≥99%), natural

808083
Graphite
flakes, ≥98% carbon basis, -325 mesh particle size (50- 70%), natural

808113
Graphite
flakes, ≥98% carbon basis, +50 mesh particle size (≥80%), natural

481777
Hexafluorotitanic acid solution
60 wt. % in H_2O, 99.9% trace metals basis

752851
Hydriodic acid
57 wt. %, distilled, 99.999% trace metals basis

695912
Lead
shot, 1-3 mm, 99.995% trace metals basis

913243
Maleic acid
≥99.5% (HPLC), <=0.5% water

912735
Maleic acid
electronic grade, ≥99.97% trace metals basis, water <=350 ppm

P29006
Phenylphosphonic acid
98%

466123
Phosphoric acid
crystalline, ≥99.999% trace metals basis

288462
Phosphorus tribromide
≥99.99% trace metals basis

310115
Phosphorus trichloride
99.999% trace metals basis

241555
Phosphorus triiodide
99%

343242
Phosphorus, red
≥99.99% trace metals basis

481513
Selenic acid solution
40 wt. % in H_2O, 99.95% trace metals basis

733458
2-Propanol
electronic grade, 99.999% trace metals basis

726192
Bis(4-methylphenyl)iodonium hexafluorophosphate
98%

726206
Bis(4-*tert*-butylphenyl)iodonium hexafluorophosphate
98%

442305
Bis(ethylenediamine)copper(II) hydroxide solution
1.0 M in H_2O

339067
Boric acid
99.97% trace metals basis

202878
Boric acid
99.999% trace metals basis

202851
Boric anhydride
99.999% trace metals basis

572144
Bromotris(triphenylphosphine)copper(I)
98%

667447
Ceramic Etchant A

910643
Cleaning solution for Ag ink

548014
Diphenyliodonium hexafluorophosphate
≥98%

218650
Diphosphorus tetraiodide
95%

929662
ElectroGreen®
NMP substitute for electronics – type 2, bio-sourced

929670
ElectroGreen®
Acetone substitute for electronics, bio-sourced

929697
ElectroGreen®
Butyl Cellosolve substitute for electronics, bio-sourced

929727
ElectroGreen®
Methyl Amyl Ketone substitute for electronics, bio-sourced

929735
ElectroGreen®
Cyclohexanone substitute for electronics, bio-sourced

929654
ElectroGreen®
Isopropyl Alcohol substitute for electronics, bio-based

929700
ElectroGreen®
Xylene substitute for electronics, bio-sourced

808121

able Graphite
flakes

229857
Selenous acid
99.999% trace metals basis

634867
Silicon dioxide
single crystal substrate, optical grade, 99.99% trace metals basis, L × W × thickness 10 mm × 10 mm × 0.5 mm

414980
Sulfur
powder, 99.98% trace metals basis

213292
Sulfur
99.998% trace metals basis

344621
Sulfur
flakes, ≥99.99% trace metals basis

86375
Telluric acid
purum, ≥99.0% (T)

308463
Telluric acid
98%

95420
Tungstic acid
≥98.0% (calcined substance, T), powder

223328
Tungstic acid
99%

394505
Xenon difluoride
99.99% trace metals basis

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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Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
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Вологда (8172)26-41-59
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Ижевск (3412)26-03-58
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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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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
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Ярославль (4852)69-52-93

Россия +7(495)268-04-70
Казахстан +7(7172)727-132
Киргизия +996(312)96-26-47

www.sigmaaldrich.nt-rt.ru | | scx@nt-rt.ru