United States Environmental Protection Agency

EPA Tools and Resources Webinar:

Chemical Safety Research Online Tools & Resources

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Presentation Outline

- Chemical Safety Research Overview
- Examples of Online Tools and Resources
- Complete List of Online Tools and Resources
- How to Learn More
- Contact Information

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Chemical Safety Research

What we do:

- Provide research to rapidly evaluate potential human health and environmental risks due to exposure to environmental chemicals
- Expand understanding of quantitative human and ecological exposures to thousands of chemicals

How we do it:

- Perform rapid screening and evaluation on thousands of chemicals to evaluate for potential risk
- Develop information systems containing data with software tools to use to inform a range of human health and environmental decisions
- Actively engage a wide-range of stakeholders to help make new chemical information more understandable and usable

Why we do it:

- Help Region and Program Offices, states, tribes, and communities use information to make decisions to sustain a healthy society and environment
- Research and data used to support Toxic Substance Control Act, Endocrine Disrupting Screening Program and Contaminants of Emerging Concern

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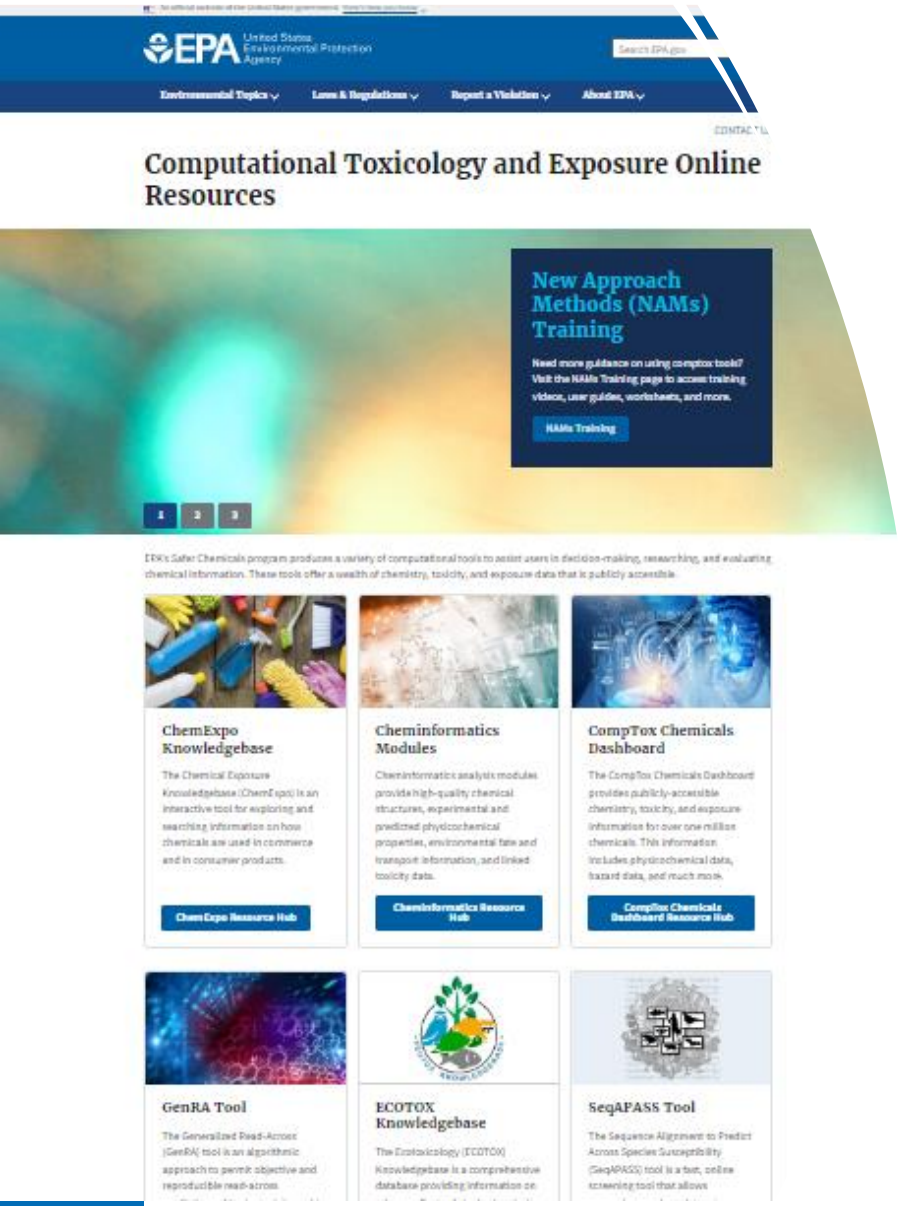

Where to start?

comptox.epa.gov

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CompTox Chemicals Dashboard

- Contains information for over one million chemicals
- Includes chemistry, toxicity, and exposure data
- For example: chemical structures, experimental and predicted physicochemical and toxicity data, hazard and bioassay data, and additional links to relevant websites and applications.

State Use Examples: **California, Minnesota and Washington**

comptox.epa.gov/dashboard

ChemExpo Knowledgebase

- Publicly accessible data search and visualization tool for exploring chemical data relevant to exposure assessment that has been curated from public documents.
- Focuses on data collected about how chemicals are used in commerce and how they occur in consumer and industrial products.

State Use Example: **California, Minnesota and Washington**

comptox.epa.gov/chemexpo

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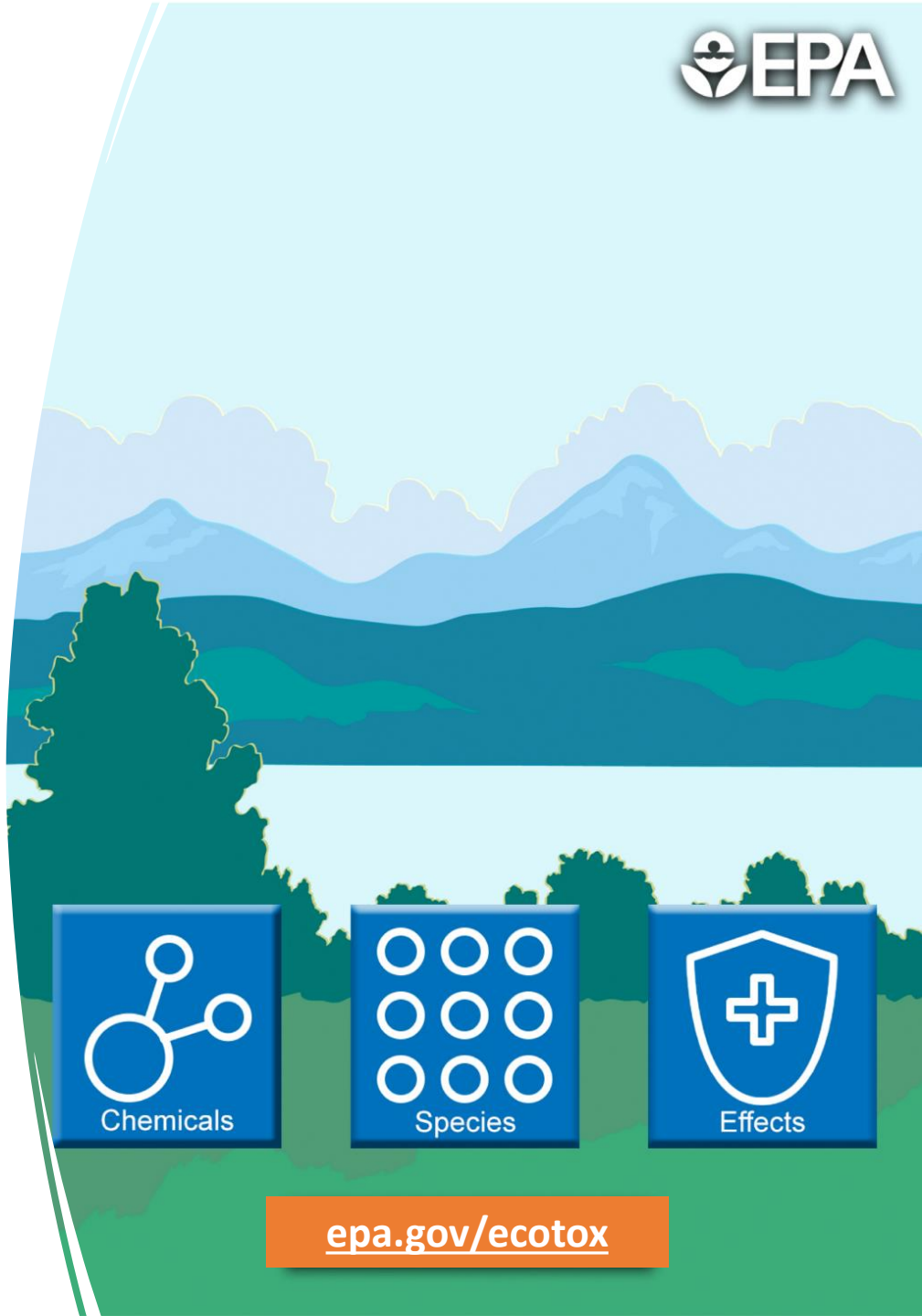
EcoTox Knowledgebase

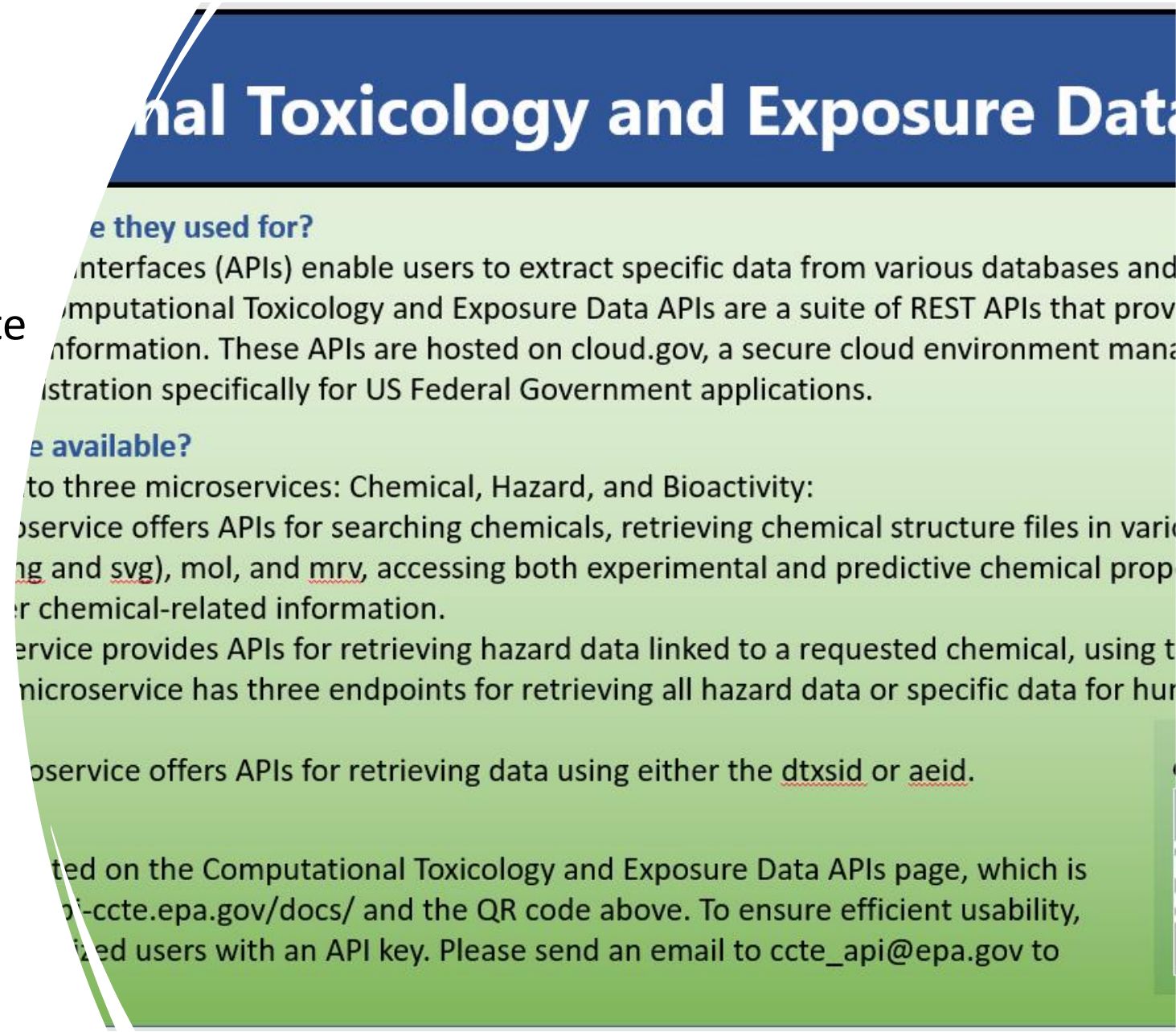
- Comprehensive, publicly available application that provides information on adverse effects of single chemical stressors to ecologically relevant aquatic and terrestrial species.
- Data are curated from scientific literature after an exhaustive search protocol.
- Compiled from over 53,000 references, ECOTOX currently includes over one million test records covering more than 13,000 aquatic and terrestrial species and 12,000 chemicals.

State Use Example: **New York, New Hampshire, Wisconsin and Pennsylvania**



APIs and Data

- EPA APIs enable users to extract specific data from various databases and integrate them into their applications.
  - Searching for chemicals, files for chemical structure and chemical details
  - Human and ecological hazard data
  - Chemical bioactivity data
- Data
  - Animal toxicity
  - High-throughput screening
  - Chemicals and chemistry
  - Exposure and Dose



Want to Learn More ?

- EPA Training Program
  - Durham, NC In Person Training April 4-6, 2024 https://www.epa.gov/chemical-research/new-approach-methods-nams-training
- Demonstrations and presentations at conferences
- Regular webinars
- Provide in-depth customized trainings for states, tribes, EPA regions, EPA regulatory offices and other stakeholder groups

Demonstrations

- Could these online tools help inform decisions you make at work about chemicals?
- Which of these online tools most interest you?
- Quickly show demonstrations of online tools with most interest

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More Online Tools and Resources

- Adverse Outcome Pathway (AOP)-Wiki: The primary repository of qualitative information for the international AOP development effort coordinated by the Organisation for Economic Co-operation and Development (OECD).
- Chemical Exposure (ChemExpo) Knowledgebase: An interactive tool for exploring and searching information on how chemicals are used in commerce and in consumer products.
- Cheminformatics Modules: Provides high-quality chemical structures, experimental and predicted physicochemical properties, environmental fate and transport information, and linked toxicity data.
- CompTox Chemicals Dashboard: Provides publicly-accessible chemistry, toxicity, and exposure information for over one million chemicals. This information includes physicochemical data, hazard data, and much more.
- Ecotoxicology (ECOTOX) Knowledgebase: A comprehensive database providing information on adverse effects of single chemical stressors to ecologically relevant aquatic and terrestrial species.
- Generalized Read-Across (GenRA) Tool: An algorithmic approach to permit objective and reproducible read-across predictions of *in vivo* toxicity and *in vitro* bioactivity.
- High-Throughput Toxicokinetics (httk) R Package: Uses human *in vitro* data to make predictions about the fate of chemicals in humans, rats, mice, dogs, and rabbits.
- Non-Targeted Analysis Web Application: A tool for making NTA studies more efficient, affordable, reproducible, harmonized, and actionable.
- Sequence Alignment to Predict Across-Species Susceptibility (SeqAPASS) Tool: A fast, online screening tool that allows researchers and regulators to extrapolate toxicity information across species.
- Toxicity Estimation Software Tool (TEST): Easily estimate the toxicity of chemicals using Quantitative Structure Activity Relationships (QSARs) methodologies.
- Toxicity Forecasting (ToxCast): Makes *in vitro* medium- and high-throughput screening assay data publicly available for prioritization and hazard characterization of thousands of chemicals.

Contact

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