BILLING CODE 3510-DS-P

DEPARTMENT OF COMMERCE

International Trade Administration

University of Pittsburgh, et al.

Notice of Decision on Application

for Duty-Free Entry of Scientific Instruments

This is a decision pursuant to Section 6(c) of the Educational, Scientific, and Cultural Materials Importation Act of 1966 (Pub. L. 89-651, as amended by Pub. L. 106-36; 80 Stat. 897; 15 CFR part 301). Related records can be viewed between 8:30 A.M. and 5:00 P.M. in Room 3720, U.S. Department of Commerce, 14th and Constitution Ave, NW, Washington, D.C.

Docket Number: 15-015. Applicant: University of Pittsburgh, Pittsburgh, PA 15219. Instrument: Oxygraph-2K. Manufacturer: Oroboros Instruments Corp., Austria. Intended Use: See notice at 80 FR 44936, July 28, 2015. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the

foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to evaluate the various putative antidotes to reverse the effects of cyanide or sulfide toxicants on mitochondria in cultured cells. The instrument will be used to measure changes in oxygen consumption rates correlated with either changes in mitochondrial inner-membrane depolarization, changes in calcium fluxes between endoplasmic reticulum and mitochondria, or prevailing levels of hydrogen peroxide and nitric oxide. The instrument is unique in its ability to allow routine measurements to be made with specifications summarized under the term “high-resolution respirometry”, meaning the limit of detection of O_2 flux is as low as 0.5 $pmols^{-1}cm^{-3}$, signal noise at zero oxygen concentration is < 0.05 µM O_2, oxygen back-diffusion at zero oxygen at < 3 $pmols^{-1}cm^{-3}$, and oxygen consumption at air saturation and standard basic barometric pressure (100kPa) at 2.7 +/- 0.9 SD in at 37 degrees Celsius. The dual measurement capability of the instrument is also critical for the experiments.

Docket Number: 15-022. Applicant: Purdue University, West Lafayette, IN 47907. Instrument: Conical twin screw minicompounder. Manufacturer: Xplore, the Netherlands. Intended Use: See notice at 80 FR 44936, July 28, 2015. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to find improved formulations of polymer resins with improved mechanical, thermal, electrical and other properties using compounding, recirculation, master-batch mixing and additive mixing. The instrument satisfies several requirements for the experiments, including surface hardness of components at 2000 Vickers hardness, operational temperature to 450 degrees Celsius, conical twin screw design, capability of both co- and counter-rotating, expandable to specialized screws for nanomaterial compounding, expandable to film line, fiber line, and injection molder, corrosive material tolerance (pH 0-14) and the ability to track viscosity.

Docket Number: 15-024. Applicant: Institute for the

Preservation of Cultural Heritage, Yale University, West Haven, CT 06516. Instrument: Willard Multi-Function Table. Manufacturer: Willard, United Kingdom. Intended Use: See notice at 80 FR 44936, July 28, 2015. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to carry out conservation processes, for conservation fellows to develop and research methodologies of treatment and to instruct student conservators in structural conservation techniques. The surface of the table can be heated very precisely and evenly, air can be circulated under the surface to create downward pressure, air can also be passed through ducts which can be heated and can produce precisely controlled humidity, a vacuum system can be used to hold objects in place and can be operated independently of the humidification system, which is a unique feature of the instrument. Research into new techniques and the testing of adhesives and consolidants will be undertaken.

Docket Number: 15-027. Applicant: University of Nebraska, Lincoln, Lincoln, NE 68588-0645. Instrument: Photonic Professional GT-upgrade. Manufacturer: Nanoscribe GmbH, Germany. Intended Use: See notice at 80 FR 44936-37, July 28, 2015. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to research micro/nano 3D printing, micro/nano technology, materials, and novel laser-material interactions, using 3D laser lithography techniques integrating both two-photon polymerization (TPP) and multi-photon ablation (MPA). The instrument integrates both a precise piezo stage and a galvano scanner for a large-are and fast micro/nano-structuring. Multi-photon polymerization and multi-photon ablation will be investigated and applied for printing 3D micro/nano-structures of arbitrary geometries, especially those on plasmonics, photonics and microelectromechanical systems. The influence of degree of polymerization on the micro 3D printing will be studied for further 3D fabrication.

Docket Number: 15-032. Applicant: The Trustees of Princeton University, Princeton, NJ 08540. Instrument: Helios Dual Beam. Manufacturer: FEI Company, Czech Republic. Intended Use: See notice at 80 FR 44936-37, July 28, 2015. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to perform imaging on cross sections of nanoscale, biological, photonic and multifunctional materials, made at precise geometric locations at a very small scale. Additionally, it is used to cross-section through the exact center of an impression, or along planes parallel to a set of microstructural features. Standard methods are incapable of preparing cross sections with the requisite spatial precision. With its unique triple detection system located inside the column and immersion mode, the system is designed for simultaneous detector acquisition for angular and energy selective SE and BSE imaging. Fast access to very precise, clear information is guaranteed, not only

top-down, but also on titled specimen or cross-sections. Additional below-the-lens detectors and a beam deceleration mode unsure that all signals are collected and no information is left behind. The instrument extends characterization with a versatile 110mm goniometer stage with tilt capability up to 90 degrees and optimal tripe in-column detection. Unique features of the instrument include the shortest time to nanoscale information using best in class Ga ion gun and Elstar Schlottky FESEM high resolution, stability and automation, sample management tailored to individual application needs, with the high flexibility 110mm and high stability 150mm piezo stages, the focused ion beam can mill any material to a very fine scale, and can make features with a high degree of accuracy at the nanoscale, with critical dimensions of less than 50 nm, rapidly design, create and inspect micro and nano-scale functional prototype devices and create 3D Nanoprototyping with a DualBeam, sharp, refined and charge-free contrast obtained from up to 6 integrated in-column and below-the-lens detectors, can mill difficult charging samples with charge neutralizer.

Docket Number: 15-034. Applicant: Purdue University,

West Lafayette, IN 47907. Instrument: Diode-Pumped Solid-State Laser. Manufacturer: Edgewave GmbH, Germany. Intended Use: See notice at 80 FR 44936-37, July 28, 2015. Comments: None received. Decision: Approved. We know of no instruments of equivalent scientific value to the foreign instruments described below, for such purposes as this is intended to be used, that was being manufactured in the United States at the time of order. Reasons: The instrument will be used to enhance the fundamental understanding of propellant combustion so that safer and higher performance solid propellants can be designed and developed. The instrument is to be used for the measurement of flame radical species in propellant flames in real-time, using high-frame-rate (10-40kHz) imaging of the flame radical OH, produced in the reaction zone. The OH distribution is used to determine the burning mode for the propellant, and the laser system will give the capability to obtain high-frame-rate images of other propellants. The primary technique is high-frame-rate planar laser-induced fluorescence (PLIF) imaging. The UV laser from a Credo dye laser, pumped by the Edgewave DPSS laser, is formed into a focused sheet using a combination of spherical and cylindrical lenses. The frequency of the

UV beam is then tuned to a resonance transition for the OH radical and the OH radical is pumped from the ground state to an excited electronic state by absorbing a photon from the laser sheet. Once in the excited state, the OH radical can decay by emitting a photon (fluorescence). The fluorescence light is imaged using a high-frame-rate intensified CMOS camera to produce an image of the OH distribution in the laser sheet, providing both time-and space-resolved information on the laser process. No domestic instruments have the required power, rep rate, and pulse length on the order of 10 nanoseconds.

Gregory W. Campbell,
Director,
Subsidies Enforcement Office,
Enforcement and Compliance.

[FR Doc. 2015-24468 Filed: 9/28/2015 08:45 am; Publication Date: 9/29/2015]