CHEMICAL SAFETY FOR SUSTAINABILITY DASHBOARDS

Background

Chemical safety is a major priority of research and decision making at EPA.EPA's chemical safety research:

- Improves understanding of chemicals and how they impact human health and the environment.

- Increases the capacity to predict a chemical's potential risk to human health and the environment.

- Advances knowledge about the life cycle of chemicals (from production to use to disposal) to determine ways to sustainably design and manufacture them.

- Enhances decision making by providing online tools to synthesize chemical data and make it publicly accessible.

- Studies high profile chemicals to address immediate public health and/or environmental concerns.
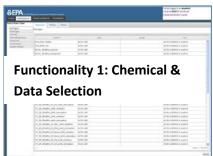
Dashboards

EPA researchers are developing web-based interactive Chemical Safety for Sustainability (CSS)

Dashboard applications—known simply as 'CSS Dashboards'— to inform chemical safety decision making.

CSS Dashboards compile available chemical information on chemical exposure, hazard, risk, sustainability, predictive models and decision-rules. Advances in computational toxicology allow CSS Dashboards to integrate these diverse sources of chemical information.

Through Dashboards, this chemical information is readily available to decision-makers and the public on an easy-to-use, interactive website. With CSS Dashboards, users can better understand potential risks to human health and the environment. In this manner, CSS Dashboards support transparent decision-making based on innovative science.

The three main functions of CSS Dashboards are shown and described in the following pictures.

Functionality 1: Chemical & Data Selection

Functionality 2 Exploring & Scoring Chemicals and Data

Functionality 3 Prioritize & assess chemicals based on search

A few real-world applications for CSS Dashboards are:

- Search and query rapid, automated chemical testing data and predictions generated by the Toxicity Forecaster (ToxCast) and the Exposure Reference Database (ExpoCast) research. This data provides risk-based predictions for thousands of chemicals and helps prioritize chemicals for more testing where needed.

- Evaluate chemicals for endocrine disruption potential and help decision-makers prioritize

which of these chemicals should be tested further.

- Evaluate chemicals regulated under the Toxic Substance Control Act, including many high production volume industrial chemicals, and inform what, if any, additional testing is most appropriate.

- Evaluate chemicals regulated under the Safe Drinking Water Act by helping prioritize which chemicals should be on the candidate contaminant list (CCL).

- Evaluate chemicals for potential risks to ecosystems and the environment to help inform decisions made about endangered species.

Data in the CSS Dashboards are regularly updated, and anyone accessing Dashboards will be able to see what data a user selected to inform a specific chemical safety decision.

EPA's new CSS Dashboards are helping to solve complex problems, such as identifying which of the thousands of chemicals in commerce are most likely to impact human health and the environment, informing future testing needs, guiding sustainable chemical design and helping predict chemical risk to human health and the environment.

Release Schedule

March 2013: Showcase beta version of CSS Dashboards at the 2013 Society of Toxicology annual meeting. The beta version will include access to ToxCast Phase I chemicals (about 300 chemicals, mostly pesticides) and all of the rapid, automated chemical testing data on those chemicals. The beta CSS Dashboards will be shared with interested EPA Program Offices and Regions for feedback.

Fall/Winter 2013: Public beta version of CSS Dashboards will be available on EPA's web page. The beta public version will include current high throughput screening data from ToxCast Phase II data (data on about 1,000 chemicals), exposure predictions, animal toxicity studies and other predictive models. The public beta version will provide external stakeholders access to the CSS Dashboards and they will have the opportunity to provide feedback on functionality and design.

Collaboration

EPA's chemical safety researchers are working with EPA Program Offices, EPA Regions and other interested stakeholders to beta test pilot versions of CSS Dashboards. Partner feedback is vital for successful development. If you are interested in beta testing, contact one of the EPA staff listed below.

More Information

CSS Dashboards are being developed as a part of EPA's Chemical Safety for Sustainability (CSS) research program.

EPA research:
epa.gov/research

Chemical Safety Research:
epa.gov/research/chemicalscience/

ToxCast Research:
epa.gov/ncct/toxcast/

ExpoCast Research:
epa.gov/ncct/expocast/

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