Nanoscale Materials Stewardship Program (NMSP)
Optional Data Submission Form
01/17/2008

NOTICE TO PARTICIPANTS:

Participation in and submission of data to EPA under the NMSP is voluntary.

EPA is requesting that participants provide data to the extent it is known or reasonably ascertainable.

Use of this form by participants is also voluntary.

You do not have to fill out the entire form – you may leave portions blank when data are not known or reasonably ascertainable, or are otherwise not applicable.

In some instances, EPA is requesting that you explain why data are not available to help us better understand what might not be available for nanoscale materials.

EPA encourages participants to provide as much data as possible including why the data are not available.

You may use the form as a guide to determine which data to report to EPA.

Participation in and submission of data to EPA under the NMSP does not imply an intent to manufacture or import for a commercial purpose under the Toxic Substances Control Act (TSCA).

Completion and submission of this form to EPA under the NMSP does not satisfy any requirement under 40 CFR part 720 to submit a PMN or under 40 CFR part 721 to submit a Significant New Use Notification. If you have any questions about the TSCA Inventory status of the nanoscale materials you intend to manufacture or import, EPA encourages you to consult with EPA before beginning any commercial activities.

This optional form includes a Worksheet on Physical and Chemical Properties that is intended to assist in the review of the physical and chemical properties data, and to help in the understanding of the types of characterization data typically available for engineered nanoscale materials, as well as why the data may not be available for nanoscale materials.

U.S. ENVIRONMENTAL PROTECTION AGENCY

AGENCY USE ONLY:	Document control number	EPA case number	Date of receipt

NANOSCALE MATERIALS STEWARDSHIP PROGRAM DATA SUBMISSION FORM

Total number of pages in the Form

When completed send this form to

U.S. E.P.A.
DOCUMENT CONTROL OFFICER (7407M)
1200 PENNSYLVANIA AVE. NW
WASHINGTON, D.C. 20460
ATTN: NANOSCALE MATERIALS STEWARDSHIP PROGRAM

This form has been developed for optional use by participants in the U.S. EPA's Nanoscale Materials Stewardship Program (NMSP). This form is based on the standard Premanufacture Notice (PMN) form (EPA FORM 7710-25), with many of the pages in this form adapted directly from the PMN form, irrelevant sections removed, and additional pages seeking nanoscale materials-specific information inserted, along with specific instructions.

Paperwork Reduction Act Notice: The public reporting and record keeping burden for this collection is estimated to average about 154.3 hours per response for the Basic NMSP, and 2,500 hours for the In-Depth NMSP, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information to: Director, Collection Strategies Division (Mail Code 2822T), U.S. Environmental Protection Agency, Washington, DC 20460. Include the OMB control number above in any correspondence, but do not submit the form or report to this address.

GENERAL INSTRUCTIONS

- As much of this form is adapted from the PMN form, it may be instructive to refer to the "Instruction Manual for Reporting Under the TSCA §5 New Chemicals Program" (available from the Toxic Substances Control Act (TSCA) Information Service, 202-554-1404, or 202-554-5603(fax) or at http://www.epa.gov/opptintr/newchems/pubs/pmnforms.htm). Where referencing these instructions might be helpful in completing this form, EPA directs you to the "PMN Form Instructions Manual."
- Having based this form on the PMN form, the form structure is geared more towards the manufacturer or importer of the chemical substance as opposed to others who may participate in the NMSP, such as researchers. EPA recognizes that not everyone will have all of the information identified in this form available to them.
- For purposes of completing this form, you should consider "manufacture, process or use" to also capture activities related to the development of a chemical substance and researchers should provide information in that context to the extent that it is available. Researchers may not, however, have the detailed use information described in Part I or the detailed manufacturing, processing, and use operations information described in Part II. If you decide to use the form, please remember that you do not have to complete a section if it is not applicable.
- This form is optional for NMSP participants. It was developed in an effort to help participants identify the type of information that would be of interest and provide a simplified mechanism for submitting that information. You do not have to use this form. You may report to EPA in any format you choose.
- To the extent practicable, EPA has included instructions to help you complete the form. Please use the form as a guide to determine what data is available for reporting to EPA. EPA encourages participants to provide as much information as possible, including why information is not available.
- Please provide the information requested in this form to the extent it is known or reasonably ascertainable. Particularly as related to the health and environmental effects of the manufacture, processing, distribution in commerce, use, or disposal of the substance, all test data in your possession or control and a description of all other known data should be provided. Reasonable estimates or modeling data may be given in the absence of actual data. Standard literature citations may be submitted for data in the open scientific literature. If the data do not appear in the open literature, please submit a copy of the complete test data report (written in English). Clearly identify whether test data is on the substance, on an analog, or from models.
- Any answer may be left blank or filled with "N/A," if the information is not available, or the question is not applicable. IT IS NOT NECESSARY TO DO ADDITIONAL TESTING IN ORDER TO COMPLETE THIS FORM.
- Attach additional sheets as needed. Label each continuation sheet with the corresponding section heading. List all attachments including data and optional information on page 15.
- Only one nanoscale material should be submitted per form.
- Any information may be claimed as confidential. To assert a claim on the form, mark (X) the confidential box next to the information claimed as confidential. To assert a claim in an attachment, circle or bracket the information claimed as confidential. If information is claimed as confidential, a sanitized version (including attachments) should be provided. For additional instructions on claiming information as confidential, refer to the PMN Form Instructions Manual. Submission of confidential information on this form constitutes consent for disclosure of the information to EPA contractors under the security procedures used in handling information submitted under TSCA.

NOTICES

- Participation in and submission of data to the EPA under this program is voluntary.
- Use of this form by program participants is also voluntary.
- Participation in and submission of data to EPA under this program does not imply an intent to manufacture or import the nanoscale material for a commercial purpose.
- Completion and submission of this form to EPA under the NMSP does not satisfy any requirement under 40 CFR part 720 to submit a PMN or under 40 CFR part 721 to submit a Significant New Use Notice. For information on PMN submissions, see http://www.epa.gov/opptintr/newchems/index.htm. If you have any questions about the TSCA Inventory status of the nanoscale materials you may be manufacturing or importing, EPA encourages you to consult with EPA before beginning any commercial activities. If you have or intend to submit a PMN to EPA, you may ask EPA to include that submission under the NMSP and do not need to submit a duplicate copy of the PMN to EPA under the NMSP.

TEST DATA

Available hazard and exposure test data would be most useful if the physical/chemical properties of the nanoscale material relevant to assessing test results are obtained at the initiation of testing. Additional relevant information on preparation of the nanoscale material for administration and storage history of the material between production and administration will assist in interpretation. When possible, interpret data in the context of accompanying positive and negative nanoscale substance control data from the same test system. **Indicate which of the following data are included in this submission:**

☐ Physical / Chemical properties ☐ Health effects ☐ Environmental effects ☐ Test data not in the possession or control of the submitter

☐ Structure / activity relationships ☐ Environmental fate ☐ Other

☐ Mark (x) if any of the provided data is claimed as confidential.

HOW LONG DID IT TAKE YOU TO COMPLETE THIS FORM?

Please provide an estimate of the amount of time in work hours it took you to complete this form. EPA estimates that it could take up to 154.3 burden hours for someone to complete this form in its entirety, including time to review instructions, search existing data sources, gather and maintain the data needed, and complete and review the collection of information. Your estimate will help inform the Agency's evaluation of the use of this optional form and the Agency's estimates.

Hours:

COMMENTS

Please provide feedback or suggests you may have about this optional form.

☐ Mark (X) this box if you attach a continuation sheet.

SUBMITTERS STATEMENT

1. All information provided in this form is accurate as of the date of submission.
2. I understand that this is not a PMN, and as such, does not satisfy any requirement under 40 CFR part 720 to submit a PMN.
3. I am primarily a (select one): ☐ Manufacturer ☐ Importer ☐ Researcher ☐ Other Participant (specify): _____.
4. ☐ Mark X in this box if you are willing to allow EPA to forward this data, including confidential portions, to other government entities. EPA will contact you before releasing any data.

Please Mark (X) in the "Confidential" box next to the signature you claim as confidential		Confidential
Signature and title of Authorized Official (Original Signature Required)	Date	
Signature of agent - (if applicable)	Date	

Part I -- GENERAL INFORMATION

Section A -- SUBMITTER IDENTIFICATION

Mark (X) the "Confidential" box next to any subsection you claim as confidential

					Confi-dential
1a. Person Submitting (in U.S.)	Name of authorized official	Position			
	Company				
	Mailing address (number and street)				
	City, State, ZIP Code				
b. Agent (if applicable)	Name of authorized official	Position			
	Company				
	Mailing address (number and street)				
	City, State, ZIP Code	Telephone	Area Code	Number	
c. If you are submitting this as part of a joint submission, mark (X) this box. → ☐					
Joint Submitter (if applicable)	Name of authorized official	Position			
	Company				
	Mailing address (number and street)				
	City, State, ZIP Code	Telephone	Area Code	Number	
2. Technical Contact (in U.S.)	Name of authorized official	Position			
	Company				
	Mailing address (number and street)				
	City, State, ZIP Code	Telephone	Area Code	Number	

[redacted]

Part I -- GENERAL INFORMATION -- Continued

Section B -- CHEMICAL IDENTITY INFORMATION:

Mark (X) the "Confidential" box next to any item you claim as confidential

Please complete either item 1 (Class 1 or 2 substances) or item 2 (Polymers) as appropriate, then complete all other items in this section. It is recognized that systematic nomenclature has not been fully developed for nanoscale materials, therefore it is not necessary to provide the "correct Chemical Abstract name" nor the "CAS Registry Number," if it does not exist. Please fill out these sections to the best of your ability in light of the limitations.

If another person will submit chemical identity information for you (for either Item 1 or 2), mark (X) the box at the right. Identify the name, company, and address of that person in a continuation sheet. → ☐ Confi-dential

1. Class 1 or 2 chemical substances (For definitions of class 1 and class 2 substances, see the PMN Form Instructions Manual. It is also noted that a nanoscale material may or may not be accurately described as a Class 1 or Class 2 substance. If the choice is not obvious, this section may be left blank. In addition, a brief explanation may be given for why a particularly classification is or is not appropriate.)

a. Class of substance - Mark (X) 1 ☐ Class 1 or 2 ☐ Class 2

b. Chemical name (Currently correct Chemical Abstracts (CA) Name that is consistent with TSCA Inventory listings for similar substances. If a Chemical Abstracts Name is not available, please use a name that is most in agreement with CA nomenclature.

c. Please identify which method you used to develop or obtain the specified chemical identity information: (check one).

☐ Method 1 (CAS Inventory Expert Service ☐ Method 2 (Other Source)

d. Molecular formula (including molecular shape / physical form) and CAS Registry Number (if a number already exists for the substance)

CAS#

e. For a class 1 substance, provide a complete and correct chemical structure diagram. For a class 2 substance - (1) List the immediate precursor substances with their respective CAS Registry Numbers. (2) Describe the nature of the reaction or process. (3) Indicate the range of composition and the typical composition (where appropriate). (4) Provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained. For the nanoscale material, please provide the information requested for Class 2 substances, regardless of whether the material is Class 1 or Class 2 or cannot be determined.

☐ Mark (X) this box if you attach a continuation sheet.

Part I -- GENERAL INFORMATION – Continued

Section B -- CHEMICAL IDENTITY INFORMATION – Continued

2. Polymers (For a definition of polymer, see the PMN Form Instructions Manual.)

Confi-dential

a. Indicate the number-average weight of the lowest molecular weight composition of the polymer.
Indicate maximum weight percent of low molecular weight species (not including residual monomers, reactants, or solvents) below 500 and below 1,000 absolute molecular weight of that composition.

Describe the methods of measurement or the basis for your estimates: GPC ☐ Other ☐: (Specify) _____

i) lowest number average molecular weight: _____

ii) maximum weight % below 500 molecular weight: _____

iii) maximum weight % below 1000 molecular weight: _____

☐ Mark (X) this box if you attach a continuation sheet.

b. Make separate confidentiality claims for monomer or other reactant identity, composition information, and residual information. Mark (X) the "Confidential" box next to any item you claim as confidential

(1) - Provide the specific chemical name and CAS Registry Number (if a number exists) of each monomer or other reactant used in the manufacture of the polymer.
(2) - Mark (X) this column if entry in column (1) is confidential.
(3) - Indicate the typical weight percent of each monomer or other reactant in the polymer.
(4) - Mark (X) the identity column if you want a monomer or other reactant used at two weight percent or less to be listed as part of the polymer description on the TSCA Chemical Substance Inventory.
(5) - Mark (X) this column if entries in columns (3) and (4) are confidential.
(6) - Indicate the maximum weight percent of each monomer or other reactant that may be present as a residual in the polymer as manufactured for commercial purposes.
(7) - Mark (X) this column if entry in column (6) is confidential.

Monomer or other reactant and CAS Registry Number (1)	Confi-dential (2)	Typical composition (3)	Identity Mark (X) (4)	Confi-dential (5)	Maximum residual (6)	Confi-dential (7)
		%			%	
		%			%	
		%			%	
		%			%	
		%			%	
		%			%	
		%			%	

☐ Mark (X) this box if you attach a continuation sheet.

c. Please identify which method you used to develop or obtain the specified chemical identity information (check one).

☐ Method 1 (CAS Inventory Expert Service) ☐ Method 2 (other source)

d. The currently correct Chemical Abstracts (CA) name for the polymer that is consistent with TSCA Inventory listings for similar polymers. If a Chemical Abstracts Name is not available, please use a name that is most in agreement with CA nomenclature.

e. Please provide a correct representative or partial chemical structure diagram, as complete as can be known, if one can be reasonably ascertained. Alternatively, if applicable, provide a correct representative structure for the polymer as part of a composite.[Note: the components of a composite are separate chemical identities. For example in a composite of starch molecules between layers of clay treated with surfactants, the starch, clay, and surfactants might be on the TSCA Inventory, but since the interactions between the components are weak electrical interactions, there is no chemical substance.]

☐ Mark (X) this box if you attach a continuation sheet.

Part I -- GENERAL INFORMATION -- Continued

Section B -- CHEMICAL IDENTITY INFORMATION – Continued

3. Impurities

(a) - Identify each impurity that may be reasonably anticipated to be present in the chemical substance as manufactured, processed or used. Provide the CAS Registry Number if available. If there are unidentified impurities, enter "unidentified."

(b) - Estimate the maximum weight % of each impurity. If there are unidentified impurities, estimate their total weight %.

Impurity and CAS Registry Number (a)	Maximum percent (b)	Confi-dential
	%	
	%	
	%	
	%	
	%	
	%	
	%	

☐ Mark (X) this box if you attach a continuation sheet.

4. Synonyms - Enter any chemical synonyms for the chemical identified in subsection 1 or 2.

Confi-dential

☐ Mark (X) this box if you attach a continuation sheet.

5. Trade identification - List trade names for the chemical substance identified in subsection 1 or 2.

☐ Mark (X) this box if you attach a continuation sheet.

6. Generic chemical name - If you claim chemical identify as confidential, provide a generic name for your substance that reveals the specific chemical identity of the chemical substance to the maximum extent possible. Refer to the TSCA Chemical Substance Inventory, 1985 Edition, Appendix B for guidance on developing generic names.

☐ Mark (X) this box if you attach a continuation sheet.

7. Byproducts - Describe any byproducts resulting from the manufacture, processing, use, or disposal of the chemical substance. Provide the CAS Registry Number if available.

Byproduct (1)	CAS Registry Number (2)	Confi-dential

☐ Mark (X) this box if you attach a continuation sheet.

Part I -- GENERAL INFORMATION -- Continued

Section C -- PRODUCTION, IMPORT, AND USE INFORMATION:

Mark (X) the "Confidential" box next to any item you claim as confidential.

1. Production volume -- Estimate the **maximum** production volume during the next 12 months of production. If applicable, please also estimate the maximum production volume for any consecutive 12-month period during the first three years of production. Estimates should be on 100% chemical substance basis.

Maximum first 12-month production (kg/yr) (100% chemical substance basis)	Maximum 12-month production (kg/yr) (100% chemical substance basis)	Confi-dential	[redacted]

2. Use Information -- Make separate confidentiality claims for the description of the category of use, the percent of production volume devoted to each category, the formulation of the substance, and other use information. Mark (X) the "Confidential" Box next to any item you claim as confidential. If you are a researcher, please consider providing potential uses, or mark N/A and move to item 3 below.

a. (1) -- Describe each intended category of use of the chemical substance by function and application..
(2) -- Mark (X) this column if entry column (1) is confidential business information (CBI).
(3) -- Estimate the percent of total production for the first three years devoted to each category of use.
(4) -- Mark (X) this column if entry in column (4) is confidential business information (CBI).
(5) -- Estimate the percent of the substance as formulated in mixtures, suspensions, emulsions, solutions, or gels as manufactured for commercial purposes at sites under your control associated with each category of use.
(6) -- Mark (X) this column if entry in column (6) is confidential business information (CBI).
(7) -- Indicate % of product volume expected for the listed "use" sectors. Mark more than one box if appropriate.
(8) -- Mark (X) this column if entry(ies) in column (8) is (are) confidential business information (CBI).

Category of use (1) (by function and application i.e. a dispersive dye for finishing polyester fibers)	CBI (2)	[redacted]	Production % (3)	CBI (4)	% in Formulation (5)	CBI (6)	% of substance expected per use (7) Site-limited	Con-* sumer	Industrial	Commercial	[redacted]	CBI (8)
			%		%							
			%		%							
			%		%							
			%		%							
			%		%							
			%		%							
			%		%							

* If you have identified a "consumer" use, please provide on a continuation sheet a detailed description of the use(s) or potential uses of this chemical substance in consumer products. In addition include estimates of the concentration of the chemical substance as expected in consumer products and describe the chemical reactions by which this substance loses its identity in the consumer product.

☐ Mark (X) this box if you attach a continuation sheet.

b. Generic use description — If you claim any category of use description in subsection 2a as confidential, enter a generic description of that category. Refer to the PMN Form Instructions Manual for examples of generic use descriptions.

☐ Mark (X) this box if you attach a continuation sheet.

3. Hazard Information -- Include a copy of reasonable facsimile of any hazard warning statement, label, material safety data sheet, or other information which will be provided to any person who is reasonably likely to be exposed to this substance regarding protective equipment or practices for the safe handing, transport, use, or disposal of the substance. List in part III any hazard information that you include.

☐ Mark (X) this box if you attach hazard information.

Part I -- GENERAL INFORMATION – Continued

Section C –-Continued

Mark (X) the "CBI" box next to any item you claim as confidential. CBI

4. State of manufacture or importation
Please specify:
a. Substance is at what stage of manufacture (importation)?
☐ currently manufactured ☐ will be manufactured ☐ no current plan to manufacture ☐ under development ☐ not known

b. First/planned date of manufacture/import:

5. State of commercial availability
Please specify:
a. Substance is at what stage of commercial availability?
☐ currently available ☐ will be made available ☐ no current plan to make commercially available ☐ not known

b. First/planned date of commercial availability:

6. Unique or enhanced properties. Briefly describe any unique or enhanced properties that arise from the nanoscale features of the material, particularly in contrast to any non-nanoscale varieties that exist. Are these unique or enhanced properties intended to address a specific need or purpose not being addressed by any non-nanoscale materials.

☐ Mark (X) this box if you attach a continuation sheet.

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE

Section A –SITES CONTROLLED BY THE SUBMITTER

Mark (X) the "Confidential" box next to any item you claim as confidential

Complete section A for each type of manufacture, processing, or use operation involving the chemical substance at sites you control (including sites used for development purposes only). See also the PMN Form Instructions Manual for related definitions used in that context.

1. Operation description
   a. Identity -- Enter the identity of the site at which the operation will occur.

Confi-dential

Name

Site address (number and street)

City, County, State, ZIP code

If the same operation will occur at more than one site, enter the number of sites. Identify the additional sites on a continuation sheet, and if any of the sites have significantly different production rates or operations, include all the information requested in this section for those sites as attachments. →

☐ Mark (X) this box if you attach a continuation sheet.

b. Operation Type --

Mark (X)

☐ Manufacturing ☐ Processing ☐ Use ☐ Development

c. Amount and Duration -- Complete 1 or 2 as appropriate.

1. Batch	Maximum kg/batch (100% chemical substance)	Hours/batch	Batches/year
2. Continuous	Maximum kg/day (100% chemical substance)	Hours/day	Days/year

d. Process description, as applicable

(1) Diagram the major unit operation steps and chemical conversions. Include interim storage and transport containers (specify- e.g. 5 gallon pails, 55 gallon drum, rail car, tank truck, etc.).

(2) Provide the identity, the approximate weight (by kg/day or kg/batch on a 100% chemical substance basis), and entry point of all starting materials and feedstocks (including reactants, solvents, catalysts, etc.), and of all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch.).

(3) Identify by number the points of release, including small or intermittent releases, to the environment of the chemical substance. If releasing to two media at the same step, assign a second release number for the second medium.

☐ Mark (X) this box if you attach a continuation sheet.

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE -- Continued

Section A –SITES CONTROLLED BY THE SUBMITTER – Continued

2. Occupational Exposure –Please provide the description of worker activity, physical form of the chemical substance, number of workers exposed, and duration of activity. Researchers should only describe unique activities and not standard laboratory practices. Make separate confidentiality claims by marking (X) the "Confidential" box next to any item you claim as confidential.

(1) -- Describe the activities (i.e. bag dumping, tote filling, unloading drums, sampling, cleaning, etc.) in which workers may be exposed to the substance.
(2) -- Mark (X) this column if entry in column (1) is confidential business information (CBI).
(3) -- Describe any protective equipment and engineering controls used to protect workers.
(4) -- Indicate the physical form(s) of the chemical substance (e.g., solid: crystal, granule, powder, or dust) and % chemical substance (if part of a mixture) at the time of exposure.
(5) -- Mark (X) this column if entry in column (4) is confidential business information (CBI).
(6) -- Estimate the maximum number of workers involved in each activity for all sites combined.
(7) -- Mark (X) this column if entry in column (6) is confidential business information (CBI).
(8) and (9) -- Estimate the maximum duration of the activity for any worker in hours per day and days per year.
(10) -- Mark (X) this column if entries in columns (8) and (9) are confidential business information (CBI).

Worker activity (i.e., bag dumping, filling drums) (1)	CBI (2)	Protective Equipment/ Engineering Controls (3)	[redacted]	Physical forms(s) and % substance (4)	[redacted]	CBI (5)	# of Workers Exposed (6)	CBI (7)	Maximum Hrs/day (8)	duration Days/yr (9)	CBI (10)

☐ Mark (X) this box if you attach a continuation sheet.

3. Environmental Release and Disposal – Please provide the release number and the amount of the chemical substance released and other release and disposal information. Researchers should report this information it available, or may skip to item 4. Make separate confidentiality claims for each item by marking (X) the "Confidential" box next to each item you claim as confidential.

(1) -- Enter the number of each release point identified in the process description, part II, section A, subsection 1d(3).
(2) -- Estimate the amount of the substance released (a) directly to the environment or (b) into control technology (in kg/day or kg/batch).
(3) -- Mark (X) this column if entries in columns (1) and (2) are confidential business information (CBI).
(4) -- Identify the media (stack air, fugitive air (optional-see Instruction Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify)) to which the substance will be released from that release point.
(5) -- a. Describe control technology, if any, and control efficiency that will be used to limit the release of the substance to the environment. For releases disposed of on land, characterize the disposal method and state whether it is approved for disposal of RCRA hazardous waste. On a continuation sheet, for each site describe any additional disposal methods that will be used and whether the waste is subject to secondary or tertiary on-site treatment. b. Estimate the amount released to the environment after control technology (in kg/day).
(6) -- Mark (X) this column if entries in columns (4) and (5) are confidential business information (CBI).
(7) -- Identify the destination(s) of releases to water. Please supply NPDES (National Pollutant Discharge Elimination System) numbers for direct discharges or NPDES numbers of the POTW (Publicly Owned Treatment Works). Mark (X) if the POTW name or NPDES # is confidential business information (CBI).

Release Number (1)	Amount of substance released (2a)	(2b)	CBI (3)	Media of release e.g. stack air (4)	Control technology and efficiency (you may wish to optionally attach efficiency data) (5a)	[redacted]	(5b)	CBI (6)

(7) Mark (X) the destination(s) of releases to water.	☐ POTW provide name(s) below: _____	CBI	☐ Navigable waterway	☐ Other - Specify	provide NPDES #	CBI

☐ Mark (X) this box if you attach a continuation sheet.

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE -- Continued

Section B –SITES CONTROLLED BY OTHERS

Complete section B for typical processing or use operations involving the chemical substance at sites you do not control. If you do not have this information, you may skip this section, Refer to the PMN Form Instructions Manual for additional information about which sites to include. *Complete a separate section B for each type of processing, or use operation involving the chemical substance*. If the same operation is performed at more than one site describe the typical operation common to these sites. Identify additional sites on a continuation sheet.

1. Operation Description -- To claim information in this section as confidential, circle or bracket the specific information that you claim as confidential. (1) -- Diagram the major unit operation steps and chemical conversions, including interim storage and transport containers (specify - e.g. 5 gallon pails, 55 gallon drums, rail cars, tank trucks, etc). On the diagram, identify by letter and briefly describe each worker activity. (2) -- Provide the identity, the approximate weight (by kg/day or kg/batch, on a 100% chemical substance basis), and entry point of all feedstocks (including reactants, solvents and catalysts, etc) and all products, recycle streams, and wastes. Include cleaning chemicals (note frequency if not used daily or per batch). (3) -- Identify by number the points of release, including small or intermittent releases, to the environment of the chemical substance. (4) Please enter the # of sites (remember to identify the locations of these sites on a continuation sheet):

_____
# of sites

☐ **Mark (X) this box if you attach a continuation sheet.**

2. Worker Exposure/Environmental Release

(1) --From the diagram above, provide the letter for each worker activity. Complete 2-8 for each worker activity described.

(2) --Estimate the number of workers exposed for all sites combined.

(4) --Estimate the typical duration of exposure per worker in (a) hours per day and (b) days per year.

(6) --Describe physical form of exposure and % chemical substance (if in mixture), and any protective equipment and engineering controls, if any, used to protect workers.

(7) --Estimate the percent of the substance as formulated when packaged or used as a final product.

(9) --From the process diagram above, enter the number of each release point. Complete 9-13 for each release point identified.

(10) -- Estimate the amount of the substance released (a) directly to the environment or (b) into control technology to the environment (in kg/day or kg/batch).

(12) -- Describe media of release i.e. stack air, fugitive air (optional-see PMN Form Instructions Manual), surface water, on-site or off-site land or incineration, POTW, or other (specify) and control technology, if any, that will be used to limit the release of the substance to the environment.

(14) -- Identify byproducts which may result from the operation.

(3), (5), (8), (11), (13) and (15) -- Mark (X) this column if any of the proceeding entries are confidential business information (CBI).

Letter of Act-ivity	# of Workers Exposed	CBI	Duration of Exposure		CBI	Protective Equip. / Engineering Controls/ Physical Form and % substance	% in Form-ulation	CBI	Release Number	Amount of Substance Released		CBI	Media of Release & Control Technology	CBI
(1)	(2)	(3)	(4a)	(4b)	(5)	(6)	(7)	(8)	(9)	(10a)	(10b)	(11)	(12)	(13)

(14) -- Byproducts: (15)

☐ Mark (X) this box if you attach a continuation sheet,

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE – Continued

SECTION C – RISK MANAGEMENT PRACTICES (Use this section both for sites controlled by submitter (Section A) and by others (Section B). Make copies as necessary.)

If you have a Risk Management Plan, please provide a copy or complete this section.

☐ Mark (X) in this box if you have attached a copy of your Risk Management Plan and skip to Section F.

1. Details of protective equipment / engineering controls.

Please provide the following information (Researchers should only identify unique equipment and controls or activities):

(a) –The worker activities listed in Section A.2 or B.1 for which protective equipment/engineering controls are in use.
(b) – A brief description of the rationale for selecting the protective equipment/engineering controls, including internal exposure control limits, data and the methods used to generate the data that informed the decision.
(c) – A brief description of the cleaning, reuse, and/or disposal of the protective equipment
(d) – A brief description of any data (personal and/or area), units (e.g., mass conc., surface area, or particle number conc.) and any exposure monitoring methods used.

Mark (X) in the "CBI" column next to any item you claim as confidential.	CBI
(a) Worker activity / Protective equipment / Engineering Control	☐
(b) Rationale for selecting equipment / controls, associated internal exposure control limit / data / methods ☐ Mark (X) this box if you attach a continuation sheet.	☐
(c) Cleaning, reuse, and/or disposal of protective equipment ☐ Mark (X) this box if you attach a continuation sheet.	☐
(d) Exposure monitoring data (personal and/ or area), units (e.g., mass conc., surface area, or particle number conc.), and methods used ☐ Mark (X) this box if you attach a continuation sheet.	☐

2. Details of control technology.

To assist EPA in gaining a better understanding of the need for and the types of control technology used at the release points in the manufacture and handling of engineered nanoscale materials, please provide the following information for each release point for which control technology is used:

(1) – The Release Number, as identified in the process description, part II, section A, subsection 1d(3) (page 8).
(2) – A brief description of the rationale for selecting the control technology.
(3) – Data and measurement methods of waste treatment efficiency studies.

Release Number (1)	Mark (X) in the "CBI" column next to any item you claim as confidential.	CBI
	(2) Rationale for selecting control technology ☐ Mark (X) this box if you attach a continuation sheet.	☐
	(3) Data and measurement methods of waste treatment or purification studies ☐ Mark (X) this box if you attach a continuation sheet.	☐

☐ Mark (X) this box if you attach a continuation sheet.

Part II-- HUMAN EXPOSURE AND ENVIRONMENTAL RELEASE -- Continued

Section D – Lifecycle

Mark (X) the "CBI" box next to any item you claim as confidential. CBI

1. In addition to the information already given, provide a brief overview of the lifecycle of the material, including all workplaces that manufacture, process, or use the material, methods of packaging and transporting the material, all expected general population, environmental, and consumer uses, and the expected manufacturing and processing methods of the material or any consumer products containing the material. If not included in Sections A or B above, include a description of the end of life disposal or disposition of products containing the nanoscale material. ☐

☐ Mark (X) this box if you attach a continuation sheet.

Section E – Misc. Health, Exposure, Hazard Information

Mark (X) the "CBI" box next to any item you claim as confidential. CBI

1. Describe any training, hazard communication (e.g. MSDS), etc. specific to the nanoscale material that is provided to workers. ☐

☐ Mark (X) this box if you attach a continuation sheet.

2. Estimate the total number of individuals—other than previously described workers—(e.g. general public, consumers) who may be exposed to the material and the duration of the exposure. ☐

☐ Mark (X) this box if you attach a continuation sheet.

3. Describe any other procedure, equipment, etc. being used to mitigate exposure to the material. ☐

☐ Mark (X) this box if you attach a continuation sheet.

4. Describe product labeling and any customer training specific to the nanoscale material. ☐

☐ Mark (X) this box if you attach a continuation sheet.

5. Describe other risk management practices specific to the nanoscale material. ☐

☐ Mark (X) this box if you attach a continuation sheet.

SECTION F - INFORMATION ABOUT POTENTIAL BENEFITS

To claim information in this section as confidential circle or bracket the specific information that you claim as confidential.

In this section you may provide information not reported elsewhere in this form regarding your efforts to reduce or minimize potential risks associated with activities surrounding manufacturing, processing, use and disposal of the substance. Please include new information pertinent to pollution prevention, including source reduction, recycling activities and safer processes or products available due to the chemical substance. Source reduction includes the reduction in the amount or toxicity of chemical wastes by technological modification, process and procedure modification, product reformulation, raw materials substitution, and/or inventory control. Recycling refers to the reclamation of useful chemical components from wastes that would otherwise be treated or released as air emissions or water discharges, or land disposal. Descriptions of pollution prevention, source reduction and recycling should emphasize potential risk reduction subsequent to compliance with existing regulatory requirements and can be either quantitative or qualitative. EPA is interested in the information to assess overall net reductions in toxicity or environmental releases and exposures, not the shifting of risks to other environmental media or non-environmental areas (e.g., occupational or consumer exposure). In addition, information on the relative cost or performance characteristics of the substance to potential alternatives may be provided. **See the PMN Form Instructions Manual and Pollution Prevention Guidance Manual for guidance and examples.**

Describe the expected or potential net benefits, such as (1) an overall reduction in risk to human health or the environment; (2) a reduction in the volume manufactured; (3) a reduction in the generation of waste materials through recycling, source reduction or other means; (4) a reduction in potential toxicity or human exposure and/or environmental release; (5) an increase in product performance, a decrease in the cost of production and/or improved operation efficiency of the chemical substance in comparison to existing chemical substances used in similar application; or (6) the extent to which the chemical substance may be a substitute for an existing substance that poses a greater overall risk to human health or the environment.

☐ Mark (X) this box if you attach a continuation sheet.

Part III -- LIST OF ATTACHMENTS

Attach continuation sheets for sections of the form and test data and other data (including physical/chemical properties and structure/activity information), and optional information after this page. Clearly identify the attachment and the section of the form to which it relates, if appropriate. Number consecutively the pages of the attachments. In the column below, enter the inclusive page numbers of each attachment.

Mark (X) the "Confidential" box next to any attachment name you claim as confidential. Refer to the PMN Form Instructions Manual for guidance on how to claim any information in an attachment as confidential. Include with the sanitized copy of the form a sanitized version of any attachment in which you claim information as confidential.

Attachment name	Attachment page number(s)	Confi-dential
Material Safety Data Sheet (MSDS)		
Worksheet on Physical and Chemical Properties (EPA Form No. 7710-25-NMSP-Worksheet)		

☐ Mark (X) this box if you attach a continuation sheet. Enter the attachment name and number.