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Nanotechnology passes first toxicity hurdle

Scientists in Mexico have found a way to reduce the toxicity of carbon nanotubes, paving the way for the use of the technology in food packaging. Nanotechnology has been touted as the next revolution in many industries, including food manufacturing, where there may be applications to improve food quality and produce pathogen resistant packaging. However, carbon nanotubes (CNT), the basis for nanotechnology, have been found to be toxic in certain applications. There has been no long term study on the impact of CNTs on human health. Concerns that the use of nanotechnology in food packaging products could harm consumers has spurred scientists from the Advanced Materials Department at IPICYT in Mexico to develop a way to reduce the toxicity of CNTs. Manufacturers and scientists are concerned that CNTs could affect human health by infiltrating the body through contact with the skin or by ingestion or inhalation of commercial products. Professor Mauricio Terrones headed the team that discovered that doping CNTs with nitrogen reduced the risk of death or severe respiratory reactions to CNTs in mice. The research found that CNTs did not harm mice when directly inhaled or ingested. However, pure CNTs administered to a mouse's trachea caused death while nitrogen doped CNTs produced an acute respiratory inflammation. "Because none of our studies with nitrogen-doped CNTs resulted in the death of the mice, we believe that nitrogen-doped CNTs would be more biocompatible when compared to other types of CNTs," said Terrones. "We need to carry out a lot more research, but have very encouraging results." The research will come as promising first step toward the full-scale introduction of nanotechnology in processing and manufacturing. Nanotechnology has become a hotly debated consumer issue due to fears over the unknown consequences of digesting CNTs that are designed to behave in a specific way in the body. Earlier this month, consumer pressure led the UK Council for Science and Technology to review the government's nanotech safety policies. Even the EU is busy creating a standardized system for assessing nanotechnology toxicity. The Registration, Evaluation and Authorization of Chemicals (REACH), when passed, will hold businesses responsible for chemical safety and addresses the creation of a standardized test for assessing the toxicity of nonmaterial. Source: FoodProductionDaily - USA

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