

Annex 1: Collaboration in the Standardization of Photocatalytic Activity Assay

▪ **Expected Achievements**

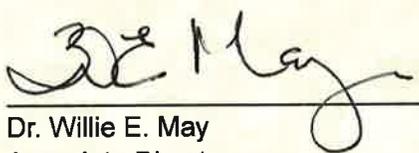
- Contribution to the global metrology communities in the field of nanomaterial characterization, and nanomaterial nanosafety evaluation
- Publication of joint research papers and cooperatively development of an ISO standard

▪ **Financial Arrangement for Exchange of Visits for Collaboration under This Project**

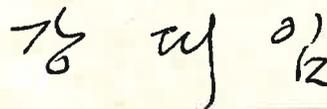
- Generally provided by the sending party
- Otherwise, each party shall bear the expenses it incurs with the implementation of the cooperation

For the National Institute of Standards and Technology of the Department of Commerce of the United States of America

For the Korea Research Institute of Standards and Science of the Republic of Korea



Dr. Willie E. May
Associate Director



Dr. Dae-Im Kang
President

Date: May 20, 2014

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▪ **Subject**

Standardization of photocatalytic activity assay protocol for nanoparticles in aqueous suspension

▪ **Collaborators**

- NIST: Dr. Vytas Reipa (vytas@nist.gov), Biochemical Science Division
- KRISS: Dr. Nam Woong Song (nwsong@kriss.re.kr), Division of Convergence Technology

▪ **Background & Aim of Proposed Collaboration**

- KRISS has recently developed a multiplexed assay protocol that is adequate for the consistent measurement on photocatalytic activity of nanoparticles in aqueous suspension.
- NIST has a long-established experience in the field of photocatalytic activity measurement and also established preparation method for standard reference nanomaterials in aqueous suspension.
- KRISS and NIST have agreed to explore scientific and technical cooperation in the development of standard protocols to measure the photocatalytic activity of nanoparticles in aqueous suspension.- With their research cooperation, the parties pursue the following objectives, in particular:
 - to provide the scientific basis for the improvement of preparing standard reference nanomaterials, previously developed by NIST in view of consistent photocatalytic activities.
 - to provide the measurement and expertise in the field of multiplexed photocatalytic activity assay previously developed by KRISS.
- Fruitful results of the cooperation in the field of photocatalytic activity measurement are expected.
- This Annex 1 is subject to the terms and conditions of the Cooperation Arrangement Between the National Institute of Standards and Technology of the United States of America and the Korea Research Institute of Standards and Science of the Republic of Korea Concerning Technical Cooperation in Measurement Sciences.

▪ **Forms of Cooperation**

- The project shall be carried out in cooperation on the basis of collaboration.
- NIST intends to prepare reference nano-materials that exhibit stable photocatalytic activities and make available them to KRISS.
- KRISS intends to measure the photocatalytic activities of those materials for comparison study and the validation of consistent activity values.
- The two parties intend to also thoroughly discuss the result of the measurements and their potential impact on the standardization of a multiplexed photocatalytic activity assay protocol that offers reliable and high throughput measurement.