



American Cleaning Institute Identification of Hazard Datasets Collection Methodology

The American Cleaning Institute (ACI) has developed the Cleaning Product Ingredient Safety Initiative (CPISI) as one of its many efforts to promote the responsible management of cleaning products and their ingredients. The first step in this initiative was to compile and make publicly available a comprehensive inventory of ingredients used among its members in the formulation of home use consumer cleaning products sold in the United States. ACI released this [Ingredient Inventory](#) in August 2012. The next step in the project was to identify publicly available human health hazard data relevant to each ingredient that was identified in the inventory.

ACI has published the available hazard data associated with each of the ingredients listed in the Ingredient Inventory inventory as part of a consolidated [Identification of Hazard Datasets Inventory](#). This information sheet summarizes how the hazard data were identified.

Goal of data acquisition

The primary goal of this phase of the CPISI was to identify human safety data that describes potential adverse effects associated with ingredients found in home use cleaning products for the purpose of conducting a screening level risk assessment. In addition, environmental hazard data, which describes potential adverse effects on critical ecosystem components, and physical and chemical properties of the ingredients were identified. The data collected will be used to demonstrate that there is a wide margin of safety associated with the use of a particular chemical in each cleaning product application.

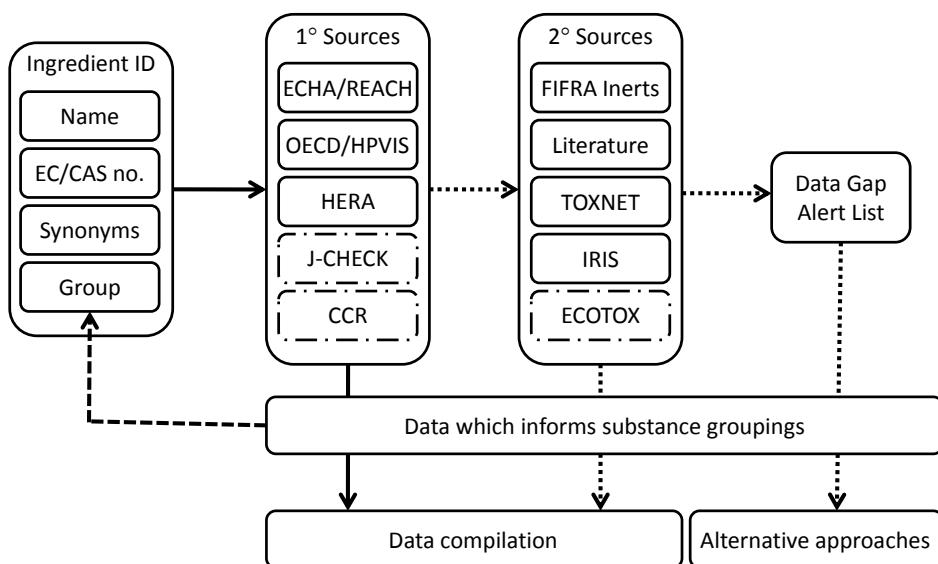
Sources of hazard data

The two important frameworks for delivery of hazard data are screening information data sets (SIDS) dossiers [as prepared for high production volume (HPV) chemical initiatives conducted by the Organization for Economic Cooperation and Development (OECD) and the United States Environmental Protection Agency (USEPA)] and Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Registration dossiers. The goal of data acquisition was to acquire the essential elements of the SIDS, and the REACH framework if possible; however, if no data was available through these sources, other sources including but not limited to Human and Environmental Risk Assessment (HERA) reports, Japan's Chemical Collaborative

Knowledge (J-CHECK) database, the Canadian Categorization Results (CCR) database, Hazardous Substances Databank (HSDB), and EPA's ECOTOX database were accessed as well.

Data collection process

Data collection was a multi-tiered process. For Tier 1 data collection, three of the five primary data sources (at a minimum) were searched for hazard data on human health and the environment: HPV chemical datasets from EPA and OECD efforts, REACH registration dossiers, and HERA project documents. J-CHECK and CCR provide only ecological toxicity data. If a search of these primary data sources turned up no hazard data, additional approaches were taken in Tier 2 data collection. During this phase, a review of the available peer-reviewed literature and publicly-available government regulatory reports was performed. In some cases, where toxicity or physicochemical data are unavailable, data from Quantitative Structure Activity Relationship (QSAR) studies were considered. The figure below illustrates this multi-tiered collection process.



Conceptual model of hazard data collection workflow: multi-tier data acquisition and compilation.

Types of data collected

The information available at the above described sources included (but was not limited to):

- Human Health toxicological information: toxicokinetics, metabolism, distribution, acute toxicity, irritation/corrosion, sensitization, repeated dose toxicity, genetic toxicity, carcinogenicity, and toxicity to reproduction.
- Ecotoxicological information: aquatic toxicity, sediment toxicity, terrestrial toxicity.

- Environmental fate and pathways: stability, biodegradation, bioaccumulation, and transport and distribution.
- Physical and chemical properties: melting point, boiling point, vapor pressure, stability, solubility, partition coefficient, etc.

Quality Assurance and Control

The methods used to identify the hazard data included steps to ensure that results would be accurate and complete. During data identification, a series of quality assurance reviews were conducted. These included a recheck of 10% of the data to ensure that all relevant studies were included and that all necessary data sources were searched for each ingredient.

Relevance to the long-term goal of the CPISI

Identification of the hazard datasets for the cleaning product ingredients will also support the long term goal of the project to conduct exposure assessments and screening-level risk assessment to describe the safe use of every ingredient. To aid in this long-term goal, ACI also gathered data on the environmental hazard of each ingredient along with the physical and chemical properties for each (e.g. boiling point, vapor pressure, and solubility). While the environmental and physical-chemical data for each ingredient may not be used for setting human safety values or incorporated into a human health risk assessment, this data may be useful for building the exposure models and may be useful if alternative approaches to support safety conclusions are necessary.

Next Steps

The Hazard Datasets Inventory is the second step in ACI's Cleaning Product Ingredient Safety Initiative, which is an ongoing effort to provide easier access to human health and environmental safety data for the chemical ingredients used in consumer cleaning products manufactured by ACI members. Research is ongoing, and hazard data for certain ingredients may be added when that information becomes available. The next step is to characterize ingredient exposures associated with typical usage scenarios for ACI members' consumer cleaning products.