



Linda S. Adams
Secretary for
Environmental Protection



Department of Toxic Substances Control

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Arnold Schwarzenegger
Governor

COMPANY NAME & ADDRESS

Via: Certified Mail & E-Mail

**Re: Chemical Information Call-In
Carbon Nanotubes**

Dear Mr/Ms (CONTACT NAME) or Environmental Manager:

This notice serves to announce that the California Department of Toxic Substances Control (DTSC/Department) is requiring information regarding analytical test methods, fate and transport in the environment, and other relevant information from manufacturers of carbon nanotubes. The term "manufacturers" includes persons and businesses that produce carbon nanotubes in California or import carbon nanotubes into California for sale.

DTSC is exercising its authority under California Health and Safety Code, Chapter 699, sections 57018-57020. They are intended to make information on the fate and transport, detection and analysis, and other information on chemicals more available. The law places the responsibility to provide this information to the Department on those who manufacture or import the chemicals. California Health and Safety Code section 57019, subdivision (d)(2) requires that the information requested be provided to DTSC within one year of the date of this letter.

Carbon nanotubes (CNTs) are of interest to DTSC because they are in use commercially and because data on analytical methods, toxicity, physicochemical properties, and fate and transport are largely unavailable. Recent research on the potential impacts to the environment, workers and the public have highlighted issues in manufacturing and fate and transport that DTSC should consider. One study by Massachusetts Institute of Technology (MIT) detected 15 different aromatic hydrocarbons including 4 different polyaromatic hydrocarbons (PAHs) when they manufactured CNTs from a carbon vapor source using chemical vapor deposition. Another study by researchers at the Georgia Institute of Technology found that the fate of CNTs spilled into groundwater and the ability of municipal filtration systems to remove CNTs from drinking water is dependent on the characteristics of the water such as pH, natural organic content, etc. The chemical call-in program will help develop the existing body of information on carbon nanotubes needed to better protect human health and the environment.

On August 12, 2008, DTSC made its' initial presentation on plans under Health and Safety Code, Chapter 699, Section 57018 – 57020, along with the U.S. EPA's Office of Pollution Prevention and Toxics Chemical Control Division, at the Nanomaterials Stewardship Seminar sponsored by the International Association of Nanotechnology (IANANO) in San Jose, California. This was followed up by contact with various companies. The general announcement of DTSC's interest in carbon nanotubes was posted on our internet web site on October 24, 2008. On October 27, 2008, DTSC participated in a Nanomaterials Stewardship workshop again hosted by the International Association of Nanotechnology in San Francisco, California. On December 12, 2008, DTSC hosted a workshop at DTSC's regional office in Berkeley, California. Initial questions for producers and importers of carbon nanotubes were presented and discussed with attendees.

In the initial phase of data call-in, DTSC is requiring the following information:

- What is the value chain for your company? For example, in what products are your carbon nanotubes used by others? In what quantities? Who are your major customers?
- What sampling, detection and measurement methods are you using to monitor (detect and measure) the presence of your chemical in the workplace and the environment? Provide a full description of all required sampling, detection, measurement and verification methodologies. Provide full QA/QC protocol.
- What is your knowledge about the current and projected presence of your chemical in the environment that results from manufacturing, distribution, use, and end-of-life disposal?
- What is your knowledge about the safety of your chemical in terms of occupational safety, public health and the environment?
- What methods are you using to protect workers in the research, development and manufacturing environment?
- When released, does your material constitute a hazardous waste under California Health & Safety Code provisions? Are discarded off-spec materials a hazardous waste? Once discarded are the carbon nanotubes you produce a hazardous waste? What are your waste handling practices for carbon nanotubes?

DTSC has identified manufacturers who produce or import carbon nanotubes in California. Currently, the list includes academic institutions doing CNT research and those manufacturers who are involved in producing or importing carbon nanotubes in their chemical form. This call-in also includes companies outside California who may export carbon nanotubes into the State. Initially, we have not included manufacturers who import products containing carbon nanotubes; however, we may expand the list of manufacturers in the future to include product manufacturers. The current DTSC list of

manufacturers is posted at

http://www.dtsc.ca.gov/TechnologyDevelopment/Nanotechnology/index.cfm#Chemical_Information_Call-in:_Carbon_Nanotubes.

If you are aware of other institutions and manufacturers who should be party to this request, we welcome your insights. If you feel your institution or organization should not be a party to this request, you should notify the Department in writing and state your reasons for not being included.

The Department wants to meet jointly with all manufacturers quarterly to aid collaboration and focus research efforts as necessary. It is the Department's intent to apply for National Nanotechnology Initiative (NNI) grant funds, or other financial support that may be available, to supplement the efforts of the manufacturers and the academic researchers. There is no guarantee of grant funds. In any event, each company and institution is required to provide the requested information independently or via some formal collaborative organization within that time frame.

You are required to provide any or all information, with supporting references, prior to the deadline so DTSC can evaluate the information, build a public record of compliance for each submitting organization, and better craft our grant proposal. At your request, DTSC can exercise the "Trade Secret" provisions of H&S Code Sec. 57020. DTSC has posted our research bibliography on our web site which will be updated as new information is compiled, and as information is received from manufacturers. Our intent is that the information will be utilized to support sound science and safety in chemical practices by regulatory agencies, manufacturers, researchers, product developers, and consumers. Information on this chemical call-in can be found at:

<http://www.dtsc.ca.gov/TechnologyDevelopment/Nanotechnology/index.cfm>

This announcement is the formal information request, and manufacturers subject to the statute are required to provide the information to DTSC within 365 days. We look forward to working with this important and emerging industry. Should you have questions or comments, please feel free to contact our team:

William P. Ryan, P.E. at bryan@dtsc.ca.gov or 916/322-5919
Stan Phillippe, P.E. at sphillip@dtsc.ca.gov or 916/322-5347

Sincerely,

Jeffrey Wong, Ph.D.
Chief Scientist, DTSC