

GRSP 2022 Meeting – Background Document

Meeting Theme: *SCP has been employing new methodologies, tools, and approaches to improve our work better and solidify our decision-making.*

Problem Statement: DTSC has increasingly engaged in projects outside of the standard SCP process outlined in the regulations. These efforts are intended to expand our capacity to evaluate chemicals and products, particularly in new and emerging fields. The goal of this meeting is to provide the Panel with an overview of some of these efforts and receive feedback from the Panelists.

GRSP Input: The Panel will provide feedback on the specific projects, including information that may help in implementation of the project and ensuring that it will best suit DTSC's needs. The Panel will also provide input about the utility of these projects for SCP and to what extent we should pursue these efforts in the future.

Agenda – Presentation Topics

- **Framing**
 - **Speaker:** Andre Algazi
 - We're going to hear from SCP staff about some of our current projects that highlight some new tools, methodologies, and approaches taken by SCP. At a GRSP meeting three years ago, we described how we have prioritized and researched chemicals and products to identify Priority Products. Our process has continued to evolve since then. We have followed the panel's guidance, built our team, trained our staff, hired scientists and engineers with skills we formerly lacked, and partnered with others to evaluate larger datasets in order to prioritize products and chemicals.

- **SCP Clearya Partnership: Leveraging Data Science to Understand Exposure Potential**
 - **Speaker:** Topher Buck
 - **Background:** Clearya is a technology platform that aggregates messy, publicly available personal care product ingredient information and makes it easily available to the general public at the point of sale for five major online retailers: Amazon, iHerb, Sephora, Target, and Walmart. In considering the potential for exposure to a chemical in a product, the SCP regulations allow for the consideration of the prevalence of a product in the market; however, obtaining

this data in a comprehensive manner has been challenging. To help alleviate these challenges, SCP has recently entered into a contract to use Clearya's technology platform to help us screen product ingredient lists at scale for the presence of chemicals on the Candidate Chemicals List. The primary goal of this collaboration is to leverage Clearya's large database to understand the market presence of chemicals on the CC List and allow us to screen products for the presence or absence of Candidate Chemicals. This, in turn, will afford us a better understanding of the use of Candidate Chemicals in these products and focus SCP's limited resources more efficiently.

- **Chemicals in Children's Products – Prioritization and Exposure Assessment**

- **Speaker:** Qingyu Meng, Ph.D.
- **Background:** Mounting evidence indicates that early-life exposures to toxic chemicals (e.g., endocrine disruptors) can potentially cause long-lasting adverse health impacts, including developmental diseases, immune system disorders, and cancer. Unfortunately, chemicals of potential concern are widely found in consumer products (e.g., toys and PCPs) designed for children below the age of 12. The SCP framework regulations give special consideration to children as a sensitive subpopulation, and a Children's Products category was newly added to the Priority Product Work Plan in 2021. In order to effectively regulate children's products, the program needs to understand the landscape of chemical-product combinations, exposure levels, predominant exposure pathways and products leading to high exposures, aggregate and cumulative exposures, and the availability of potentially safer alternatives.

SCP staff, through internal and external collaborations, are developing methodologies to address these needs. These ongoing efforts include 1) employing data mining approach and systematic literature review methods to examine the landscape of chemical-product combinations of children's products; 2) collaborating with the University of Michigan and developing exposure modeling approaches to characterize aggregate, cumulative, and comparative exposures to endocrine disrupting chemicals; and 3) developing a user-friendly USEtox exposure modeling tool and providing trainings on the tool to staff.

These efforts provide timely support to advance SCP's priorities, increase the transparency of the program, and benefit the program in the areas of Priority Product selection, Alternative Analysis, and capacity building. These efforts also

advance the practice of systematic review and our understanding of aggregate and cumulative exposures for the larger scientific community.

- **Exploring Uses and Hazards of Quaternary Ammonium Compounds with Data Science**

- **Speaker:** Tom Bruton, Ph.D.
- **Background:** Quaternary ammonium compounds, or QACs, are a class of hundreds of diverse chemicals that were added to SCP's Candidate Chemicals List in March of 2021. Given the size of the class, their extensive use in a wide variety of consumer products, and evidence that many QACs are environmentally persistent, there is significant potential for widespread exposure to humans and aquatic organisms. However, a comprehensive understanding of the use of a broad majority of these compounds is lacking. Certain QACs are associated with a variety of hazard traits, but many other QACs have little hazard information available. DTSC is using data science to systematically explore the use of QACs in consumer products and the availability of hazard trait information for these chemicals.

- **EJ Concerns with 1,4-Dioxane Discovered in SCP Community Science Project**

- **Speaker:** Kelly Grant, Ph.D.
- **Background:** SCP partnered with DTSC's Environmental Chemistry Lab (ECL) in Pasadena and the Chemistry Club of an LA public high school in 2022 to more broadly investigate levels of the possible carcinogen, 1,4-dioxane, in personal care and cleaning products. This built on an existing project in which SCP used prior understanding of the generation of 1,4-dioxane as a contaminant to inform purchasing select personal care and cleaning products, which were then tested for 1,4-dioxane by ECL. In the original SCP/ECL collaboration, SCP attempted to sample a wide variety of products that were representative of the California population, in part based on concerns that products marketed to discrete demographic groups may have higher levels of 1,4-dioxane than those targeted to the general population. However, due to the vast number of personal care and cleaning products on the market and SCP's limited understanding of the myriad of market segments, SCP realized that comprehensive sampling was not feasible.

In a partnership between DTSC and LA's Huntington Park Institute of Applied Medicine (HPIAM), students and teachers sampled their own products and provided them to ECL for testing, providing a wider array of samples. One goal of this effort was to gather better data on the concentration of 1,4-dioxane in

personal care and cleaning products in use in California. The HPIAM students represent a different demographic than the staff at SCP; therefore, distinct products are marketed to them. And, indeed, the students provided products not previously sampled, including some products specifically marketed to the Latinx or Hispanic community. Disconcertingly, the HPIAM results show a trend of higher 1,4-dioxane level in products marketed to the Latinx or Hispanic community. These data will guide our continued work with 1,4-dioxane.

- **Conclusion – Tying Everything Together**

- **Speaker:** Karl Palmer
- **Background:** We've been integrating these tools, methodologies, and approaches into our process and will continue to build on this work as we expand. The augmentation to our current year budget gives us additional staffing dedicated to development of data science tools and analysis, expanded exposure assessment capabilities, new market information resources, and bandwidth to more deeply explore how to address disproportionate impacts on EJ communities. It will take time to hire, on-board and train new staff, but with these resources and the results of efforts described in these presentations, and other efforts, we are building a "tool kit" that allows the program to have a greater and more meaningful impact with our still limited resources.

Questions for the Panel:

1. Are these projects a good use of DTSC's time and effort?
2. Do you have any additional resources that we should consider as we complete these projects?
3. What is the best format to publicize our results about this work?
4. How can we message this work to alleviate the lack of understanding of how these types of special projects support the scientific basis for our regulatory program?