

Interpretation of Results:

To estimate environmental concentrations, conservative assumptions were made for many cleaning product ingredients. Ingredients contained in cleaning products often have a multitude of uses outside of the cleaning product industry. This information is considered confidential business information and therefore is not communicated among businesses and is not publicly available. To be conservative and decrease the probability of underestimating environmental concentrations, concentrations were not adjusted for the contribution of cleaning product uses relative to other uses. This conservative assumption impacts both measured environmental concentrations and modeled PECs. The assumption that 100% of the mass of an ingredient that is imported or manufactured is used in cleaning products and disposed down-the-drain is likely extremely conservative for many ingredients.

PECs were reported for different scenarios; the 50th and 10th percentile stream flows and 1q10 and 7q10 flows. The 50th percentile stream flows represent wastewater treatment facilities that discharge into medium-sized receiving systems. The 10th percentile stream flows represent wastewater treatment facilities that discharge into the smallest streams. The 1q10 flow rates are the single day lowest flows over a 10-year period and 7q10 flow rates are the 7 consecutive day lowest flows over a 10-year period (Versar 2007).

Because of these conservative assumptions in this initial screen, there is confidence in the indication of negligible risk. Alternatively, additional evaluation is necessary when PECs exceed PNECs. Additional considerations for this result include evaluating the relative contribution of cleaning product ingredients and assessing the bioavailability of organics as they are altered by characteristics of the receiving system (e.g., clays, suspended solids). These considerations would be factored into a more robust assessment (not included in this screen) that more accurately estimates real-world exposures.

2. Existing United States Risk Assessments:

There are published and publicly available risk assessments for cleaning product ingredients. Risk assessments that are pertinent to the US were from two different documents, the US EPA registration and reregistration eligibility decisions (REDs) for pesticides¹ and the Screening Information Datasets (SIDs) Initial Assessment Reports (SIARs) that were specifically reviewed by EPA.

The REDs, SIDs, and SIARs are often inclusive of chemical groups that are classified by commonalities among chemical structures. Information specific to cleaning products and the 220-ingredient subset of the cleaning product ingredient inventory were sourced from these documents. For the REDs included in this assessment, EPA generally assumes that exposures from the indoor use of products are anticipated to be negligible. The conclusions of the documents and toxicity data were sourced from these documents and summarized. A final conclusion as part of the CPIES evaluation was provided.

3. Existing international and other authoritative risk assessments

The program Human and Environmental Risk Assessment on Ingredients of Household Cleaning Products (HERA) has conducted environmental risk assessments of ingredients contained in cleaning products. Additionally, there are peer-reviewed manuscripts that contain information relevant to risks of cleaning product ingredients in the US. Similar to the REDs and SIDs, these documents are inclusive of chemical groups that contain multiple ingredients. The exposure information from the HERAs cannot be

¹ EPA defines a pesticide as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating a pest (including bacteria, viruses, and fungi) (40 CFR 152.3). Because cleaning products are often used for disinfection, they can include pesticides that are registered and regulated by EPA.

directly applied to US risk assessments because of the focus on European countries. This was stated as a source of uncertainty in the summaries. Exposure information for these ingredients was sourced from peer-reviewed publications with measured environmental monitoring data in the US. Toxicity data contained in these documents were inclusive of organisms that are frequently used in the US for standard toxicity experiments (e.g., *Daphnia magna*, *Pimephales promelas*, *Ceriodaphnia dubia*, *Raphidocelis subcapitata*). Toxicity data for fish, invertebrates, and algae could therefore be used for the CPIES evaluation. Summaries inclusive of PECs (if available), toxicity data, and a final conclusion were provided for chemical groups.