NATIONAL ACADEMIES Sciences Engineering Medicine

WORKSHOP TO ADVANCE RESEARCH ON UNDERSTANDING ENVIRONMENTAL EFFECTS OF UV FILTERS FROM SUNSCREENS

A BRIEFING BOOK

Welcome Message

Thank you for your interest in the workshop, "Workshop to Advance Research on Understanding Environmental Effects of UV Filters in Sunscreens." As you prepare to attend the workshop in person at the National Academies' Keck building (*500 Fifth St. NW, Washington DC, 20001*), please note the following important information and let us know if you have any comments or questions in advance of the meeting.

COVID-19 Policies

Effective April 8, 2022, all facilities of the National Academies of Sciences, Engineering, and Medicine are **open**.

To prevent infection and spread of the COVID-19 virus, and as an integral measure towards the safety and health of everyone in our buildings, the National Academies require that **all visitors to our facilities be up to date on their vaccinations against COVID-19 per CDC guidance**. Additionally, do not enter the building if you have flu-like symptoms.

Visitors must show their official COVID-19 Vaccination Record Card (or a digital photo of the card) and their ID before entering any National Academies building, including parking facilities. Anyone who fails to present this vaccination record will not be allowed access to our facility; no exemptions or exceptions will be accommodated. For more details regarding access to NASEM facilities and expectations for visitors, please visit our operating status webpage.

If you test positive for COVID-19 recently after attending the workshop in-person, please contact Erik Yanisko (eyanisko@nas.edu) so that the National Academies can contact other workshop participants who may have been exposed. No personal information will be shared.

All workshop participants are strongly encouraged to wear a mask while indoors at the NAS building unless eating or drinking. Please consider using an at-home rapid COVID test the night before or morning of the workshop. The HVAC system in the building is equipped with MERV-13 air purifiers—the highest grade that is compatible with our system—and additional air purifiers (Corsi-Rosenthal boxes) will be running in the room while the workshop is taking place. A limited number of surgical and KN95 masks will be available on site.

COVID-19 Policies

The National Academies' leadership is closely monitoring the evolving situation related to the COVID-19 pandemic and is basing their approach to National Academies' business on the current scientific evidence on COVID-19 and the best public health advice. The priority of the National Academies is the safety of our staff and our larger community of volunteers, sponsors, and members. Please be mindful that this may require unanticipated adjustments to events associated with National Academies projects.

Nearest pharmacy and COVID-19 test sites to the Keck building are two CVS locations (655 K St. NW and 1275 Pennsylvania Ave. NW). Each is about 11–12-minute walk away and offer COVID testing by appointment. Please note there may be a cost associated with the tests.

Getting to the Keck Center and Workshop

Parking and entrance

- Entrance to the conference areas in the Keck Building is through the main entrance 500 Fifth Street and the Visitor's Entrance on the P1 garage level. Conference rooms are located on the first floor and second floors. During normal business hours (7:30 a.m. to 5:30 p.m.), either entrance may be used. A security attendant will be present to direct individuals and to answer questions.
- Limited parking is available for meeting participants in Visitor's Parking on the P1 level of the garage. There are also public parking facilities close to the Keck Center: *Colonial Parking at 6th & Pennsylvania Avenue, N.W.; Diplomat at 932 F St. & E Streets, N.W.; and Carr Park at 601 F St.*
- You will need to show your photo ID and COVID-19 vaccination card (or a photograph of the card) to the security officer upon entering the building.
- The workshop will be utilizing Keck 206 as the main conference room for both days while others will be used for breakout sessions.
- Registration, sign in, snacks, and lunch (provided onsite) will be located in the 2nd floor pre function area.

Meeting Setup

- Our meeting room is equipped with individual microphones and raised cameras so that the participants joining virtually will be able to see and hear everyone.
- We highly recommend bringing a laptop or tablet where you can join the Zoom meeting in order to view and participate in the zoom chat. Please have your microphone turned off during the meeting.
- Email eyanisko@nas.edu with any technical issues during the meeting

Zoom Information:
Day 1 (*January 23, 2023*)

Time: Jan 23, 2023 10:00 AM Eastern Time (US and Canada)

Join: https://nasem.zoom.us/j/91026799231?pwd=ZnZjZUpEUkVlVkNlcStSc2tDOWRDZz09
Password: 700741

Or iPhone one-tap :
US: +13017158592,,91026799231# or +16513728299,,91026799231#

Or Telephone:
US: +1 301 715 8592 or +1 651 372 8299 or +1 312 626 6799 or +1 470 250 9358 or +1 646 518 9805 or +1 646 558 8656 or +1 669 219 2599 or +1 669 900 6833 or +1 720 928 9299 or +1 971 247 1195 or +1 213 338 8477 or +1 253 215 8782 or +1 602 753 0140 or 888 475 4499 (Toll Free) or 877 853 5257 (Toll Free)

Meeting ID: 910 2679 9231
Password: 700741
International numbers available: https://nasem.zoom.us/u/abjFWrtu2g

NOTICE: The Zoom service allows audio and any materials exchanged or viewed during the session to be recorded and shared. Please be aware that by participating in this activity, you consent to your voice, likeness, and any materials you provide, being recorded for use and dissemination, without payment of any compensation for such use, in any language, format, or media now known or later devised, and you release the National Academies of Sciences, Engineering, and Medicine from any and all claims, liability, or damages arising from any such use. The Academies will proceed in reliance upon such consent and release. If you do not consent to the foregoing, please do not join the session.

Code of Conduct: The National Academies of Sciences, Engineering, and Medicine (NASEM) follows the NASEM guidelines in preventing discrimination, harassment, and bullying of participants at NASEM events, including conferences. http://www.nationalacademies.org/about/NA_186023.html

Zoom Information:
Day 2 (*January 24, 2023*)

Time: Jan 24, 2023 10:00 AM Eastern Time (US and Canada)

Join: https://nasem.zoom.us/j/92233526746?pwd=cGtZZnhqSU9wdHJLalIyWnBTdXJNdz09
Password: 638405

Or iPhone one-tap :
US: +13017158592,,92233526746# or +16513728299,,92233526746#

Or Telephone:
US: +1 301 715 8592 or +1 651 372 8299 or +1 312 626 6799 or +1 470 250 9358 or +1 646 518 9805 or +1 646 558 8656 or +1 669 219 2599 or +1 669 900 6833 or +1 720 928 9299 or +1 971 247 1195 or +1 213 338 8477 or +1 253 215 8782 or +1 602 753 0140 or 877 853 5257 (Toll Free) or 888 475 4499 (Toll Free)

Meeting ID: 922 3352 6746
Password: 638405
International numbers available: https://nasem.zoom.us/u/adaHEiPl1

NOTICE: The Zoom service allows audio and any materials exchanged or viewed during the session to be recorded and shared. Please be aware that by participating in this activity, you consent to your voice, likeness, and any materials you provide, being recorded for use and dissemination, without payment of any compensation for such use, in any language, format, or media now known or later devised, and you release the National Academies of Sciences, Engineering, and Medicine from any and all claims, liability, or damages arising from any such use. The Academies will proceed in reliance upon such consent and release. If you do not consent to the foregoing, please do not join the session.

Code of Conduct: The National Academies of Sciences, Engineering, and Medicine (NASEM) follows the NASEM guidelines in preventing discrimination, harassment, and bullying of participants at NASEM events, including conferences.
http://www.nationalacademies.org/about/NA_186023.html

Workshop to Advance Research on Understanding Environmental Effects of UV Filters in Sunscreens - Agenda

January 23-24, 2023

National Academies of Sciences, Engineering, and Medicine
Keck Center
500 Fifth St NW
Washington, DC 20001
*Virtual participation also available

Purpose

- Disseminate findings from the 2022 National Academies report, *Review of Fate, Exposure, and Effects of Sunscreens in Aquatic Environments and Implications for Sunscreen Usage and Human Health*.
- Discuss the knowledge gaps identified in the report related to understanding the potential effects of UV filters on aquatic ecosystems.
- Serve as a forum for sharing progress on this topic from the public, private, and academic sectors to fill priority knowledge gaps and identify areas of opportunity for further efforts across all sectors.

PRERECORDED PRESENTATIONS

The following prerecorded presentations will be available in advance of the workshop at: https://www.nationalacademies.org/event/01-23-2023/workshop-to-advance-research-on-understandingenvironmental-effects-of-uv-filters-from-sunscreens

Findings and Knowledge Gaos from *Review of Fate, Exposure, and Effects of Sunscreens in Aquatic Environments and Implications for Sunscreen Usage and Human Health*
Charles Menzie, Exponent, Inc., Committee Chair

Information Needs for Environmental Management
Gerry Davis, Pacific Islands Regional Office, National Oceanic and Atmospheric Administration

Workshop to Advance Research on Understanding Environmental Effects of UV Filters in Sunscreens - Agenda

Monday, January 23, 2023

10:00–10:20 **Welcome and Meeting Goals**
Charles Menzie, Exponent, Inc., Committee Chair

SESSION 1: UV FILTER CHEMISTRY FOR ACCURATE DOSE-RESPONSE RELATIONSHIPS

10:20–10:45 **Environmental Fate of UV Filters**
Silvia Díaz-Cruz, Institute of Environmental Assessment and Water Research

10:45–11:05 **Analytical Approaches for UV Filters**
Michael Gonsior, University of Maryland Center for Environmental Science

11:05–12:35 **Panel**
Format: Panelists will provide prepared remarks and then participate in discussion regarding progress, opportunities, and outstanding challenges relevant to UV filter analytical chemistry.
Moderator: Scott Belanger, Procter & Gamble (retired), Committee Member
Jon Arnot, ARC Arnot Research & Consulting
Silvia Díaz-Cruz, Institute of Environmental Assessment and Water Research
Michael Gonsior, University of Maryland Center for Environmental Science
Bill Mitch, Stanford University
Kurt Reynertson, Johnson & Johnson Consumer Health

12:35–12:40 **Explanation of Breakout Session**

12:40–1:40 **Lunch Break (transition to breakout rooms)**

1:40–3:10 **Breakout Session on UV Filter Chemistry**
Format: Workshop participants will break into small groups to address the following questions:
- *What are the main chemistry challenges encountered when working with (certain) UV filters?*
- *Are challenges magnified when testing under certain conditions?*
- *What progress is being made in addressing these challenges?*
- *What standardizations, innovations, and/or other focused efforts are needed to move forward on addressing these challenges?*
- *What are existing research programs, capabilities, and infrastructure that can contribute to addressing gaps in research on UV filter chemistry?*

3:10–3:15 **Reconvene**

3:15–4:00 **Breakout Session Report Outs**

END OF DAY 1

Tuesday, January 24, 2023

10:00–10:15 **Welcome and Review of Day 1**
Charles Menzie, Exponent, Inc., Committee Chair

SESSION 2: STANDARDIZING APPROACHES FOR TOXICITY TESTING

10:15–10:40 **The Importance of Standardized Toxicological Methods for Aquatic Organisms**
Sandy Raimondo, Gulf Ecosystem Measurement and Modeling Division, U.S. Environmental Protection Agency

10:40–11:10 **Lightning talks: Methods for Coral Ecotoxicology**
Craig Downs, Haereticus Environmental Laboratory
Sascha Pawlowski, BASF
Abigail Renegar, Nova Southeastern University

11:10–12:40 **Panel**
Format: Panelists will provide prepared remarks and then participate in discussion regarding progress, opportunities, and outstanding challenges relevant to aquatic toxicology of UV filters.
Moderator: Carys Mitchelmore, University of Maryland Center for Environmental Science, Committee Member
Mandy Annis, U.S. Fish and Wildlife Service
Iain Davies, Personal Care Products Council
Craig Downs, Haereticus Environmental Laboratory
Marc Leonard, L'Oreal
Sascha Pawlowski, BASF
Sandy Raimondo, U.S. Environmental Protection Agency
Abigail Renegar, Nova Southeastern University
Jeffrey Steevens, U.S. Geological Survey
Dan Villeneuve, U.S. Environmental Protection Agency

12:40–12:45 **Explanation of Breakout Session**

12:45–1:45 **Lunch Break (transition to breakout rooms)**

1:45–3:15 **Breakout Session on Standardizing Approaches to UV Filter Toxicology**
Format: Participants will break into smaller groups to address the following questions:
- *What are the main challenges encountered when working with nonstandard organisms of endpoints?*
- *Are challenges magnified when testing under certain conditions for both standard and nonstandard tests for these chemicals?*
- *What progress is being made in addressing these challenges?*
- *What standardizations, innovations, and/or other focused efforts are needed to move forward on addressing these challenges?*
- *What are existing research programs, capabilities, and infrastructure that can contribute to addressing challenges in gaps in research on UV filter toxicity?*

3:15–3:20 **Reconvene**

3:20–4:05 **Breakout Session Report Outs**

SESSION 3: CLOSING

4:05-4:15 **Summary Remarks**
Charles Menzie, Exponent, Inc., Committee Chair

MEETING ADJOURNS