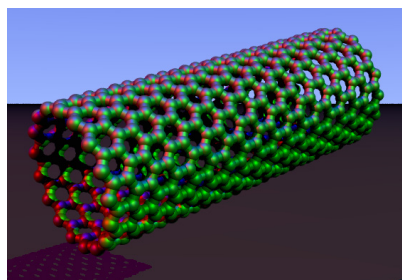
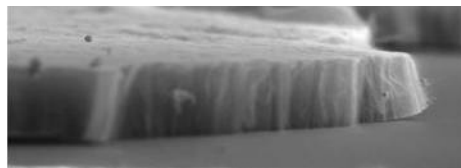


# Carbon-based Nanomaterials and other carbon products

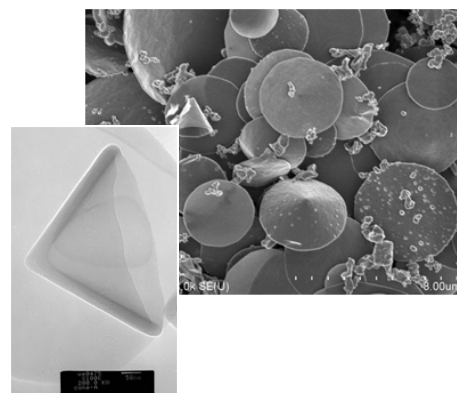
## Nanotubes



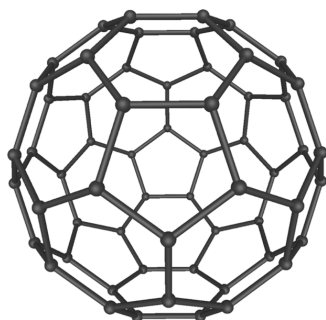
## CNT Arrays



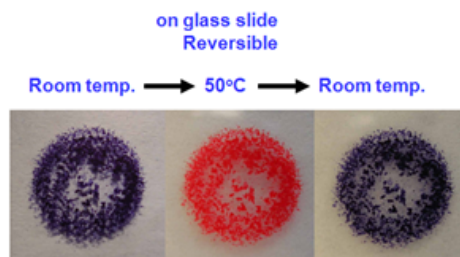
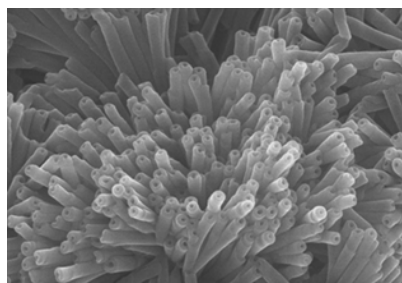
## Nanodiscs/Nanocones



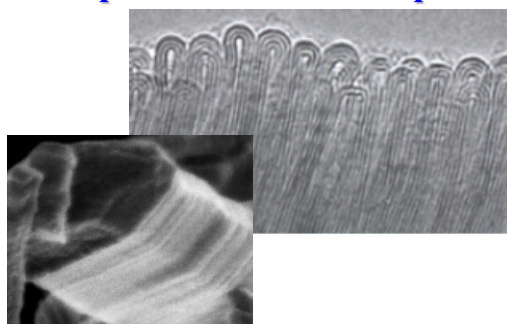
## Fullerenes



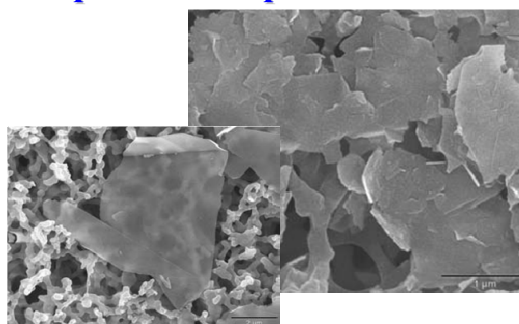
## Polydiacetylene nanotubes



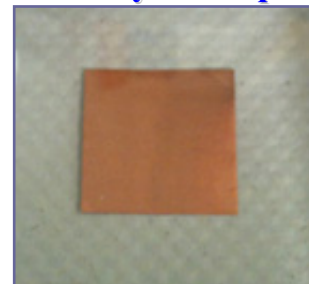
## Graphene Fibers & Chips



## Graphene Nanoplatelets



## Monolayer Graphene



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**CARBON (Elemental forms)**

<b>06-0725</b>	<b>Carbon nanodiscs/nanocones (annealed) [7440-44-0]</b> black powdr. Note: Sold for research purposes only. Patent US2003/0091495A1. Technical Note: 1. As produced, this product is a mixture of carbon cones and discs. Carbon cones are a new class of carbon materials with a nearly perfect conical geometry. Apart from the geometry, they are similar in structure to multi-walled carbon nanotubes. Carbon cones have well-defined angles. Only five different types of cones are theoretically possible with angles at the apex close to 19.2, 38.9, 60, 84.6 and 112.9°. All are present in this product. The composition is ~20 wt% carbon cones, ~70wt% carbon discs, and ~10 wt% carbon black (impurities). The cones have a length of 0.3-0.8 microns, a maximum base diameter of 1-2 microns, and a wall thickness is 20-50 nanometers. The discs have a diameter of 0.8-3.5 microns, and a thickness of 20-50 nanometers.  The annealing process (2500-2700°) results in an increase of the structural order and a reduction of the concentration of impurity elements, resulting in a product that is nearly 100% carbon.	250mg 1g
<b>06-0440</b>	<b>Carbon nanotube array, multi-walled, on quartz (diameter= 100nm, length=30 microns ) [308068-56-6]</b> black microfibers; (diameter=100nm, length=30microns) Technical Note: 1. Arrays grown on 10x10x1mm quartz substrate using a single source CVD process that yields vertically aligned MWNTs (< 1% catalyst impurity). Arrays are 30µm tall (± 3µm) and are composed of MWNTs 100nm in diameter (± 10nm). Arrays up to 150µm in height can be provided on request.	1pc
<b>06-0470</b>	<b>Carbon nanotubes, multi-walled (diameter = ~140nm, length = ~7 microns) [308068-56-6]</b> (>90% nanotubes) [1333-86-4]	1g 5g
<b>06-0475</b>	<b>Carbon nanotubes, multi-walled (diameter = ~20-25nm, length = ~1-5 microns) [308068-56-6]</b> (85% nanotubes) [1333-86-4]	250mg 1g
<b>06-0720</b>	<b>Carbon nanotubes, multi-walled, arc-produced (diameter = 2-50nm, length = &gt;2 microns) [308068-56-6]</b> (55-65wt% nanotubes) [308068-56-6] Technical Note: 1. Arc-produced, multi-walled carbon nanotubes contain 55-65 wt% nanotubes and 35-45wt% graphite nanoparticles. The tubes have a diameter distribution of 2-50 nm, and a typical length of >2 microns (straight tubes). The chemical composition is 100% carbon, with no metal impurities. Because the nanotubes are grown at very high temperatures (3000-4000°C), the product contain far less defects than nanotubes produced by other methods. The nanotubes are stable in air up to 700°C.	250mg 1g
<b>06-0504</b>	<b>Carbon nanotubes, multi-walled, as produced cathode deposit [308068-56-6]</b>	1g 5g
<b>06-0505</b>	<b>Carbon nanotubes, multi-walled, core material [308068-56-6]</b> pieces (20-40% nanotubes)	1g 5g
<b>06-0506</b>	<b>Carbon nanotubes, multi-walled, ground core material [308068-56-6]</b> (20-40%nanotubes)	250mg 1g 5g
<b>06-0508</b>	<b>Carbon nanotubes, single-walled [308068-56-6]</b> Technical Note: 1. This product is >90wt% single-walled nanotubes. The tubes are 1-2nm in diameter with lengths of 5-30 microns. Ash is <1.5wt%.	250mg 1g
<b>06-0170</b>	<b>Carbon, Stacked Graphene Platelet Nanofibers (acid washed) SGNF [1034343-98-0]</b> black powdr. Note: Sold in collaboration with Catalyx Nanotech for research purposes only. US Patents 6,995,115 and 7,001,586. Mean width: 40-50 nm                      Range of length: 0.1-10 microns Density: 0.3 g/cm <sup>3</sup> Surface Area: 120 m <sup>2</sup> Electrical Resistivity: 120 µWcm	1g 5g 25g
<b>06-0502</b>	<b>Fullerene - C<sub>60</sub>, min. 99.9% (Buckminsterfullerene) [99685-96-8]</b>	25mg 100mg 500mg
<b>06-0602</b>	<b>Fullerene - C<sub>60</sub>, 99.9+% (Buckminsterfullerene) [99685-96-8]</b>	25mg 100mg 500mg
<b>06-0500</b>	<b>Fullerenes - C<sub>60</sub>/C<sub>70</sub> mixture (contains ~20% C<sub>70</sub> and ~1% higher fullerenes) [131159-39-2]</b>	50mg 250mg 1g
<b>06-0503</b>	<b>Fullerene - C<sub>70</sub>, min. 98% [115383-22-7]</b>	10mg 50mg 250mg
<b>06-0603</b>	<b>Fullerene - C<sub>70</sub>, min. 99% [115383-22-7]</b>	10mg 50mg 250mg
<b>06-0525</b>	<b>Fullerene - C<sub>76</sub>, min. 95% [135113-15-4]</b>	5mg
<b>06-0526</b>	<b>Fullerene - C<sub>76</sub>, min. 98% [135113-15-4]</b>	5mg

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<b>CARBON (Elemental forms)</b>		
06-0527	Fullerene - C <sub>76</sub> , 99.9% [135113-15-4]	5mg
06-0530	Fullerene - C <sub>78</sub> , min. 95% [136316-32-0]	5mg
06-0507	Fullerene - C <sub>84</sub> , min. 95% [135113-16-5]	5mg
06-0607	Fullerene - C <sub>84</sub> , min. 99% [135113-16-5]	5mg
06-0512	Fullerene carbon soot (contains 5-8wt% C <sub>60</sub> /C <sub>70</sub> and higher fullerenes) [1333-86-4]	5g 25g
06-0274 <b>NEW→</b>	Graphene film, monolayer, on copper foil (1cm x 1cm) [1034343-98-0] 100% coverage, >95% single atomic layer Average grain (crystal/domain) size: >~100 micron Average sheet resistance (on non-conductive substrate): 400 OPS (+/- 200 OPS) Average transmission: T >96% (on transparent substrate, i.e. ~4% lower than substrate T)	2pcs
06-0310 <b>NEW→</b>	Graphene film, monolayer, on Si/SiO <sub>2</sub> wafer (1cm x1cm), by CVD [1034343-98-0] wafer	1pc
06-0222 <b>NEW→</b>	Graphene nanoplatelets, (2-10nm thick x ~5 microns wide) [7782-42-5] black solid	5g 25g
06-0210	Graphene nanoplatelets (6-8 nm thick x 5 microns wide) [1034343-98-0]  Note: Graphene nanoplatelets are unique nanoparticles consisting of short stacks of graphene sheets having a platelet shape. They have an average thickness of approximately 6 - 8 nanometers and a typical surface area of 120 to 150 m <sup>2</sup> /g.  The unique size and platelet morphology of the graphene nanoplatelets makes these particles especially effective at providing barrier properties and improving mechanical properties, while their pure graphitic composition makes them excellent electrical and thermal conductors.	25g 100g
06-0215	Graphene nanoplatelets (6-8 nm thick x 15 microns wide) [1034343-98-0]	25g 100g
06-0220	Graphene nanoplatelets (6-8 nm thick x 25 microns wide) [1034343-98-0]	25g 100g
06-0225	Graphene nanoplatelet aggregates (sub-micron particles, surface area 300 m <sup>2</sup> /g) [1034343-98-0]  Note: Graphene nanoplatelet aggregates are unique nanoparticles consisting of short stacks of graphene sheets having a platelet shape. They typically consist of aggregates of sub-micron platelets that have a particle diameter of less than 2 microns and a typical particle thickness of a few nanometers, depending on the surface area.  The unique size and platelet morphology of the graphene nanoplatelets makes these particles especially effective at providing barrier properties and improving mechanical properties, while their pure graphitic composition makes them excellent electrical and thermal conductors.	25g 100g
06-0230	Graphene nanoplatelet aggregates (sub-micron particles, surface area 500 m <sup>2</sup> /g) [1034343-98-0]	25g 100g
06-0235	Graphene nanoplatelet aggregates (sub-micron particles, surface area 750 m <sup>2</sup> /g) [1034343-98-0]	25g 100g
06-0313 <b>NEW→</b>	Graphene powder (single layer, surface area 400-1000 m <sup>2</sup> /g) [7782-42-5] black pwr.	50mg
06-0318 <b>NEW→</b>	Graphene powder (1-5 layers thick x 0.5-5 microns wide, surface area 650-750 m <sup>2</sup> /g) [1034343-98-0] black pwr.	250mg 1g
06-1060 <b>NEW→</b>	Polydiacetylene nanotube (PDNT-12-8-22Br) Note: Sold in collaboration with LIG Sciences for research purposes only. US Patent No. 7,666,911.	100mg 500mg
	Note: Polydiacetylene Nanotubes (PDNT) are self-assembled diacetylene nanotubes comprised of cross-linking of conjugated double and triple bonds. They are produced using a proprietary molecular self-assembly process that results in remarkably uniform, pure, air-stable blue nanotubes (ID 34nm, OD 98nm and length 1 – 3 μm). PDNT nanotubes exhibit thermochromism either on different substrates or in solvents. This unique thermo- and mechano-chromic behavior has been demonstrated to be completely reversible for hundreds cycles.	

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