DEPARTMENT OF TOXIC
SUBSTANCES CONTROL

DEC 21 2011

POLLUTION PREVENTION
& GREEN TECHNOLOGY

STATE OF CALIFORNIA
Department of Toxic Substances Control

Health and Safety Code Section 57019 Chemical Information Call-in Information for Nanometals, Nanometal Oxides, and Quantum Dots
December 2010

This enclosure is provided for your convenience. You may provide the requested information in writing, and attaching any supplementary materials or explanatory information, in letter or report form.

SECTION A: CHEMICAL(S) *(check each one which applies for your company)*

☐ Nano Silver	☒ Nano Titanium Dioxide	☐ Nano Cerium Oxide
☐ Nano Zero Valent Iron	☐ Nano Zinc Oxide	☐ Quantum Dot(s)

SECTION B: BUSINESS IDENTIFICATION INFORMATION *(check one and complete items 1 - 10)*

☐ Sole Owner	☐ Corporation	☐ Limited Liability Company (LLC)	☐ Limited Liability Partnership (LLP)	☐ Unincorporated Business Trust
☐ Spouses' Co-ownership	☐ Registered Domestic Partnership	☐ General Partnership	☐ Limited Partnership	☒ Other: *(describe)* S Corporation

1. Name of Sole Owner, Corporation, Partnership, Institution, Other.
APS Laboratory

2. Business Trade Name ("Doing Business As," if any)

3. Business Address (physical location of your business: street number and name, city, state, country, zip or postal code)
4830 Calle Alto, Suite I, Camarillo, CA 93012

4. Mailing Address (street name and number, P.O. box, city, state, country, zip or postal code, if different from 3)
4830 Calle Alto, Suite I, Camarillo, CA 93012

5. Business Website Address(es): apslaboratory.com

6. Name of Owner, Responsible Corporate Officer, Partner, Other.
Hong-Son Ryang

7. Contact Information for Person in 6 above.

Name: Hong-Son Ryang *Title:* president

Business Telephone: (805) 384-9711 *Email:* hsryang@apslaboratory.com

8. Number of Employees (California employees).
0

9. NAICS Code(s) for this business: *Primary:* *Other:* *Other:*

10. Nano Chemical Business Type: *(check applicable)* ☐ Manufacturer ☐ Importer ☒ Researcher

SECTION C: CERTIFICATION *(FOR THIS COMPLETE SUBMITTAL)*

I am duly authorized to prepare and submit this information, as a formal response to the request pursuant to Health and Safety Code section 57019(d)(1), and certify the information and statements made herein, and in the attachments, are correct to the best of my knowledge and belief.

Name: *(type or print)*	**Signature:**	**Date:**
Hong-Son Ryang	Hong-Son Ryang	12-19-2011

SECTION D: NANOMATERIAL CHEMICAL AND PHYSICAL PROPERTIES *(Attach additional pages as needed)*

PRODUCT / PRODUCTION INFORMATION

NANO CHEMICAL NAME: *(Use a separate page for each unique chemical.)*	Modified TiO_2
COMMERCIAL NAME(S):	None
ANNUAL PRODUCTION VOLUME:	< 20 gm
PRODUCTION METHOD(S):	sol gel
IDENTIFICATION OF THE SUPPLIER(S):	

PARAMETER		VALUE / RANGE[1] (include units)	NAME OF ANALYTICAL METHOD(S)[2]
PHYSICAL PROPERTIES			
SHAPE (MORPHOLOGY)		assuming spherical	~~To be~~ TEM
DENSITY		N/A	To be developed
SURFACE AREA		N/A	To be developed
PARTICLE SIZE DISTRIBUTION	Air		
	Liquid	2mm — 50mm depending on preparation method	
	Solid / Powder	aggregated powder ~mm size	sieving.
OTHER (Specify)			
CHEMICAL PROPERTIES			
CHEMICAL COMPOSITION		silane modified TiO_2	
SURFACE MODIFICATION (COATING, FUNCTIONALIZATION)		yes	FTIR
PURITY		> 95%	FTIR
SURFACE CHARGE		N/A	To be developed
DISPERSION[3]	Air	agglomerated / aggregated	Sieving
	Liquid	non agglomerated	~~TEM~~ Dynamic light scattering
	Solid	~~agglomerated~~ non-aggregated	TEM
IDENTIFYING AND DETERMINING CONCENTRATION OF NANO CHEMICAL, ITS METABOLITES, AND DEGRADATION PRODUCTS IN SPECIFIED MATRICES[4] Water, Air, Soil, Sediment, Sludge, Chemical Waste, Fish, Blood, Adipose Tissue, Urine, Other (specify)		N/A	
SOLUBILITY	Water Solubility	not soluble	
	Solubility in Organic Solvent	soluble in various organic solvent	
N-OCTANOL-WATER PARTITION COEFFICIENT		N/A (almost non in water)	
STABILITY AND REACTIVITY	Flammability	no fire under torch test	
	Explosiveness	None	
	Oxidizing Properties	N/A	
	Oxidation Reduction Potential	N/A	
	Storage Stability and Reactivity (Container Material)	very stable	
	Stability to Thermal, Sunlight, and Metal(s)	high thermal stability no reaction with Al, Fe, Cu ~~light stable: unknown~~. light stability: unknown	

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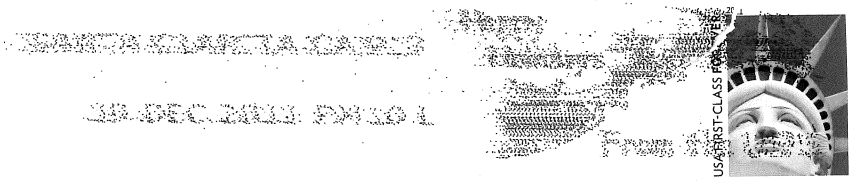
Camarillo, CA 93012



State of California
California Environmental Protection Agency
Department of Toxic Substances Control
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P.O. Box 806
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WPR
Don Owen

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