



**ANSI-NSP 101r1-2018**  
**Date Revised:** March 9, 2018

**Draft Agenda**

**ANSI Nanotechnology Standards Panel (ANSI-NSP)**  
[www.ansi.org/nsp](http://www.ansi.org/nsp)

**U.S. Department of Agriculture  
Sidney R. Yates Federal Building  
201 14th Street S.W.  
Washington, D.C.**

**Register for the event [here](#)**

**March 20, 2018  
10:00 a.m. – 5:00 p.m.**

*This is a draft agenda and will be adjusted as necessary until the NSP meeting*

**1.0 Welcome and Opening Remarks**  
10:00 a.m. – 10:15 a.m.

Dr. Shaun Clancy –  
ANSI-NSP Co-Chair,  
Evonik Corporation

Dr. Ajit Jilla -  
ANSI-NSP Co-Chair  
NIST

**2.0 Introductions**  
10:15 a.m. – 10:30 a.m.

Panel participants will introduce themselves, the organization each represents, and his/her area of interest relative to nanotechnology.

**3.0 Standards 101: An Introduction to the Voluntary Consensus Standards Process**  
10:30 a.m. – 11:00 a.m.

ANSI Staff

ANSI Staff will provide an overview of voluntary consensus standards process, including ANSI's role as coordinator and facilitator of the U.S. voluntary consensus standards and

conformity assessment systems.

**4.0 Overview of Work Underway: Presentations Related to Nanotechnology Standards Development Activities**  
11:00 a.m. - 11:15 a.m.

Dr. Charles Clifford,  
ISO/TC 229  
*Nanotechnologies*

One of the key roles of the ANSI-NSP is to serve as the cross-sector coordinating body for the purposes of facilitating the development of standards in the area of nanotechnology.

Written contributions from relevant standards organizations were requested by March 7, 2018.

SDOs are invited to give 5 minute presentations on their current nanotechnology standardization activities as they relate to the development and commercialization of graphene and 2D materials.

**Document: ANSI-NSP 102-2018** – Update – ASTM  
International E56 Nanotechnology

**Document: ANSI-NSP 103-2018** – Update – ISO/TC 229  
*Nanotechnologies*

**5.0 Observations from the February 28, 2017 ANSI-NSP Meeting – Graphene Standardization**  
11:15 a.m. – 11:40 a.m.

Dr. Clancy, Dr. Jilla

ANSI-NSP co-Chairs Dr. Jilla and Dr. Clancy will review the discussions and observations of the February, 28, 2017 ANSI-NSP meeting focused on Graphene Standardization. General observations included:

- Terminology is a fundamental need.
- Buyers need characterization methods
- Information sharing needs to be improved

Meeting participants will consider how those observations relate to today's discussions.

**6.0 Presentation: TSCA nanomaterial reporting rule: How it impacts commercialization of graphene**  
11:40 a.m. – 12:00 p.m.

Ms. Martha Marrapese,  
Wiley Rein, LLP

More information is required by EPA than ever before for nanomaterials, and standards are a means to ensure the information companies are supplying is consistent, validated and reliable. Many companies submitting premanufacture notifications for new nanomaterials do not have prior experience with these submissions, and the failure to provide

certain information is leading to more conservative regulatory outcomes. Manufacturers and processors of existing nanomaterials should bear in mind the criteria that trigger nanomaterial reporting this coming August and on an on-going basis. Standards development can help lower the incidence of uneven reporting; without this baseline, some companies will report and others won't, which increases the risk of enforcement for companies that choose not to report.

## LUNCH

12:00 p.m. – 12:45 p.m.

### 7.0 **Review and consideration of existing documents (including standards and best practice guides) for graphene and other relevant 2d materials**

Dr. Clancy, Dr. Jilla

12:45 p.m. – 1:15 p.m.

Based on the stakeholder perspectives, participants will review and consider existing standards and best practice guides to determine if these documents are meeting customer needs, or if additional work is necessary.

If such documents do meet user needs, how can the NSP and its members better promote their existence and utilization?

### 8.0 **Presentation: National Physical Laboratory Good Practice Guide for Graphene**

Dr. Clifford

1:15 p.m. – 1:45 p.m.

Dr. Charles Clifford of the UK National Physical Laboratory will present on the NPL's Good Practice Guide on Graphene, and its potential impact on graphene-related standards

### 9.0 **Presentation: Dispersion of Graphitic material for biological studies**

Dr. Anil Patri,  
U.S. Food and Drug  
Administration

1:45 p.m. – 2:15 p.m.

Graphitic materials are not easily suspendable in aqueous buffers for biological studies and the literature is abundant with conflicting information on cytotoxicity. A host of different methods are utilized to make dispersion such as adding organic solvents, surfactants, sonication, and microfluidization. When graphitic material agglomerate, especially in ionic buffers and cell culture media, it is difficult to draw conclusions on the source of toxicity and surfactants that are added to suspend these material can pose cytotoxicity unrelated to graphitic material. In vitro biological investigations most often use graphene oxide due to easy suspendability, but the properties of

oxidized graphitic material are different and cannot be extrapolated to graphene/graphitic material.

This presentation is intended to bring up issues with different ways graphitic material can be dispersed and how each of these methods influence flake/particle size, suspension stability and cause differential effects in vitro.

**10.0 Stakeholder perspectives: Standards needs identified by the Graphene community**  
2: 15 p.m. – 3:15 p.m.

Mr. Terrance Barkan,  
Graphene Council

Dr. Zina Jarrahi Cinker,  
National Graphene  
Association

The Graphene Council and the National Graphene Association are invited to provide perspectives on potential graphene standardization needs and potential paths forward for consideration.

**10.1 Presentation: Results of Graphene Council Survey of graphene producers**

Mr. Terrance Barkan of the Graphene Council will present on the results of the Council's survey that focused on the types of graphene material being used for specific types of applications and which of the material specifications are of the greatest importance in providing valuable information to customers.

NSP members will discuss a proposal from The Graphene Council for the development of a minimum characterization specification sheet, to be utilized by producers to help provide consistent product descriptions in the market and aid in the development of standards focused on those material types and characteristics that are of greatest relevance and importance to the market.

**10.2 NGA Presentation: -Challenges of the US Graphene Sector from the Supplier and End-user Perspective**

Dr. Zina Jarrahi Cinker will review the challenges of the graphene commercial sector from end user, supplier and application developer perspectives. A panel of NGA members will discuss internal practices implemented by their companies and how to unify these practices as a starting point for possible standardization.

The discussion will cover the importance of differentiating between graphene powder and film segments and the broadly different characterization and technical specification needs for each segment.

**BREAK**

3:15 p.m. – 3:30 p.m.

**11.0 Consideration of potential graphene-related topics ready for standardization**

Dr. Clancy, Dr. Jilla

3:30p.m. – 4:30 p.m.

Taking into consideration the presentations from the day's NSP meeting, participants are asked to consider what, if any, potential topics in the area of graphene are ready for standardization. Experts will be asked to consider what next steps should be taken by the NSP and relevant SDOs to facilitate these topics' development.

**12.0 Open discussion to consider potential next steps**

4:30 p.m. – 4:45 p.m.

**13.0 Closing Remarks and Adjournment**

4:45 p.m. – 5:00 p.m.