

# Patent for Coated Single Walled Carbon Nanotubes and Ropes Awarded to Carbon Nanotechnologies

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Carbon Nanotechnologies, Inc (CNI) announced today the allowance of another U.S. Patent, this one for coated single-wall carbon nanotubes and ropes of single-wall carbon nanotubes. The technology gives CNI a patent on a composition that is single-wall carbon nanotubes with a nanometer-scale coating of another material that can include polymers and metals. This technology is part of the intellectual property developed by Nobel-Prize winning scientist Dr. Richard Smalley and licensed exclusively to CNI by Rice University in 2001.

“This important new technology facilitates dispersions of single-wall carbon nanotubes in polymers and other matrices and substantially broadens their range of end uses,” said Dr. Smalley, Chairman of CNI and University Professor at Rice University.

A variety of materials are attracted to single-wall carbon nanotubes and form nanometer-scale coatings on the surface of the nanotubes. Such non-covalent interactions provide an important tool to assist in the ultimate dispersion of carbon nanotubes into solvents, polymers and other media.

The newly-allowed patent substantially strengthens CNI’s portfolio of application-enabling intellectual property that facilitates the use of small-diameter carbon nanotubes in applications ranging from electrically-conductive plastic composites to new kinds of large, reasonably-priced

flat-panel TV screens. Other CNI application-enabling patents that have been issued or allowed include coverage for cutting single-wall carbon nanotubes; removing the end caps of the nanotubes; composition of matter coverage for single-wall carbon nanotubes with other substituents covalently bonded to them; and composite materials of such “chemically-derivatized” nanotubes, where the nanotubes are substantially aligned. Such alignment is required in many nanotube composite applications such as a new breed of super-strong composite fibres that are a blend of single-wall carbon nanotubes and other high-strength polymer materials.

“This patent further demonstrates CNI’s commitment to and success in building an industry-leading patent portfolio that covers all relevant forms of nanotube production, their processing and manipulation, and their use in a wide range of applications. CNI now has very broad intellectual property coverage for all forms of derivatizing single-wall carbon nanotubes, both covalent and non-covalent modifications. It also provides coverage for cutting nanotubes and for compositions of matter for revolutionary composite materials,” said Bob Gower, President and CEO of CNI.

Small diameter carbon nanotubes are an example of a nanotechnology that is now reaching the commercial arena. These nanostructures comprise large molecules of carbon, cylindrical in form and are about 1-3 nanometers (billionths of a meter) in diameter and hundreds to thousands of nanometers long. As individual molecules, single-wall carbon nanotubes have a tensile strength that is 100 times that of high-strength steel and about one-sixth the density of steel. They conduct electricity and heat extremely well, and many believe that they represent the next revolution in polymer technology.

CNI has over 100 patents and patent applications with a total of about 5000 claims in various stages of prosecution. Twenty-five of these with a total of about 900 claims have been issued or allowed. The portfolio of

100 patents and applications includes about 650 composition of matter claims, over 40 of which have been issued or allowed thus far.

CNI has several pilot plants to produce single-wall and other small-diameter carbon nanotubes in operation at its location in west Houston. The company is nearing completion of a facility with a design capacity of 100 pounds per day.

The company currently has close to 450 customers worldwide and has an exclusive relationship with Sumitomo Corporation for marketing and distribution of CNI products in Japan.

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