

Nano Science, Technology and Industry Scoreboard

United States and China, Top Producers of Carbon Nanotubes in World

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According to statistics on NPD, the <u>USA</u> and <u>China</u> are the largest producers of carbon nanotubes in the world. By the end of January 2017, a number of 430 products containing carbon nanotubes have been stored on NPD. The <u>USA</u>, <u>China</u>, and <u>Turkey</u> possess the first ranks by having a share of 34%, 32%, and 12% respectively in the production of carbon nanotube products. The next possessions belong to <u>India</u>, <u>Germany</u>, <u>Belgium</u>, <u>Australia</u>, and <u>Taiwan</u>.

Companies active in this field produce various types of carbon nanotubes such as single-walled, double-walled, multi-walled, and also a combination of their mixture, and present them to the global market. These products are either in form of functionalized or without the presence of functional groups at lengths of 0.5-5 microns and diameters of 1-200 nm. Cheap Tubes Inc. has a share of 14% in the market, and it ranks first among the producers of carbon nanotubes. Grafen Chemical Industries Co. ranks second by having a share of 12%.

In addition to producing carbon nanotube powder, many companies are active in the production of final products, in which carbon nanotubes have been used in order to create or to enhance specific properties. A number of 131 nanotechnology products among 6432 have used carbon nanotubes in their structures. Japanese companies are the major consumers (44%) of carbon nanotubes in commercialized products. England, China, the USA, and Poland are the next countries by having a share of 25%, 11%, 11%, and 4%, respectively.

| Industrial Sector | Product Types | Enhanced Properties |
|-------------------|--|---|
| Sports & Fitness | Badminton racket, tennis racket, squash racket, golf club, paddle, racket string | Strength, flexibility, toughness, roughness, maneuverability, light weight, reducing air resistance, controllability, decreasing impact vibration |
| Construction | Coatings, paints, primers | Durability, resistance to impact, abrasion, scratch, acid and alkaline, UV protection |
| Environment | Water filter, membrane, air pollution control sensors, air purifiers | Elimination of heavy ions, nitrates, chlorides, salts, and toxicants from water, antibacterial effect |
| Textile | Resins | Resistance to flame, abrasion, and scratch |
| Oil and Gas | Protecting coatings | Strength, resistance to corrosion |
| Electronics | Biological sensors | Increasing sensor efficiency |

Sports, construction, environment, textile, petroleum, and electronics are among industrial sectors where carbon nanotubes have been used.

For more information, visit NPD's website at http://product.statnano.com.