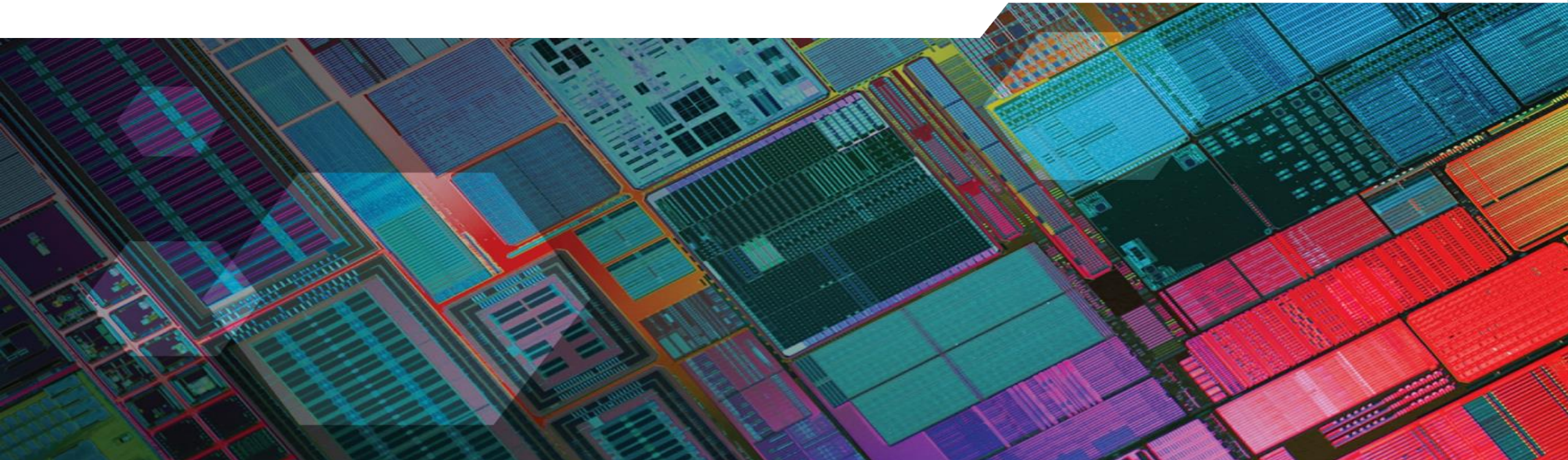




## Question / Answer Session

SEMI Webcast – June 1, 2017



## Q/A Session Participants

- **U.S. EPA**
  - Jim Alwood (U.S. EPA)
- **SEMI Staff and Members**
  - Sanjay Baliga (SEMI Global Headquarters)
  - Rory McCarthy (Brewer Science)
  - Michael Castorano (Dow Electronic Materials)
  - Brian Raley (GLOBALFOUNDRIES)
- **NanoBCA Staff**
  - Lynn Bergeson (Bergeson & Campbell, PC)

## Inevitable Webcast Question

Question: Will Jim Alwood's presentation materials be made available for attendees to download?

Answer: YES. The materials will be made available on the SEMI website here:

*<http://www.semi.org/en/june-2017-nanomaterials-webcast>*

SEMI will send attendees an email shortly after the end of the webcast with this link.

## Inevitable Webcast Question

Question: Will the webcast be recorded and be accessible on the web?

Answer: NO.

## SEMI Question 1 – High Priority

Background: Changing pH of the mixture necessarily changes the zeta potential of the raw nanoscale material.

Question: If you have discrete forms of a nanoscale material in a mixture and you are changing the properties of the mixture, but not changing the properties of the raw nanoscale material, does this constitute a new novel form of a nanoscale material?

## SEMI Question 2 – High Priority

Background: CMP stands for Chemical Mechanical Planarization and is a process step in manufacturing of some types of semiconductors and related electronic devices. Some CMP slurries may contain nanoscale materials and some may not. There is no step function for abrasive materials that could be considered nanoscale materials used in CMP slurries. CMP slurries contain materials below 100nm and above 100nm. There is no novel size function at the 100nm threshold, but instead a linear function based on size.

Question: Do we have to report the specific abrasive substances in CMP slurries if the nanoscale features of the substances are not the reason we use them? Does using smaller aggregates in a CMP slurry lead to a new novel form?

## SEMI Question 3 – High Priority

Question: Starting with same raw nanoscale material that are used in a mixture and we routinely change the properties the mixture, this change in the mixture necessarily changes the raw substance, do we have to report for each occurrence of the change in the mixture? Assuming we have to report, how many times do we have to report?

## SEMI Question 4 – High Priority

Question: Does EPA envision having industry eventually apply for new PMNs for nanoscale forms of substances already existing on the TSCA Inventory that are identified in this reporting?



## SEMI Question 5 – Moderate Priority

Question: When reporting, do you mandate a CAS Registry Number or do we only need to provide one if one already exists? Do you require a unique CAS Registry Number of the nanoscale form of a substance that is different than the non-nanoscale form? If yes, will EPA provide guidance if CAS will not provide a new Registry Number for a nanoscale form of an existing material with an existing CAS Registry Number and name?

## SEMI Question 6 – Moderate Priority

Question: What happens if I made a nanoscale material four years ago and the rule specifies a three-year prior period for evaluation, would this materials from four years ago still be in scope of reporting? What is the time frame for defining new?

## SEMI Question 7 – Moderate Priority

Background: You may double-count (or triple or quadruple count) volumes if you don't have a clear idea about links on a supply chain?

Question: Is the goal of the reporting rule for EPA to come up with a single volume of use of each unique form of nanoscale materials? If yes, how do you plan to do so without double counting volumes within a single supply chain?

## SEMI Question 8 – Moderate Priority

Question: Is it correct that powders used in coatings on articles are considered part of the article and therefore, out of scope?

## SEMI Question 9 – Moderate Priority

Question: If a nanoscale material is used in manufacturing (example: in a CMP slurry), but not contained in the final product, and is contained in a waste stream, our understanding is that this is a use and not processing and is not reportable? But if that waste were sold as a product, then there would be a reportable obligation. Is this is correct?

## Additional SEMI Questions

Question: Is there a feature in the CDX reporting tool that allows for the joint submission of confidential information?

## Webcast Audience Questions

Question: I think there is still a lot of confusion regarding irregular particles and the 100nm dimension -- it is unclear why some aggregate/agglomerate particles may be exempt while others would not. For example items one and two under the EPA guidelines seem to contradict each other on some points.

## Webcast Audience Questions

Question: As a formulator using a liquid polymer that contains nanoscale materials within the liquid polymer matrix, would we be required to report. We do not manufacture the nanoscale material, nor are we the importer.



## Webcast Audience Questions

Question: Can you talk a bit more about the distinction between an "enhanced" property and a "unique and novel" property made in the draft guidance document?

## Webcast Audience Questions

Question: If you form the intent to manufacture 136 days before the intended start date, prepare and submit a report (e.g., four weeks later), but commence manufacturing before the 135 days -- after reporting -- have run, can you be penalized for filing "late"? (i.e., you waited to commence until 135 days after forming the intent to manufacture, but didn't wait until 135 days after reporting).

## Webcast Audience Questions

Question: Is compounding a plastic with a nanomaterial to create a blend reportable? (nanomaterial size is not affected)

## Webcast Audience Questions

Question: Hello, I have a question with regards to slide 15(?). Is it correct that NM that dissolves in water are not considered a reportable material?

## Webcast Audience Questions

Question: Suppose I manufacture an additive at nanoscale that goes into a mixture, the rest of which is not at nanoscale. (Example: additives into a lubricant, like grease or oil). Do I need to notify my customers that the nano-additive in the mixture is subject to reporting requirements, or once the additives are mixed into the base grease or oil, do the reporting requirements not apply anymore?

## Webcast Audience Questions

Question: Yes, there is a unique and novel property to the alumina nanofibers incorporated in the liquid polymer matrix. However, the percentage of the nanofibers within the polymer matrix remains less than 1%. As a formulator using that liquid polymer matrix, are we required to report?

## SEMI Member Engagement on Possible Industry Feedback to U.S. EPA

If you are a SEMI member company and would like to assist SEMI in drafting possible industry feedback comments to the U.S. EPA regarding the “Draft Guidance” for nanoscale materials, please contact Sanjay Baliga at [sbaliga@semi.org](mailto:sbaliga@semi.org). Our industry feedback comments are due at EPA no later than June 15, 2017.

SEMI thanks our corporate members who participated in the webcast and its preparation.

SEMI thanks our webcast partners: NanoBCA and SESH.

SEMI thanks the U.S. EPA and Jim Alwood.