ABSTRACT

The American Cleaning Institute (ACI) is the industry trade association that represents the formulators of 90% of the consumer cleaning products in the United States. ACI’s recent effort gathered publicly available hazard data for each ingredient identified during the in-house inventory (over 900 substances). During acquisition of hazard data relevant to human health, safety and environmental concerns, additional data were acquired for 51 substances. The goal of the present effort is to compile all publicly-available data for each endpoint will be provided; when available, hazard data invalid or not assignable (Klimisch 3 or 4) were discarded. A summary of the data acquisition strategy is presented in Table 1 and Figure 1.

INTRODUCTION

The American Cleaning Institute has developed the Cleaning Product Ingredient Safety Initiative (CPISI) to promote the responsible management of cleaning products and their ingredients. This initiative has four scientific objectives:

1. To compile and make publicly available a comprehensive inventory of chemicals used among 13 ACI members in the manufacture of cleaning products in the United States.
2. To identify publicly available human health data set for each cleaning product ingredient.
3. To identify the human exposure model for each cleaning product ingredient in the CPISI inventory.
4. To develop a screening level risk assessment and to publicly report the margin of exposure for each application resulting from long-term application.

The goal of the present effort is to compile all publicly-available primary hazard data on substances in the ACI inventory of ingredients in cleaning products. A two tiered data collection scheme was developed, relying on HPV chemical submissions and REACH registration dossiers, as well as previous assessments. To date, over 5,000 primary data points have been acquired for substances in the CPISI Task 1 Inventory. These data points were collected in the context of data requirements for a SIDS or REACH registration dossier. Ultimately, the hazard data will facilitate review of pre-existing safety evaluations and development of novel values for risk assessment. In the absence of sufficient primary data for risk assessment, read-across data on hazard was noted. Beyond publicly-available hazard data, decision-making on hazard also considered the presence of food materials, approved food additives, and polymers.

READ-ACROSS DATA

According to our analysis, read-across data is available for at least 50% of the substances in the CPISI inventory. In particular, REACH registration dossiers have relied heavily on read-across and chemical category approaches to meet hazard data requirements. In some cases, a read-across approach is also cited in HPVVs, persons seeking read-across data are advised to consult the data summaries for related substances. OECD HPV data often is a deliverable in the form of a SIDS submission for a chemical or a category (e.g., alkyl or long-chain alcohol), which is then accompanied by SIDS initial assessment profile and hazard assessment. The HERA Project is a valuable source of information on chemical groupings for chemical ingredients in cleaning products. Group summaries on alcohol ethoxylates, alcohol ethoxysulfates, and several others have provided very meaningful data summaries and risk assessment comparisons for hazard assessment. Unfortunately, read-across cannot be applied to a couple of broad substance categories created during the development of the Inventory: e.g., carbohydrates, glycerides, botanicals, and others. Fortunately, data summaries for which no CAS number is available. As a result of this phase was to identify the substances which have been processed in Tier Two require further study due to a lack of public-available hazard data.

SAFE SUBSTANCES

In a few cases, substances have been identified initially as inherently safe. There are three primary types of substances in this group: 1) substances that are naturally found in food (sucrose, fatty acids, tallow), 2) food additives that have been approved for use in food, and 3) substances that are considered safe under other assessments or regulations; this includes food materials and food packaging. All substances identified as inherently safe were approved for use in food. For the most part, many polymers are also regarded as safe due to their molecular weight (negligible toxicological risk). At present, we have not included polymers as safe substances. All substances identified as safe will undergo review to determine their final designation.

CONCLUSIONS AND ONGOING EFFORT

1. Hazard data acquisition has generated sufficient information for decision-making and risk assessment for 85-90% of the ingredients in the ACI inventory.
2. Substances found to lack primary data during this effort are often considered safe under other assessments or regulations; this includes food materials and food packaging.
3. Ongoing efforts and future data submissions are expected to reduce the number of substances in the inventory lacking data.
4. Those data gaps may be filled by read-across, and other approaches to robust foundations for decision-making and risk assessment for the ACI inventory.

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