PRODUCTS CATALOG

Carbon Nanotube Products restricted to laboratory research and development uses

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1. Elemental Nanoparticles

Formula Stock # CAS #	**Abbreviations used in this catalog** **APS**: Average Particle Size, **ACS**: Average Crystallite Size , **OD**: Outside Diameter, **ID**: Inside Diameter **SSA**: Specific Surface Area.	Price (US$/quantity)
Ag 0474DFF2 7440-22-4	Silver Powder, 99.95% (metal basis) Thickness: 80 - 500 nm Length & width: 8-10 μm SSA: 0.6-1.2 m^2/g Particle Morphology: flaky Crystallographic Structure: cubic	$60/25g $108/100g $470/500g $860/1kg
Ag 0474DFF1 7440-22-4	Silver Powder, 99.95% (metal basis) Thickness: 80 - 500 nm Length & width: 5-8 μm SSA: 0.7-1.3 m^2/g Particle Morphology: flaky Crystallographic Structure: cubic	$60/25g $108/100g $470/500g $860/1kg
Ag 0474DFF3 7440-22-4	Silver Powder, 99.95% (metal basis) Thickness: 80 - 500 nm Length & width: 2-4 μm SSA: 0.8-1.5 m^2/g Particle Morphology: flaky Crystallographic Structure: cubic	$60/25g $108/100g
Ag 0472DFS3 7440-22-4	Silver Powder, 99.95% (metal basis) APS: 1.5-2.5 μm SSA: 0.4-0.8 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$60/25g $108/100g $470/500g $860/1kg
Ag 0471CD 7440-22-4	Silver Powder, 99% (metal basis) APS: 90-210 nm SSA: 2.40-4.42 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$193/25g $473/100g
Ag 0476JY 7440-22-4	Silver Powder, 99.5% (metal basis) APS: 35 nm SSA: 30-50 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$142/5g $342/25g $753/100g
Ag 0476HW 7440-22-4	Silver (Ag), w/~~0.3% PVP(Polyvinylpyrrolidone) Purity: 99.9% APS: 80 nm	$80/5g $171/25g
Ag 0478HW 7440-22-4	Silver (Ag), w/~0.3% PVP(Polyvinylpyrrolidone) Purity: 99.9% APS: 20 nm	$248/25g $709/100g
Ag 0477YD 7440-22-4	Silver Powder, 99.9% (metal basis) Surface coated with 0.2 wt% PVP APS: 30-50 nm SSA: 5-10 m2/g Particle Morphology: spherical Crystallographic Structure: cubic	$105/5g $220/25g $557/100g
Ag 0477YDC 7440-22-4	Silver Powder, 99.9% (metal basis) Surface coated with 0.2 wt% oleic acid. APS: 30-50 nm SSA: 5-10 m^2/g Particle Morphology: spherical	$220/25g $557/100g

	Crystallographic Structure: cubic	
Ag 0475NW2 7440-22-4 UN1170	Silver nanowires (stored in ethanol) Wire average diameter: 227 ± 80 nm Wire length: 6.1 ± 2.1 um Purity: 99.9+%	$290/g
Ag 0475NW1 7440-22-4 UN1170	Silver nanowires (stored in ethanol) Wire average diameter: 274 ± 39 nm Wire length: 5.3 ± 3.3 um Purity: 99.9+%	$290/g
Ag 0475NW4 7440-22-4 UN1170	Silver nanowires (stored in ethanol) Wire average diameter: 386 ± 48 nm Wire length: 8.5 ± 3.6 um Purity: 99.9+%	$290/g
Al 0136JY 7429-90-5 UN1396 Flammable	Aluminum Powder, 99+% (metal basis, O<5%) APS: 18 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$105/5g $231/25g $495/100g $1,518/500g $2,860/1kg
Au 0795CD 7440-57-5	Gold Powder, 99.99+% APS: 50-100 nm SSA: 3.3 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$408/1g
Au 0796XW 7440-57-5	Gold Powder, 99.5+% APS: < 100 nm SSA: 1.3-2.2 m^2/g Particle Morphology: ~ spherical Crystallographic Structure: cubic	$980/6g
C 1310JGY 7440-44-0	**Diamond Powder (black),** 52-65% APS: 4-25 nm SSA: 360-420 m^2/g Particle Morphology: spherical & flake Crystallographic Structure: cubic	$70/5g $120/25g $390/100g $1,500/500g $2,500/1kg
C 1320JGY 7440-44-0	**Diamond Synthesized (95%, 3-5 nm)** APS: 3-5 nm, max < ~10 nm SSA: 278-335 m2/g	$80/5g $220/25g $760/100g $3,080/500g $4,950/1kg
C 1321JGY 7440-44-0	**Diamond Powder (gray)**, 98+% APS: 6 nm SSA: ~282 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$88/5g $245/25g $850/100g $3,380/500g $5,550/1kg
C 1211NH 7440-44-0	**Nano Activated Carbon** APS: 100nm	$138/100g $361/500g $523/1kg
C 1350SL 7440-44-0	**Diamond Powder (gray)**, 97+% APS: 3.5-6.5 nm SSA: 200-450 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$99/5g $379/25g $1,290/100g $5,200/500g $8,320/1kg

C 1250HT 7440-44-0	**Graphite Powders**, 99.9% APS: 400 nm Particle Morphology: flaky Crystallographic Structure: hexagonal	$150/25g $210/100g $450/500g $600/1kg
Co 0276JY 7440-48-4 UN3089 Flammable	Cobalt Powder, 99.8% (metal basis, O<10%) APS: 28 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: hexagonal	$67/5g $119/25g $360/100g $1,261/500g $2,398/1kg
Co 0277JY 7440-48-4 UN3089 Flammable	Cobalt Powder (carbon coated), 99.8% (metal basis, O<10%) APS: 28 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: hexagonal	$70/5g $127/25g $381/100g $1,337/500g $2,542/1kg
Cr 0240XX 7440-47-3 UN3089 Flammable	Chromium Powder, 99.5% APS: 50 nm Particle Morphology: ~ spherical Crystallographic Structure: cubic	$225/25g $724/100g $2,417/500g $3,223/1kg
Cu 0292HW 7440-50-8 UN3089 Flammable	*Copper (99.5%, 50-80nm)	$ 80/25g $ 190/100g $ 330/200g
Cu 0296JY 7440-50-8 UN3089 Flammable	Copper Powder, 99.8% (metal basis, O<10%) APS: 25 nm SSA: 30-50 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$69/5g $121/25g $374/100g
Cu 0297JY 7440-50-8 UN3089 Flammable	Copper Powder (carbon coated), 99.8% (metal basis, O<10%) APS: 25 nm SSA: 30-50 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$75/5g $136/25g $407/100g
Cu 0293HW 7440-50-8 UN3089 Flammable	Copper Powder, 99% APS: 500 nm	$140/100g $490/500g $700/1kg
Fe 0266JY 7439-89-6 UN3089 Flammable	Iron Powder, 99.5% (metal basis, O<10%) APS: 25 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$62/5g $113/25g $372/100g $1,306/500g $2,480/1kg
Fe 0267JY 7439-89-6 UN3089 Flammable	Iron Powder (carbon coated), 99.5% (metal basis, O<10%) APS: 25 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$75/5g $137/25g $407/100g $1,435/500g $2,728/1kg
Mo 0423HW 7439-98-7 UN3089 Flammable	Molybdenum (Mo) Purity: 99.5% (metal basis) APS: 70 nm SSA: Color: Morphology: spherical True density: 10.22 g/cm3	$121/25g $328/100g $1452/500g $2,508/1kg

Ni 0283HW 7440-02-0 UN3089 Flammable	Nickel Powder Purity: 99.5+% APS: 30-50 nm SSA: 12 m2/g	$158/25g $452/100g $1,505/500g $2,007/1kg
Ni 0286JY 7440-02-0 UN3089 Flammable	Nickel Powder, 99.9+% (metal basis, O<10%) APS: 20 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$72/5g $132/25g $390/100g $1,369/500g $2,601/1kg
Ni 0287JY 7440-02-0 UN3089 Flammable	Nickel Powder (carbon coated), 99.9+% (metal basis, O<10%) APS: 20 nm SSA: 40-60 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$79/5g $143/25g $429/100g $1,507/500g $2,860/1kg
Si 0140JS 7440-21-3 UN3089 4.1 III Flammable	Silicon (Si) Purity: > 98% APS: 50 -70 nm (max<~~100nm) SSA: 30-50 m2/g	$365/50g $585/100g $1,985/500g $2,950/1kg negotiable/10kg negotiable/100kg
Si 0141JS 7440-21-3 UN3089 4.1 III Flammable	Silicon (Si) Purity: > 98% APS: 30 - 50 nm SSA: 70-80 m2/g	$485/50g $785/100g $2,660/500g $3,950/1kg
Si 0142JS 7440-21-3 UN3089 4.1 III Flammable	Silicon (Si) Purity: > 98% APS: 20 - 30 nm	$535/50g $865/100g $2,860/500g
Si 0142KE 7440-21-3 UN3089 4.1 III Flammable	Silicon (Si) 99.5% APS: 130 nm Nanowires present	$220/100g $882/500g $1324/1kg
Ta 0224HW 7440-25-7 Flammable Hazards, UN3089	Tantalum(Ta, 70nm)	$230/25g $570/100g
Ti 0223HW 7440-32-6 UN2546 Flammable	Titanium (Ti) Purity: 99% APS: 30-50 nm SSA: 12 m2/g Color: Morphology: True density: 4.506 g/cm3	$324/25g $907/100g $2,431/500g $3,850/1kg
Zn 0303HW 7440-66-6 UN1436 Flammable	Zinc (Zn) Purity: 99.5% APS: 130 nm SSA: 5-7 m^2/g Color: gray Morphology: spherical	$88/25g $229/100g $756/500g $1,287/1kg

Zn 0304HW 7440-66-6 UN1436 Flammable	Zinc (Zn) Purity: 99.5% APS: 80 nm	$95/25g $205/100g $892/500g $1544/1kg
Zn 0306JY 7440-66-6 UN1436 Flammable	Zinc Powder, 99.9+% (metal basis, O<10%) APS: 100 nm SSA: 30-50 m^2/g Particle Morphology: faceted Crystallographic Structure: hexagonal	$143/25g $429/100g $1,507/500g $2,860/1kg

2. Carbon Nanotubes and Nanofibers

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Formula Stock # CAS #	**Abbreviations used in this catalog** **APS**: Average Particle Size, **ACS**: Average Crystallite Size , **OD**: Outside Diameter, **ID**: Inside Diameter **SSA**: Specific Surface Area.	Price (US$/quantity)
C 1177YJ	**Carbon nanofibers (95+%, D=200-600nm, L=5-50um)**	$105/10g
C 1188YJ	**Graphitized Carbon nanofibers (D=200-600nm, L=5-50um)**	$85/5g $120/10g
C 2191YJ	**Graphene(Diameter 0.5-3um, Thickness 0.55~3.74nm)**	$270/1g $880/5g
C 2192YJ	**Graphene Oxide(Diameter 0.5-3um, Thickness 0.55~1.2nm)**	$240/1g $820/5g
C 1288YJ	**95%SWNTs** High Purity Single-walled Carbon Nanotubes OD < 2nm SWCNTs Purity > 95wt% Length 5-30microns	$270/g $1030/5g
C 1291NMG	**Double-walled carbon nanotubes (DWNTs)** Purity: 90+% CNTs, 20+% DWNTs Outside Diameter: 1.3-5 nm, Length: 5-15 um SSA: ~ 400 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$70/1g $125/5g $260/25g
C 1280YJD	**DWNTs(>60%, OD 2-4nm, Length~50um)**	$65/g $195/5g $650/25g
C 1281YJD	**DWNTs-COOH(>60%, OD 2-4nm, Length ~50um)** -COOH Content 2.58wt%	$90/g $260/5g $890/25g
C 1282YJD	**DWNTs-OH(>60%, OD 2-4nm, Length ~50um)** -OH Content 2.92wt%	$90/g $260/5g $890/25g

C 1201YJ	**Industrial-grade multi-walled carbon nanotubes (MWNTs)**, 88+% OD: 10-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 100-130 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$428/1kg $3,800/10kg
C 1202YJ	**Industrial-grade multi-walled carbon nanotubes (MWNTs)**, 88+% OD: 20-40 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$405/1kg $3,565/10kg
C 1206YJ	**Industrial-grade multi-walled carbon nanotubes (MWNTs)**, 88+% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$380/1kg $3,325/10kg
C 1219YJ	**Graphitized multi-walled carbon nanotubes (MWNTs)**, 99.9+% OD: 8-15 nm, ID: 3-5 nm, Length: ~ 50 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$89/1g $130/5g $330/25g $940/100g $2280/500g
C 1220YJ	**Graphitized multi-walled carbon nanotubes (MWNTs)**, 99.9+% OD: 10-20 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$69/1g $85/5g $260/25g $705/100g $1760/500g
C 1221YJ	**Graphitized multi-walled carbon nanotubes (MWNTs)**, 99.9+% OD: 20-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$69/1g $85/5g $260/25g $705/100g $1760/500g
C 1222YJ	**Graphitized multi-walled carbon nanotubes (MWNTs)**, 99.9+% OD: 30-50 nm, ID: 5-12 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$69/1g $85/5g $260/25g $705/100g $1760/500g
C 1223YJ	**Graphitized multi-walled carbon nanotubes (MWNTs)**, 99.9+% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 80-m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$69/1g $85/5g $260/25g $705/100g $1760/500g
C 1203YJ	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: ≤ 8 nm, ID: 2-5 nm, Length: 10-30 um SSA: 350-420 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/5g $120/25g $360/100g $1230/500g
C 1225YJS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: ≤ 8 nm, ID: 2-5 nm, Length: 0.5-2 um SSA: 350-420 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$106/5g $320/25g $860/100g $2150/500g
C 1226NMG	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: ≤ 10 nm, ID: 2-7 nm, Length: 5-15 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$87/5g $190/25g $625/100g $2,115/500g $4,010/1kg
C 1215NMGA	**Aligned Multi-walled carbon nanotubes (MWNTs)**, Purity: 95+% OD: 10±3 nm, ID: 2-7 nm, Length: 5-15 um SSA: 40-300 m^2/g Particle Morphology: long aligned tubes Crystallographic Structure: cylindrical graphitic	$40/3g $95/15g

C 1216NMGA	**Aligned MWNT (97+%, OD 10-50 nm, Length: 5-15 um)** Purity: 97+% Outside diameter: 10-50 nm Length: 5-15 um	$190/50g
C 1204YJ	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 8-15 nm, ID: 3-5 nm, Length: 10-50 um SSA: 180-240 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $105/25g $272/100g $862/500g
C 1235YJS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 8-15 nm, ID: 3-5 nm, Length: 0.5-2 μm SSA: 180-240 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$135/5g $390/25g $950/100g $2500/500g
C 1205YJ	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 10-20 nm, ID: 5-10 nm, Length: 10-30 um SSA: 180-230 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/5g $103/25g $270/100g $860/500g
C 1236YJS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 10-20 nm, ID: 5-10 nm, Length: 0.5-2 μm SSA: 180-230 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $260/25g $705/100g $1760/500g
C 1212TY	**Multi-walled carbon nanotubes (MWNTs)**, 90+% OD: 10-30 nm, ID: 3-10 nm, Length: 1-10 um SSA: ~ 200 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$94/5g $234/25g $772/100g
C 1228NMG	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 10-30 nm, ID: 5-10 nm, Length: 5-15 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$76/5g $123/25g $403/100g $1,369/500g $2,610/1kg
C 1213NMGS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 10-30 nm, ID: 5-10 nm, Length: 1-2 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$77/5g $124/25g $404/100g $1,370/500g $2,620/1kg
C 1229YJ	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 20-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 110-130 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$65/5g $95/25g $160/100g $420/500g
C 1237YJS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 20-30 nm, ID: 5-10 nm, Length: 0.5-2 um SSA: 110-130 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $260/25g $705/100g $1760/500g
C 1230NMG	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 20-40 nm, ID: 5-10 nm, Length: 5-15 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$78/5g $125/25g $405/100g $1,371/500g $2,630/1kg
C 1214NMGS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 20-40 nm, ID: 5-10 nm, Length: 1-2 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$79/5g $126/25g $406/100g $1,372/500g $2,640/1kg
C 1231YJ	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 30-50 nm, ID: 5-15 nm, Length: 10-20 um SSA: 90-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$60/5g $92/25g $155/100g $410/500g

C 1238YJS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 30-50 nm, ID: 5-15 nm, Length: 0.5-2 um SSA: 90-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $260/25g $705/100g $1760/500g
C 1232NMG	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 40-60 nm, ID: 5-10 nm, Length: 5-15 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$80/5g $127/25g $407/100g $1,373/500g $2,650/1kg
C 1258NMG	**Multi-walled carbon nanotubes (MWNTs)**, 95% OD: 40-60 nm, Length: 1-2 um SSA: 60-70 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$79/5g $126/25g $406/100g
C 1233YJ	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/5g $90/25g $130/100g $280/500g
C 1227YJS	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 50-80 nm, ID: 5-15 nm, Length: 0.5-2 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $260/25g $705/100g $1760/500g
C 1234NMG	**Multi-walled carbon nanotubes (MWNTs)**, 95+% OD: 60-100 nm, ID: 5-10 nm, Length: 5-15 um SSA: 40-600 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$81/5g $128/25g $408/100g $1,374/500g $2,660/1kg
C 1280NMG	**Single-walled carbon nanotubes (SWNTs)** Purity: 90+% CNTs, 50+% SWNTs Average Diameter: 1.1 nm, Length: 5-15 um SSA: 400 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$70/1g $201/5g $838/25g
C 1281YJS	**Single-walled carbon nanotubes (SWNTs)** Purity: 90% CNTs, 60% SWNTs Average Diameter: 1.1 nm, Length: 0.5-2 μm SSA: 360-400 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$75/1g $206/5g $843/25g
C 1283YJ	**Single-walled carbon nanotubes (SWNTs)** Purity: 90% CNTs, 60% SWNTs Average Diameter: 1-2 nm, Length: 5-30 um SSA: 360-400 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$70/g $175/5g $612/25g
C 1284YJ	**Single-walled carbon nanotubes (SWNTs)** Purity: 95% CNTs, 90% SWNTs Average Diameter: 1-2 nm, Length: 5-30 um SSA: 300-380 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$106/g $397/5g $1550/25g
C 1246YJS	**Short-length single-walled carbon nanotubes (SWNTs)** Purity: 95% CNTs, 90% SWNTs Average Diameter: 1-2 nm, Length: 1-3 um SSA: 300-380 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$160/1g $640/5g $2600/25g
C 1207YJF	**-OH functionalized industrial-grade multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 88+% Content of –OH: 2.36-2.60 wt% OD: 10-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 100-130 m^2/g	$448/1kg $4,000/10kg

	Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	
C 1208YJF	**-OH functionalized industrial-grade multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 88+% Content of –OH: 1.55-1.71 wt% OD: 20-40 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-120 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$433/1kg $3,850/10kg
C 1209YJF	**-OH functionalized industrial-grade multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 88+% Content of –OH: 0.72-0.79 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$433/1kg $3,850/10kg
C 1224YJF	**-OH functionalized graphitized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 99.9+% Content of -OH: 1.76-1.94 wt% OD: 8-15 nm, ID: 3-5 nm, Length: ~50 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$90/1g $120/5g $320/25g $960/100g $2740/500g
C 1228YJF	**-OH functionalized graphitized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 99.9+% Content of -OH: 1.45-1.61 wt% OD: 10-20 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1235YJF	**-OH functionalized graphitized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 99.9+% Content of -OH: 0.84-0.92 wt% OD: 20-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1239YJF	**-OH functionalized graphitized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 99.9+% Content of -OH: 0.50-0.56 wt% OD: 30-50 nm, ID: 5-12 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1240YJF	**-OH functionalized graphitized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding –OH): 99.9+% Content of -OH: 0.34-0.38 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 50-70 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1261YJF	**-OH functionalized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 5.30-5.86 wt% OD: ≤ 8 nm, ID: 2-5 nm, Length: 10-30 um SSA: 350-420 m^2/g Particle Morphology: long tube	$69/1g $85/5g $260/25g $705/100g $1760/500g

	Crystallographic Structure: cylindrical graphitic	
C 1262YJF	**-OH functionalized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 3.52-3.89 wt% OD: 8-15 nm, ID: 3-5 nm, Length: 10-50 um SSA: 180-240 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$69/1g $85/5g $260/25g $705/100g $1760/500g
C 1263YJF	**-OH functionalized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 2.91-3.21 wt% OD: 10-20 nm, ID: 5-10 nm, Length: 10-30 um SSA: 180-230 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/g $85/5g $105/25g $272/100g $862/500g
C 1264YJF	**-OH functionalized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 1.67-1.85 wt% OD: 20-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 110-130 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/5g $103/25g $270/100g $860/500g
C 1265YJF	**-OH functionalized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 1.0-1.11 wt% OD: 30-50 nm, ID: 5-15 nm, Length: 10-20 um SSA: 90-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/5g $103/25g $270/100g $860/500g
C 1266YJF	**-OH functionalized multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 0.67-0.75 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$65/5g $95/25g $160/100g $420/500g
C 1247YJF	**-OH functionalized short multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 5.30-5.86 wt% OD: < 8 nm, ID: 2-5 nm, Length: 0.5-2 um SSA: 350-420 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$75/1g $130/5g $330/25g $940/100g $2280/500g
C 1248YJF	**-OH functionalized short multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 3.52-3.89 wt% OD: 8-15 nm, ID: 3-5 nm, Length: 0.5-2 um SSA: 180-240 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1249YJF	**-OH functionalized short multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 2.91-3.21 wt% OD: 10-20 nm, ID: 5-10 nm, Length: 0.5-2 um SSA: 180-230 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g

C 1251YJF	**-OH functionalized short multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 1.67-1.85 wt% OD: 20-30 nm, ID: 5-10 nm, Length: 0.5-2 um SSA: 110-130 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1252YJF	**-OH functionalized short multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 1.0-1.11 wt% OD: 30-50 nm, ID: 5-12 nm, Length: 0.5-2 um SSA: 90-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1253YJF	**-OH functionalized short multi-walled carbon nanotubes (MWNTs-OH)** Content of MWNTs (excluding -OH): 95+% Content of -OH: 0.67-0.75 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 0.5-2 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1285YJF	**-OH functionalized Single-walled carbon nanotubes (SWNTs-OH)** Purity (excluding -OH): 90% CNTs, 60% SWNTs Content of -OH: 3.76-4.16 wt% Average Diameter: 1-2 nm, Length: 5-30 um SSA: 360-400 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$70/1g $201/5g $838/25g
C 1286YJF	**-OH functionalized Single-walled carbon nanotubes (SWNTs-OH)** Purity (excluding –OH): 95% CNTs, 90% SWNTs Content of –OH: 3.76-4.16 wt% Average Diameter: 1-2 nm, Length: 5-30 um SSA: 300-380 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$130/1g $487/5g $1950/25g
C 1210YJF	**-COOH functionalized industrial-grade multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 88+% Content of –COOH: 1.47-1.63 wt% OD: 10-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 100-130 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$448/1kg $4,000/10kg
C 1216YJF	**-COOH functionalized industrial-grade multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 88+% Content of –COOH: 1.36-1.50 wt% OD: 20-40 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-120 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$433/1kg $3,850/10kg
C 1218YJF	**-COOH functionalized industrial-grade multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 88+% Content of –COOH: 0.48-0.54 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$433/1kg $3,850/10kg
C 1241YJF	**-COOH functionalized graphitized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 99.9+% Content of –COOH: 1.22-1.34 wt%	$90/1g $120/5g $320/25g $960/100g

	OD: 8-15 nm, ID: 3-5 nm, Length: ~50 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$2740/500g
C 1242YJF	**-COOH functionalized graphitized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 99.9+% Content of –COOH: 0.95-1.05 wt% OD: 10-20 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1243YJF	**-COOH functionalized graphitized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 99.9+% Content of –COOH: 0.58-0.64 wt% OD: 20-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 80-100 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1244YJF	**-COOH functionalized graphitized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 99.9+% Content of –COOH: 0.34-0.38 wt% OD: 30-50 nm, ID: 5-12 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1245YJF	**-COOH functionalized graphitized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 99.9+% Content of –COOH: 0.24-0.26 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 50-70m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1267YJF	**-COOH functionalized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 3.67-4.05 wt% OD: ≤ 8 nm, ID: 2-5 nm, Length: 10-30 um SSA: 350-420 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$69/1g $85/5g $260/25g $705/100g $1760/500g
C 1268YJF	**-COOH functionalized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 2.43-2.67 wt% OD: 8-15 nm, ID: 3-5 nm, Length: 10-50 um SSA: 180-240 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $260/25g $705/100g $1760/500g
C 1269YJF	**-COOH functionalized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 1.9-2.1 wt% OD: 10-20 nm, ID: 5-10 nm, Length: 10-30 um SSA: 180-230 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$85/5g $105/25g $272/100g $862/500g
C 1270YJF	**-COOH functionalized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 1.17-1.29 wt% OD: 20-30 nm, ID: 5-10 nm, Length: 10-30 um SSA: 110-130 m^2/g	$70/5g $103/25g $270/100g $860/500g

	Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	
C 1271YJF	**-COOH functionalized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 0.69-0.77 wt% OD: 30-50 nm, ID: 5-15 nm, Length: 10-20 um SSA: 90-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/5g $103/25g $270/100g $860/500g
C 1272YJF	**-COOH functionalized multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 0.47-0.51 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 10-20 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$65/5g $95/25g $160/100g $420/500g
C 1287YJF	**-COOH functionalized Single-walled carbon nanotubes (SWNTs-COOH)** Purity (excluding -COOH): 90% CNTs, 60% SWNTs Content of -COOH: 2.59-2.87 wt% Average Diameter: 1-2 nm, Length: 5-30 um SSA: 360-400 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$70/1g $201/5g $838/25g
C 1288YJF	**-COOH functionalized Single-walled carbon nanotubes (SWNTs-COOH)** Purity (excluding -COOH): 95% CNTs, 90% SWNTs Content of -COOH: 2.59-2.87 wt% Average Diameter: 1-2 nm, Length: 5-30 um SSA: 300-380 m^2/g Particle Morphology: long bundled tubes Crystallographic Structure: cylindrical graphitic	$125/1g $482/5g $1945/25g
C 1254YJF	**-COOH functionalized short multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 3.67-4.05 wt% OD: < 8 nm, ID: 2-5 nm, Length: 0.5-2 um SSA: 350-420 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$75/1g $130/5g $330/25g $940/100g $2280/500g
C 1255YJF	**-COOH functionalized short multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 2.43-2.67 wt% OD: 8-15 nm, ID: 3-5 nm, Length: 0.5-2 um SSA: 180-240 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1256YJF	**-COOH functionalized short multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 1.9-2.1 wt% OD: 10-20 nm, ID: 5-10 nm, Length: 0.5-2 um SSA: 180-230 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1257YJF	**-COOH functionalized short multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 1.17-1.29 wt% OD: 20-30 nm, ID: 5-10 nm, Length: 0.5-2 um SSA: 110-130 m^2/g	$70/1g $106/5g $320/25g $860/100g $2150/500g

	Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	
C 1259YJF	**-COOH functionalized short multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 0.69-0.77 wt% OD: 30-50 nm, ID: 5-12 nm, Length: 0.5-2 um SSA: 90-120 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C 1273YJF	**-COOH functionalized short multi-walled carbon nanotubes (MWNTs-COOH)** Content of MWNTs (excluding –COOH): 95+% Content of -COOH: 0.47-0.51 wt% OD: 50-80 nm, ID: 5-15 nm, Length: 0.5-2 um SSA: 60-80 m^2/g Particle Morphology: long tube Crystallographic Structure: cylindrical graphitic	$70/1g $106/5g $320/25g $860/100g $2150/500g
C/Ni 1293YJ 7440-02-0 UN3089 Flammable	**Nickel(60 wt%)-coated multi-walled carbon nanotubes** ~ 60 wt% Nickel + ~ 38 wt% carbon nanotubes CNT OD: 8-15 nm CNT ID: 3-5 nm CNT length 10-50 um CNT SSA: ~ 230 m^2/g	$180/5g $630/25g $1,575/100g
C/Ni 1294YJ 7440-02-0 UN3089 Flammable	**Nickel(60 wt%)-coated multi-walled carbon nanotubes** ~ 60 wt% Nickel + ~ 38 wt% carbon nanotubes CNT OD: 10-20 nm CNT ID: 5-10 nm CNT length: 10-30 um CNT SSA: ~ 200-350 m^2/g	$160/5g $560/25g $1,400/100g
C/Ni 1295YJ 7440-02-0 UN3089 Flammable	**Nickel(60 wt%)-coated multi-walled carbon nanotubes** ~ 60 wt% Nickel + ~ 38 wt% carbon nanotubes CNT OD: 20-30 nm CNT ID: 5-10 nm CNT length: 10-30 um CNT SSA: ~ 110 m^2/g	$160/5g $560/25g $1,400/100g
C/Ni 1296YJ 7440-02-0 UN3089 Flammable	**Nickel(60 wt%)-coated multi-walled carbon nanotubes** ~ 60 wt% Nickel + ~ 38 wt% carbon nanotubes CNT OD: 30-50 nm CNT ID: 5-15 nm CNT length: 10-20 um CNT SSA: ~ 60 m^2/g	$140/5g $500/25g $1,245/100g
C/Ni 1297YJ 7440-02-0 UN3089 Flammable	**Nickel(60 wt%)-coated multi-walled carbon nanotubes** ~ 60 wt% Nickel + ~ 38 wt% carbon nanotubes CNT OD: 50-80 nm CNT ID: 5-15 nm CNT length: 10-20 um CNT SSA: ~ 40 m^2/g	$140/5g $500/25g $1,245/100g
C 1298YJ	**Coiled multi-walled carbon nanotubes** CNT purity: > 95% CNT OD: 50-150 nm CNT length: 5-10 um CNT SSA: > 50 m^2/g	$70/g $225/5g $600/25g $1,990/100g
C 1562YJF	**MWNT-NH2(95+%, OD 8-15nm)** - NH2 Content 0.45wt% OD 8-15nm [OD=Outer Diameter] ID 3-5nm [ID=Inner Diameter] Length ~50um	$80/5g $195/25g $380/100g
C 1563YJF	**MWNT-Large Inner Diameter** Purity >70% OD 30-60nm [OD=outer Diameter] ID 20-50nm [ID=Inner Diameter] Length 1-10um	$70/5g $130/25g $280/100g

C 1586YJF	**SWNT-OH (95% CNTs, 90% SWNTs)** -OH Content 3.96wt% OD 1-2nm [OD=Outer Diameter] ID 0.8-1.6nm [ID=Inner Diameter] Length 1-3um	$202/1g $810/5g $3020/25g
C 1588YJF	**SWNT-COOH (95% CNTs, 90% SWNTs)** -COOH Content 2.73wt% OD 1-2nm [OD=Outer Diameter] ID 0.8-1.6nm [ID=Inner Diameter] Length 1-3um	$202/1g $810/5g $3020/25g
C 1217QW01	**Vertically aligned multi-walled carbon nanotube (CNT) arrays on silicon substrate** CNT purity: > 99% CNT OD: 7-10 nm CNT ID: 5-8 nm CNT length: 10-50 um Carbon nanotube site density: 10^{10} -10^{11} nanotubes/cm^2 (distance between two adjacent CNTs ~ 200-300 nm)	$500/1 cm x 1 cm square $650/1.5 cm x 1.5 cm square $835/2 cm x 2 cm square $1250/3 cm x 3 cm square $1500/dia. 2-inch disk
C 1217QW02	**Vertically aligned multi-walled carbon nanotube (CNT) arrays on silicon substrate** CNT purity: > 99% CNT OD: 7-10 nm CNT ID: 5-8 nm CNT length: 100-300 um Carbon nanotube site density: 10^{10} -10^{11} nanotubes/cm^2 (distance between two adjacent CNTs ~ 200-300 nm)	$500/1 cm x 1 cm square $650/1.5 cm x 1.5 cm square $835/2 cm x 2 cm square $1250/3 cm x 3 cm square $1500/dia. 2-inch disk
C 1217QW03	**Carbon nanotube arrays on silicon (OD 7-10 nm, L 1.1mm)** Vertically aligned multi-walled carbon nanotube (CNT) arrays on silicon substrate CNT purity: > 99% CNT OD: 7-10 nm CNT ID: 5-8 nm CNT length: 1.1mm Carbon nanotube site density: 1010 -1011 nanotubes/cm2 (distance between two adjacent CNTs ~ 200-300 nm)	$500/1 cm x 1 cm square $650/1.5 cm x 1.5 cm square $835/2 cm x 2 cm square $1250/3 cm x 3 cm square $1500/dia. 2-inch disk $1600/dia. 4-inch disk
C 1217QW04	**Vertically aligned multi-walled carbon nanotube (CNT) arrays on quartz substrate** CNT purity: > 99% CNT OD: 7-10 nm CNT ID: 5-8 nm CNT length: 10-50 um Carbon nanotube site density: 10^{10} -10^{11} nanotubes/cm^2 (distance between two adjacent CNTs ~ 200-300 nm)	$530/1 cm x 1 cm square $680/1.5 cm x 1.5 cm square $865/2 cm x 2 cm square $1280/3 cm x 3 cm square $1530/dia. 2-inch disk
C 1217QW05	**Vertically aligned multi-walled carbon nanotube (CNT) arrays on quartz substrate** CNT purity: > 99% CNT OD: 7-10 nm CNT ID: 5-8 nm CNT length: 100-300 um Carbon nanotube site density: 10^{10} -10^{11} nanotubes/cm^2 (distance between two adjacent CNTs ~ 200-300 nm)	$530/1 cm x 1 cm square $680/1.5 cm x 1.5 cm square $865/2 cm x 2 cm square $1280/3 cm x 3 cm square $1530/dia. 2-inch disk

C 1217QW06	**Vertically aligned multi-walled carbon nanotube (CNT) arrays on quartz substrate** CNT purity: > 99% CNT OD: 7-10 nm CNT ID: 5-8 nm CNT length: 1-1.5 mm Carbon nanotube site density: 10^{10} -10^{11} nanotubes/cm^2 (distance between two adjacent CNTs ~ 200-300 nm)	$500/1 cm x 1 cm square $650/1.5 cm x 1.5 cm square $835/2 cm x 2 cm square $1250/3 cm x 3 cm square $1500/dia. 2-inch disk

3. Non-Oxide Nanoparticles

AlN 1002HW 24304-00-5 UN 2813 Water reactive solid	Aluminum Nitride Powder, 99.5% APS: 70-80 nm	$260/100g $867/500g $1084/1kg
BN 1180YL 10043-11-5	Boron Nitride Powder, 99% APS: 137 nm SSA: 19.4 m^2/g Particle Morphology: irregular Crystallographic Structure: hexagonal	$178/25g $440/100g $1,598/500g $2,680/1kg
BN 1182HW 10043-11-5	Boron Nitride Powder, 99.8% APS: 0.6~1.2 um Crystallographic Structure: hexagonal	$66/25g $98/100g $228/500g $381/1kg
MoS2 3860DS 1317-33-5	Molybdenum Sulfide (MoS2, 400~500 nm x 20~40nm)	$360/0.5kg $525/kg
SiC 4620KE 409-21-2	Purity: 97.5% Average particle size: 45-55 nm Color: Grayish white Density, bulk: 0.068 g/cm3 Density, true: 3.22 g/cm3 Morphology: Spherical Synthesis method: Plasma CVD	$131/100g $228/300g $408/500g $638/1kg
SiC 4632YD 409-21-2	Silicon Carbide (amorphous) Powder, 99+% APS: 15 nm SSA: ~ 90 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: amorphous	$380/100g $1,700/500g $3,300/1kg
SiC 4622HW 409-21-2	Silicon Carbide Nanowhisker (beta SiC, 99+%) Free Carbon <0.05% Diameter: 0.1-2.5 um Length: ≥ 2.0-50 um Crystal Type: Beta Decomposition Temperature: 2973 K Density (288K): 3.216 g/cm3 Hardness(Mohs): 9.5	$130/25g $371/100g $1235/500g $1647/1kg

Si_3N_4 4750KE 12033-89-5	Silicon Nitride Powder, 98.5+% APS: 15-30 nm SSA: 103-123 m^2/g Particle Morphology: spherical Crystallographic Structure: amorphous	$118/100g $294/500g $459/1kg $3,950/10kg
TiB_2 5180HW 12045-63-5	Titanium Boride Powder, 98% APS: 2-12 um	$78/100g $198/500g $295/1kg
TiC 5216KE 12070-08-5 UN3178, Flammable	Titanium Carbide Powder, 98+% APS: 40 nm SSA: ~ 40 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$152/100g $585/500g $783/1kg
TiC 5217KE 12070-08-5 UN3178, Flammable	Titanium Carbide Powder, 99% APS: 80-130 nm SSA: ~ 35 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$110/25g $177/100g $553/500g $892/1kg
TiN 5350KE 25583-20-4 UN3178, Flammable	Titanium nitride (TiN) Purity: > 97% APS: 20 nm SSA: 40-55 m2/g Color: black Morphology: spherical	$176/100g $590/500g $1,150/1kg
WC/Co 5560ZN8 12070-12-1 UN3178 Flammable	Tungsten-Carbide/Cobalt (Co=8wt%) Powder, 99.5% APS: 60-250 nm SSA: 1.5 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: hexagonal (WC), cubic(Co)	$60/25g
ZrC 5901KE 12070-14-3 UN 3178, Flammable	*Zirconium Carbide(ZrC, 97%, 60nm) Purity 97% APS 60nm SSA 70m2/g Loose Loading density 0.08 g/cm3	$397/100g $1323/500g $1764/1kg

4. Oxide Nanoparticles

Al_2O_3 1005MR 1344-28-1	Aluminum Oxide (alpha) Powder, 99.97% APS: 150 nm SSA: 5-15 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: rhombohedral	$70/100g $120/500g $180/1kg $1,620/10kg
Al_2O_3 1015WW 1344-28-1	Aluminum Oxide Powder, 99.5% (mainly alpha, contains 5-10% gamma) APS: 27-43 nm SSA: 35 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: rhombohedral	$75/100g $140/500g $200/1kg $1,660/10kg
Al_2O_3 1040LQS 1344-28-1	Aluminum Oxide Powder (alpha), 99.9% APS: 200 nm SSA: 3.9 $m^{2/}g$ Particle Morphology: spherical	$80/100g $170/500g $240/1kg $1,820/10kg
Al_2O_3 1020MR 1344-28-1	Aluminum Oxide (gamma) Powder, 99.97% APS: 20-30 nm SSA: 180 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$80/100g $140/500g $210/1kg $1,820/10kg

Al_2O_3 1041HT 1344-28-1	Aluminum Oxide (gamma) Powder, 99% APS: 10 nm SSA: >160 m2/g Particle Morphology: nearly spherical	$160/500g
Al_2O_3 1042HT 1344-28-1	Aluminum Oxide (gamma) Powder, Al2O3, 99% APS: 20 nm Particle Morphology: nearly spherical	$80/100g $140/500g $210/1kg
Al_2O_3 1043HT 1344-28-1	Aluminum Oxide (gamma) (99.99%, 10 nm)	$80/100g $250/500g $330/1kg
Al(OH)3 1040WJ 21645-51-2	Aluminum Hydroxide (Al(OH)3, 99.5 %, 50nm) Water absorption 5.5±0.5 ml/20g	$80/100g $180/500g $320/1kg $1400/5kg
B_2O_3 1185DF 1303-86-2	Boron Oxide Powder, 98% APS: 40-80 nm SSA: 35 m^2/g Particle Morphology: spherical	$461/25g $1,319/100g $4,395/500g
$BaFe_{12}O_{19}$ 1145FY 12047-11-9	Barium Iron Oxide Powder, 99.5% APS: 500 nm Particle Morphology: polyhedral Crystallographic Structure: hexagonal	$80/100g $160/500g $240/1kg
$BaSO_4$ 1142ZJ 7727-43-7	Barium Sulfate Powder, 99% APS: 1-5 um Particle Morphology: irregular Crystallographic Structure: orthorhombic	$60/100g $80/500g $107/1kg
$BaTiO_3$ 1147DY 12047-27-7	Barium Titanate Powder, 99.9% (BaO/TiO_2: 0.999 - 1.001) APS: 500 nm (determined from SEM) SSA: 2.0-2.2 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$85/100g $188/500g $280/1kg
$BaTiO_3$ 1146DY 12047-27-7	Barium Titanate Powder, 99.9% (BaO/TiO_2: 0.999 - 1.001) APS: 400 nm (determined from SEM) SSA: 2.6-2.8 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$85/100g $188/500g $280/1kg
$BaTiO_3$ 1144DY 12047-27-7	Barium Titanate Powder, 99.9% (BaO/TiO_2: 0.999 - 1.001) APS: 300 nm (determined from SEM) SSA: 3.5-3.7 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$85/100g $188/500g $280/1kg
$BaTiO_3$ 1148DY 12047-27-7	Barium Titanate Powder, 99.9% (BaO/TiO_2: 0.999 - 1.001) APS: 200 nm (determined from SEM) SSA: 5.0-5.6 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$188/500g $280/1kg
$BaTiO_3$ 1143DY 12047-27-7	Barium Titanate Powder, 99.9% (BaO/TiO_2: 0.999 - 1.001) APS: 100 nm (determined from SEM) SSA: 10-11 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$85/100g $188/500g $280/1kg
CeO_2 1406RE 1306-38-3	Cerium Oxide Powder, 99.9% (REO) APS: 15-30 nm SSA: 30-50 m^2/g Color: pale yellow Morphology: spherical	$125/100g $375/500g

	Bulk density: < 0.2 g/cm^3 True density: 7.132 g/cm^3 Mfg. method: sol-gel	
CeO_2 1450YS 1306-38-3	Cerium Oxide Powder, 99.9% (REO) APS: 50-105 nm SSA: 8-15 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$115/100g $355/500g
$CoFe_2O_4$ 1510FY 12052-28-7	Cobalt Iron Oxide Powder, 98% APS: 35-55 nm Particle Morphology: spherical Crystallographic Structure: cubic	$80/25g $120/100g $250/500g $325/1kg
$Co_{0.5}Zn_{0.5}Fe_2O_4$ 1515FY	Cobalt-Zinc Iron Oxide Powder, 98.5% APS: 15-30 nm Particle Morphology: nearly spherical Crystallographic Structure: cubic	$90/25g $145/100g $395/500g $625/1kg $4,375/10kg
Co_3O_4 1720HT 1308-06-1	Cobalt (II,III) Oxide Powder, 99% APS: 50-80 nm SSA: ~ 10 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$81/100g $285/500g $513/1kg
Cr_2O_3 1910FY 1308-38-9	Chromium Oxide Powder, 98% APS: 60 nm Particle Morphology: nearly spherical Crystallographic Structure: rhombohedral	$80/25g $125/100g $315/500g $450/1kg $2,950/10kg
CuO 2110FY 1317-38-0	Copper Oxide Powder, 99+% APS: 30-50 nm SSA: 13 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: monoclinic	$80/100g $260/500g $380/1kg
Dy_2O_3 2252YS 1308-87-8	Dysprosium Oxide Powder, 99.9%(REO) APS: 55 nm SSA: ~ 20 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$105/25g $350/100g $1060/500g $1500/1kg
Dy_2O_3 2251FY 1308-87-8	Dysprosium Oxide Powder, 99.9%(REO) APS: 30 nm Particle Morphology: ~ spherical Crystallographic Structure: cubic	$60/25g
Er_2O_3 2350YS 12061-16-4	Erbium Oxide Powder, 99.9%(REO) APS: 41-53 nm SSA: 13-17 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$85/25g $182/100g $510/500g
Er_2O_3 2310ZQ 12061-16-4	Erbium Oxide (Er2O3) Purity: 99.9% (REO) APS: 43 nm (from SSA) SSA: 16 m2/g Color: pink Morphology: nearly spherical	$85/25g $194/100g $565/500g $780/1kg
Er_2O_3 2330RE 12061-16-4	Erbium Oxide Powder, 99.9%(REO/TREO) APS: 20-30 nm Particle Morphology: nearly spherical Crystallographic Structure: cubic	$85/25g $190/100g $538/500g
Eu_2O_3 2450YS 1308-96-9	Europium Oxide Powder, 99.99%(REO) APS: 45-58 nm (determined from SSA) SSA: 14-18 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$85/5g $210/25g $660/100g $1,610/500g $2,800/1kg

Eu_2O_3 2411RE 1308-96-9	Europium Oxide Powder, 99.99%(REO) APS: 30-50 nm SSA: 36 m^2/g	$85/5g $248/25g $670/100g $2,040/500g
Eu_2O_3 2410ZQ 1308-96-9	Europium Oxide Powder, 99.995%(REO) APS: 58 nm (determined from SSA) SSA: 14 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$105/5g $291/25g $900/100g $3,700/500g
Fe_2O_3 2520ZH 1309-37-1	Iron Oxide (Fe2O3, alpha, 99%, 30-50nm)	$80/100g $160/500g $225/1kg $1,600/10kg
Fe_3O_4 2650TS 1317-61-9	Iron Oxide (Fe3O4, 97%, 50-100 nm) SSA: 20-50 m2/g Color: black	$80/100g $160/500g $225/1kg $1,600/10kg
Fe_3O_4 2651TR 1317-61-9	Iron Oxide (Fe3O4, 98+%, 20-30 nm, coated with 1% PVP(Molecular Weight 30K))	$130/100g $330/500g $470/1kg
Gd_2O_3 2680ZQ 12064-62-9	Gadolinium Oxide Powder, 99.9+% (REO) APS: 20-80 nm (from SSA) SSA: 10-40 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$80/100g $279/500g $480/1kg
Gd_2O_3 2681RE 12064-62-9	Gadolinium Oxide Powder, 99.9% (REO) APS: 15-30 nm SSA: 30-50 m^2/g Color: white Bulk density: < 0.2 g/cm^3 True density: 7.407 g/cm^3	$105/25g $150/100g $365/500g
HfO_2 2695YL 12055-23-1	Hafnium Oxide (HfO_2) Purity: 99.99% APS: 100-200 nm, (TEM) SSA: not measured Bulk density: not measured True density: 9.68 g/cm^3	$198/25g $672/100g
In_2O_3 2710TN 1312-43-2	Indium Oxide Powder, 99.99% APS: 30-50 nm SSA: 15 m^2/g Particle Morphology: faceted (major) and rod (minor) Crystallographic Structure: cubic	$130/5g $240/25g $605/100g $1,925/500g $2,905/1kg
$In(OH)_3$ 2810TN 20661-21-6	Indium Hydroxide Powder, 99.99% APS: 20-70 nm SSA: 12.8 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$72/5g $107/25g $299/100g $988/500g $1,482/1kg
In_2O_3: SnO_2 2730TN 50926-11-9	Indium Tin Oxide (**ITO**) Powder In_2O_3:SnO_2 = 90:10 (wt), 99.99% APS: 30-50 nm SSA: 24 m^2/g Particle Morphology: irregular Crystallographic Structure: cubic	$105/5g $155/25g $385/100g $1,140/500g $1,585/1kg
In_2O_3: SnO_2 2731BY 50926-11-9	Indium Tin Oxide (**ITO**) Powder In_2O_3:SnO_2 = 95:5 (wt), 99.99% APS: 30-50 nm SSA: 20-30 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$105/5g $171/25g $490/100g $1,633/500g $2,177/1kg

La_2O_3 2920RE 1312-81-8	Lanthanum oxide (La_2O_3) Purity: 99.99% (REO) APS: 15-30 nm SSA: 20-40 m^2/g Color: white Bulk density: < 0.2 g/cm^3 True density: 6.51 g/cm^3 Mfg. method: sol-gel	$85/25g $150/100g $365/500g $605/1kg
$La_{0.15}Sr_{0.85}MnO_3$ 5730YD	Lanthanum Strontium Manganate Oxide, 99.5% APS: 35 nm Particle Morphology: spherical	$60/25g $140/100g $450/500g $780/1kg
MgO 3305HT 1309-48-4	Magnesium Oxide Powder, ≥ 99% APS: 100 nm SSA: ≥ 7.3 m^2/g Particle Morphology: polyhedral Crystallographic Structure: cubic	$80/100g $160/500g $225/1kg $1,600/10kg
MgO 3315HT 1309-48-4	Magnesium Oxide Powder, 99% APS: 20 nm SSA: ≥ 50 m^2/g Particle Morphology: polyhedral Crystallographic Structure: cubic	$95/100g $220/500g $310/1kg $2,450/10kg
$Mg(OH)_2$ 3320HT 1309-42-8	Magnesium Hydroxide Powder, 99% APS: 10 nm SSA: ≥ 80 m^2/g Particle Morphology: polyhedral	$80/100g $160/500g $225/1kg $1,600/10kg
Mn_2O_3 8005NJ 1317-34-6	Manganese Oxide Nanorods-Assembled Spheres, epsilon-phase, 99+% Sphere Dia: 0.3 - 1 um Rod Dia: 5-30 nm Rod Length: 80-100 nm SSA: 200-250 m^2/g Crystallographic Structure: hexagonal	$180/5g $380/25g $780/100g $1,380/500g $1,980/1kg
MoO_3 3851XW 1313-27-5	Molybdenum Oxide Powder, 99.5% APS: 100 nm	$169/25g $484/100g $1,614/500g $2,152/1kg
Nd_2O_3 3950YS 1313-97-9	Neodymium Oxide Powder, 99.9% (REO) APS: 49-64 nm (determined from SSA) SSA: 13-17 m^2/g Particle Morphology: spherical Crystallographic Structure: hexagonal	$85/25g $150/100g $360/500g
Nd_2O_3 3910ZQ 1313-97-9	Neodymium Oxide Powder, 99.9% (REO) APS: 83 nm (determined from SSA) SSA: 10 m^2/g Particle Morphology: irregular Crystallographic Structure: hexagonal	$95/25g $185/100g $450/500g
Nd_2O_3 3911RE 1313-97-9	Neodymium Oxide Powder, 99.9% (REO) APS: 15-30 nm SSA: 30-50 m^2/g Color: pale violet Bulk density: < 0.2 g/cm^3 True density: 7.24 g/cm^3 Mfg. method: sol-gel	$85/25g $220/100g $575/500g
$NiFe_2O_4$ 4110FY 12168-54-6	Nickel Iron Oxide Powder, 98% APS: 20-30 nm SSA: 59 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$70/25g $110/100g $360/500g $600/1kg $4,000/10kg
$Ni_{0.5}Zn_{0.5}Fe_2O_4$ 4115FY	Nickel-Zinc Iron Oxide Powder, 98.5% APS: 10-30 nm Particle Morphology: nearly spherical Crystallographic Structure: cubic	$625/1kg

Pr_6O_{11} 4451RE 12037-29-5	Praseodymium(III,IV) Oxide Powder, 99.9% APS: 15-30 nm SSA: 30-50 m^2/g Bulk density: < 0.2 g/cm^3 True density: 6.5 g/cm^3 Mfg. method: sol-gel	$105/25g $220/100g $575/500g
SiO_2 4830HT 7631-86-9	Silicon Oxide Powder, 99% APS: 80 nm SSA: 440 m^2/g Particle Morphology: spherical Crystallographic Structure: amorphous	$75/100g $120/500g $180/1kg $1,620/10kg
SiO_2 4860MR 7631-86-9	Silicon Oxide Powder, 99.5% APS: 20 nm SSA: 160±20 m^2/g Particle Morphology: spherical Crystallographic Structure: amorphous	$75/100g $120/500g $180/1kg $1,620/10kg
SiO_2 4850MR 7631-86-9	Silicon Oxide Powder, 99.5% APS: 15 nm SSA: 640±50 m^2/g Particle Morphology: spherical, porous Crystallographic Structure: amorphous	$75/100g $120/500g $180/1kg $1,620/10kg
SiO_2 4856WG 7631-86-9	Silicon Oxide, (SiO2 quartz, 99.99%, 1-3.5 um)	$120/kg
SiO_2 4855WG 7631-86-9	Silicon Oxide, (SiO2 quartz, 99.998%, 1-3.5 um)	$160/kg
Sm_2O_3 4950YS 12060-58-1	Samarium Oxide Powder, 99.9% (REO) APS: 42-55nm (determined from SSA) SSA: 18-22 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: cubic	$85/25g $150/100g $360/500g
Sm_2O_3 4951RE 12060-58-1	Samarium Oxide Powder, 99.9% (REO) APS: 15-30 nm SSA: 30-50 m^2/g Color: pale yellow Bulk density: < 0.2 g/cm^3 True density: 8.347g/cm^3 Mfg. method: sol-gel	$95/25g $150/100g $365/500g
SnO_2 5010FY 18282-10-5	Tin Oxide Powder, 99.5% APS: 61 nm (determined from SSA) SSA: 14.2 m^2/g Particle Morphology: faceted Crystallographic Structure: tetragonal	$60/25g $78/100g $175/500g $240/1kg
$SrAl_{12}O_{19}$ 5120YD	Strontium Hexaluminate Powder, 99.5% (combustion-synthesized, aggregated) APS: 20-40 nm SSA: ~ 60 m^2/g Particle Morphology: spherical Crystallographic Structure: --	$60/50g $130/100g
$SrTiO_3$ 5150DY 12060-59-2	Strontium Titanate Powder Purity: 99.8% APS: 100 nm SSA: 11 m^2/g Morphology: spherical Crystallographic Structure: cubic	$122/100g $320/500g $588/1kg
Tb_4O_7 5190YS 12037-01-3	Terbium Oxide Powder, 99.95% (REO) APS: 46-60 nm (determined from SSA) SSA: 13-17 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$125/25g $350/100g

TiO_2 5420ZH 13463-67-7	Titanium Oxide, (TiO2 anatase, 5 nm)	$140/100g $525/500g $700/1kg
TiO_2 5420HT 13463-67-7	Titanium Oxide (anatase) Powder, 99% APS: 10-30 nm SSA: 210±10 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$85/100g $205/500g $300/1kg $2,400/10kg
TiO_2 5430MR 13463-67-7	Titanium Oxide (anatase) Powder, 99% APS: 15 nm SSA: 240±50 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$80/100g $130/500g $175/1kg
WO_3 5505YL 1314-35-8	Tungsten Oxide Powder, 99+% APS: 30-70 nm Particle Morphology: nearly spherical Crystallographic Structure: monoclinic	$78/25g $190/100g $480/500g $798/1kg $4,880/10kg
$Y_{2.98}Ce_{0.02}Al_5O_{12}$ 5569FY 12005-21-9	Yttrium Aluminum Oxide (YAG) Powder, 99.5% (Cerium doped) APS: 15-40 nm Particle Morphology: spherical Crystallographic Structure: cubic	$60/25g $90/100g $300/500g $480/1kg
$Y_{2.98}Nd_{0.02}Al_5O_{12}$ 5570FY 12005-21-9	Yttrium aluminum oxide, Nd doped (Y2.98Nd0.02Al5O12) Purity: 99.5% APS: 300 nm	$70/25g
$Y_{2.98}Nd_{0.02}Al_5O_{12}$ 5571FY 12005-21-9	Yttrium Aluminum Oxide (YAG) Powder, 99.5% (Neodymium doped) APS: 40 nm Particle Morphology: nearly spherical Crystallographic Structure: cubic	$60/25g $90/100g $300/500g $480/1kg
Y_2O_3 5650YS 1314-36-9	Yttrium Oxide Powder, 99.9% (REO) APS: 32-36 nm (determined from SSA) SSA: 33-37 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$85/25g $149/100g $335/500g
Y_2O_3 5610ZQ 1314-36-9	Yttrium Oxide Powder, 99.995% (REO) APS: 20-40 nm SSA: 42 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$195/25g $310/100g $750/500g
Y_2O_3 5611RE 1314-36-9	Yttrium Oxide Powder, 99.99% (REO) APS: 20-40 nm SSA: 30-50 m^2/g Color: white Morphology:	$95/25g $150/100g $365/500g
$ZnFe_2O_4$ 5710FY 12063-19-3	Zinc Iron Oxide Powder, 98.5% APS: 15-30 nm Particle Morphology: spherical Crystallographic Structure: cubic	$60/25g $240/500g $380/1kg
ZnO 5830CD 1314-13-2	Zinc Oxide Powder, 99.9+% APS: 90 nm SSA: 4.9-6.8 m^2/g Particle Morphology: irregular Crystallographic Structure: hexagonal	$65/100g $105/500g $145/1kg $1,200/10kg
ZnO 5810HT 1314-13-2	Zinc Oxide Powder, 99.5% APS: 20 nm SSA: 50 m^2/g Particle Morphology: nearly spherical Crystallographic Structure: hexagonal	$70/100g $120/500g $180/1kg $1,620/10kg

ZrO_2 5931HT 1314-23-4	Zirconium Oxide, ZrO2 Purity: 99+% APS: 20 nm SSA>=25m2/g Cryst. phases: monoclinic	$70/25g $115/100g $265/500g $375/1kg
ZrO_2 + 3mol% Y_2O_3 5932HT 64417-98-7	Zirconium Oxide, Yttria Stabilized (ZrO2 + 3% mol Y2O3) Crystal Tetragonal APS: 50nm	$80/100g $150/500g $194/1kg
ZrO_2 + 8mol% Y_2O_3 5933ZS 64417-98-7	Zirconium Oxide Powder, yttria stabilized Purity: 99.9% (metal basis excluding Hf, Hf < 3 wt%) APS: 20-30 nm SSA: 30-60 m^2/g Particle Morphology: spherical Crystallographic Structure: cubic	$60/25g
ZrO_2 + 8mol% CaO 5934ZS 64417-98-7	Zirconium Oxide Powder, calcia stabilized Purity: 99.9% (metal basis excluding Hf, Hf < 3 wt%) APS: 20-30 nm SSA: 30-60 m^2/g Particle Morphology: spherical Crystallographic Structure: tetragonal	$60/25g $90/100g $180/500g $290/1kg

5. Nanoparticles Dispersions

Carbon Nanotube Products restricted to laboratory research and development uses

Al_2O_3 7017WJWA	Aluminum Oxide (alpha, 20 wt%, 30-60nm) in Water	$87/1kg $736/10kg
Al_2O_3 7017WJWG	Aluminum Oxide Dispersion (gamma, 20 wt%, 30 nm) in Water APS: 30±10 nm Al_2O_3 Purity: > 99.9% Appearance: white liquid Aluminum Oxide: Al_2O_3, gamma, CAS #: 1344-28-1 Water: H_2O, CAS#: 7732-18-5	$122/1kg $950/10kg
Ag 7023HZ	Silver (20nm,10 wt%) nanopowder, 99.99%	$300/25g $800/100g
Ag 7024HZ	Silver (20nm, 25 wt%) nanopowder, 99.99%	$400/25g $1000/100g
AZO 7029HZ	Name: Aluminum-doped Zinc Oxide AZO Purity: >= 99.9% (metal basis) AZO composition: ZnO: Al2O3 = 98:2 (wt%) AZO Particle Size: 20-40nm	$260/500g $450/1kg
AZO 7028HZW	Name: Aluminum-doped Zinc Oxide in Water AZO Content: 10 wt% AZO Purity: >= 99.9% (metal basis) AZO composition: ZnO: Al2O3 = 98:2 (wt%) AZO Particle Size: primary 20-40nm; secondary <= 100 nm	$130/500g $220/1kg

AZO 7027HZO	Name: Aluminum-doped Zinc Oxide in dimethylbenzene AZO Content: 10 wt% AZO Purity: >= 99.9% (metal basis) AZO composition: ZnO: Al2O3 = 98:2 (wt%) AZO Particle Size: primary 20-40nm; secondary <= 100 nm	$260/1L
8004YJ	1 wt% Multi-walled Carbon Nanotubes (MWNTs) in water Purity: >95% Diameter: 30-50nm Length: 10-20um	$200/kg
8005YJ	3 wt% MWCNT (>95%, D 20-30nm, L 10-30um) in Water	$195/500 mL
C 8033RB	Product Name: Single-Walled Carbon Nanotubes (3 wt%) / N-Methyl-2-Pyrrolidinone Dispersion Nanotubes Specifications: Purity: > 95 vol% (carbon nanotubes) > 90 vol% (single-walled nanotubes) Diameter: 1-2 nm Length: 5-30 um SSA: ~ 400 m^2/g Color: black	$60/100 ml $220/500 ml $370/1,000 ml
C 8037RB	Product Name: Multi-Walled Carbon Nanotubes (3 wt%) / N-Methyl-2-Pyrrolidinone Dispersion Nanotubes Specifications: Purity: > 90 wt% (ash < 7%, amorphous carbon < 3%) Diameter: 10-40 nm Length: 5-30 um Color: black	$60/100 ml $230/500 ml $390/1,000 ml
C 8039RB	Product Name: Multi-Walled Carbon Nanotubes (3 wt%) / N-Methyl-2-Pyrrolidinone Dispersion Nanotubes Specifications: Purity: 90 wt% Diameter: 10-40 nm Length: 100 um Color: black	$60/100 ml $230/500 ml $390/1,000 ml
C 8023NJ	Product Name: Dispersible SWCNT (D 1-2 nm, L 5-30 um) Components: 40-50 wt% SWCNT (Diameter 1-2 nm, Length 5-30 um) > 48-58 wt% polymers < 2.0 wt% impurities: < 0.04 wt% Al < 0.21 wt% Cl < 1.50 wt% Co < 0.15 wt% S Max. dispersibility: 170 – 213 mg/ml water 140 – 175 mg/ml ethanol 150 – 188 mg/ml DMF 155 – 194 mg/ml NMP	$450/g $1,450/5g

	Instructions for making dispersions: Ultrasound (< 150 Watts) - treating the "dispersible carbon nanotubes"/solvent mixture for 5 to 20 minutes. Stability of as-synthesized dispersion: 1-10 days, decreasing with the CNT concentration in solvents.	
C 8020NJ	Product Name: Dispersible MWCNT (D 8-15 nm, L 10-50 um) Components: 50-60 wt% MWCNT (Diameter 8-15 nm, Length 10-50 um) > 33-43 wt% polymers < 3.5 wt% metals (Fe, Ni, La, Al, Si) < 0.5 wt% non-metals (Cl, S) < 3.0 wt% amorphous carbon Max. dispersibility: 79 – 106 mg/ml water 65 – 87 mg/ml ethanol 70 – 93 mg/ml DMF 72 – 96 mg/ml NMP Instructions for making dispersions: Ultrasound (< 150 Watts) - treating the "dispersible carbon nanotubes"/solvent mixture for 5 to 20 minutes. Stability of as-synthesized dispersion: 1-10 days, decreasing with the CNT concentration in solvents.	$123/g $373/5g $1,679/25g $5,222/100g
C 8021NJ	Product Name: Dispersible MWCNT (D 20-40 nm, L 5-30 um) Components: 50-70 wt% MWCNT (Diameter 20-40 nm, Length 5-30 um) > 23-43 wt% polymers < 3.5 wt% metals (Fe, Ni, La, Al, Si) < 0.5 wt% non-metals (Cl, S) < 3.0 wt% amorphous carbon Max. dispersibility: 68 – 98 mg/ml water 56 – 87 mg/ml ethanol 60 – 93 mg/ml DMF 62 – 96 mg/ml NMP Instructions for making dispersions: Ultrasound (< 150 Watts) - treating the "dispersible carbon nanotubes"/solvent mixture for 5 to 20 minutes. Stability of as-synthesized dispersion: 1-10 days, decreasing with the CNT concentration in solvents.	$120/g
C 8009	Carbon nanotube masterbatches Components: 10 wt% multi-walled carbon nanotubes, 90 wt% polystyrene (PS) Solid cylinder: diameter ~2mm, length ~3mm	$280/kg

C 8022NJ	Product Name: Dispersible MWCNT (D 50-100 nm, L 5-10 um) Components: 65-70 wt% MWCNT (Diameter 50-100 nm, Length 5-10 um) > 23-28 wt% polymers < 3.5 wt% metals (Fe, Ni, La, Al, Si) < 0.5 wt% non-metals (Cl, S) < 3.0 wt% amorphous carbon Max. dispersibility: 68 – 79 mg/ml water 56 – 65 mg/ml ethanol 60 – 70 mg/ml DMF 62 – 72 mg/ml NMP Instructions for making dispersions: Ultrasound (< 150 Watts) - treating the "dispersible carbon nanotubes"/solvent mixture for 5 to 20 minutes. Stability of as-synthesized dispersion: 1-10 days, decreasing with the CNT concentration in solvents.	$118/g
ITO 7026HZW	Indium Tin Oxide (ITO) in Water ITO Content: 0 - 30wt% variable ITO Purity: ≥ 99.99% (metal basis) ITO composition: In2O3: SnO2 = 90:10 (wt%) ITO Particle Size: primary APS ≤ 20 nm; secondary ≤ 60 nm Appearance: blue liquid	$280/100g $950/500g $1664/kg
ITO 7026HZO	Indium Tin Oxide (ITO) in Organic Solvents ITO Content: 0 - 30wt% variable ITO Purity: ≥ 99.99% (metal basis) ITO composition: In2O3: SnO2 = 90:10 (wt%) ITO Particle Size: primary APS ≤ 20 nm; secondary ≤ 60 nm Appearance: blue liquid	Quote
CuO 9019WJ	CuO, 1 wt%, in water, APS 30 nm	$120/kg
SiO_2 7015WJ	Name: 25wt% Silicon Oxide in Water APS: 30 nm Ultraviolet reflection: 85% Viscosity(cp): 50-100 Silicon Oxide: SiO2, CAS #: 7631-86-9 Water : H2O, CAS#: 7732-18-5	$128/1kg $1080/10kg
TiO_2 7011WJWA	Name: 15 wt% Titanium Oxide in Water APS: 15 nm Titanium Oxide: Anatase TiO2, CAS #: 1317-70-0 Water : H2O, CAS#: 7732-18-5	$185/1kg $1378/10kg
TiO_2 9013WJ	15wt% Titanium oxide TiO2(rutile, 15 nm) in water	$330/1kg
TiO_2 7012WJWR	Name: 15 wt% Titanium Oxide in water APS: 5-30 nm Titanium Oxide: TiO2, Rutile, CAS #: 1317-80-2 Water: H2O, CAS#: 7732-18-5	$118/1kg $982/10kg

TiO_2 7012WJWRNC	Titanium Oxide (TiO2, Rutile, >99.5%, 5-30 nm,15 wt%) in water, negatively charged	$350/1kg
TiO_2 7012WJWA	Name: 15 wt% Titanium Oxide in water APS: 5-30 nm Titanium Oxide: Anatase TiO2, CAS #: 1317-70-0 Water: H2O, CAS#: 7732-18-5	$128/1kg
TiO_2 7013WJWR	Titanium Oxide Dispersion (Rutile, 40 wt%, 30-50 nm) in Water APS: 30-50 nm pH: 6-8 Appearance: opaque, white liquid Titanium Oxide: Rutile TiO_2, CAS #: 1317-80-2 Water: H_2O, CAS#: 7732-18-5	$156/1kg $1450/10kg
ZnO 7006WJ	Name: 20 wt% Zinc Oxide in water Nano sized ZnO wt%: 20wt% (pale yellow powder) ZnO purity: >99% ZnO APS: 40 nm ZnO SSA: 50~70 m2/g Viscosity(cp): 60 ZnO Bulk Density: 0.30-0.45 g/cm3 Appearance: Pale yellow Water: H2O, CAS#: 7732-18-5 Zinc Oxide: ZnO, CAS #: 1314-13-2	$240/L $958/5 L Quote/100kg+

*Hazardous products