

**Systemwide Risk Management and Public Safety**

401 Golden Shore, 5th Floor  
Long Beach, CA 90802-4210

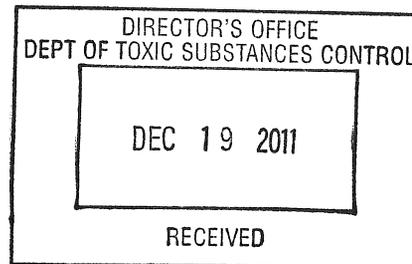
[www.calstate.edu](http://www.calstate.edu)

**Charlene Minnick**  
Assistant Vice Chancellor

562-951-4580  
Fax 562-951-4859  
E-mail [cminnick@calstate.edu](mailto:cminnick@calstate.edu)

December 14, 2011

Jeffrey Wong, Ph.D., Chief Scientist  
Department of Toxic Substances Control  
1001 "I" Street  
P.O. Box 806  
Sacramento, CA 95812-0806



**Re: Chemical Information Call-In Nanotubes**  
Respondent: The California State University, Office of the Chancellor

Dear Dr. Wong:

An inquiry by the Department of Toxic Substances Control was made with our 23 campuses and we have learned the following:

Campuses that use or manufacture (make) nanomaterials

- East Bay
- Fresno
- Long Beach
- San Diego
- San Jose
- San Luis Obispo
- San Marcos

Materials used

- Nano Silver
  - 50–100 g quantities are synthesized (dissolution in liquid) for use in research lab. Estimate that 50-100 mg are produced each month.
  - 50 g quantities used in physics for both teaching and research. Paint is adhered to ceramic materials. Material Safety Data Sheet (MSDS) can be found at:  
[http://www.tedpella.com/msds\\_html/16035msd.htm](http://www.tedpella.com/msds_html/16035msd.htm)

**CSU Campuses**  
Bakersfield  
Channel Islands  
Chico  
Dominguez Hills  
East Bay

Fresno  
Fullerton  
Humboldt  
Long Beach  
Los Angeles  
Maritime Academy

Monterey Bay  
Northridge  
Pomona  
Sacramento  
San Bernardino  
San Diego

San Francisco  
San José  
San Luis Obispo  
San Marcos  
Sonoma  
Stanislaus

- Zinc Oxide
  - Used to make ZnO nanowires in physics research lab (MSDS attached) – small (mg) quantities of dry ZnO are purchased from domestic manufacturer.
  
- Titanium Dioxide
  - 50 g quantities of Ti-Nanoxide (MSDS attached) are used for research. Material is purchased in liquid form (suspended in ethanol).
  - 250 g quantities of strontium titanium dioxide are used infrequently in physics lab for research. 100 nm powder is mixed with epoxy to form a colloidal. MSDS can be found here: <http://www.inframat.com/products/3822-ON1.htm>
  - 5-100 mg quantities of 21nm TiO<sub>2</sub> is used for research. Material is purchased dry or in a suspension.
  
- Quantum Dots
  - 1 g quantities of CdSe are synthesized in ocadecane to form a colloidal suspension. Used in both teaching and research. Estimate that four 1 g batches are made per year.
  - Micro liter quantities of Qdot nanocrystals are used in cellular protein research. Material is used infrequently (monthly) in liquid form and can be detected using Flow Cytometry. MSDS can be found here: <http://www.invitrogen.com/site/us/en/home/brands/Molecular-Probes/Key-Molecular-Probes-Products/Qdot>
  - 5-100 mg quantities of liquid (solutions) CsSe, CdTe, ZnSe, ZnTe, GaSe, InSe, and CdO are produced for use in research and as part of certain student labs.

#### Analytic Test Methods

The following recommended test methods could identify nanomaterials in water, soil, air or chemical waste streams:

- UV-visible spectroscopy, mass spectroscopy, and electron microscopy can be used for heavy metals.
- Flow Cytometry can be used to identify or detect fluorescent Quantum Dots.

If you have questions regarding this information, please do not hesitate to call me at (562) 951-4580.

Sincerely,



Charlene Minnick  
Assistant Vice Chancellor  
Systemwide Risk Management and Public Safety  
The California State University, Office of the Chancellor

c: Dr. Charles B. Reed, Chancellor  
Campus Environmental Health and Safety Directors



**The California State University**

OFFICE OF THE CHANCELLOR

*Risk Management*

401 Golden Shore, Long Beach, CA 90802-4210  
MC 01400

016H26520421

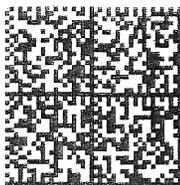
**\$00.640**

12/15/2011

Mailed From 90802

**US POSTAGE**

Hastler



Jeffrey Wong, Ph.D., Chief Scientist  
Department of Toxic Substances Control  
1001 "I" Street  
P.O. Box 806  
Sacramento, CA 95812-0806

95812-0806

