U.S. Consumer Product Safety Commission

MEETING LOG

PRODUCT: Nanotechnology

SUBJECT: ISO/TC 229 Nanotechnologies Working Group Virtual Meetings to Discuss Current Projects and Potential New Work Item Proposals (NWIPs)

LOCATION: Hybrid (Sao Paulo, Brazil)

DATE: April 8-12, 2024

ENTRY DATE: April 17, 2024

LOG ENTRY SOURCE: Joanna Matheson (HSTR)

COMMISSION ATTENDEES: Joanna Matheson (HSTR)

NON-COMMISSION ATTENDEES: Contact ANSI for a complete list.

MEETING SUMMARY:

ISO Technical Committee 229 (ISO TC/229) focuses on standardization in the field of nanotechnologies, understanding and control of matter and processes at the nanoscale where the onset of size-dependent phenomena usually enables novel applications, as well as use of nanoscale materials to create improved materials, devices, and systems that exploit these new properties. Specific working groups address the development of standards and guides for terminology and nomenclature; metrology and instrumentation; test methodologies; modelling and simulations; and science-based health, safety, and environmental practices.

From Tuesday, April 9, 2024, through Thursday, April 11, 2024, CPSC staff participated, virtually, primarily in WG3 meetings. On Tuesday April 9, 2024, the general meeting of Working Group 3 (WG3, Health Safety and the Environment) was held during which project leaders provided brief verbal updates on their respective work and their goals for the project meetings that would occur on April 9-12, 2024. A presentation was given on a potential New Work Item Proposal (NWIP): *Intratracheal instillation procedure for even distribution of nanomaterials in rodent lung.* While intratracheal instillation is a common inhalation laboratory procedure, this method focuses on specific requirements in order to obtain even distribution of nanomaterials in the lung. Three projects are currently under ballot (SDS sheets, radiotelemetry spectral echocardiography for toxicity and location of nanomaterial monitoring, and occupational risk management – principles). During the general meeting the Strategy SG convenor asked for potential new proposals and project leads, noting the international interest in nanoplastics. Two WG3 projects published since the last international meeting were technical standards (TS) *24672 Guidance on the measurement of nanoparticle number concentration* and *TS 7833 Extraction method of nanomaterials from lung tissue by proteinase K digestion.*

Revisions continue for TS 11353 *Test method for detection of nano-object release from respiratory masks media under different working conditions*, many comments were received from the consultation ballot. Industry weighed in on the importance of using ISO terminology (not ANSI terminology), the need to include information on mask orientation during testing (noting direction of air flow) since different release results can occur, and inclusion of a section for mandatory information (e.g., lot number, as well as orientation media). Experts also recommended delineating direct versus indirect collection methods (e.g., real-time collection versus collection on filters) as well as the role of movement in material release. Upon revision the project will proceed to ballot. WG3 held a joint meeting with WG5 (Products and Applications) on April 11, 2024, to continue discussions on PWI 23653 *Experimental considerations when evaluating nanoparticle performance of cellular uptake*. Since the November meeting, the draft was updated with a table that lists assays for each nanomaterial, cell types used, and role of fetal bovine serum (FBS) on nanomaterial uptake (enhances or interferes with uptake). The title was modified by the expert group to better reflect what the method is measuring. The expert group recommended revising the working draft and submitting for NWIP ballot by the end of May 2024 after the project leader is able to secure five experts from different countries with documentation of their participation on the ballot. Data continues to be generated for PWI 7666 *Evaluation method for chronic inhalation toxicity based on lung burden of nanomaterials*. The expert group recommended revising the title to reflect the intended effects measured, which are long-term tumor production. Staff will participate in the revision of TS 13121 *Nanomaterial Risk Evaluation*, which is being led by the U.S. The working group met to discuss strategy and obtain volunteer experts. Participants from Brazil noted that some links in the current version no longer work. The revision will include updates in hazard assessment such as grouping and Read Across.

A status update was provided on WG5 proposed project, *Evaluation of reusability of the respiratory mask containing nanofiber filter*. Per comments received, definitions were added (e.g., type of breathing simulator tested), references were provided on ethanol treatment of masks, and an annex added for breathing simulation test procedures (which currently is in outline form). Experts asked who determines limited reusability and advised that it would be necessary to document whether this standard is for manufacturers or consumers. Furthermore, assessing the release of nanomaterials during reuse is important for the health of users and advised adding related data to the appendix. In addition, WG5 participants noted that there was no connection in the documentation between filter efficiency of the reusable mask and the released materials. A revised draft will be prepared and submitted for WG5 review by the end of June 2024. A presentation was given on a new proposed project *Reliability evaluation of antiviral activity on non-porous nanocoated surfaces*. The project intends to assess nano coatings on surfaces such as plastics, glass, ceramic and stainless steel. Besides antiviral activity, these nano coatings have water and sunlight resistant properties. The proposers plan to perform accelerated aging (ASTM F1980) and abrasion stress tests to assess efficacy of the coating. Nanomaterials mentioned were metal ions and silica. Working group experts recommended that the scope be revised to including coatings with metal or metal oxide nanoparticles. In addition, participants recommended that standard should include a description or reference that the adhesion of the nanocoating is 100% and that the coated surface is actually present. It was recommended that the project progress and for the project lead to submit the documents by the end of July 2024 for PWI registration.

The CPSC proposed project, PWI 5265 *Method for characterizing and quantifying nanomaterials released from wood products*, was not discussed at these April meetings. Staff continue to revise the document from comments received from the December ballot.

In other working groups, work continues on projects related to graphene, insulating nanocomposites, and terminology. New projects were proposed: *Zinc oxide nanoparticles for cosmetic applications* –

Specifications of characteristic and measurement methods, and *Standardization of clay nanoplate materials for quality assessment and certification.*

The next international meeting of ISO TC/229 is TBD for Fall 2024, currently no host country has been identified.