

ECOTOX User Guide

ECOTOXicology Database System

Version 4.0

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DISCLAIMER

You should consult the original scientific paper to ensure an understanding of the context of the data retrieved from the ECOTOX Knowledgebase.

ECOTOX attempts to be comprehensive, however our searches do not locate all relevant literature. In addition, the time lag from conducting a literature search, acquiring the publication and encoding it into the ECOTOX Knowledgebase can be up to or exceed six months. For this reason, we also suggest that you conduct searches of the most recent publication year to ensure you capture data that has not been entered into the ECOTOX Knowledgebase.

Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U. S. government.

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INTRODUCTION

In the development and implementation of ecosystem management decisions there is the need to establish scientifically credible risk assessments for chemical stressors. Ecological assessments are required to characterize and diagnose the relative risk of chemical pollutants and to predict future risk as a function of environmental management options.

The U.S. EPA's ECOTOXicology database (ECOTOX) is a source for locating single chemical toxicity data for aquatic life, terrestrial plants and wildlife. ECOTOX was created and is maintained by the Office of Research and Development's (ORD) National Health and Environmental Effects Research Laboratory (NHEERL) / Mid-Continent Ecology Division (MED).

ECOTOX, integrates three previously independent databases - AQUIRE, PHYTOTOX, and TERRETOX - into a unique system which includes toxicity data derived predominantly from the peer-reviewed literature, for aquatic life, terrestrial plants, and terrestrial wildlife, respectively. Not all data that are published in the peer review ecotoxicology literature are included in ECOTOX. You should refer to the Limitations section of this document to understand test results that are not considered for inclusion in the database.

Researchers or managers using ECOTOX for analyses or summary projects should consult the original scientific paper to ensure an understanding of the context of the data retrieved from ECOTOX.

For more information on the ECOTOX Knowledgebase contact:

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National Health and Environmental Effects Research Laboratory
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GETTING STARTED

Access

To access the ECOTOX Web site, you will need a computer equipped with a Javascript enabled World Wide Web browser and a means of connecting to the Internet. Start your browser software and type in the Internet address <http://www.epa.gov/ecotox/> and you will be connected to the ECOTOX home page.

ECOTOX has the following browser limitations:

- The query pages require that your browser support JavaScript and this feature must be activated in your browser preferences.
- ECOTOX has been tested using FireFox and Internet Explorer.
- There is a maximum number of 5,000 tabular records that can be retrieved in one search. The delimited and Excel exports will retrieve up to 10,000 records.
- If you use a popup blocker program, ECOTOX reports, help and browse features will not display. Please add the ECOTOX web site to your popup browser exception list to ensure full usability.

Navigating within ECOTOX

From the home page, you may select one of two ways to search ECOTOX. The Quick Query form allows a simple search for a limited number of chemicals, species, effects and publication years. The Advanced Database Query is menu driven and uses navigation links to direct you through multiple search criteria pages. The Advanced Database Query utilizes all available search and output features.

To conduct a search, click on either the “Quick Database Query” or “Advanced Database Query” option from the home page. The search query page will then load. If you want to go from one database query option to the other, you will lose your current search strategy.

Left Frame

The home page provides a general overview of the ECOTOX Knowledgebase with links to About ECOTOX, Limitations, Help Center, Frequent Questions, Quick Database Query, Advanced Database Query, Data Downloads, Browse Chemicals, Browse Effects, Browse Species and Send Comments. These selections will open a new window and not affect any modifications you have made to your ECOTOX search or report selections.

About ECOTOX: This section of the website provides a general overview of the ECOTOX Knowledgebase, including the history of the system’s development.

Help Center: Our Help Center describes the ECOTOX web site contents and navigational resources available. Printable help is available in PDF (Portable Document Format) ECOTOX User Guide 4 and the ECOTOX Code List. To ensure you will be able to see a PDF file in its entirety, please obtain the most recent edition of the free Acrobat Reader

from Adobe (www.adobe.com). The help center resources are located in one of four web pages:



A brief description of each help file is presented below:

Starting Out - Find information on how to begin navigating and searching the ECOTOX Web site. This page also provides links to the limitations associated with the ECOTOX Knowledgebase, frequent questions, recent additions, and PDF versions of the ECOTOX User Guide (this document), and the ECOTOX Code List, which provides detailed information regarding codes presented in the aquatic and terrestrial reports.

How do I... - How to perform your search and retrieve output in ECOTOX.

What is... - Lists and provides links to descriptions and codes for each field available within ECOTOX searches and output. Includes links to the AQUIRE and TERRETOX coding guidelines and full list of ECOTOX Codes used by the ECOTOX staff. For a brief overview of coding practices used within ECOTOX see Appendix C.

More Resources - Other useful aids within ECOTOX and related resources on the World Wide Web. Providing these links does not imply endorsement by the U.S. EPA.

Frequent Questions: The Frequent Questions page provides quick access to typical questions we receive.

Limitations: The following restrictions are placed on ECOTOX data. Data not satisfying these requirements are excluded from the ECOTOX Knowledgebase: You should review the limitations of ECOTOX data retrieval and system requirements prior to performing searches on this site.

Criteria	Requirement/Inclusions	Limitations/Exclusions
Chemical	<ul style="list-style-type: none"> • Single chemicals relevant to environmental exposure are included. • Verifiable Chemical Abstract Services (CAS) number 	<ul style="list-style-type: none"> • Mixtures (petroleum fuels) • Air pollution (CO₂ and ozone)
Species	<ul style="list-style-type: none"> • Ecologically relevant species • Priority species are wild (test results for terrestrial domestic and laboratory species are used to fill data gaps when needed) • Organism taxonomic information verifiable against standard taxonomic sources 	<ul style="list-style-type: none"> • Human, monkey, bacteria, viral and yeast

Criteria	Requirement/Inclusions	Limitations/Exclusions
Effect/ Response	<ul style="list-style-type: none"> Biological effect on live, whole organisms Adverse effects are priority (beneficial, nutritional effects are lower priority) 	<ul style="list-style-type: none"> Dead organisms In Vitro
Concentration/ Dose	<ul style="list-style-type: none"> Concurrent environmental chemical concentration/dose reported as concentration, dose or application rate. Sediment studies must have a water concentration reported to be included 	<ul style="list-style-type: none"> Inhalation dose route (including intratracheal instillation) Lead shot Sediment only concentration Unverified measurement unit. Log values
Exposure Duration	<ul style="list-style-type: none"> Duration reports an associated concurrent with a biological effect 	<ul style="list-style-type: none"> Unverifiable duration
Publication /Data Format	<ul style="list-style-type: none"> Primary data source. Full text English (some Non-English papers are encoded that have an English abstracts) 	<ul style="list-style-type: none"> Reviews Full text foreign language. Abstract only format

In addition, ECOTOX currently has limits on the number of data records that can be retrieved:

- There is a maximum number of 5000 tabular and full browser viewable records that can be retrieved in one search. The delimited and MS Excel export files will retrieve up to 10,000 records.
- If you use a popup blocker program, the ECOTOX reports, help and browse features will not display. Please add the ECOTOX web site to your popup browser exception list to ensure full usability.

Other Tools/Databases: Provides links to other tools and databases available through NHEERL/Mid-Continent Ecology division.

Quick Database Query: The Quick Query form allows a simple search for a limited number of chemicals, species, effects and publication years.

Advanced Database Query: The Advanced Database Query is menu driven and uses navigation links to direct you through multiple search criteria pages. The Advanced Database Query utilizes all available search and output features.

Data Downloads: You can download delimited ASCII files of the entire aquatic or terrestrial raw data. This does not include any software and will require reconstructing various files

together in order to view entire data records. The data are divided into two sections; aquatic and terrestrial. Within these sections you will find data tables, field descriptions and graphical relations of the data structure.

Browse Authors: Locate ECOTOX authors available for searching. The Browse Authors links are also available above the Author entry selection box to use prior to searching. This feature helps you locate the best input format to enter in the entry box. Authors retrieved from the browse function may be directly imported into your search by selecting the Go to the Advanced Query page button.

Browse Chemicals: Locate ECOTOX chemicals available for searching. You can search by CAS Registry number or by chemical name, including synonyms. The Browse Chemicals links are also available above the Chemical Entry selection box to use prior to searching. This feature helps you locate the best input format to enter in the entry box.

Browse Effects: Locate ECOTOX effect measurement codes and definitions. The Browse Effects links are also available above the Effect Entry selection box to use prior to searching. This feature helps you locate the best selections for effects and measurements. Effect measurements retrieved from the browse function may be directly imported into your search by selecting the Go to the Advanced Query page button.

Browse Species: Locate ECOTOX species available for searches. You can search by Common Name, Scientific Name or ECOTOX Species Group. The Browse Species links are also available above the Species Entry selection box to use prior to searching. This feature helps you locate the best input format to enter in the entry box. Species retrieved from the browse function may be directly imported into your search by selecting the Go to the Advanced or Quick Query page button.

Browse Taxonomic Info: Find and review taxonomic information for species located in the ECOTOX Knowledgebase. You can search by common name, Scientific Name or ECOTOX species number.

Send Comments: If you have a question that can't be answered through our help, please contact us with your question. This link "Contact Us" also appears on the top frame of every ECOTOX web page.

Top Frame

Selecting any of the following options will open a new window, and not affect any modifications you have made to your ECOTOX search or report selections.


Recent Additions: This link provides information on recent data updates quarterly), and changes to the functionality of the web site.

Contact Us: If you have a question that -cannot be answered through online help, please contact us directly. This link also appears on the top frame of every ECOTOX web page.

Print Version: The Print Version hotlink will remove the left sidebar and header text at the top of the page. You can use your browser print options to print the displayed page.

OVERVIEW OF SEARCH OPTIONS

Database searches can be conducted using either a Quick or Advanced Database Query menu. The Quick Database Query supports searches on taxonomic kingdom, species common or scientific name, CAS Registry number or chemical name, observed effect group and publication year. The Advanced Database Query menu includes all options under Quick Database Query, and enables you to focus on more specific criteria such as study site type (e.g., laboratory, field), exposure media (e.g., freshwater, soil), route of chemical exposure (e.g., oral, diet), and statistically-derived endpoints (e.g., LD50, NOEL). Search results can be downloaded either as a Microsoft (MS) Excel spreadsheet, an ASCII delimited file format which can be transferred into a database or spreadsheet, or in a browser viewable report format.

When you are within any Quick or Advanced Database Query page and click on a  context-sensitive help will display in a separate window. You may navigate within the help window without affecting your search session.

Search Strategy Basics


The search pages are designed to search on all data, unless you restrict the search by adding search criteria (e.g., adding the check in the check box, enter text in a text entry field). You may perform the search at any time after you have specified your search criteria. You do not need to enter something in every search criteria area.

The search logic includes two basic strategies, combination/union and intersection. Within a search area (e.g., chemical), the search will combine all your search selections. Between each search area, the search will intersect your selections (e.g., intersection between chemical and taxonomic selections). You may also want to use the ECOTOX Search Planner located in Appendix A to plan your searches. Appendix B describes practice searches to assist you in using the ECOTOX system.

Before searching, you should read Appendix C to find out more about the ECOTOX Knowledgebase and Appendix E for specific data field descriptions.

Overview of Query Page Functions

Moving Within Pages and Target Menu


You may need to move within an ECOTOX screen by using the scroll bars located at the right and bottom of your computer screen. The right scroll bar moves up and down, the bottom moves left and right. There are also “Go to Top” buttons  located strategically throughout the page that will take you back to the top menu.

You can also navigate within the page using the menu located at the top of each page by clicking on the desired hyperlink. This will move you to your requested location within the same page.

To narrow your search, use one or more of the following options: [Chemical](#) or [Species](#) or [Effects](#) or [Publication Years](#) or [Report Format](#)

Selection Box and Types

All search and report selections will be displayed in a box using multiple selection methods (radio button, checkbox, drop-down lists, typing in text (one entry per line)).

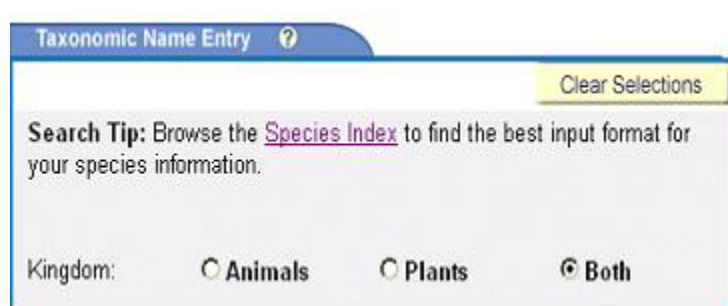
Each search selection box is labeled and a question mark graphic . When you click on this icon, context-specific help is presented. Each box also includes a Clear Selections button in the right-hand corner of the box. When you click on Clear Selections, all selections within the box are removed.

Search selection types include:

Checkbox: To select an item, click on the check box you want to include. To remove a selection, click on the checkbox again. You can select one or more items.



Radio button: To select an option, click on the radio button box you want to include. To unselect, click on the radio button again. Only one option listed can be chosen.

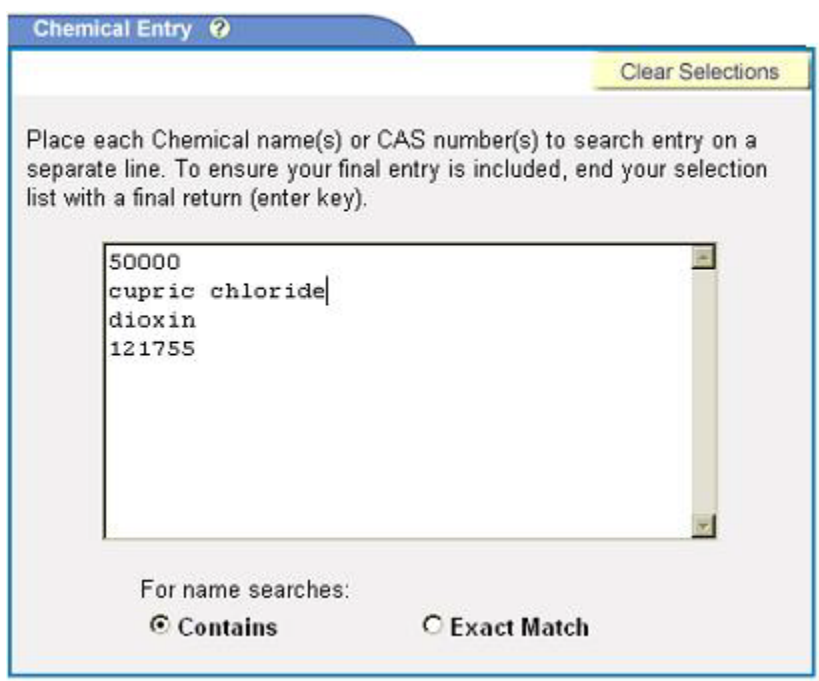


Drop-down List: To modify searches using the drop-down list, click on the arrow icon on the right side. Clicking on this icon drops down a list immediately below the field and shows which values can be chosen. Click on the entry item you want selected.



The screenshot shows a search interface titled "Publications Year(s)". It features a "Clear Selections" button in the top right corner. Below this, there are two dropdown menus: "Starting Year" with the value "1970" and "Ending Year" with the value "2003". The "Ending Year" dropdown menu is open, showing a list of years including 2003, 2002, and 2001.

Text Entry: Chemical, Species and Reference Number searches require typing the search criteria into the selection box. Each entry must be on a single line, followed by a carriage return. The text you type must match the type of data within ECOTOX, either as a substring search (Contains) or exactly (Exact Match). All numeric entries will be searched exactly as entered, without selecting the Exact Match radio button. You may enter both text and numeric data into text boxes.



The screenshot shows a search interface titled "Chemical Entry". It features a "Clear Selections" button in the top right corner. Below this, there is a text area with the instruction: "Place each Chemical name(s) or CAS number(s) to search entry on a separate line. To ensure your final entry is included, end your selection list with a final return (enter key)." The text area contains the following entries: "50000", "cupric chloride", "dioxin", and "121755". Below the text area, there are two radio buttons for search criteria: "Contains" (which is selected) and "Exact Match".

Quick Database Query

The Quick Database Query search and report options are located within a single web page, therefore you can use your scroll bar or the target menu to move around the page in order to make selections.

The Quick Database Query supports searches on Chemicals (Names or CAS Registry numbers), Species (Kingdom, Scientific or common names), major Effect group (with option of presenting results with Endpoints Reported, Endpoint Not Reported (NR) and

Statistics, No Endpoint) and Publication Year(s). All report formats are available within the Quick Query menu, but you cannot modify the sort order or data field display within the report. The search options within the Quick Database Query are available in the Advanced Database Query, but the Advanced Database Query screens afford more search and output options.

When constructing your searches, remember that for the text entry forms (Chemical and Taxonomic) each entry must be on a single line, followed by a carriage return. The text you type must match the type of data within ECOTOX, either as a sub-string search (Contains) or exactly (Exact Match). All numeric entries will be searched exactly as entered, without selecting the Exact Match radio button. You may enter both text and numeric data into text boxes. For radio button screens (e.g., Report Format), you may only make one selection within a grouping. For checkboxes (e.g., Effect Measurements) you may make multiple selections.

Key Functions

Each of the Quick Database Query pages includes the Key Functions box located in the upper right corner of the page. These Key Functions include:

Restore Defaults - Erases previously selected search criteria on all search pages and restores the default report format.

Perform Query on Aquatic Data - Activates your search and displays aquatic report results in a separate window

Perform Query on Terrestrial Data - Activates your search and displays terrestrial report results in a separate window

Search Options

You must search on at least one parameter. Any selections made using multiple parameter search boxes (i.e., excluding the Report Format) within the Quick Database Query page will narrow the search result. ECOTOX offers the following Quick Database Query options:

- Chemical: Within the Chemical Entry search box, you may search on chemical(s) using either CAS Registry numbers, or chemical names.
- Taxonomic: Within the Taxonomic Name Entry search box, you may search on Kingdom (plant vs. animal), taxonomic information using either the scientific name (e.g., phylum, genus, species), common name, or ECOTOX species number to identify the organism(s) or taxonomic group of organisms. You must identify whether the search is for a genus/species scientific name, common name, or other taxonomic name.
- Effect Measurements: Within the Effect Measurement search box, you may search on major effect groups (e.g., mortality, bioaccumulation). You may also restrict your search results to studies that report only calculated Endpoints (e.g. EC50).
- Publication Year(s): Within the Publication Year(s) search box, you may select to search on a range of Publication Years.

- **Report Format:** Within the Report Format search box, you may select another Report Format (e.g, tabular browser viewable, MS Excel, Delimited, or full data record). The default is set to a tabular browser viewable format for aquatic reports, and the full data record for terrestrial reports. See Appendix G for examples of the default report formats.

Advanced Database Query

Functions Unique to the Advanced Query

Page Navigation Tool Bar: The Advanced Database Query of the ECOTOX web site is designed to lead you through a search session using multiple forms. Each page provides a menu and navigational drop-down sub-menus that will take you to various locations within the Advanced Database Query pages. At the top of each Advanced Database Query page is the Page Navigational Tool Bar that provides links to the various pages. You must use the navigation tool bar to move from page to page within the Advanced Database Query. Using your browser's Back button will result in the loss of all entries made in any of the ECOTOX forms.



Search or report options within each web page include:

Main - Describes search and report features available within ECOTOX.

Taxonomic - Taxonomic Entry, Predefined Taxonomic Groups

Chemical - Chemical Entry, Predefined Chemical Groups

Test Results - Endpoints, Effects and Measurements

Test Conditions - Test Location, Exposure Media, Exposure Type, Chemical Analysis

Publications/Updates - Reference Number, Publication Year, Independently Compiled Data and Recent Modifications/Additions

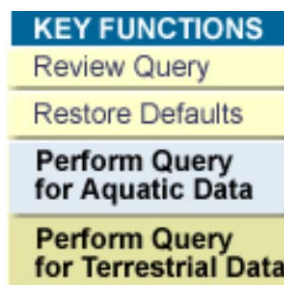
Key Functions: Each of the Advanced Database Query pages includes the Key Functions box located in the upper right corner of the page. These Key Functions include:

Review Query - View your search criteria and report format.

Restore Defaults - Erases previously selected search criteria on all search pages and restores the default report format.

Perform Query on Aquatic Data - Activates your search and displays aquatic report results in a separate window.

Perform Query on Terrestrial Data - Activates your search and displays terrestrial report results in a separate window.



Advanced Database Query View/Edit: For predefined lists within the Chemical, Taxonomic, and Effect Measurements search windows, you can view and/or further edit your selected lists. To access the view and edit feature, click on the button located at the bottom for the search box labeled, View/Edit List Entries. This will display the details of the list(s) you selected. If you are viewing and do not want to make any changes, click on the Finished Editing button. This will return you to the previous page.

If you want to remove selection(s), select the items by highlighting or clicking on the item, then click on the Remove button. Multiple selections can be made by holding the Ctrl key down while clicking the item. You may restore the default selections by clicking on the Restore or Restore All button. When editing is complete, click on the Finished Editing button to return to the previous page. Deleted Chemical and Taxonomic selections are limited to 50 terms and Effect Measurements are limited to 1200 terms.

If you click on your browser "Back" button, your edits will not be saved.

Advanced Species Expanded Lists ?

The selection box below contains the expanded species associated with the species lists you selected. To remove individual species from your query, select item(s) from the list by selecting them and then clicking the REMOVE button. Multiple selections can be made by holding down the Ctrl key, then click to select.

You may restore the removed items by selecting them and clicking on the RESTORE button. When you have completed your selections, click on the Finished Editing button.

Species Selected

Species Group: Birds

- Accipiter gentilis - northern goshawk
- Accipiter nisus - Northern sparrowhawk
- Accipitridae - Accipiter family
- Acridotheres tristis - Common Mynah
- Aegolius acadicus - northern saw-whet owl
- Agelaius phoeniceus - red-winged blackbird
- Aix sponsa - wood duck
- Alauda arvensis - Eurasian skylark
- Alaudidae - Lark family

REMOVE

Species Removed

Accipiter cooperii - cooper's hawk

RESTORE **RESTORE ALL**

Finished Editing

Search Options

The Advanced Database Query option provides a broader range of search parameters than available in the Quick Database Query page. The default for each selection box is that all data will be searched. As you add selections to your search criteria, the number of records that can be retrieved from the ECOTOX Knowledgebase may be reduced.

Under the Advanced Database Query, the Chemical and Taxonomic pages, any entries selected on the page combines selections into a single query. For example, if you select the species *Daphnia magna* and Predefined Taxonomic Group “Fish”, the result will be the combination of all fish species and the *Daphnia magna* species.

You must search on at least one parameter. Any additional selections made from other search parameter menus (i.e., not Report Format) within the Advanced Database Query pages will narrow the search result. ECOTOX offers the following search options:

- Advanced Database Query Main Menu: This web page provides an overview of how to navigate within the Advanced Database Query pages. Each Advanced Database Query page will have a navigational tool bar located at the top of the page, which will allow you to move to different search parameters (Taxonomic, Chemical, Test Results, Test Conditions, Publications/Updates) and to customize your final ECOTOX output (i.e., Report Format).
- Taxonomic: Within the Taxonomic page, you may search on one or more Predefined Taxonomic Groups or enter your own list of taxonomic information using either the scientific name, common name or ECOTOX species number to identify the organism(s).
- Chemical: Within the Chemical page, you may search on one or more Predefined Chemical Groups or enter your own list of chemicals using either the Chemical Abstract Services (CAS) Registry number or chemical name to identify the substance(s).
- Test Results: Within the Test Results page, you may search on calculated Endpoints (e.g. EC50), observed Effects (e.g., growth), and/or specific Effect Measurements (e.g., weight).
- Test Conditions: Within the Test Conditions page, you may search on Test Locations (e.g., laboratory, field), Exposure Media (e.g., freshwater, soil), or Exposure Types (e.g., static, diet), and /or Chemical Analysis (measured vs. unmeasured).
- Publications/Updates: Within the Publications/Update page you may search on Publication Year, ECOTOX Reference Number(s), Independently Compiled Data Sets (e.g., USGS Acute Toxicity Databases) that are submitted electronically by collaborators, and/or the last six ECOTOX Modifications/Updates.
- Report Format: Within the Report Format page, you may select another Report Format (e.g, browser viewable, MS Excel, Delimited) or customize your report by modify the Aquatic Output Selection and/or the Terrestrial Output Selections.
- Key Functions: At any time after you have made selections, you may review your search selections (Review Query), clear any selections you made within any Advanced Database Query page, (Restore Defaults), or generate your search results (Perform Query for Aquatic Data, Perform Query for Terrestrial Data).

CONDUCTING A QUERY WITHIN ECOTOX

Taxonomic Searching

Within ECOTOX you may conduct a search by entering the Species Number(s), Genus/Species Name(s), Other Taxonomic Name(s) or Common Name(s). To browse Species Groups, Genus/Species Names, or Common Names available in the database, click on the Browse Species index link on the left frame or within the Taxonomic Name Entry box. All data records within ECOTOX include a scientific name for the test species. All names have been verified in reliable taxonomic sources. Appendix D contains information regarding the verification of species data in ECOTOX.

The ECOTOX species file includes historical synonyms for the species. If a search is conducted using a species name that is noted as a taxonomic synonym in our system, ECOTOX Knowledgebase will present the results using the currently acceptable genus and species name.

Taxonomic Entry

To conduct a search, type in the taxonomic name, common name or Species number and select the appropriate data type radio button. Partial taxonomic names may be used when the Contains radio button is selected. The Exact Match selection is used when you want only the exact text entered to be searched.

You can search for an unlimited number of entries and each entry must be entered on a separate line. You can mix numbers and name entries, but the name entry must be the same type (e.g., Genus/species and Common names cannot be searched within one entry screen). If you select the Contains radio button, the data retrieved will include species with names having any part of the words given in the text box (i.e., a search on the word *daphnia* will return both *daphnia* and *ceriodaphnia*).

View Taxonomic Info

A link to the View Taxonomic Information is available on the left toolbar. By selecting this link, a new browser window will open to access to the ECOTOX species information file. This will allow you to view the taxonomic information, additional scientific and common names, and species number. This can assist you in planning your taxonomic search strategy by allowing you to enter different Genus/Species, other taxonomic levels, and common species names or name sub-strings to determine whether or not your species is in the ECOTOX Knowledgebase and what other species will be included if your sub-string is used. For example, by entering the species Scientific name '*Oncorhynchus mykiss*', the following species numbers and Scientific names will be included in your search results:

ECOTOX Species Index

Please
Close Box

1 Record Found

Return to [Browse Species Index Search](#)

Species Number: 4
Scientific Name: Oncorhynchus mykiss
Common Name: Rainbow trout,donaldson trout

[Hide Details](#)

Scientific Name Synonyms:	<ul style="list-style-type: none"> • Salmo gairdneri • Salmo mykiss • Salmo gairdneri irideus
Other Common Names:	<ul style="list-style-type: none"> • Steelhead • Coastal rainbow trout • rainbow trout • redband trout • truite arc-en-ciel
Taxonomic Hierarchy:	<p>Kingdom: Animalia Phylum/Division: Chordata Subphylum: Vertebrata SuperClass: Osteichthyes Class: Actinopterygii Order: Salmoniformes Family: Salmonidae Genus: Oncorhynchus Species: mykiss</p>

You can then use the names provided in the output to perform your searches, or use the species numbers listed by each name.

Browse Species Index

The Browse Species Index is used to search and review Species in the ECOTOX Knowledgebase by species group or text search.

If you select Browse Species, the system will prompt you to enter either the Quick or Advanced Database Query unless you have already completed this step.

You can search by selecting Species Group(s) and/or entering a search term. To select more than one Species Group, hold the control key down while making additional selections. If you select a Species Group and enter a search term the two terms will be searched together. Once you are satisfied with your entries, select Browse.

This will populate the Filtered Species Box in the format of Scientific Name (Common Name) -- Family - Order - Class. Note that your search terms will appear in parenthesis behind the header. From this box, you can review and make specific selections to be used to populate the ~~you~~ query. You can add individual or all entries by using the 'Add' or "Add All' to move entries to the Selected Species for Query box. Entries can be removed from the Selected Measurements for Query using the 'Remove' and 'Remove All' buttons. To select multiple entries you can hold the control key down and make additional selections.

If you are satisfied with selections added to the Selected Measurements for Query box, these can be added to the Final Species for Quick or Advanced Query box by using the 'Select Effects' or 'Select All'. Once effects have been added to the Final Measurement Codes for Advanced Query box, new searches can be completed to add additional Effect Measurements for the query.

Once you have completed browsing for Species, select the 'Submit to Advanced Query' or 'Submit to Quick Query' to move your selections to your query. Your selections will be entered into the Species search box. Note that if any additional edits to the Species Search, Selections from Browse Species are not modified.

Genus/Species Name: You can conduct a search on whole or fragments of scientific names (genus, species). ECOTOX includes information about species synonyms within the Browse Species Index file.

Species Common Name: All data records within ECOTOX include a common name for each species. You can conduct an exact search (Exact Match) on the common name or fragments (Contains) of common names by selecting the proper radio button option below the entry box.

Other Taxonomic Names: Key taxonomic levels (Kingdom, Phylum, Class, Order, Family) searches are available by typing the appropriate scientific name. ECOTOX includes information about taxonomic levels within the Browse Species Index file.

Species Number: All species in the ECOTOX Knowledgebase have been assigned a unique number. Numbers can be located by using the View Taxonomic Information option. You can include numbers and text information (either Scientific or common names in one search. Species numbers are always searched as an exact match.

Predefined Taxonomic Groups (*Advanced Query Only*)

The option to select from predefined lists is only available in the Advanced Database Query. Species lists have been provided to effectively search a variety of species groups.

You may remove and/or view the individual species within a list by clicking on the View/Edit List Entries button located directly below the Species Group check boxes. Removing Taxonomic selections species lists are limited to 50 terms. See the section on “Using View/Edit List Entries” if you need help viewing and/or editing species lists. If you click on your browser “Back” button, your edits will not be saved. You cannot display the Animal and Plant species groups due to the large number of species within these lists.

Taxonomic kingdom (plant or animal) searching is available on both the Quick and Advanced Database Query pages. The kingdom is searched using a radio button option in the Quick Database Query search. The kingdom search in the Advanced Database Query is located within the Predefined Taxonomic Groups as “All Plants” for the plant kingdom or “All Animals” for the animal kingdom.

The plant kingdom search also includes species representing Monera and Fungi. Some test results report both plant and animal species as one effect measurement (e.g., aquatic community, plankton, soil community). These results will be included when either plant, animal or both kingdoms are selected.

ECOTOX includes the following Predefined Taxonomic Groups:

Animals: This list is broken into the following sub-groups:

- Amphibians
- Birds
- Crustaceans
- Fish
- Insects/Spiders
- Other Invertebrates
- Mammals
- Molluscs
- Reptiles
- Worms

Plants: This list is broken into the following sub-groups:

- Algae, Moss, Fungi
- Flowers, Trees, Shrubs, Ferns
- All Plants

Specials Interest: The following list:

- Standard Test Species
- U.S. Threatened and Endangered Species

- U.S. Exotic / Nuisance Species

Example Taxonomic Search

The example below is the correct method of entering query text. You can enter a mix of numbers and species terms. Number will always be treated as exact matches by the ECOTOX query. When mixing genus/species (e.g., *Oncorhynchus mykiss*) and fragments of taxonomic names (e.g., *Daphnia*), select the Contains button when searching, even when numbers are entered.

Example Genus/Species Name Query	
Pimephales promelas	
Daphnia	
Salmo	
2371	
Oncorhynchus mykiss	
For name searches	
•	Genus/Species Name
○	Species Common Name
○	Other Taxonomic Names
○	Species Number
•	Contains ° Exact Match

If you are storing your species records in another source (like a spreadsheet), you may cut and paste the values into this box just like any other Windows application. For example, taking the information from an MS Excel spreadsheet you would:

1. Highlight all of the items in a spreadsheet column (please keep it to one column of data).
2. Press CTRL+C (or select Copy under the Edit Menu).
3. Bring up the Advanced Database Query page.
4. Click in the Text Box (so the cursor is blinking in the box).
5. Press CTRL+V (or select Paste under the Edit Menu).
6. Press “Enter” key to place a hard return at the end of the list to ensure the last row is included in the search.

Search Tips for Taxonomic Searches

By clicking on 'Taxonomic' on the menu at the top of the search page, you will move to the Taxonomic Search area. Some examples are provided to help when developing your search strategy:

Genus/Species Name: Entering *Pimephales promelas* in the search text box will result in only data for fathead minnows. Entering *daphnia* genus as the genus/species name will result in all *Daphnia* and *Ceriodaphnia* species. If you consistently use genus and/or species names, you may want to use the species number for searching.

You may also enter a historical scientific name and still retrieve data for a species. For example, if you enter *Salmo gairdneri* and retrieve the data, the output will display the currently accepted name, *Oncorhynchus mykiss*.

Other Taxonomic Name: You can enter any taxonomic level (Kingdom, Subphylum, Phylum (Division), Superclass, Class, Order, Family, Genus) in this Taxonomic Entry box. For example, you can type in *salmonidae* to retrieve all species for this family. Using a taxonomic name may be helpful when interested in a broader search. Please check the Browse Species Index to locate the exact taxonomic hierarchy used in ECOTOX.

Species Common Name: Using some common names may be an effective way to search if there is a unique common name for that organism. For example, entering *mallard* in the common name field will result in only mallard duck results.

However, entering the term *duck* will output results for *duck* and *duckweed*. In this case, searching using the common name (exact) or performing only performing the query on terrestrial data will eliminate the duckweed from the search.

Entering *bird* in the common name field will result in *bird* and *ladybird beetle* data. In addition, using the term *bird* will not ensure that all bird data in the system will be extracted because the species name may not use the term *bird* in the common name.

Species Number: The species number is the unique indexing number assigned to each species in ECOTOX and can be used as a shortcut method to search genus and/or species data. The species number may be useful if you consistently search on the same set of species. The best way to determine species numbers is to access the View Taxonomic Information feature.

Chemical Searching

Using the Chemical search page, you can conduct queries on CAS Registry numbers, partial or complete chemical names, and predefined groups of chemicals. The default within ECOTOX is that all chemicals are selected for searching. All chemicals within ECOTOX include a CAS Registry number and a chemical name, typically a Collective Indices name. This information is verified in reliable sources. Appendix D describes the verification process for chemicals in the ECOTOX system. The Collective Indices name is

identified as the preferred name within the ECOTOX Knowledgebase, and this is the name that will be displayed on your report even if your search was conducted using a common or trade name of a substance.

ECOTOX does include chemical synonym searching. If a synonym is used by more than one CAS number, both chemicals will be queried. If the database located more than one CAS number for your chemical entry, a warning message will display at the top of your browser viewable reports. (Example: "Warning! Your chemical name "chlordane" produced a search on more than one chemical. All chemicals, CAS numbers, 57749 and 12789036, are included in your report"). No warnings will display in MS Excel or delimited output.

Chemical Entry

To conduct a search, type in the CAS Registry number(s) and/or chemical name(s), and select the appropriate data type radio button (i.e., Contains vs. Exact Match). Partial chemical names may be used when the Contains radio button is selected. The Exact Match selection is used when you want only the exact text entered to be searched. CAS Registry numbers are always treated as exact entries even when Contains is selected.

You can search for an unlimited number of entries but each entry must be entered on a separate line. You can mix numbers and name entries. If you select the Contains radio button, the data retrieved will include chemicals with names having any part of the words given in the text box (i.e., a search on the word *chlordane* will return both *chlordane* and *oxychlordane*).

Browse Chemical Index: Within the Chemical Entry box is a link to the Browse Chemical Index. By clicking on the Browse Chemical Index hotlink above the search box, a new browser window will open to access to the ECOTOX chemical information file. This can assist you in planning your chemical search strategy by allowing you to enter different CAS Registry number(s), or name sub-strings to determine whether or not your chemical is in the ECOTOX Knowledgebase and what other chemicals will be included if your sub-string is used. You can then use the chemical names provided in the output to perform your searches, or use the CAS Registry numbers listed by each name.

The Browse Chemical search result provides a list of the CAS Registry number(s) and all instances where your text string was included in a chemical name in the ECOTOX index file. For example, if you were to enter 'xylene' as a chemical string within ECOTOX, the following chemicals would be included in your search result:

<u>CAS#</u>	<u>Chemical name</u>
81152	Trinitro-t-butyl xylene
89587	Nitro-p-xylene
881992	alpha,alpha'-Hexachloro-xylene
1074244	2,5-Dibromoxylene
1330207	Xylene
13209159	a,a,a',a'-Tetrabromo-O-xylene

You can then either use the resulting chemical names in your search or conduct your search using the CAS Registry numbers that are displayed using the Browse Chemicals index. The output under the Browse Chemical Index, provides a list of synonym for the chemical of interest, and a list of physical /chemical properties. Currently the ECOTOX Knowledgebase does not include the physical / chemical property information, but plans are to include it in the next version of the database.

CAS Registry Number: Enter the CAS Registry number(s) you wish to search on, placing each number in a separate field in the CAS Registry numbers section. You may enter the CAS Registry number with or without hyphens and leading zeros. CAS number queries are always exact matches.

Chemical Name: ECOTOX now includes searching based on chemical synonyms. Enter the names of the chemicals you wish to search on, placing each name in a separate field. After entering all chemical names, identify whether you want to search on the exact name (Exact Match) or on a substring (Contains). For example, if you enter the term *benzene* selecting the Exact Match radio button, you will only search for the specific chemical benzene, not benzene derivatives. It is recommended that you search on CAS Registry numbers, when you want to specifically restrict your search to selected chemical(s).

Predefined Chemical Groups (*Advanced Query Only*)

The option to select from predefined lists is only available in the Advanced Database Query. Chemical lists have been provided to effectively search a variety of chemical groups. To select a chemical group, click on the check box you want to search. To unselect, click on the checkbox again.

You may remove and/or view the Individual chemicals within a list by clicking on the View/Edit List Entries button located directly below the Chemical List check boxes. Removing Chemical individual names from chemical lists and are limited to 50 terms. See the section on "Using View/Edit List Entries" if you need help viewing and/or editing chemical lists. If you click on your browser "Back" button, your edits will not be saved.

The following Predefined Chemical Groups are available:

Metal or Organometal Compounds:

- Aluminum
- Antimony
- Arsenic
- Barium
- Beryllium
- Cadmium
- Chromium
- Cobalt
- Copper
- Iron

- Lead
- Manganese
- Mercury
- Nickel
- Silver
- Organotin
- Selenium
- Vanadium
- Zinc

Organic Compounds:

- Conazoles
- DDT and Metabolites
- Dibenzofurans
- Endocrine Disrupting Chemicals (EDCs)
- Explosives
- Glycol Ethers
- Major Ions
- Neonicotinoids
- Nitrosamines
- Perchlorates
- Perfluorooctane Sulfonates and Acids (PFOS/PFOA)
- Phthalate Esters
- Polyaromatic Hydrocarbons (PAHs)
- Polybrominated Diphenyl Ethers (PBDEs)
- Polychlorinated Biphenyls (PCBs)
- Pharmaceutical Personal Care Products (PPCPs)
- Strobins

Example Chemical Search

The example below is the correct method of entering query text.

• Contains	° Exact Match
99865	
Cadmium chloride	
99898	
Metolachlor	
Malathion	
100027	

If you are storing your chemical records in another source (e.g., spreadsheet), you may cut and paste the values into this box just like any other Windows application. For example, taking the information from a MS Excel spreadsheet you would:

1. Highlighting all the items in a spreadsheet column (please keep it to one column).
2. Press CTRL+C (or select Copy under the Edit Menu).
3. Bring up the Advanced Database Query page.
4. Click in the Text Box (so the cursor is blinking in the box).
5. Press CTRL+V (or select Paste under the Edit Menu).
6. Press "Enter" key to place a hard return at the end of the list to ensure the last row is included in the search.

Search Tips for Chemicals

Some guidance when conducting a chemical search:

Metal Compounds: It may be more effective to search metal compounds by chemical name. Suppose you want to search for copper compounds. Entering *cupr* and *copper* as chemical names will find copper and several copper compounds with fewer keystrokes than typing all the individual CAS Registry numbers. You may also search a group of copper compounds using the ECOTOX Predefined Chemical Group option.

Organic Compounds: These compounds may be searched by chemical name. Suppose you want to search on all dioxin compounds. Entering *dioxin* as a chemical name will be more efficient than entering all the specific dioxin chemical names or CAS Registry numbers. Remember, though, entering some chemical names may identify many non-applicable chemicals (e.g., benzene will result in all compounds with the sub-string 'benzene' in the chemical name). It is recommended to use the chemical's CAS Registry number or the Exact Match option for chemical names that would produce a search result with data records for multiple non-relevant chemicals.

Pesticides: Pesticides are usually found by typing the common synonym name or trade name. Chemical CAS Registry numbers may also be located in chemical company catalogs or other chemical indexing resources. If you are unsure of a CAS Registry number or chemical name, you should use the Browse Chemicals Index to search on chemical names or fragments of names.

Test Results Searching

For each toxicity test record, pertinent information on test results presented by the authors are encoded within the database. This web page contains search selection boxes related to test results for endpoints and effects.

Browse Effects Index (Advanced query only)

The browse ECOTOX Effects Index is used to search and review Effect Measurements in the ECOTOX Knowledgebase by Effect group or text search. A link to the ECOTOX Code List is also available to review for effect measurement codes or definitions.

If you select Browse Effects, the system will prompt you to enter the Advanced Database Query, unless you have already completed this step.

You can search by selecting Effect(s) and/or entering a search term. To select more than one effect, hold the control key down while making additional selections. If you select an Effect and enter a search term the two terms will be searched together. Once you are satisfied with your entries, select Browse.

This will populate the Filtered Measurements Box in the full text format of Effect - Measurement. Note that your search terms will appear in parenthesis behind the header. From this box, you can review and make specific selections to be used to populate the Advance Query. You can add individual or all entries by using the 'Add' or "Add All" to move entries to the Selected Measurements for Query box. Entries can be removed from the Selected Measurements for Query using the 'Remove' and 'Remove All' buttons. To select multiple entries you can hold the control key down and make additional selections.

If you are satisfied with selections added to the Selected Measurements for Query box, these can be added to the Final Measurement Codes for Advanced Query box by using the 'Select Effects' or 'Select All'. Once effects have been added to the Final Measurement Codes for Advanced Query box, new searches can be completed to add additional Effect Measurements for the query.

Once you have completed browsing for Effect Measurements, select the 'Submit to Advanced Query' to move your selections to the Advanced Query. Your selections will be entered into the Selections from Browse Effects box. Note that if any additional edits to Effects and Effect Measurements are made in the advanced query, the Selections from Browse Effects is not modified.

To locate the abbreviations or definitions of specific codes, open the ECOTOX code list and search for the specific code.

Endpoint

The default within the ECOTOX Knowledgebase is that all endpoints are selected for searching. Endpoint information is coded if it is reported by the author. For the purposes of ECOTOX, an endpoint is defined as the quantification of an observed effect obtained through statistics or other means of calculation for the express purpose of comparing equivalent effects (e.g., LC50). Many terrestrial plant tests do not have associated endpoints. Prior to 1996, the terrestrial plant database (PHYTOTOX) structure allowed only results based on percent change from control.

Quick Database Query: Within the Effect Measurements box, you can select the data to include by selecting one or more of the of the checkboxes:

Endpoint Not Reported (NR); data not statistically analyzed

Statistics, No Endpoint; statistically analyzed data but authors did not identify a specific endpoint or one could not be determined by ECOTOX staff

Endpoints Reported; statistically-derived, or calculated results (e.g., LC50) as reported by the author or determined by the ECOTOX staff

To conduct a search on a specific endpoint you must go to the Endpoint search, under Test Results page, in the Advanced Database Query.

Advanced Database Query: Within the Endpoints box on the Test Result query page, you can click on one or more endpoints within the checkbox to select endpoints to include in your query. The Endpoint selection box is divided into the following five sections:

Concentration-Based Endpoints; statistically-derived, or calculated as reported by the author or determined by the ECOTOX staff, i.e. LC/LDxx, EC/EDxx, IC/IDxx, BMC/BMDxx, LOAEC/LOAEL, NOAEC/NOAEL, MATC, LETC/ATCN, LETH, ZERO

Time-Based Endpoints; statistically-derived, or calculated as reported by the author or determined by the ECOTOX staff, i.e. LTxx, ETxx, T ½

Bioaccumulation / Bioconcentration factor; statistically-derived, or calculated as reported by the author or determined by the ECOTOX staff, i.e. BCF, BCFD, BAF, LRxx, ERxx, LOER, NOER, MATR

Statistics, No Endpoint; statistically analyzed data but authors did not identify a specific endpoint or one could not be determined by ECOTOX staff

Endpoint Not Reported (NR); data not statistically analyzed

Effect Measurements (Advanced Query Only)

The default within the ECOTOX Knowledgebase is that all effects are selected for searching. For ECOTOX Knowledgebase purposes, effect is defined as the observation of a response resulting from the action of a chemical stressor (e.g., mortality). Currently ECOTOX requires that effect information be provided by the author(s) in order for the test to be included in the ECOTOX Knowledgebase, but historically studies with calculated endpoints that did not clearly define the observed effect were included in the database (e.g., EC50 presented, but observed effect not clearly identified). All effects are categorized into one of 11 major effect groupings:

- **Accumulation**
- **Behavior**
- **Biochemical**
- **Cellular**
- **Ecosystem**
- **Growth**

- **Mortality**
- **Physiology**
- **Population**
- **Reproduction**

Endpoint Not Reported: You can conduct a search on one or more group effects in both the Quick and Advanced Database Query. To refine your search to include specific effects or effect measurements, you must go to the Effect Measurement search within the Advanced Database Query and select the desired effect(s).

Each effect includes a list of observed measurements. For instance, the Effect Group *biochemical* includes three effect categories: *biochemical*, *enzyme*, and *hormone*. Within each of these effects there are multiple measurements. For example, within the effect *enzyme*, using the Advanced Database Query, you could select to search on results associated with the measurement of a specific enzyme such as *estradiol sulfotransferase*.

Use Browse Effects or the ECOTOX Code List (PDF) located in the “Starting Out” section of the Help Center in order to identify Effect Groups and associated effect measurements. Also, within the Effect Measurement search window, you can view the expanded list of measurements for selected effects or effect groups by clicking on the View/Edit Effect Measurement.

Effect Group: The ECOTOX Knowledgebase categorizes all observed effects under at least one of ten major effect group codes (accumulation, behavior, biochemical, cellular, growth, mortality, physiology, population, reproduction, and ecosystem). The option to select based on an effect group is available in both the Quick Database Query and Advanced Database Query. A limited number of test records report calculated endpoints, but the authors do not specifically state the observed effect. These records are included in the “No Effect Group.” By clicking on the major effect group box, you select all effects under that grouping. To select an individual effect, click on the appropriate effect selection box. To remove any selection, click on the selected checkbox.

Effect Measurement (Advanced Database Query only): For further refinement of observed effect information, you may click on the View/Edit Effect Measurement button located at the bottom of the Effect Measurement selection box. A new window will open and display the list of specific measurements for each of the selected effect(s) and/or effect group(s). Measurements include quantitative observations that describe and evaluate biological responses to toxicants. Each effect (e.g., Growth) can have several associated measurements (e.g., length, weight). The ECOTOX Code Appendix located in the “What is..” section of the Help Center web page provides definitions of the effect measurement codes used in ECOTOX.

The View/Edit Effect Measurement window allows you to view and edit effect measurements to include in your search for each effect and/or effect group. To remove a specific measurement, highlight the measurement in the list by clicking on it, and click on the Remove button. Removing Effect Measurements are limited to 1200 terms. You may select more than one measurement at a time by holding down your Ctrl key and using your mouse to move up or down the list and clicking on Remove button. You may restore measurements by clicking on the Restore default button. If you do not edit any of the measurements, a search will be conducted on all measurements i.e., those associated with

effects and/or effect groups you have previously selected. When you are done, you may click on the Finish Editing button and this will close the window and return the Test Results page. If you click on your browser “Back” button, your edits will not be saved.

Recovery Results: Within the Effect Measurements menu (Advanced Database Query) the ‘Include Recovery Results’ option allows you to include in your search results responses observed during a post exposure period. This is only available for aquatic test results. If you select to search on a specific effect group or effect and do not select to include the recovery results, your ECOTOX search results will only include effects observed during the direct exposure period of the study. Recovery results are indicated in the aquatic report by the placement of a tilde(~) character before the effect code (e.g., ~MOR).

If within the Quick Database Query you select an effect group, your results will include any recovery results associated with the specific query. The default in both the Advanced and Quick Database Query is to include all recovery results if no effects data are selected.

Test Conditions Searching (*Advanced Query Only*)

For each toxicity test record, pertinent information on testing procedures presented by the authors are encoded within the database. Search selections available on this page are test location, exposure media, exposures type and method of chemical analysis.

The options for searching by test conditions are briefly described below. These options are only available in the Advanced Database Query.

Test Location

The valid entries for test location are Lab (laboratory), Field (all outdoor field tests, artificial, natural or undeterminable) and Not Reported (i.e., the author(s) did not present sufficient information to determine test location). The default within ECOTOX is that all data, regardless of test location, are included in your search result. To selectively search on a specific test location, click to mark the appropriate checkbox.

Exposure Media

The default within ECOTOX is that all data, regardless of test media, are included in your search result. To selectively search on a specific exposure type, click to mark the appropriate checkbox.

Aquatic freshwater tests include those conducted in freshwater, reconstituted water, distilled water, or tap water. Saltwater tests include those conducted in natural or artificial seawater, brackish water, or estuarine water. Not Reported (NR) is used if a determination cannot be made regarding the use of either freshwater or saltwater.

Terrestrial exposure media selections are focused on tests using a substrate (e.g., soil or artificial media). If the terrestrial organism does not utilize a substrate for nutrition (e.g., birds, mammals), do not select any exposure media types.

Exposure Type

You can select the exposure type by clicking the items in the search selection box area. Organisms are typically exposed to toxicants through aqueous, diet, injection, topical or environmental routes. Occasionally, an exposure may be through multiple routes (e.g., such as topical and oral).

ECOTOX includes chemical exposures on whole living organisms. *In vitro* assays are not included. The terrestrial plant database contains some studies using excised organs and cell cultures from plants, but these types of studies are not actively coded at this time.

Control (Advanced Query Only)

Control Type allows you the capability to filter out test records based on whether or not the authors reported test control types as well as being able to select specific control type(s).

You can select All Controls or Controls Not Reported. Individual control types may be selected by choosing the appropriate check box(es) from the following options:

All Controls

ECOTOX Control Types

- Baseline (B) - parameters measured before administration of test chemical
- Concurrent (C) - run simultaneously with the exposure
- Historical (H) - data collected often during a long-term survey of the area
- Multiple (M) - multiple type of controls reported, noted individually
- Other (O) - control is run in a different system than exposures
- Positive (P) - an exposure that causes a desired effect in the experiment
- Solvent (V) - exposed to carrier or solvent only
- Undefined (K) - control is presented but without accompanying methodology

Historical ECOTOX Control Types

- Insufficient (I) - not enough information presented to determine control type
- Multiple Controls (OK) - multiple type of controls reported
- Satisfactory (S) - run in the same system, low mortality
- Unsatisfactory (U) - chemical entered control, high mortality

Control Not Reported

- No Control Used (Z) - author stated no control used
- Not Coded (NC) - was not coded

- Not Reported (NR) - was not reported

Chemical Analysis

The method of chemical analysis allows you to filter out test records based on whether or not the authors reported chemical concentrations as measured or nominal values. Select the appropriate checkbox from the following options:

Measured: Exposure and/or observation concentrations or doses are quantitative; analysis methods may be reported.

Unmeasured: Exposure and/or observation concentrations or doses are clearly identified as nominal values; or when the author does not report whether the concentrations were measured or nominal, i.e., unmeasured is used as a default value when there is no information provided about the reported chemical concentrations.

Not Reported: Exposure and/or observation concentrations or doses are not reported.

Publications/Update

Publication Year(s)

The default within the ECOTOX Knowledgebase is that all data, regardless of publication year, are included in your search result. You may override the default publication year search by selecting a range of publication years. You should enter the bordering inclusive years of your range in the “Starting Year” and “Ending Year” boxes (e.g., 1994 through 1998).

The aquatic component of ECOTOX contains data from publication years 1915 to present; the terrestrial component of ECOTOX contains data from publication years 1926 to present.

Author(s) (*Advanced Query Only*)

You may conduct searches on specific authors. To search on an author, enter the specific author names in the selection box, one author per line followed by a carriage return.

Partial author names may be used when the Contains or Starts With radio button is selected. The Exact Match selection is used when you want only the exact text entered to be searched. For Authors, the Exact match must contain the name and initials of the author you are looking for in the following format, without spaces, Name,I.I., e.g. Cope,O.B.

Only authors which have data encoded in the ECOTOX Knowledgebase are returned.

Browse Author Index: Within the Authors Entry box is a link to the Browse Authors Index. By clicking on the Browse Authors Index hotlink above the search box, you will open to access to the ECOTOX author information file. This can assist you in planning your author search strategy by allowing you to enter different terms, or sub-strings to determine whether or not your author has data the ECOTOX Knowledgebase and what other authors will be

included if your sub-string is used. Authors retrieved from the browse function may be directly imported into your search by selecting the Go to the Advanced Query page button.

Reference Number (*Advanced Query Only*)

You may conduct searches on specific ECOTOX reference numbers. Each publication abstracted for the ECOTOX Knowledgebase effort is assigned a unique reference number. These reference numbers appear in all default ECOTOX outputs. To conduct a search, enter a valid ECOTOX reference number(s) in the selection box, with one reference number per line followed by a carriage return.

Independently Compiled Data (*Advanced Query Only*)

ECOTOX includes several independently compiled data sets. Data sets from the Organization for Economic Cooperation and Development (OECD), Russia, Office of Pesticide Programs, the U.S. Geological Survey, and MED are included as subsets of the ECOTOX Knowledgebase. For further information on these data files, refer to Appendix F. The ECOTOX default is that all data sets are included in your search result. You may override the default and restrict your search to only data sets checked in your selection box.

Recent Modifications and Additions (*Advanced Query Only*)

You may restrict your to data records to newly updated or modified data. The Recent Modifications/Additions search box allows searches based on the last ten database updates, which typically span two-three years. This feature is useful if you have a specific query (e.g., list of species and/or chemicals) that you conduct on a regular basis. The default within ECOTOX is that all data, regardless of the date they were added to ECOTOX, are included in your search result.

REPORT FORMAT

Within the Quick Database Query you can select different output formats; specifically a tabular browser viewable format, full data record, MS Excel spreadsheet, or delimited file format (use to import data into spreadsheets or databases). Under the Advanced Database Query, along with selection of different report formats, you can change the sort order of a report and add or remove data fields presented.

Report Format Options

Four output options are available; tabular report (multiple page format), MS Excel spreadsheet, Full Data Record and exporting to a delimited data file. The default format for aquatic reports is set to interactively view the output in the multiple page Tabular Output format. The default format for the terrestrial report is to view the output in the multiple page Full Data Record. By clicking on the “View Sample” icon in the upper right corner of each box listing the report format, you can see an example of what the resulting output.

Once the search has been implemented, a separate browser window will be opened for display of your search results. Each data field in the delimited file format is separated by the '|' character (usually located on the \ key). Delimited ASCII files can be saved to your hard drive and uploaded into your local spreadsheet or database software. You should close the search results window when you are finished downloading or viewing the report.

	Aquatic	Terrestrial	
Customizable Tabular Output	<input checked="" type="radio"/>	<input type="radio"/>	Browser Viewable: View Sample (5,000 record limit)
	<input type="radio"/>	<input type="radio"/>	Excel Format View Sample (5,000 record limit)
	<input type="radio"/>	<input type="radio"/>	Delimited View Sample (10,000 record limit)
Full Data Record	<input type="radio"/>	<input checked="" type="radio"/>	Browser Viewable: View Sample (500 record limit)

[Edit/View Aquatic Sort/Display](#)
[Edit/View Terrestrial Sort/Display](#)

Tabular Output (Browser Viewable)

The browser viewable table (aquatic data default) presents your search results on a multi-page format that may then be viewed, printed or saved to a file using the File menu option on your browser. Once ECOTOX has generated a report, the first page of your output always displays below the report header information. At the top of each report is contact information for the ECOTOX support staff, date of the search, number of records in the report, and the number of separate browser window pages. The last page of the report will be citations for the references associated with the data records.

The browser viewable report has set default output fields. Appendix G provides an example default Browser Viewable tabular output for aquatic data. You may modify the output fields in the Advanced Database Query (see below).

If the author did not report data for a database field, the browser report will display a blank field. Definitions for all codes presented in the report can be found in the ECOTOX Code List located on the “Starting Out” section of the Help Center.

Navigating within the Report: You can move through the report in a number of ways. To view within a page, use the scroll bar on the right side of the window. String searches may also be performed by clicking the Web browser software Edit menu on the top browser window Tool bar and using the Find In Page option. To move from one page to another page of the report, use the numbered hyperlinks located at the top or bottom of each report page.

You can view the full data record by clicking on the View Details hotlink located in each table row. This provides all data fields coded in the ECOTOX Knowledgebase for the particular data record, including any comment fields. For descriptions of abbreviations that appear in the comment field see Appendix H.

Printing and Saving a Report: To print a report, select the browser File menu and select the Print option. To save the report as a file, use this same File menu and choose the Save As option. It should be noted that each page identified in the browser window may actually contain several printable pages (e.g., page 1 when printed may result in 18 printed pages). Additionally, you must click each page identified in the browser window in order to view, print or save all downloaded records.

The ECOTOX software cannot control your web browser print function and field width. Successfully printing output is dependent upon your web browser preferences and/or your printer capabilities. These options can help to fit your report on a printout:

- Reduce your web browser font size.
- If your report width is wider than a portrait page size, you can modify your web browser print option to a landscape orientation
- Some web browsers have a Print Preview option for use in viewing the actual look of the output.
- You may want to consider using the delimited file option, then merging/adjusting the columns or selecting fewer output fields.

- If you are using Internet Explorer, choose *View->Fonts->Smallest* from the menus and then print in landscape mode. This will work for very wide reports. Note that Netscape allows you to reduce the font size as well, but when it prints it reverts to the original font size and truncates the right side of the report.
- Some printers have advanced settings available from the print window that allows you to "scale" the print image. If this feature is available, try different values to determine which one works best for your reports.
- Save the browser report as an "-htm" file and open it with a word processing application where the font size can be reduced and column sizes adjusted.

Microsoft (MS) Excel

If you are using a version of Excel prior to Excel 2007 and select most or all of the data fields for the Excel report or Delimited report and import the data into Excel, the data may be truncated due to Excel limitations. Excel 2007 and more current versions allow 16,384 columns by 1,048,576 rows while earlier versions of Excel only allow 256 columns by 65,536 rows.

The option allows you to save or view your report in an MS Excel format. The tabular output is similar to the browser viewable table. However, each field will be separated into unique columns presented in a single row.

When you retrieve the results of your search in a delimited format a message box will appear on your screen. If you already have an MS Excel Plugin installed, the report should automatically load. If you do not have an Excel Plugin or want to save the file, select 'Save File' and a 'Save As' window will appear. Select the appropriate directory on your hard drive and type in your desired filename.

The first row of the MS Excel spreadsheet presents coded versions of the data field identifier. Appendix I provides a key to the field's identifiers. For MS Excel reports, the Reference Citation field will appear in the separate delimited fields (Reference Number, Author, Title, Publication Year and Source).

The MS Excel spreadsheet format has set default output fields. To see an example of the MS Excel format click on the View Sample button associated with the MS Excel output in the Report Format box. You may modify the output fields in the Advanced Database Query (see below).

If the author did not report data for a particular parameter, the MS Excel spreadsheet will have an NR (not reported) in the data field. There may be single quotes (') contained in various cells. This is to facilitate the export of hyphenated text. Definitions for all codes presented in the report can be found in the ECOTOX Code List located on the "Starting Out" section of the Help Center.

Delimited Output

If you are using a version of Excel prior to Excel 2007 and select most or all of the data fields for the Excel report or Delimited report and import the data into Excel, the data may be truncated due to Excel limitations. Excel 2007 and more current versions allow 16,384 columns by 1,048,576 rows while earlier versions of Excel only allow 256 columns by 65,536 rows.

This option allows you to generate an ASCII delimited data file of your search results. The exported data file may be imported into spreadsheet or database software for use on your personal computer system. Each data element is separated into a unique field, and each test record appears on a single line. For delimited reports, the Reference Citation field will appear in the separate delimited fields (Reference Number, Author, Title, Publication Year and Source).

When you retrieve the results of your search in a delimited format a message box will appear on your screen. Select 'Save file.' A 'save as' window will appear. Select the appropriate directory on your hard drive. You may change the file name at this time.

Each field in the delimited file report will be separated by a vertical bar ("|"). Using the vertical bar as a delimiter between fields is typically not the default method supported by applications that import data (e.g., spreadsheets) and hence you may have to specify the vertical bar as the delimiter when you import the data. The vertical bar key is usually located on the same key as the "\" (backslash) character on most keyboards, and may appear as two shorter vertical lines with a gap between them.

To import a delimited file into a Microsoft Excel spreadsheet, you should do the following:

1. Start the Spreadsheet
2. Go to the menu choice File->Open
3. Change the file types to "All file types (*.*)"
4. Select the file
5. Choose a delimited file format
6. Choose a vertical bar (|) as the field delimiter
7. Click Finish

Your file should now be imported into a spreadsheet for your analysis. A forward slash (/) within a field refers to an associated comment. You can select comment fields in your output to help interpret unique test conditions. For a complete understanding of the toxicity study, you will need to obtain the full publication.

The first row of the delimited output presents coded versions of the data field identifier. Appendix I provides a key to the field's identifiers.

The delimited tabular output format has set default output fields. To see an example of the delimited output format click on the View Sample button associated with the output in the Report Format box. You may modify the output fields in the Advanced Database Query (see below).

If the author did not report data for a particular parameter, the delimited output will have an NR (not reported) in the data field. Definitions for all codes presented in the report can be found in the ECOTOX Code List located on the “Starting Out” section of the Help Center.

Full Data Record

The browser viewable Full Data Record (terrestrial data default) presents your search results on a multi-page format that may then be viewed, printed or saved to a file using the File menu option on your browser. At the top of each report is contact information for the ECOTOX support staff, date of the search, number of records in the report, and the number of separate browser window pages. Once ECOTOX has generated a report, the first page of your output always displays below this information. The last page of the report will be citations for the references associated with the data records.

You can also view the full record format by clicking on the View Details hotlink located in each table row to see an example of each format before selecting. This provides all data fields coded in the ECOTOX Knowledgebase for the particular data record, including any comment fields. For descriptions of abbreviations that appear in the comment field see Appendix H.

Full record display fields cannot be modified. The sort order may not be modified using the Advanced Database Query (see below).

Sort Order (*Advanced Query Only*)

The data are sorted within the aquatic and terrestrial reports in a predefined way. For the aquatic and terrestrial outputs, the default sort order is Chemical (CAS#), Species Group, and Reference Number.

You can change the sort order by selecting the report format you want and clicking on the View /Edit Aquatic or Terrestrial Options on the Report Format page. Remember, the Sort Order does not change the data; it just changes the order in which the data appear in the report. Use the three sort order drop-down lists to select alternate sort order for Aquatic or Terrestrial output. When you have completed your selections, press the Finished Editing button at the bottom of the Output Selection box.

If you require a more specific sort option, download your search in a delimited file format and transfer the file into a spreadsheet or database on your computer and use your software to sort the data.

Display Fields

Default Select data parameters are presented in the default versions of the aquatic and terrestrial tabular reports (i.e., Browser Viewable, MS Excel, and Delimited). You can change the display fields for tabular, MS Excel, and delimited outputs by selecting the report format you want and clicking on the View /Edit Aquatic or Terrestrial Options on the Report Format web page. Full Data Record outputs cannot be modified.

Within the Aquatic or Terrestrial Output Selection box web page, the complete list of data fields coded within the ECOTOX Knowledgebase are displayed. A checkmark appears in data fields that are displayed in the default output format. See Appendix G for a sample of the default reports. To remove a selected data field, click on the checked box. To add a data field, click on the checkbox and add a checkmark. The report width displayed in browser viewable tabular reports is defined by the data fields and the Web browser settings selected, so carefully modify the output fields to fit within your preferences.

If you have selected fields to sort on, the system will automatically select these as fields to display in your report, even if you have not selected them.

Some display files are comments with header codes followed by a slash (/) (e.g., Exp Type/). The definitions for these comment header codes and descriptions are found in Appendix H.

PERFORM QUERY

Review Query (Advanced Query Only)

Before conducting a search using your search criteria, you may want to review your search strategy. Click on the Review Query under the Key Function area at the top of the Advanced Database Query page. For documentation purposes, you may want to print the Review Query information and attach it to the reports that are generated using the search criteria.

Restore Defaults

This Restore Defaults button will clear the search criteria and restore the report format to its original default selections.

Perform Query on Aquatic Data / Perform Query on Terrestrial Data

Click the “Perform Query on Aquatic Data” or “Perform Query on Terrestrial Data” button when you are ready to initiate your search strategy and create a report/output. While the system is performing the database search, a separate window is created indicating that an ECOTOX Knowledgebase search is generating. When the search is complete, the appropriate results (report contents or data file name) for aquatic or terrestrial report(s) will appear in this window. Information about how to retrieve your output will display:

- The report will generate momentarily...
- The report may span more than one page; click on the 'Next' or page number buttons to move through the output.
- Close the search results window before conducting a new search.
- If the number of retrieved records is too large, a report will not be presented.
- There is a maximum number of 5000 tabular records that can be retrieved in one search. The Delimited and MS Excel exports will retrieve up to 10,000 records.

If the number of records is larger than you would like to view, you may close the report window and return to the ECOTOX Knowledgebase window to refine your search strategy.

Once you have completed your search, and closed the report window, you will be returned to the ECOTOX Knowledgebase window. The search strategy will remain intact, so you may go back and refine your search if you wish. If you want to conduct another search, you may clear the search by clicking the 'Restore Defaults' button in the Key Function area at the top of the search window.

EXITING ECOTOX

Exiting your Web browser or visiting another Web site will leave the program. Exiting the Web browser will not save your search strategy.

APPENDIX A: ECOTOX SEARCH PLANNING FORM

Use this form to help plan your searches or to document searches for yourself or others to perform.

Species

Scientific Names/ Taxonomic Levels	Common Names	Species Numbers	Predefined Taxonomic Groups
			<input type="checkbox"/> All Animals <input type="checkbox"/> Amphibians <input type="checkbox"/> Insects/Spiders <input type="checkbox"/> Molluscs <input type="checkbox"/> Birds <input type="checkbox"/> Other Invertebrates <input type="checkbox"/> Reptiles <input type="checkbox"/> Crustaceans <input type="checkbox"/> Mammals <input type="checkbox"/> Worms <input type="checkbox"/> Fish <input type="checkbox"/> All Plants <input type="checkbox"/> Algae, Moss, Fungi <input type="checkbox"/> Flowers, Trees, Shrubs, Ferns Special Interest <input type="checkbox"/> Standard Test Species <input type="checkbox"/> U.S. Threatened and Endangered Species <input type="checkbox"/> U.S. Exotic/Nuisance

Chemicals

Chemical Names	CAS Numbers	Predefined Groups
		Metal Compounds <input type="checkbox"/> Aluminum <input type="checkbox"/> Antimony <input type="checkbox"/> Barium <input type="checkbox"/> Beryllium <input type="checkbox"/> Cadmium <input type="checkbox"/> Cobalt <input type="checkbox"/> Copper <input type="checkbox"/> Organotin <input type="checkbox"/> Iron <input type="checkbox"/> Lead <input type="checkbox"/> Manganese <input type="checkbox"/> Nickel Organic Compounds <input type="checkbox"/> DDT and metabolites <input type="checkbox"/> Dibenzofurans <input type="checkbox"/> Glycol Ethers <input type="checkbox"/> Nitrosamines <input type="checkbox"/> Phthalate Esters <input type="checkbox"/> Polyaromatic Hydrocarbons (PAHs) <input type="checkbox"/> Polychlorinated Biphenyls (PCBs)

Chemical Names	CAS Numbers	Predefined Groups
		<input type="checkbox"/> Selenium <input type="checkbox"/> Silver <input type="checkbox"/> Vanadium <input type="checkbox"/> Zinc

Test Results

Endpoints: _____

Effect Groups:

Accumulation Mortality

Behavior Physiology

Biochemical Population

Cellular Reproduction

Growth Ecosystem

Specific Effect Measurements _____

Include Recovery Results (for aquatic data)

Test Conditions

Test Location(s):

Lab All Field Tests

Field Artificial

Field Natural

Field Undeterminable

Exposure Media:

WATER: Freshwater Saltwater Unknown

SOIL: Artificial Humus Litter Manure Mineral Soil Mixture Natural Soil

Unspecified Soil

ARTIFICIAL: Hydroponic Other No Substrate

Exposure Type:

Diet Flow-through (aquatic)

Injection Leaching (aquatic)

Topical Intermittent (aquatic)

Environmental (terrestrial) Renewal (aquatic)

Multiple Entry (terrestrial) Static (aquatic)

Tidal (outdoor aquatic)

Lentic (outdoor aquatic)

Lotic (outdoor aquatic)

Chemical Analysis: Measured Unmeasured Not Reported

Publications

Publication Years: _____

Reference Number(s): _____

Update Dates: _____

Report Format

Browser Viewable Tabular Report - Multiple viewable pages

Browser Viewable Full Record

MS Excel

Delimited Report - used for importing into other software applications (e.g. Excel, Lotus etc.)

Sort Fields: 1) _____ 2) _____ 3) _____

Field Output Selections: Standard default output elements are listed in bold. Some aquatic output options are available for Field Data only, and are indicated by (Field Data Only). Modifications to report options are only available in the Advanced Database Query.

Aquatic Output Elements (default report items are in bold)	Terrestrial Output Elements (default for browser viewable or delimited are in bold) (modify for delimited output only)
<input type="checkbox"/> Test Location	<input type="checkbox"/> Application Frequency
<input type="checkbox"/> CAS Number/Chemical Name	<input type="checkbox"/> Basis of measurement (wet/dry)
<input type="checkbox"/> Scientific Name/Common Name	<input type="checkbox"/> CAS Number
<input type="checkbox"/> Endpoint	<input type="checkbox"/> Chemical Analysis Method
<input type="checkbox"/> Effect	<input type="checkbox"/> Chemical Name
<input type="checkbox"/> Trend	<input type="checkbox"/> Chemical Comment
<input type="checkbox"/> Exposure Type	<input type="checkbox"/> Chemical Formulation
<input type="checkbox"/> Exposure Duration	<input type="checkbox"/> Chemical Grade
<input type="checkbox"/> Media Type	<input type="checkbox"/> Chemical Purity
<input type="checkbox"/> Concentration Type	<input type="checkbox"/> Concentration/Dose
<input type="checkbox"/> Concentration/Application Rate (Field Data only)	<input type="checkbox"/> Control Type
<input type="checkbox"/> Application Type (Field Data Only)	<input type="checkbox"/> Dose Number
<input type="checkbox"/> Application Frequency (Field Data Only)	<input type="checkbox"/> Dose Statistical Method
<input type="checkbox"/> Application Season/Date (Field Data Only)	<input type="checkbox"/> Effect
<input type="checkbox"/> Significance/ Level	<input type="checkbox"/> Effect Measurement
<input type="checkbox"/> Response Site	<input type="checkbox"/> Endpoint
<input type="checkbox"/> Reference Number	<input type="checkbox"/> Exposure Dose
<input type="checkbox"/> Application Rate (Field Data Only)	<input type="checkbox"/> Exposure Duration
<input type="checkbox"/> Alkalinity	<input type="checkbox"/> Exposure Number
<input type="checkbox"/> BCF Value	<input type="checkbox"/> Exposure Comment
<input type="checkbox"/> Chemical Analysis Method	<input type="checkbox"/> Exposure Type
<input type="checkbox"/> Chemical Comments	<input type="checkbox"/> Gender
	<input type="checkbox"/> Ionic Fraction

<p>Aquatic Output Elements (default report items are in bold)</p>	<p>Terrestrial Output Elements (default for browser viewable or delimited are in bold) (modify for delimited output only)</p>
<p>___ Comments ___ Control Type ___ Effect % ___ EE Comment ___ Experimental Design ___ GEO Code (Field Data Only) ___ Geographic Location (Field Data Only) ___ Habitat Code ___ Habitat Description (Field Data Only) ___ Hardness ___ Ionic Fraction ___ Test Number ___ Longitude/Latitude (Field Data Only) ___ Organic Carbon ___ Organic Carbon Type ___ Organism Comment ___ pH ___ Publication Year ___ Reference Citation ___ Salinity ___ Species Number ___ Species Taxonomic Information ___ Study Type ___ Substrate Code (Field Data Only) ___ Temperature</p>	<p>___ Lifestage ___ Media Type ___ Observation Duration ___ Observed Response ___ Organism Age ___ Organism Comment ___ Organism Source ___ Publication Year ___ Reference Citation ___ Reference Number ___ Response Site ___ Result Comment ___ Result Percent Lipid ___ Result Percent Dry/Wet Weight ___ Result Record Number ___ Result Statistical Method ___ Reviewer Assigned Endpoint ___ Sample Number ___ Significance/ Level ___ Soil Cation Exchange Capacity ___ Soil Concentration Measured ___ Soil Moisture ___ Soil Organic Matter ___ Soil pH ___ Soil Clay % ___ Soil Sand % ___ Soil Silt % ___ Species Common Name ___ Species Scientific Name ___ Species Number ___ Species Taxonomic Information ___ Study Duration ___ Test Comment ___ Test Location ___ Test Number</p>

APPENDIX B: PRACTICE SEARCHES

These examples are for you to try in the Advanced Database Query pages. After each example search, remember to click on “Restore Defaults” before proceeding to the next search.

“ xxx “ text in quotes are for navigation menu/screen selection names

BOLD text is your text entry or search selection (radio button, checkbox, text entries)

Example A

You want to locate all reproductive effects data for nickel compounds. You want to include the specific reproductive effects were measured.

1. Click on “Chemicals” from the menu. Scroll down to “Predefined Chemical Lists”. Select **Nickel** checkbox from the metal compound list,
2. Click on “Test Results” from the menu. Scroll to the Effects list. Click on Group Effect **REPRODUCTION**.
3. For Aquatic data display, click on menu item “Report Format”. Scroll down and click on the “Edit/View Aquatic Sort/Display”. On the aquatic display field list, click on **EE COMMENT** checkbox to add this field to your output. (Note: The Terrestrial default full data will display the specific measurement in the report.)
4. Click on **Perform Query for Aquatic Data** button for aquatic data. Click on **Perform Query for Terrestrial Data** button for terrestrial data.

Example B

You want to locate LC50 data on freshwater organisms exposed to malathion.

1. Click “Chemical” menu. Type in CAS Number: **121755** or **Malathion** in the “Chemical Entry” selection box.
2. Click “Test Results” menu. Within the “Endpoint” menu, select **LC50/LD50** checkbox.
3. Click “Test Conditions” menu. Scroll down to the “Exposure Media” selection box and click on the **FRESHWATER** checkbox.
4. Click on **Perform Query for Aquatic Data** button.

Example C

You want to locate recently published, lethality endpoint only studies on Daphnia magna.

1. Click “Taxonomic” menu. Type in **DAPHNIA MAGNA** and click on the **Genus/Species Name** radio button.
2. Click on “Test Results” tab from the menu. Within the “Endpoint” selection box, select the **Check All Endpoints** checkbox.
3. Scroll down to the “Effects” selection area and click on the **MORTALITY** Effect Group checkbox.
4. Click on “Publications/Updates” menu. Within the “Publication(s)” selection box, select **2000** from the first drop down list and select **2007** from the second drop down list.
5. Click on **Perform Query for Aquatic Data** button.

Example D

You want to locate toxicity data for amphibian tests performed in an outdoor location. You would like to move these data records into your own database.

1. Click on the “Taxonomic” menu. Scroll down to the “Predefined Taxonomic Group and check the **Amphibians** checkbox.
2. Click on the “Test Conditions” menu. Within the “Test Location” area, select the checkbox **ALL FIELD TESTS** from the list.
3. Click “Report Format” menu. Click on the **DELIMITED REPORT** option for both aquatic and terrestrial.
4. Click on **Perform Query for Aquatic Data** then **Perform Query for Terrestrial Data** buttons. Note: If you only want larval aquatic lifestage, search on aquatic database; adult terrestrial lifestage search on terrestrial database.

Example E

You want to locate data on terrestrial Standard Species data that are in the EPA Office of Pesticide Products Database. An Excel output is preferred to sort the various fields of interest.

1. Click on “Publications/Updates” menu. Scroll down and select the **EPA Office of Pesticide Products Dataset** checkbox within the “Independently Compiled Data” selection box.

2. Click on “Taxonomic” menu. Scroll down to “Predefined Taxonomic Group”. Select **Standard Species**.
3. Click “Report Format” menu. Click on the **Excel Format** radio button under the terrestrial column.
4. Click on **Perform Query for Terrestrial Data** button.

APPENDIX C: ECOTOX KNOWLEDGBASE OVERVIEW

Data Sources

The primary source of toxicity effect information in ECOTOX is the peer reviewed literature. Pertinent literature is identified through online computerized searches of the international literature. The computerized searches were initiated with the 1970 publication year and continue through to the present. Comprehensive searches are designed to include the effect of nearly all toxic substances on aquatic and terrestrial organisms within the scope of each ECOTOX Knowledgebase systems' guidelines. Commercial literature sources are continually evaluated for relevance to the ECOTOX literature searches. The search strategy is evaluated regarding the success ratio of each search. Additional literature sources include abstract journals, review bibliographies, and the EPA MED library collection.

The abstracts obtained through computerized searches of abstracting databases are screened to identify toxicity references applicable to aquatic and terrestrial habitats. Those references pertinent to one or more of the databases are acquired through a variety of literature acquisition procedures such as author reprint requests, inter-library loans, and commercial sources. As the publications are received, a reference number is assigned for storage and retrieval purposes, and a final check for applicability and duplication is made. A bibliographic sub-file stores the citations and a reprint of each publication is archived.

Publications used in ECOTOX usually contain unique data. For various reasons authors may report the same data point in a number of publications. If the authors themselves cross-reference the data, ECOTOX codes the data only once and notes the cross-reference as part of the bibliographic citation. This type of cross-reference most frequently occurs in the publication of a thesis and subsequent journal articles. If the author does NOT acknowledge multiple publications of a single data point, it is likely this data point will occur in ECOTOX as multiple records, each with a differing citation. This type of publication occurs most frequently when data is published in different sources such as a textbook and also a journal article, an agency publication and a journal article, or a regional journal and an international journal.

Toxicity test data are included unless the data have been cited as published elsewhere. Data reported in review papers are abstracted from the original publication. International publications may be reviewed by ECOTOX staff if either an English abstract or a translated table of data is included. International cooperative efforts with the Organization for Economic Cooperation and Development (OECD) and Russia (Borok Institute) have been used to enhance review of the international literature.

Data obtained from independently compiled data files must meet the minimum data requirements and quality assurance guidelines defined for each ECOTOX Knowledgebase component. The key data fields that must be included are: test chemical name, test organism, test duration, effect, and effect concentration or application rate. Documentation describing the test methods must be provided within the publication. If tests are missing

key parameters, the data are rejected. No effort is made to locate unreported data (e.g., authors are not contacted, citations referring to methods used are not obtained). During the incorporation of an electronic data file, a quality assurance check of the CAS number, species scientific name, and reference citation is completed. Data files that have been included in the aquatic dataset are the [MED fathead minnow acute toxicity database](#) (Center for Lake Superior Studies; University of Wisconsin-Superior, 1984, 1985, 1986, 1988, and 1990), and data sets from France, Germany, the Netherlands and Russia. ECOTOX also includes the U.S. EPA OPP's Pesticide Ecotoxicity Database for both aquatic and terrestrial toxicity tests. Appendix F contains additional information and contacts for independently compiled data files.

Quality Assurance

Quality assurance procedures begin with literature acquisition and cataloging, and continue through the chemical and species verification, the literature review process, data entry, and data retrieval. The ECOTOX literature is encoded by trained document abstractors. An intensive training period, a well-documented manual (U.S. EPA 2009), and close interaction with the data coordinator help to ensure a high level of accuracy and consistency in the reviewing process. Ten percent of the publications are independently reviewed by two different reviewers. These reviews are compared and differences (if any) are documented, discussed, and resolved by the data coordinator.

Aquatic Data Elements

Aquatic data includes toxic effect results from exposures of single chemicals to aquatic organisms. Bioassays not included are water chemistry effects (e.g., pH), complex effluents, sediment studies that do not report a water concentration and chemical mixtures. If a publication contains data for a single chemical besides one of the above categories of toxicants, the paper is retained and only the single chemical data are used in ECOTOX. Test organisms are limited to those that are exclusively aquatic. Amphibian and insect data for purely aquatic life stages of the organism are included. Information and data for terrestrial life stages of these organisms is included in the terrestrial database. Classes of organisms associated with the aquatic environment (e.g., birds, mammals, reptiles) are coded in the terrestrial database. Microbial communities (bacteria and virus) are omitted from the aquatic database. Terrestrial plants tested in hydroponic or nutrient solutions are coded in the terrestrial database.

The data elements for each test are grouped by chemical, organism, exposure conditions, and effect endpoint. The test chemical parameters describe the toxicant, the associated CAS registry number, and the grade, purity and/or composition of the toxicant. The test organism parameters define the type of organism and the lifestage being tested. The test conditions identify the test water, test location, exposure type and duration, control parameters, and basic water chemistry. The effect endpoint parameters consist of a code to define the lethal, sublethal, or residue endpoint and the corresponding test chemical concentration.

Aquatic Effect Parameters

A separate line is coded for each effect or endpoint from either a unique experimental design or within one design scenario for statistically defined effects or endpoints. If no statistics are used to distinguish endpoints or effects and experimental designs are similar the data may be combined into one data record. Endpoints always require a discrete line. Effects lacking an author reported endpoint may be combined based on statistical representation by the author. Food chain effects are coded for organisms at the first level of exposure.

Toxicity test results are primarily reported for observations taken during the chemical exposure. However, when results are reported only for the period of time after the exposure, i.e. recovery or delayed effects, this type of result is noted by using a “~” in conjunction with the endpoint/effect code, e.g., ~MOR for a delayed mortality effect.

Terrestrial Data Elements

Toxicity data includes toxic effect results from exposures of single chemicals to terrestrial organisms. The terrestrial toxicity database includes individual dose response values, if reported. Only quantitative data are encoded from the publication, qualitative data are excluded. Graphical data may be coded as ranges and is reported by using <, > or ~ operators with the value.

Bioassays not included are contaminated soils, sediment studies and chemical mixtures. If a publication contains data for a single chemical besides one of the above categories of toxicants, the paper is retained and only the single chemical data are used in ECOTOX. Test organisms are limited to those that are exclusively terrestrial.

The data elements for each test are grouped by chemical, organism, exposure conditions, and effect endpoint. The test chemical parameters describe the toxicant, the associated CAS registry number, and the grade, purity and/or composition of the toxicant. The test organism parameters define the type of organism, organism source and the lifestage being tested. The test conditions identify the test location, exposure type and duration, control parameters, and basic soil parameters. The effect endpoint parameters consist of a code to define the lethal, sublethal, or residue endpoint and the corresponding test chemical concentration.

If the author does not report data for a terrestrial database field, the field will display a “NR” (not reported).

The terrestrial data identifies sources of alternative data (domestic, laboratory animal or plant toxicity and bioaccumulation information) when there is a paucity of information on wildlife species. Animals associated with the aquatic environment that breathe using lungs (e.g., ducks, whales) are included in the terrestrial database. Exposures to the aquatic life stages of amphibians and insects are included in the aquatic database.

Decisions regarding the inclusion of animal terrestrial species are based on published terrestrial wildlife toxicity standard methods and procedures documentation. The priority for the animal portion of the database is wildlife avian species, e.g. mallard, pheasant or bobwhite; mammalian species, e.g., meadow vole, deer mouse or mink; and beneficial invertebrate species, e.g., earthworm, honey bee, leafcutter bee or alkali bee. If data for other species including laboratory, domestic or non-beneficial organisms are reported in a publication, data for all test species are coded for ECOTOX

Terrestrial plant data includes native, crop, or weed species. Terrestrial plants tested in hydroponic or nutrient solutions are coded in the terrestrial database. Aquatic plant exposures are recorded in the aquatic database.

Test Identification

Test identification number is used to designate each unique test design. A unique test design may be characterized by a new test chemical, test species, test location, or exposure type. Additionally, there are experimental design parameters that will influence a test scenario sufficiently to warrant an independent test record. Such parameters include tests conducted at different test temperatures or conducted during different seasons.

References

Center for Lake Superior Environmental Studies, University of Wisconsin-Superior; 1984, 1985, 1986, 1988, and 1990. *Acute Toxicities of Organic Chemicals to Fathead Minnows (Pimephales promelas)*, Vol. 1-5. University of Wisconsin-Superior, Superior, WI.

U.S. Environmental Protection Agency. 2009. *MED Ecotoxicology Database Standard Operating Procedures* (prepared by Computer Sciences Corporation), Mid-Continent Ecology Division, Duluth, MN.

APPENDIX D: SPECIES AND CHEMICAL VERIFICATION

Species Verification

The test organism is identified by the current scientific name as verified in the taxonomic literature. For each species entry, the verified name, taxonomic kingdom, nomenclature history, and verification sources are kept on file for documentation purposes. A species number can be located using the species scientific name or common name. ECOTOX retains all species name synonyms that are no longer used for taxonomic classification. These synonyms are identified within the scientific name file by a trailing 'Historical name' after the scientific name. You are able to search in ECOTOX using the species synonym name, however, your output will contain the currently accepted species name. Taxonomic kingdoms are divided into plant (including fungi and monera) and animal.

Field studies may report results for a target community (e.g. benthic macroinvertebrates) or for an entire enclosed ecosystem (e.g. system-level primary productivity or respiration). If a community of organisms was tested, the species grouping from the publication is reported.

Taxonomic Hierarchy

You can search on various taxonomic levels. Within the Browse Species index, you can view the taxonomic levels for each species:

Kingdom

Phylum

Division

Subphylum

Superclass

Class

Order

Family

Genus

Species

Subspecies

Variety

The taxonomic levels are verified by the ITIS (Integrated Taxonomic Information System, located at: [http:// www.itis.gov](http://www.itis.gov)). If the taxonomic levels are not available with ITIS, other taxonomic sources are used.

Predefined Special Interest Sources

<p>The species of special interest groups were compiled using the following references:</p>
<p>Standard Test Species References</p>
<ol style="list-style-type: none"> 1. EPA, Office of Solid Waste and Emergency Response, Publication 9345.0-051 (ECO Update Volume 2, No. 2) 2. BC Research, Inc. 3. ASTM 4. OECD Test Guidelines 5. EPA, Office of Prevention, Pesticides and Toxic Substances, Harmonized Test Guidelines, Series 850, Ecological Effects Test Guidelines
<p>U.S. Threatened and Endangered Species Reference</p>
<p>U.S. Fish and Wildlife Service (http://www.fws.gov/endangered/wildlife.html#Species Updated annually).</p>
<p>U.S. Exotic/Nuisance Species References</p>
<ol style="list-style-type: none"> 1) ANS Task Force. (2003) Dedicated to the prevention and control of nuisance aquatic species. http://www.anstaskforce.gov/index.htm# 2) Aquatic Invasive Species and the Great Lakes: GLERL's Program and Action Plan. http://www.glerl.noaa.gov/pubs/brochures/invasive/invasive.pdf 3) Chesapeake Bay Program Office (2003). Invasive Species Workshop. http://www.chesapeakebay.net/search/ongoingproj.cfm?GROUP_INIT=NISW&GROUP_AF FIL=Living 4) Exotic Species of the Monterey Bay National Marine Sanctuary. http://bonita.mbnms.nos.noaa.gov/sitechar/spex.html 5) Exotic Species Program. 2003. Harmful Exotic Species of Aquatic Plants and Wild Animals in Minnesota: Annual Report for 2002. Minnesota Department of Natural Resources, St. Paul, MN. 6) Flack, Stephanie & Elaine Furlow (1996). America's Least Wanted, A lineup of the country's twelve meanest environmental scoundrels. Nature Conservancy - November/December pp. 17-23. 7) Great Lakes Panel on Aquatic Nuisance Species. (Aug.1998) Biological Invasions, How aquatic nuisance species are entering North American waters, the harm they cause and what can be done to solve the problem. 8) Hellquist, C. Barre. (1997). A Guide to Invasive Non-native Aquatic Plants in Massachusetts. Massachusetts Department of Environmental Management, Lakes and Ponds Program. 9) Illinois Dept of Natural Resources& Natural Areas Techniques Forum. NAA Chinese Yam Task Force, jshimp@dnrmail.state.il.us 10) Invasivespecies.gov (2003) A gateway to Federal and State invasive species activities and programs. http://www.invasivespecies.gov/profiles/main.shtml 11) Minnesota Dept of Natural Resources (Jan. 2000). On the Water Front, The Exotic Species Update. 12) Minnesota Sea Grant, Exotic Species Program. http://www.seagrant.umn.edu/exotics/fishhook.html

The species of special interest groups were compiled using the following references:

- 13) Mortensen, Carol Estes. Is it a wildflower, or is it a weed? Minnesota National Forests, Leech Lake Reservation Division of Resources Management.
- 14) National Biological Information Infrastructure (2003). Invasive Species Information Node. <http://invasivespecies.nbi.gov/downloads/SppListMaster18jun02.xls>
- 15) Rendall, Jay. (1999) Weeds Gone Wild. Minnesota Conservation Volunteer, July-Aug 1999
- 16) Stratford, Kay & Barbara Doll. Invasive Aquatic and Wetland Plants. Field Guide. North Carolina Sea Grant.
- 17) The Great Lakes Schoolship, Inland Seas Education Association, Invasive Species Education Program. http://www.schoolship.org/invasivespecies/docs2/K_Invasive_Species_Table.pdf
- 18) The Nature Conservancy (1996). America's Least Wanted: Alien Species Invasions of U.S. Ecosystems.
- 19) USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- 20) "USGS, Nonindigenous Aquatic Plant Maps and Species Accounts http://nas.er.usgs.gov/plants/sp_accnts.html"
- 21) USGS: Nonindigenous Aquatic Species. <http://nas.er.usgs.gov/>
- 22) USGS: Nonindigenous Mollusk Distribution Information. <http://nas.er.usgs.gov/>
- 23) Western Regional Panel on Aquatic Nuisance Species, (Sept 2001). The invasion of western waters by non-native species, Threats to the West.
- 24) Wisconsin Department of Natural Resources (2003). Non-native Plants. <http://www.dnr.state.wi.us/org/land/er/invasive/nonative.htm>

Chemical Verification

A standardized identification number and name for each chemical recorded in the database is used for consistency. Chemicals reported in the ECOTOX Knowledgebase are cataloged by using a Chemical Abstracts Service (CAS) registry number. If a CAS registry number is not available for the test chemical, toxicity data cannot be included in ECOTOX. Toxicants not included in ECOTOX are water chemistry effects (e.g., pH), complex effluents and chemical mixtures. If the author states that a soil nutrient is added to maintain test organism growth, the test is included. If the test includes a series of nutrient doses and a toxicant to produce interactive effects, this is considered a mixture and excluded.

Retrieval is made by using the CAS number, chemical name or chemical list. The Collective Index (CI) name is used as the standardized name for storage and retrieval. A separate index file is available for screening CAS numbers and chemical names used in ECOTOX. It is important to stress that you refer to the original publication to obtain additional test chemical information which may affect the context of toxicity information retrieved from ECOTOX.

APPENDIX E: ECOTOX DATA FIELD DESCRIPTIONS

All associated codes for these field are located in the ECOTOX Code List. Data fields are listed for both aquatic and terrestrial. If the field is only available for one database, this is noted (Aquatic only or Terrestrial only).

Chemical Fields

Chemical Carrier - Solvent used to dissolve toxicant in solution or positive control.

CAS Number - Chemical Abstracts Service (CAS) Number.

Chemical Name - CAS Collective Index Name.

Chemical Grade - Grade of chemical.

Chemical Purity - Percent purity or active ingredient.

Chemical Formulation - Formulation of chemical.

Chemical Comment - Chemical formulation code, trade names, synonyms, isomer names.

Chemical Radiolabel - The isotope of a test or carrier chemical. For terrestrial results, this is not viewable in the browser full data record.

Species Fields

Species Number - Unique number assigned by ECOTOX software.

Species Scientific Name - Currently accepted scientific name (genus, species).

Species Common Name - Species or taxonomic grouping common name(s).

Organism Source - The type of source the test organism was obtained

Organism Lifestage - Initial test organism lifestage.

Organism Age - Initial age of the test organism.

Organism Gender – The sex of the organism

– Initial weight of the organism

Organism Final Weight – Weight of the organism at the time of observation

Organism Comment - Initial age, weight, length, developmental stage or cell concentration of test organism.

Species Group - Predefined taxonomic groups name. For more documentation and list of groups, see Predefined Taxonomic Groups.

Species Taxonomic Information - Organism classification hierarchy (Kingdom, Phylum/Division, Subphylum, Superclass, Class, Order, Family, Genus, Species).

Kingdom - Divides all species into two kingdoms (plant or animal). The plant kingdom includes Monera and Fungi species. A taxonomic group (e.g., aquatic community, plankton) that has both plant and animal kingdoms into one result are included in both plant and animal kingdom search. (Search option only. Not an output option)

Test Condition Fields

Application Frequency

The number of doses applied during the exposure.

Media Type

Aquatic - Freshwater (FW) tests include those 1) conducted in freshwater, reconstituted water, distilled water, or tap water or 2) the organism habitat is exclusively freshwater. Saltwater (SW) tests include those 1) conducted in natural or artificial seawater, brackish water, or estuarine water or 2) the organism habitat is exclusively saline. If a salinity value of four parts per thousand is reported, it is considered a freshwater test.

Terrestrial - Type of exposure media, (e.g., natural or artificial soil, hydroponic, filter paper). If an aqueous exposure is conducted in pore water from a specific soil, report the soil parameters in the soil characteristics fields (pH, CEC, OM, etc.).

Test Location

Aquatic - A natural (Field N) study is an experiment conducted outdoors in a natural water body or in an artificial water body that has a natural bottom substrate and established aquatic communities (e.g. phytoplankton, zooplankton and fish). Outdoor studies conducted in an artificial water body without a natural bottom substrate are considered artificial studies (Field A). If the water body cannot be determined to be natural or artificial it is coded as field unknown (FieldU). All other studies are considered laboratory (LAB) tests.

Terrestrial - The location or setting in which the experiment was conducted. For example, a natural field study (FieldN) is an experiment conducted outdoors in a natural setting. The test organisms are sampled in the wild, e.g. population counts. Outdoor studies conducted in a simulated environment are coded as an artificial field study (FieldA). Artificial field studies include organisms isolated from their natural environment via an enclosure of some type, e.g. cages or fencing. If the publication does not provide enough information to distinguish between FieldA and FieldN, then use the code FieldU to indicate that the field test type is unknown. Laboratory tests (LAB) are conducted indoors under controlled laboratory conditions.

Exposure Duration

Aquatic - Exposure duration is coded using the units reported in the literature. For a fluctuating or intermittent dosing experiment, the total exposure time is recorded. For delayed effects, report the duration of the entire study.

Terrestrial - The period of time recorded in the data field is the time of actual exposure to the chemical. It is assumed that the exposure duration is equivalent to the longest observation time. In some cases a biological time is used, such as an exposure time reported as "until hatch", "growing season" or "after the nth egg has been laid".

For injection, diet, topical and environmental exposures where the actual exposure is dependent on biological and environmental conditions, the exposure time is recorded as equivalent to the study time.

Author Reported and Standardized Duration

ECOTOX offers two output options for duration, the duration as the author reports in the publication and duration that is converted to a standard unit (days).

Study Duration

In cases where the observation time is the only duration reported, it is assumed that the exposure duration is equivalent to the study time.

In some cases a biological time is used, such as an exposure time reported as "until harvest", "growing season" or "after the nth egg has been laid". The term that best describes the author's text is used.

For injection, diet, topical and environmental exposures where the actual exposure is dependent on biological and environmental conditions, the exposure time is recorded as equivalent to the study time.

Author Reported and Standardized Duration

ECOTOX offers two output options for duration, the duration as the author reports in the publication and duration that is converted to a standard unit (days).

Exposure Type

Aquatic - Exposures must either be aqueous, through the diet, or by injection. In vitro toxicity test results are not coded.

Terrestrial - The mechanism by which the toxicant was applied. Organisms are typically exposed to toxicants through diet, injection, topical or environmental routes. On occasion, an exposure may be through multiple routes (e.g., such as topical and oral). The terrestrial database does not include in vitro assays in the database.

Exposure types are searched by major exposure groups. However, a more specific exposure type is displayed in your output (e.g., searching on Intercutaneous is found under the Injection exposure type).

Habitat

For Terrestrial studies, select the habitat if noted by the author, either soil or non-soil. Aquatic studies are all in water (aqua).

Chemical Analysis

Quantitative analysis of water in test chambers or field sites is considered a measured concentration. Concentrations that are not analyzed in test chambers or field sites are considered unmeasured (nominal).

Application Frequency - The frequency of dosing application is reported

Study Type

The study type is used to identify field simulation studies. Examples of field study types include exposures conducted in a mesocosm, microcosm or enclosure.

Test Type

Test Type describes the set up for the toxicity study as reported by the author (e.g.ACUTE, CHRONIC, ELS (Early Life Stage), FLC (Full Life Cycle), or Generational).

Test Method

Test Method denotes the test methodology used for the study, e.g. U.S.EPA or OECD guideline.

Control

Control information for the reported effect may be presented in the text, in a graph, or in table format. ECOTOX does not make assessments whether the controls were satisfactory or insufficient (e.g., were replicates run, did control organisms die), but simply documents whether the author(s) present information about the type of control that was used.

Number of Doses

The total number of exposure doses, including the control(s), for each independent test design is reported in this data field.

Doses

For all aquatic reports and terrestrial browser viewable, the individual doses used in the study are summarized in this data field.

For terrestrial delimited or Excel reports, this data field reports that dose at which the response is measured.

Experimental Design

This field is used to code additional study information. For field tests, exposure system dimensions (e.g. pond or lake depth, cage or enclosure size), type of artificial substrate and physical or chemical water chemistry parameters are reported.

For laboratory studies, information about media and test chambers is coded if one of the purposes of the study is to compare results observed under differing test conditions (e.g., pH, temp, humic acid, sediment) or if commercial media types (e.g. Instant Ocean®) were used in the study.

Exposure Sample Number

Sample number reflects the initial sample size for each exposure dose, i.e., the number of test organisms per treatment.

Gender

Identifies the initial sex (ML - Male, FM - Female, BH - Both) of the organism for each exposure level.

Ionic Fraction

For ionizing substances (e.g., metals, ammonia), the dose is reported as the ion, if the concentration presented by the authors is reported as based on the ionic form of the compound (e.g., organotin as Sn). ECOTOX uses standard periodic table symbols.

Dose Statistical Method

The method used to determine the range around the Dose value, if reported by the author(s). The codes standard deviation (SD), standard error (SE), range (R), confidence interval (CI), confidence limits (CL) or confidence value (CV) of the dose value are noted.

Test Result Parameters

Aquatic - A separate line is coded for each effect or endpoint from either a unique experimental design or within one design scenario for statistically defined effects or endpoints. If no statistics are used to distinguish endpoints or effects and experimental designs are similar the data may be combined into one data record. Endpoints always require a discrete line. Emphasis is placed on coding LC50, LD50, EC50 over other regression analyzed endpoints (e.g., EC20, LC100, LD10) when an author reports both endpoints. Effects lacking an author reported endpoint may be combined based on statistical representation by the author. Food chain effects are coded for organisms at the first level of exposure.

Toxicity test results are primarily reported for observations taken during the chemical exposure. However, when results are reported only for the period of time after the

exposure, i.e. recovery or delayed effects, this type of result is noted by using a "~" in conjunction with the endpoint/effect code, e.g., ~MOR for a delayed mortality effect.

Endpoint

Endpoint information is coded if it is reported by the author. For the purposes of ECOTOX, an endpoint is defined as the quantification of an observed effect obtained through statistics or other means of calculation for the express purpose of comparing equivalent effects (e.g., LC50). Many terrestrial plant tests do not have associated endpoints. Prior to 1996, terrestrial plant database structure allowed only results based on percent change from control.

An asterisk (*) denotes the reported endpoint acronym provided was modified to conform to the standard database acronym terminology. For example, if the author reported a TLM, the endpoint was coded as an LC50*. The author reported acronym should appear in EE Remark field.

Effect

Effect information must be provided by the author in order for the test to be included. For ECOTOX Knowledgebase purposes, effect is defined as the observation of a response resulting from the action of a chemical stressor (e.g., mortality). The listing of effect measurements can be found by using the Browse Effects index, ECOTOX Code List or ECOTOX Code Appendix (includes many detailed measurement definitions). ECOTOX internally categorizes all observed effects under at least one of ten major effect group codes:

Accumulation (ACC) - Process by which chemicals are taken into and stored in the organism. Includes lethal body burden.

Behavior (BEH) - Activity of an organism represented by three subgroups, avoidance (AVO), general behavior (BEH) and feeding behavior (FDB). All effects related to reproductive behavior are listed under the Reproduction effect group.

Biochemistry (BCM) - Biotransformation or metabolism of chemical compounds, modes of toxic action, and biochemical organism responses. Biochemical has three subgroups, biochemical (BCM), enzyme (ENZ) and hormone (HRM) effects.

Cellular (CEL) - Changes in structure and chemical composition of cells and tissues in organisms. Three cellular subgroups include cellular (CEL) effects, genetics (GEN) and histology (HIS).

Growth (GRO) - Encompasses individual organism weight, length, development and morphology. Development (DVP) covers effects on tissue organization in growing early life stages. Growth (GRO) represents length and weight changes at any point in the life cycle. Morphology (MPH) measurements and endpoints address the structure (bones) and form (organ/tissue development) of an organism at any stage of its life history.

Mortality (MOR) - Death of individuals or measurements that indicate death.

Physiology (PHY) - Basic cell and tissue activities. Subgroups include injury (INJ), immunity (IMM) and intoxication (ITX).

Population (POP) - Effects on species or taxonomic group occupying the same area at a given time.

Reproduction (REP) - Reproductive behavior, physiology, care of progeny and avian/reptile eggs (AEG) measurements. Offspring development effects are found in Growth effect group.

Ecosystem (PRS) - Ecosystem processes include community structure and function. Includes microbial processes.

No Group Code (NOC) - Multiple effects or endpoint lacking a specific effect.

Trend

The observed or measured response trend as compared to the control is coded when textually or graphically reported.

Response Site

A response site or tissue code is used to identify specific body, organ or tissue effect sites for associated effect measurement.

EE_Comment

This field contains additional endpoint and/or effect text as described by the author. The types of information coded are described in the Aquatic Coding Guidelines

Effect %

Effect is reported as a raw percent value or percent change, e.g., percent of the total population or percent increase or decrease. The term "COM" is used to denote several effect measurements or response sites reporting data results as percentages.

Statistical Significance - Statistical analysis as compared to the control(s) in the test result.

Statistical Level

The level of significance (e.g. test statistic) is coded when the author has reported statistical analysis in the test result. Terminology for significance level may be presented as: $p =$; $p <$ or alpha value. The terminology are equivalent and are generally in the range of 0.001 to 0.10.

Bioconcentration

The bioconcentration factor (BCF) or bioaccumulation factor (BAF) is a unitless value describing the degree to which a chemical can be concentrated in the tissues of an organism in the aquatic environment (View Endpoint Code List for full definition). A bioconcentration endpoint is coded as either wet (or unknown) or as dry weight (BCF and BCFD, respectively). If the author does not calculate a BCF/BAF, the test is recorded as a residue measurement effect with a blank Endpoint and BCF/BAF field.

If a BCF/BAF is reported for the parent compound and for a metabolite, only the parent compound BCF/BAF is reported. Additional information about the BCF/BAF is reported, e.g., steady state equilibrium, lipid normalization is noted in the EE_Comment field.

Concentration Type

Concentrations based on the active ingredient or formulation, or as the total, un-ionized or dissolved concentration, are identified.

Endpoint Assignment

Used to identify the source of the effect or endpoint information is reported specifically by the author (P) or assigned by an ECOTOX reviewer (R)). The reviewer only assigns the endpoint, if the author has provided the statistical analysis that support the endpoint.

Concentration/Dose

The concentration or dose reflects either the range of concentrations tested or if there is and endpoint reported, the concentration associated with the endpoint. The confidence interval or range is recorded when available. If an asterisk (*) denotes the concentration has been recalculated from the author's original units to the standard ug/L or from the metal compound to the active ionic form.

In certain cases, the water concentration is routinely reported as active form of the test chemical. For metal salts, the concentration is generally expressed as ug ion/L (e.g., HgCl is expressed as Hg⁺). Since 1998, the data distinguish between the metal compound and the metal ion in the Ion field. Data encoded prior to this date, may have comments regarding ionic fraction in Comment field.

When an exponential number is reported (e.g., 1 x 10⁶), it is coded as E+n or E-n (e.g., 1 E+6).

Author Reported and Standardized Concentration (Aquatic only)

ECOTOX offers two output options for concentrations, the concentration as the author reports in the publication and the concentration that is converted to a standard unit (ug/l), if possible.

Result Sample Number

The sample number reflects the sample size (e.g., 10 embryos) that the observation or response value is based on at each exposure level. Sample units correspond to the sample number; i.e., the unit on which the measurement or endpoint is based.

For generational studies and measurements based on the progeny, F1, F2, etc. are noted in the sample unit field.

Observed Duration

The exposure duration when the result value was observed. This may be plus or minus any up to the time at which the response to the toxicant was observed. If the observation time is not reported or unable to be explicitly determined, a less than or equal to (<=) the exposure duration is displayed.

Observations during the pretreatment time are reported as negative values. Report as '-x' any pretreatment response observations for which time is unknown.

Author Reported and Standardized Duration

ECOTOX offers two output options for duration, the duration as the author reports in the publication and duration that is converted to a standard unit (days).

Observed Response (Dose Response only)

Response values may include greater than (>), less than (<), minus (-) or approximation (~) symbols, if used by the author(s). Response values must be numeric and from text or graph.

Result Statistical Method (Dose Response only)

When the measurement unit includes a standard deviation (SD), standard error (SE), range (R), confidence interval (CI), confidence limits (CL) or confidence value (CV) of the response value are noted.

Result % Dry/Wet Weight

If the effect measurement is based on dry (D) or wet (W) weight basis, it is denoted. The percent moisture is reported, record the percentage value also, e.g. W75%.

Result Percent Lipid

Percent lipid in the whole organism or response site

Other Effects

Comments regarding other toxicity tests or effects reported in the publication that does not meet ECOTOX minimum data requirements are coded in this field. Commas separate each distinct term and the text ends with a double slash (/).

General Comment

This field contains additional information about any coding field that does not fit in the space provided. A complete list of comment identifiers that link to the associated field is documented in Appendix H: Comment Field Header Names.

Water Chemistry Fields (Aquatic only)

These measured values pertain either to the test water chemistry (preferred) or the dilution water chemistry values. If it is necessary to report the dilution water chemistry, this is denoted by an asterisk (*).

Alkalinity - Expressed as reported by author

Calcium – Expressed as reported by author

Chlorine – Expressed as reported by author

Conductivity - Expressed as reported by author

Dissolved Inorganic Carbon – Expressed as reported by author

Dissolved Oxygen - Expressed as reported by author. A "SAT" code denotes 100% saturation

Hardness - Expressed as reported by author. If the author only reports the terms "hard" or "soft", these terms are recorded

Humic Acid – Expressed as reported by author

Organic Carbon Type and Value - Expressed as reported by author as Carbon. (T= total, P= Particulate, D= Dissolved)

pH - pH value

Potassium – Expressed as reported by author

Salinity - Expressed as reported by author.

Sodium – Expressed as reported by author

Sulfate – Expressed as reported by author

Sulfur – Expressed as reported by author

Temperature - Expressed as reported by author.

Outdoor Test Fields

Habitat Code

The aquatic field tests include the Cowardin* system level classification to describe major aquatic systems.

*Cowardin, L.M., V.Carter, F.C.Golet and E.T.LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79, 31 p. (http://wetlands.fws.gov/Pubs_Reports/Class_Manual/class_titlepg.htm)

Habitat Comment

The author's description of the water body, (e.g. brackish marsh, wooded swamp)

Substrate Code and Comment

The bottom substrate is recorded using standard substrate definitions.

Water Depth - Water depth of the experimental system.

Geographic Code

The standardized name, based on FIPS (Federal Information Processing Standards) code, of the country, or United States and Canadian state/province where the test was performed is displayed. You can view FIPS documentation at: <http://www.itl.nist.gov/fipspubs/fip10-4.htm>

Geographic Location

Contains general text about the test site specific geographic identifiers (e.g., lake, river, bay, field station or city) where the study was performed.

Longitude/Latitude - The geographic location, latitude and longitude of the test site.

Application Type - The method of application of the chemical in a field study.

Application Rate

This field contains the application rate value and the units. If an exposure concentration is not reported, the application rate must be reported. Application rate units may be recalculated only if the denominator is not equal to one (e.g. 5 g/2.5 ac).

Chemical Half-Life - The test chemical half-life in the system.

Application Date/Season

The application date is recorded the time of initial exposure. This field includes the actual date, a partial date or a season. The format is MO-DA-YR. Examples: 12-01-93, 01-00-75, 00-00-64. If one pond is exposed multiple times, only report the first application date. If the calendar year date is not reported, but a season is, the season (Northern Hemisphere) of initial application of the chemical is reported.

Terrestrial Data Elements

Test Record

A test record number is used to designate each unique test design. A unique test design may be characterized by a new test chemical, test species, test location, or exposure type. Additionally, there are experimental design parameters that will influence a test scenario sufficiently to warrant an independent test record. Such parameters include tests conducted at different test temperatures or conducted during different seasons.

Test Number

A computer generated number that designates each unique test design. There can be many tests number for each reference number

Exposure Number (Delimited format only)

A sequential number and dose type that identifies each experimental control or dose level. Control values are given the lowest numeric values, the dose values are added sequentially from lowest to highest doses.

Example:

- 1C = Exposure 1 was the control value
- 2D = Exposure 2 is the lowest dose value
- 3D = Exposure 3 is the middle dose value
- 4D = Exposure 4 is the highest dose value
- 5R = The exposure values are ranged (low - high)
- 6E = Only endpoint data are presented in the results

The exposure dose(s) in the experimental methods are coded, even if the author did not report an effect result for every dose.

Parent Record and Result Number (Delimited format only)

The hierarchical database contains two fields that link records to the test record (i.e., parent file). A computer generated number that uniquely identifies each result record. These numbers are used to link between relational data files within a test number. The Parent

Record Number within the Exposure and Result files is the number that links to the Test file. There may many result record numbers for each test number.

Test Comment

Additional information related to methodology or techniques used in the experimental design. Appendix H contains header codes used to link the comment to a specific ECOTOX field.

Exposure Comment

Additional information related to dosing methodology or techniques used in the test.

Result Comment

Additional information related to the endpoint or effect response. Appendix H contains header codes used to link the comment to a specific ECOTOX field.

Soil Parameter Fields (Terrestrial only)**Temperature**

Expressed as reported by author.

Soil Type

The classification name of the natural soil or commercial name of the artificial soil used in the study. If the classification name is not included, the type of soil is recorded using the author's terminology, e.g., forest soil, sandy loam soil, arboreal coniferous soil.

Soil Sand %, Soil Silt %, Soil Clay %

The soil texture is stated using percentages of sand, silt and/or clay. Bentonite, kaolinite or montmorillonite etc., are reported as clay.

Soil pH

The pH of the test media is reported. If the pH of the treated media is not presented, but the pH value is stated for the untreated or acclimation media, an asterisk (*) is denoted. If the pH of a specific soil type is not given in the publication, a search is made of the USDA/NRCS National Cooperative Soil Survey (USA) web site, at: <http://soils.usda.gov/> may be found for the specific soil series.

Media Organic Matter

If organic matter is reported for the untreated or acclimation media, it will display with an asterisk (*). If the organic matter of a specific soil type is not provided in the publication, information from the USDA/NRCS National Cooperative Soil Survey (USA) online site, is used for the specific soil series.

Media Moisture

The percentage of moisture in the test media is reported. If moisture is reported for the untreated or acclimation media, this moisture percentage is coded and denoted it with an asterisk (*).

Media Cation Exchange Capacity

The media cation exchange capacity is reported. If the cation exchange capacity is reported for the untreated or acclimation media, this value is denoted with an asterisk.

Soil Dose Measured

The toxicant concentration was measured in the soil. However, the exposure dose value may or may not reflect the measured values. The Chemical Analysis field will denote if the exposure dose value is based on the measured values.

Media Measurement (wet/dry)

Denotes whether the soil concentration was reported based on dry or wet weight basis.

APPENDIX F: INDEPENDENTLY COMPILED DATA FILES

Some independently compiled data sets have been transferred into ECOTOX from external sources. The data sets must meet the ECOTOX data parameter and quality assurance guidelines. Data sets available in ECOTOX are:

The U.S. EPA MED data set includes the Acute Toxicity of Organic Chemicals file which contains data for a single test species (30-day fathead minnow). The U.S. EPA Office of Toxic Substances is acknowledged for long-term support in the generation of all acute toxicity data for organic chemicals. All test results, including data not available on-line, have been compiled in five volumes titled: Acute Toxicities of Organic Chemicals to Fathead Minnows (*Pimephales promelas*), available from the Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, WI.

International cooperative efforts are underway with the Organization for Economic Cooperation and Development (OECD) and the Commonwealth of Independent States (Borok Institute) in order to enhance the review of the International literature. Data files from France, Germany, the Netherlands and Russia are received and incorporated into ECOTOX on an ongoing basis.

The Office of Pesticide Program's Pesticide Ecotoxicity Database (formerly Environmental Effects Database) is a compilation of the toxic effects data for registered pesticides. These data have been reviewed and categorized as acceptable for fulfillment of pesticide registration and re-registration guideline requirements as explained under FIFRA Subdivision E, Parts 158.145 and 158.150. Data for the Pesticide Ecotoxicity Database are drawn from several sources. The major portion of the data is derived from actual Agency reviews of toxicological studies conducted by commercial laboratories and submitted by pesticide companies in support of their products. The U.S. EPA conducts audits of these laboratories on a periodic basis through the U.S. EPA Office of Compliance and Monitoring. A second major source of data entries is the numerous studies conducted by U.S. EPA, USDA, and U.S. FWS laboratories over the last 25 years. A third, less utilized source is published data considered to meet our guideline criteria for acceptable data.

The U.S. Geological Survey, Biological Resources Division, Columbia Environmental Research Center (CERC) located in Columbia, Missouri (<http://www.cerc.usgs.gov/data/acute/acute.html>) database summarizes the results from aquatic acute toxicity tests conducted by this research facility. The acute toxicity test provides a relative starting point for hazard assessment of contaminants and is required for federal chemical registration programs such as the Federal Insecticide Fungicide Rodenticide Act (PL 80-104) as amended by the Federal Environmental Pesticide Control Act of 1972 (7 U.S.C. 136-136y) and the Toxic Substances Control Act of 1976 (PL 94-469).

The database was initially developed in 1986 by Foster L. Mayer and Mark R. Ellersieck for 4,901 acute toxicity tests conducted by CERC since 1965 with 410 chemicals and 66 species of aquatic animals. A report by Mayer and Ellersieck (1986) provides an

interpretation of the original 4,901 toxicity tests which utilizes various statistical approaches to make taxonomic comparisons, and to assess the degree to which various factors (static versus flow-through, age of test solutions, pH, temperature, water hardness, and diet) affect toxicity (*Manual of Acute Toxicity: Interpretation and Data Base for 410 Chemicals and 66 Species of Freshwater Animals*, F.L. Mayer and M.R. Ellersieck, United States Department of the Interior, U.S. Fish and Wildlife Service, Resource Publication 160, 1986). This publication is commonly referred to as the “Gold Book”.

The available data sets, available data, institution address and contacts are listed below:

Institution Contact Information	Data Summary and Reference Numbers
<p>EPA: Fathead Minnow Acute Toxicity Database (MED)</p> <p>To obtain hard copies of the University of Wisconsin-Superior (UWS) volumes contact:</p> <p>University of Wisconsin/ Lake Superior Research Institute PO Box 2000 Superior, WI 54880 Contact: Matt TenEyck E-mail: MTenEyck@uwsuper.edu Phone: 715-394-8160</p> <p>For technical information on the database contact:</p> <p>U.S. EPA/ORD/NHEERL/MED Contact: Colleen Elonen E-mail: elonen.colleen@epa.gov</p>	<p>5 references (#3217, 12447, 12448, 12858, 12859);</p> <p>730 aquatic records</p>
<p>French (OECD-IRCHA)</p> <p>Ecotoxicology Department, INERIS Rue Lavoisier, B.P. 1 F-91710 Vert Le Petit France http://www.ineris.fr/en/index.htm Contact: Dr. Roger Cabridenc Phone: 33-1-45960956; Fax: 33-1-45960957</p>	<p>13 references (#20, 3397, 3516, 3517, 3518, 3519, 3520, 3521, 5161, 6771, 9170, 10724, 15300);</p> <p>256 aquatic records</p>

Institution Contact Information	Data Summary and Reference Numbers
<p>German (OECD) UBA - Umweltbundesamt FG IV 2.1 Datenbanken Chemikaliensicherheit und Gentechnik Post Box 33 00 22 D - 14191 Berlin</p> <p>http://www.umweltbundesamt.de/index-e.htm</p> <p>Contact: Frau Cornelia Leuschner Telefon: +49-(0)30-8903-3262 Fax: +49-(0)30-8903-3232 Email: cornelia.leuschner@uba.de</p> <p>http://webtox.uba.de/webETOX/public/search/test/open.do</p> <p>Contact: Dieter Schudoma Telefon: (+49-30) 8903 4225 Fax: (+49-30) 8903 4233 Email: ETOX@uba.de</p>	<p>282 references (citation refers to OECDG Database);</p> <p>8218 aquatic records</p> <p>941 terrestrial records</p>
<p>Dutch (OECD) National Institute of Public Health and Environmental Protection (RIVM/ACT) PO Box 1, 3720 BA Bilthoven The Netherlands</p> <p>http://rivm.nl/en/</p> <p>Contact: Dr. Hans Canton E-mail: ecocr@sb615.rivm.nl</p>	<p>17 references (#5180, 5331, 5333, 5336, 5337, 5356, 5367, 5370, 5374, 5375, 5378, 5390, 5400, 5411, 5414, 11039, 11044);</p> <p>1990 aquatic records</p>
<p>Russia Borok Institute, Institute for Biology of Inland Waters, Academy of Sciences 152742 Borok, Nekouz, Yaroslavsky Region Russian Republic</p> <p>http://www.ibiw.ru/</p> <p>Contact: Victor Komov E-mail: vkomov@ibiw.yaroslavl.ru</p>	<p>55 references</p> <p>255 aquatic records</p>

Institution Contact Information	Data Summary and Reference Numbers
<p>EPA: Office of Pesticides Program Database (OPP) (Pesticide Ecotoxicity Database -formerly Ecological Effects Database) U.S. Environmental Protection Agency Office of Pesticide Programs Environmental Fate and Effects Division, Ecological Effects Branch 401 M St. SW Washington, DC 20460 http://www.epa.gov/oppefed1/general/databasesdescription.htm#ecotoxicity Contact: Brian Montague E-mail: montague.brian@epa.gov</p>	<p>1 reference (#344); 5593 aquatic records, 4377 terrestrial records</p>
<p>USGS Acute Toxicity Database (Mayer & Ellersieck, 1986 - commonly referred to as the "Gold Book") Columbia Environmental Research Center U.S. Geological Survey 4200 New Haven Road, Columbia, Missouri 65201 Phone: 573-875-5399 (http://www.cerc.usgs.gov/data/acute/acute.html) Contact: Linda Sappington E-mail: linda_sappington@usgs.gov</p>	<p>1 reference (#6797); 8761 aquatic records</p>

APPENDIX G: DEFAULT REPORT FORMATS

Aquatic Browser Viewable Report



U.S. Environmental Protection Agency

ECOTOX: Aquatic Report

USEPA/ORD/NHEERL - Mid-Continent Ecology Division

E-mail: ecotox.support@epa.gov

Telephone: 218-529-5225

It is recommended that users consult the original scientific paper to ensure an understanding of the context of the data retrieved from the ECOTOX database.

Report Generated: Fri Sep 1 16:16:20 2006

Aquatic Search Results:
1014 Records

1 2 3 4 5 6 7 8 9 10 11 12 13 14 Next >> [References](#)

Page 1 of 15

Spec. Sci. Name Spec. Common Name	Endpoint BCF	Effect Effect Meas.	Resp. Site Exp. Dur. (Days)	Exp. Type Chem. Anal.	Trend Eff %	Signif. Sig. Level	Conc (ug/L) Appl. Rate	Media Type Loc	Ref#	View Details
CAS #/Chemical: 298000 - Phosphorothioic acid, O,O-Dimethyl O-(4-nitrophenyl)ester										
Algae, Moss, Fungi										
Scenedesmus subspicatus Green algae	EC03	HIS PRLF	7	S			F = 2600 ug/L	FW	56394	View Details
Chaetoceros calcitrans Diatom	EC50	POP PGRT	21	R U	DEC		A 8400 ug/L	SW LAB	19372	View Details
Chlamydomonas reinhardtii Green algae	EC50	POP GPOP	10	F M	DEC		A 5200 ug/L	FW LAB	4335	View Details
Chlamydomonas reinhardtii Green algae	EC50	POP GPOP	10	F M	DEC		A 5200 ug/L	FW LAB	4008	View Details

Terrestrial Browser Viewable Full Record



U.S. Environmental Protection Agency

ECOTOX: Terrestrial Report

USEPA/ORD/NHEERL - Mid-Continent Ecology Division

E-mail: ecotox.support@epa.gov

Telephone: 218-529-5225

It is recommended that users consult the original scientific paper to ensure an understanding of the context of the data retrieved from the ECOTOX database.

Report Generated: Fri Sep 1 16:33:19 2006

[Back to Report](#)

Terrestrial Search Results:
24 Result Record
1 Test Record

1

[Next>>](#)

[References](#)

Page 1 of 2

A study of 4 year(s) duration using natural soil media was conducted in a FieldN site location with not reported obtained *Pisum sp.* (pea). The organism(s) (age: NR and organism characteristics of: Var. Smaragd) were exposed for a duration of NA harvest to a(n) 1 dosed x time(s) per study period application of Barium chloride (CAS # 10361372) in NR carrier or a(n) NR positive control through a(n) direct application exposure route. The reported chemical concentrations are the result of measured analysis of chemical solutions and are based on the Ba ion. natural soil was comprised of 20% sand, 20% silt, 20% clay, pH NR, and NR% organic matter, NR% moisture and NR NR CEC. The concentrations are based on soil weight and are the result of measured analysis of the chemical concentration in soil. (Reference 44581, Nyarai-Horvath, F., T. Szalai, I. Kadar, and P. Csatho, 1997, Test Number 47185).

Test Comments: EXPO INFO/EDES/SOIL DOSED IN 1991 AND SUCCESSIVE CROPS GROWN UNTIL 1994.//

Exposure Comments: 2 REPLICATES, YR EFCTS, BA CONC. IN SOIL FOUR YEARS AFTER APPLICATION//

Effect of Barium chloride on *Pisum sp.* Accumulation

Sample Unit	Effect Measurement	Response Site	Observation Duration	Concentration / Dose			
				18 mg/kg (C)	27 mg/kg	40 mg/kg	67 mg/kg
NR	Residue	Grain	NA harvest	0.71 mg/kg	0.72 ^{***} mg/kg	2.94 ^{***} mg/kg	2.26 ^{***} mg/kg

^{***} Significant, NR

APPENDIX H: COMMENT FIELD HEADER NAMES

Aquatic Comment Abbreviations

Comment headers codes are used to link additional data provided to the primary database field.

Header Abbreviation	Associated Field Name
ALK	Alkalinity
AP TY	Application Type
AP SEAS	Application Season
AP DATE	Application Date
AP RATE	Application Rate
AP FREQ	Application Frequency
BCF	Bioconcentration
CARRIER	Carrier or Solvent
CHAR	Chemical Comment
CL	Chlorine Value and Unit
COMPEP	Companion Endpoint
CONC	Concentration
COND	Conductivity
CONTR	Control
DEPTH	Water Depth
DNUM	Number of Doses
DO	Dissolved Oxygen
DOSES	Individual Concentration Value and Unit
ETIME	Exposure Time and Unit
FO	Chemical Formulation
FW,SW	Exposure Media
GRADE	Chemical Grade
HAB	Habitat Description
HALF	Half Life
HARD	Hardness

Header Abbreviation	Associated Field Name
HMA	Humic Acid Value and Unit
In EE Comment	Endpt (Endpoint)
In EE Comment	Measurement
In EE Comment	Effect
INTAKE	Food Intake Rate and Unit
LAB,FIELD	Location
LAT	Latitude
LD	Percent Lipid
LEVEL	Statistical Level
LIFESTG	Organism Lifestage
LOC	Location
LONG	Longitude
MSMT	Effect Measurement
NA	Sodium Value and Unit
ORG C	Organic Carbon
PH	pH
POT	Potassium Value and Unit
PURITY	Chemical Purity
RADIO	Chemical Radiolabel
SALIN	Salinity
SAMPN	Sample Number and Unit
SEX	Gender
SIGNIF	Significance
SITE	Response Site
SO4	Sulfate Value and Unit
SOLVCHAR	Chemical Carrier Comment
SOLVFO	Chemical Carrier Formulation
SOLVGRADE	Chemical Carrier Grade
SOLVPURITY	Chemical Carrier Purity
SOURCE	Organism Source

Header Abbreviation	Associated Field Name
STST	Steady State
STYPE	Study Type
SUBSTR	Substrate Comment
SULF	Sulfur Value and Unit
TEMP	Temperature
TESTID	Test Number
TIME	Exposure Time
TREND	Effect Trend
TMETH	Test Method
TYPE	Exposure Type
WTAT	Weight at Time of Result
WTINT	Initial Body Weight

Terrestrial Comment Abbreviations

Comment headers codes are used to link additional data provided to the primary database field.

Header Abbreviations	Associated Field Name
ANALYSIS	Chemical Analysis
AP DATE	Application Date
AP FREQ	Application Frequency
AP RATE	Application Rate
AP SEAS	Application Season
CEC	Media Cation Exchange Capacity
CHAR	Chemical Comments
COMPEP	Companion Endpoint
CONCTYPE	Concentration Type
CONTR	Control
DNUM	Number of Doses
DOSE/ DUNIT	Exposure Dose and Unit,
DOSES	Individual Concentrations Value and Unit
DW	Dry or Wet Weight

Header Abbreviations	Associated Field Name
EDES	Experimental Design
EFCT	Effect
EFCT%	Effect Percent
ENDPT	Endpoint Assigned
ETIME	Exposure Duration
FO	Chemical Formulation
GEO	Geographic Code
HABCODE	Habitat Code
HABITAT	Habitat
INTAKE	Intake Rate and Unit
ION	Ionic Fraction
LAT	Latitude
LD	Percent Lipid
LIFESTG/ AGE	Lifestage/Age
LOC	Test Location
LONG	Longitude
MEDIA	Media Type
MOIST	Media Moisture
MSMT	Effect Measurement
OCHAR	Organism Comment
OEF	Other Effects
OM	Media Organic Matter
OTIME	Observation Time
PC, CARRIER	Chemical Name, Type
pH	Media pH
RADIO	Chemical Radiolabel
RSITE	Response Site
RVALUE / RUNIT	Observed Response Value/ Unit
SAMPN/ NUNIT	Sample Number and Unit
SEX	Gender

Header Abbreviations	Associated Field Name
SIGNIF	Statistical Significance
SOIL	Soil Type
SOURCE	Organism Source
STIME	Study Duration
STST	Steady State
STYPE	Study Type
TEMP	Temperature
TEXTURE	Soil Texture
TREND	Effect Trend
TYPE	Exposure Type
TMETH	Test Method
WTAT	Weight at Time of Result
WTINT	Initial Body Weight

APPENDIX I: DELIMITED OUTPUT HEADER NAMES

Aquatic Report Output Codes

A forward slash (/) within a field refers to an associated comment in a separate field. You will need to view the full publication for proper interpretation.

Note: OP = Operator (>, >=, <, =<, =)

Web Page Report Header	Delimited File Header Name	Header Name Definition
Alk. (7 fields)	Alkalinity Mean Op	Alkalinity Mean Operator
	Alkalinity Mean	Alkalinity Mean Value
	Alkalinity Min Op	Alkalinity Minimum Operator
	Alkalinity Min	Alkalinity Minimum Value
	Alkalinity Max Op	Alkalinity Maximum Operator
	Alkalinity Max	Alkalinity Maximum Value
	Alkalinity Units	Alkalinity Units
Appl. Date	Application Date	Application Date
Appl. Freq. (7 fields)	Application Frequency Mean Op	Application Frequency Mean Operator
	Application Frequency Mean	Application Frequency Mean Value
	Application Frequency Min Op	Application Frequency Minimum Operator
	Application Frequency Min	Application Frequency Minimum Value
	Application Frequency Max Op	Application Frequency Maximum Operator
	Application Frequency Max	Application Frequency Maximum Value
	Application Frequency Units	Application Frequency Units
Appl. Rate (2 fields)	Application Rate	Application Rate
	Application Units	Application Units
Appl. Seas.	Application Season	Application Season
Appl. Type	Application Type	Application Type
Author	Author	Author

Web Page Report Header	Delimited File Header Name	Header Name Definition
BCF (1 fields) Note: The Concentration Type determines the fraction measured in BCF1 and BCF 2.	BCF1 Value Op	First Bioconcentration Factor Mean Operator
	BCF1Value	First Bioconcentration Factor Mean Value
	BCF1 Min Op	First Bioconcentration Factor Minimum Operator
	BCF1 Min	First Bioconcentration Factor Minimum Value
	BCF1 Max Op	First Bioconcentration Factor Maximum Operator
	BCF1 Max	First Bioconcentration Factor Maximum Value
	BCF2 Value Op	Second Bioconcentration Factor Mean Operator
	BCF2 Value	Second Bioconcentration Factor Mean
	BCF2 Min Op	Second Bioconcentration Factor Minimum Operator
	BCF2 Min	Second Bioconcentration Factor Minimum Value
	BCF2 Max Op	Second Bioconcentration Factor Maximum Operator
	BCF2 Max	Second Bioconcentration Factor Maximum Value
	BCF3 Value Op	Third Bioconcentration Factor Mean Operator
	BCF3 Value	Third Bioconcentration Factor Mean
	BCF3 Min Op	Third Bioconcentration Factor Minimum Operator
	BCF3 Min	Third Bioconcentration Factor Minimum Value
Calcium (7 fields)	Calcium Mean Op	Calcium Mean Operator
	Calcium Mean	Calcium Mean Value
	Calcium Min Op	Calcium Minimum Operator
	Calcium Min	Calcium Minimum Value

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Calcium Max Op	Calcium Maximum Operator
	Calcium Max	Calcium Maximum Value
	Calcium Units	Calcium Units
CAS #	CAS Number	Test Chemical Abstract Services Registry Number
Chem. Anal.	Chemical Analysis	
Chemical Carrier	Chemical Carrier	Contains all carriers (up to three) and all the associated information (Chemical Name, Chemical Grade, Chemical Formulation, Chemical Radiolabel, Chemical Characteristics, Chemical Purity.
Chem. Comment	Chemical Comment	Test Chemical Comment
Chem. Form.	Chemical Formulation	Chemical Formulation
Chem. Grade	Chemical Grade	Chemical Grade
Chem. Half Life (7 fields)	Chemical Half Life Mean OP	Chemical Half Life Mean Operator
	Chemical Half Life Mean	Chemical Half Life Mean
	Half Life Min OP	Half Life Minimum Operator
	Half Life Min	Half Life Minimum
	Half Life MaxOP	Half Life Maximum Operator
	Half Life Max	Half Life Maximum
	Half Life Unit	Half Life Unit
Chemical	Chemical Name	Chemical Name
Chem. Pur. (6 Fields)	Chemical Purity Mean OP	Chemical Purity Mean Operator
	Chemical Purity Mean	Chemical Purity Mean
	Chemical Purity Min OP	Chemical Purity Minimum Operator
	Chemical Purity Min	Chemical Purity Minimum
	Chemical Purity Max OP	Chemical Purity Maximum Operator
	Chemical Purity Max	Chemical Purity Maximum
Chem. Radiolabel	Chemical Radiolabel	Chemical Radiolabel
Chlorine	Chlorine Mean OP	Chlorine Mean Operator
	Chlorine Mean	Chlorine Mean
	Chlorine Min OP	Chlorine Minimum Operator

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Chlorine Min	Chlorine Minimum
	Chlorine Max OP	Chlorine Maximum Operator
	Chlorine Max	Chlorine Max
	Chlorine Unit	Chlorine Unit
Conc (48 fields) (Author) or (ug/L)	Concentration1 Mean Op	First Concentration Mean Operator (Author) or (ug/L)
	Concentration1 Mean	First Concentration Mean Value (Author) or (ug/L)
	Concentration1 Min Op	First Concentration Minimum Operator (Author) or (ug/L)
	Concentration1 Min	First Concentration Minimum Value (Author) or (ug/L)
	Concentration1 Max Op	First Concentration Maximum Operator (Author) or (ug/L)
	Concentration1 Max	First Concentration Maximum Value (Author) or (ug/L)
	Concentration Type1	First Concentration Type (Author) or (ug/L)
	Concentration2 Mean Op	Third Concentration Mean Operator (Author) or (ug/L)
	Concentration2 Mean	Third Concentration Mean Value (Author) or (ug/L)
	Concentration2 Min Op	Third Concentration Minimum (Author) or (ug/L) Operator
	Concentration2 Min	Third Concentration Minimum Value
	Concentration2 Max Op	Third Concentration Maximum Operator (Author) or (ug/L)
	Concentration2 Max	Third Concentration Maximum Value (Author) or (ug/L)
	Concentration Type 2	Third Concentration Type (Author) or (ug/L)
	Concentration3 Mean Op	Third Concentration Mean Operator (Author) or (ug/L)
Concentration3 Mean	Third Concentration Mean Value (Author) or (ug/L)	
Concentration3 Min Op	Third Concentration Minimum (Author) or (ug/L) Operator	

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Concentration3 Min	Third Concentration Minimum Value
	Concentration3 Max Op	Third Concentration Maximum Operator (Author) or (ug/L)
	Concentration3 Max	Third Concentration Maximum Value (Author) or (ug/L)
	Concentration Type 3	Third Concentration Type (Author) or (ug/L)
	Concentration Units	Author or ug/L
Control	Control	Control
Conductiv. (7 fields)	Conductivity Mean Op	Conductivity Mean Operator
	Conductivity Mean	Conductivity Mean Value
	Conductivity Min Op	Conductivity Minimum Operator
	Conductivity Min	Conductivity Minimum Value
	Conductivity Max Op	Conductivity Maximum Operator
	Conductivity Max	Conductivity Maximum Value
	Conductivity Units	Conductivity Units
D.O. (7 fields)	Dissolved Oxygen Mean Op	Dissolved Oxygen Mean Operator
	Dissolved Oxygen Mean	Dissolved Oxygen Mean Value
	Dissolved Oxygen Min Op	Dissolved Oxygen Minimum Operator
	Dissolved Oxygen Min	Dissolved Oxygen Minimum Value
	Dissolved Oxygen Max Op	Dissolved Oxygen Maximum Operator
	Dissolved Oxygen Max	Dissolved Oxygen Maximum Value
	Dissolved Oxygen Units	Dissolved Oxygen Units
Dissolved Inorganic Carbon (7 fields)	Dissolved Inorganic Carbon Mean Op	Dissolved Inorganic Carbon Mean Operator
	Dissolved Inorganic Carbon Mean	Dissolved Inorganic Carbon Mean Value
	Dissolved Inorganic Carbon Min Op	Dissolved Inorganic Carbon Minimum Operator
	Dissolved Inorganic Carbon Min	Dissolved Inorganic Carbon Minimum Value
	Dissolved Inorganic Carbon Max Op	Dissolved Inorganic Carbon Maximum Operator

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Dissolved Inorganic Carbon Maximum	Dissolved Inorganic Carbon Maximum Value
	Dissolved Inorganic Carbon Units	Dissolved Inorganic Carbon Units
Effect	Effect	Effect
Effect Meas.	Effect Measurement	Effect Measurement
Eff. % (6 fields)	Effect Percent Mean OP	Effect Percent Mean Value Operator
	Effect Percent Mean	Effect Percent Mean Value
	Effect Percent Min OP	Effect Percent Minimum Value Operator
	Effect Percent Min	Effect Percent Minimum Value
	Effect Percent Max OP	Effect Percent Maximum Value Operator
	Effect Percent Max	Effect Percent Maximum Value
Endpoint	Endpoint	Endpoint
Endpoint Assign.	Endpoint Assignment	Endpoint Assignment
EE Comment	EE Comment	Effect Endpoint (EE) Comment
Exp. Design	Experimental Design	Experimental Design Comment
Exp. Dur. (14 fields) (Author) or (Days)	Exposure Duration Op	Exposure Duration Operator
	Exposure Duration	Exposure Duration Value
	Exposure Duration Min Op	Exposure Duration Minimum Operator
	Exposure Duration Min	Exposure Duration Minimum Value
	Exposure Duration Max Op	Exposure Duration Maximum Operator
	Exposure Duration Max	Exposure Duration Maximum Value
	Exposure Duration Units	Exposure Duration Units
Exposure Sample Number	Exposure Sample Number	Exposure Sample Number
Exp. Type	Exposure Type	Exposure Type
General Comments	General Comments	General Comments
Geog. Loc	Geographic Location	Geographic Location
Geog. Code	Geographic Code	Geographic Code
Gender	Gender	Gender
Habitat	Habitat	Habitat Code
Habitat Code	Habitat Code	Habitat Code

Web Page Report Header	Delimited File Header Name	Header Name Definition
Habitat Comment	Habitat Comment	Habitat Comment
Hardness (mg/L)(7 fields)	Hardness Mean Op	Hardness Mean Operator
	Hardness Mean	Hardness Mean Value
	Hardness Min Op	Hardness Minimum Operator
	Hardness Min	Hardness Minimum Value
	Hardness Max Op	Hardness Maximum Operator
	Hardness Maximum	Hardness Maximum Value
	Hardness Units	Hardness Units
Humic Acid (mg/L)(7 fields)	Humic Acid Mean Op	Humic Acid Mean Operator
	Humic Acid Mean	Humic Acid Mean Value
	Humic Acid Min Op	Humic Acid Minimum Operator
	Humic Acid Min	Humic Acid Minimum Value
	Humic Acid Max Op	Humic Acid Maximum Operator
	Humic Acid Maximum	Humic Acid Maximum Value
	Humic Acid Units	Humic Acid Units
Intake Rate (7 Fields)	Intake Rate Mean Op	Intake Rate Mean Operator
	Intake Rate Mean	Intake Rate Mean Value
	Intake Rate Min Op	Intake Rate Minimum Operator
	Intake Rate Min	Intake Rate Minimum Value
	Intake Rate Max Op	Intake Rate Maximum Operator
	Intake Rate Maximum	Intake Rate Maximum Value
	Intake Rate Units	Intake Rate Units
Ion (3 fields)	Ionic Fraction1	Ionic Fraction1
	Ionic Fraction2	Ionic Fraction2
	Ionic Fraction3	Ionic Fraction3
Lat/Long	Latitude/Longitude	Latitude/Longitude
Magnesium (mg/L)(7 fields)	Magnesium Mean Op	Magnesium Mean Operator
	Magnesium Mean	Magnesium Mean Value
	Magnesium Min Op	Magnesium Minimum Operator

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Magnesium Min	Magnesium Minimum Value
	Magnesium Max Op	Magnesium Maximum Operator
	Magnesium Maximum	Magnesium Maximum Value
	Magnesium Units	Magnesium Units
Media Type	Media Type	Media Type
Number of Doses	Number of Doses	Number of Doses
Obs. Dur. (14 fields) (Author) or (Days)	Observed Duration Op	Observed Duration Operator
	Observed Duration	Observed Duration Value
	Observed Duration Min Op	Observed Duration Minimum Operator
	Observed Duration Min	Observed Duration Minimum Value
	Observed Duration Max Op	Observed Duration Maximum Operator
	Observed Duration Max	Observed Duration Maximum Value
	Observed Duration Units	Observed Duration Units
Org. Carb. Type Value (8 fields)	Organic Carbon Mean Op	Organic Carbon Mean Operator
	Organic Carbon Mean	Organic Carbon Mean Value
	Organic Carbon Min Op	Organic Carbon Minimum Operator
	Organic Carbon Min	Organic Carbon Minimum Value
	Organic Carbon Max Op	Organic Carbon Maximum Operator
	Organic Carbon Maximum,	Organic Carbon Maximum
	Organic Carbon Units	Organic Carbon Units
	Organic Carbon Type	Organic Carbon Type
Org. Age (7 fields)	Organism Age Mean OP	Organism Age Mean Operator
	Organism Age Mean	Organism Age Mean
	Organism Age Min OP	Organism Age Minimum Operator
	Organism Age Min	Organism Age Minimum
	Organism Age Max OP	Organism Age Maximum Operator
	Organism Age Max	Organism Age Maximum
	Organism Age Units	Organism Age Units
Org. Comment	Organism Comment	Organism Comment

Web Page Report Header	Delimited File Header Name	Header Name Definition
Species Final Weight	Species Final Weight Mean OP	Species Final Weight Mean Operator
	Species Final Weight Mean	Species Final Weight Mean
	Species Final Weight Min OP	Species Final Weight Minimum Operator
	Species Final Weight Min	Species Final Weight Minimum
	Species Final Weight Max OP	Species Final Weight Maximum Operator
	Species Final Weight Max	Species Final Weight Maximum
	Species Final Weight Units	Species Final Weight Units
Organism Initial Weight	Organism Initial Weight Mean OP	Organism Initial Weight Mean Operator
	Organism Initial Weight Mean	Organism Initial Weight Mean
	Organism Initial Weight Min OP	Organism Initial Weight Minimum Operator
	Organism Initial Weight Min	Organism Initial Weight Minimum
	Organism Initial Weight Max OP	Organism Initial Weight Maximum Operator
	Organism Initial Weight Max	Organism Initial Weight Max
	Organism Initial Weight Units	Organism Initial Weight Units
Org. Lifestg.	Organism Lifestage	Organism Lifestage
Organism Source	Organism Source	Organism Source
Other Effects	Other Effects	Other Effects
pH (6 fields)	pH Mean Op	pH Mean Operator
	pH Mean	pH Mean Value
	pH Min Op	pH Minimum Operator
	pH Min	pH Minimum Value
	pH Max Op	pH Maximum Operator
	pH Maximum	pH Maximum Value
Potassium (7 Fields)	Potassium Mean Op	Potassium Mean Operator
	Potassium Mean	Potassium Mean Value
	Potassium Min Op	Potassium Minimum Operator
	Potassium Min	Potassium Minimum Value
	Potassium Max Op	Potassium Maximum Operator

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Potassium Maximum	Potassium Maximum Value
	Potassium Unit	Potassium Unit
Pub. Year	Publication Year	Publication Year
Ref #	Reference Number	Reference Number
Reference Citation (4 fields)	Author	Author
	Title	Title
	Publication Year	Publication Year
	Source	Source
Resp. Site	Response Site	Response Site
Result Comment	Result Comment	
Result Percent Lipid (6 Fields)	Result Percent Lipid Mean Op	Result Percent Lipid Mean Operator
	Result Percent Lipid Mean	Result Percent Lipid Mean Value
	Result Percent Lipid Min Op	Result Percent Lipid Minimum Operator
	Result Percent Lipid Min	Result Percent Lipid Minimum Value
	Result Percent Lipid Max Op	Result Percent Lipid Maximum Operator
	Result Percent Lipid Maximum	Result Percent Lipid Maximum Value
Result Number	Result Number	
Result Sample Number	Result Sample Number Mean Op	Result Sample Number Mean Operator
	Result Sample Number Mean	Result Sample Number Mean Value
	Result Sample Number Min Op	Result Sample Number Minimum Operator
	Result Sample Number Min	Result Sample Number Minimum Value
	Result Sample Number Max Op	Result Sample Number Maximum Operator
	Result Sample Number Maximum	Result Sample Number Maximum Value
	Result Sample Number Unit	Result Sample Number Unit
Result Percent Dry/Wet Weight	Result Percent Dry/Wet Weight Mean Op	Result Percent Dry/Wet Weight Mean Operator

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Result Percent Dry/Wet Weight Mean	Result Percent Dry/Wet Weight Mean Value
	Result Percent Dry/Wet Weight Min Op	Result Percent Dry/Wet Weight Minimum Operator
	Result Percent Dry/Wet Weight Min	Result Percent Dry/Wet Weight Minimum Value
	Result Percent Dry/Wet Weight Max Op	Result Percent Dry/Wet Weight Maximum Operator
	Result Percent Dry/Wet Weight Maximum	Result Percent Dry/Wet Weight Maximum Value
	Result Percent Dry/Wet Weight Unit	Result Percent Dry/Wet Weight Unit
Salin. (7 fields)	Salinity Mean Op	Salinity Mean Operator
	Salinity Mean	Salinity Mean Value
	Salinity Min Op	Salinity Minimum Operator
	Salinity Min	Salinity Minimum Value
	Salinity Max Op	Salinity Maximum Operator
	Salinity Max	Salinity Maximum Value
	Salinity Units	Salinity Units
Seas.	Season	
Sig. Level	Significance Level Mean Op	Significance Level Mean Operator
	Significance Level Mean	Significance Level Mean Value
	Significance Level Min Op	Significance Level Minimum Operator
	Significance Level Min	Significance Level Minimum Value
	Significance Level Max Op	Significance Level Maximum Operator
	Significance Level Max	Significance Level Maximum Value
Sodium	Sodium Mean Op	Sodium Mean Operator
	Sodium Mean	Sodium Mean Value
	Sodium Min Op	Sodium Minimum Operator
	Sodium Min	Sodium Minimum Value
	Sodium Max Op	Sodium Maximum Operator
	Sodium Max	Sodium Maximum Value
	Sodium Unit	Sodium Unit

Web Page Report Header	Delimited File Header Name	Header Name Definition
Spec. Common Name	Species Common Name	Species Common Name
Spec. Sci. Name	Species Scientific Name	Species Scientific Name
Stat. Signif.	Statistical Significance	Statistical Significance
Species Taxon Info. (8 fields)	Species Kingdom	Species Kingdom
	Species Phylum	Species Phylum
	Species Subphylum	Species Subphylum
	Species Superclass	Species Superclass
	Species Class	Species Class
	Species Genus Species	Species Genus Species
	Species Variety	Species Variety
Spec. #	Species Number	Species Number
Steady State	Steady State	
Study Duration. (14 fields) (Author) or (Days)	Study Duration Op	Study Duration Operator
	Study Duration	Study Duration Value
	Study Duration Min Op	Study Duration Minimum Operator
	Study Duration Min	Study Duration Minimum Value
	Study Duration Max Op	Study Duration Maximum Operator
	Study Duration Max	Study Duration Maximum Value
	Study Duration Units	Study Duration Units
Study Type	Study Type	Study Type
Substr. Code	Substrate Code	Substrate Code
Substr. Comments	Substrate Comments	Substrate Comments
Sulfate	Sulfate Mean Op	Sulfate Mean Operator
	Sulfate Mean	Sulfate Mean Value
	Sulfate Min Op	Sulfate Minimum Operator
	Sulfate Min	Sulfate Minimum Value
	Sulfate Max Op	Sulfate Maximum Operator
	Sulfate Max	Sulfate Maximum Value
	Sulfate Unit	Sulfate Unit
Sulfur	Sulfur Mean Op	Sulfur Mean Operator

Web Page Report Header	Delimited File Header Name	Header Name Definition
	Sulfur Mean	Sulfur Mean Value
	Sulfur Min Op	Sulfur Minimum Operator
	Sulfur Min	Sulfur Minimum Value
	Sulfur Max Op	Sulfur Maximum Operator
	Sulfur Max	Sulfur Maximum Value
	Sulfur Unit	Sulfur Unit
Temp. (7 fields)	Temperature Mean Op	Temperature Mean Operator
	Temperature Mean	Temperature Mean Value
	Temperature Min Op	Temperature Minimum Operator
	Temperature Min	Temperature Minimum Value
	Temperature Max Op	Temperature Maximum Operator
	Temperature Max	Temperature Maximum Value
	Temperature Units	Temperature Units
Test #	Test Number	Test Number
Test Location	Test Location	Test Location
Test Method	Test Method	Test Method
Test Type	Test Type	Test Type
Title	Title	Title of the Publication
Trend	Trend	Trend
Water Depth (7 fields)	Water Depth Mean Op	Water Depth Mean Operator
	Water Depth Mean	Water Depth Mean Value
	Water Depth Min Op	Water Depth Minimum Operator
	Water Depth Min	Water Depth Minimum Value
	Water Depth Max Op	Water Depth Maximum Operator
	Water Depth Max	Water Depth Maximum Value
	Water Depth Units	Water Depth Units

Terrestrial Delimited Report Output Codes

A forward slash (/) within a field refers to an associated comment in a separate field. You will need to view the full publication for proper interpretation.

Notes: OP = operator (>, >=, <, <=, =)

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
Appl. Date	Application Date	
Appl. Freq. (7 fields)	Application Frequency Mean Op	Application Frequency Mean Operator
	Application Frequency Mean	Application Frequency Mean Value
	Application Frequency Min Op	Application Frequency Minimum Operator
	Application Frequency Min	Application Frequency Minimum Value
	Application Frequency Max Op	Application Frequency Maximum Operator
	Application Frequency Max	Application Frequency Maximum Value
	Application Frequency Units	Application Frequency Units
Appl. Rate (2 fields)	Application Rate	Application Rate
	Application Units	Application Units
Appl. Seas.	Application Season	Application Season
Appl. Type	Application Type	Application Type
Author	Author	
BCF/BAF ** BCF/BAF values are located in "Observed Response Value" field in the Excel/Delimited reports**	BCF1 Value Op	Bioconcentration Factor Mean Operator
	BCF1 Value	Bioconcentration Factor Mean Value
	BCF1 Min Op	Bioconcentration Factor Minimum Operator
	BCF1 Min	Bioconcentration Factor Minimum Value
	BCF1 Max Op	Bioconcentration Factor Maximum Operator
	BCF1 Max	Bioconcentration Factor Maximum Value
	CAS #	CAS Number

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
Chemical Carrier	Carrier	Contains all carriers (up to three) and all the associated information (Chemical Name, Chemical Grade, Chemical Formulation, Chemical Radiolabel, Chemical Characteristics, Chemical Purity.
Chem. Anal.	Chemical Analysis Method	Chemical Analysis Method
Chem. Comment	Chemical Comment	Test Chemical Comment
Chem. Grade	Chemical Grade	Test Chemical Grade
Chem. Form.	Chemical Formulation	Test Chemical Formulation
Chemical Name	Chemical Name	Test Chemical Name
Chem. Pur.	Chemical Purity	Test Chemical Purity
Chem. Radiolabel	Chemical Radiolabel	Test Chemical Radiolabel
Chem. Half Life (7 fields)	Chemical Half Life Mean OP	Chemical Half Life Mean Operator
	Chemical Half Life Mean	Chemical Half Life Mean
	Chemical Half Life Min OP	Chemical Half Life Minimum Operator
	Chemical Half Life Min	Chemical Half Life Minimum
	Chemical Half Life MaxOP	Chemical Half Life Maximum Operator
	Chemical Half Life Max	Chemical Half Life Maximum
	Chemical Half Life Unit	Chemical Half Life Unit
Dose (10 fields)	Dose Mean Op	Dose Mean Operator
	Dose Mean	Dose Mean Value
	Dose Min Op	Dose Minimum Operator
	Dose Min	Dose Minimum Value
	Dose Max Op	Dose Maximum Operator
	Dose Max	Dose Maximum Value
	Dose Statistical Method	Dose Statistical Method
	Dose Value Op	Dose Statistical Method Operator
	Dose Value	Dose Statistical Method Value
	Dose Units	Dose Units
Control	Control	Control
Dose #	Dose Number	Dose Number

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
EE Comment	EE Comment	Effect Endpoint (EE) Comment
Effect	Effect	Effect
Effect Meas.	Effect Measurement	Effect Measurement
Eff. % (6 fields)	Effect Percent Mean OP	Effect Percent Mean Value Operator
	Effect Percent Mean	Effect Percent Mean Value
	Effect Percent Min OP	Effect Percent Minimum Value Operator
	Effect Percent Min	Effect Percent Minimum Value
	Effect Percent Max OP	Effect Percent Maximum Value Operator
	Effect Percent Max	Effect Percent Maximum Value
Endpoint	Endpoint	Endpoint
Endpoint Assign.	Endpoint Assignment	Endpoint Assignment
Experimental Design	Experimental Design	Experimental Design Comment
Exp. Type	Exposure Type	Exposure Type
Exposure Comment	Exposure Comment	Exposure Comment
Exp. Dur (Author or Days)	Exposure Mean Op	Exposure Duration Mean Operator (Author) or (Days)
	Exposure Mean	Exposure Duration Mean Value (Author) or (Days)
	Exposure Min Op	Exposure Duration Minimum Operator (Author) or (Days)
	Exposure Min	Exposure Duration Minimum Value (Author) or (Days)
	Exposure Max Op	Exposure Duration Maximum Operator (Author) or (Days)
	Exposure Max	Exposure Duration Maximum Value (Author) or (Days)
	Exposure Duration Units	(Author) or (Days)
Exp. Sample # (7 fields)	Exposure Sample Number Mean Op	Exposure Sample Number Mean Operator (Author) or (Days)
	Exposure Sample Number Mean	Exposure Sample Number Mean Value (Author) or (Days)
	Exposure Sample Number Min Op	Exposure Sample Number Minimum Operator (Author) or (Days)

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
	Exposure Sample Number Min	Exposure Sample Number Minimum Value (Author) or (Days)
	Exposure Sample Number Max Op	Exposure Sample Number Maximum Operator (Author) or (Days)
	Exposure Sample Number Max	Exposure Sample Number Maximum Value (Author) or (Days)
Gender	Gender	Gender
Gen. Comments	General Comments	General Comments
Geog. Loc	Geographic Location	Geographic Location
Geog. Code	Geographic Code	Geographic Code
Habitat	Habitat	Habitat
Habitat Code	Habitat Code	Habitat Code
Habitat Comment	Habitat Comment	Habitat Comment
Intake Rate (7 Fields)	Intake Rate Mean Op	Intake Rate Mean Operator
	Intake Rate Mean	Intake Rate Mean Value
	Intake Rate Min Op	Intake Rate Minimum Operator
	Intake Rate Min	Intake Rate Minimum Value
	Intake Rate Max Op	Intake Rate Maximum Operator
	Intake Rate Maximum	Intake Rate Maximum Value
	Intake Rate Units	Intake Rate Units
Ion	Ionic Fraction	Ionic Fraction
Lat/Long	Latitude/Longitude	Latitude/Longitude
Media Meas. Wet/Dry	Media Measurement (wet/dry)	Media Measurement (wet/ dry)
Media CEC (7 fields)	Media CEC Mean Op	Media Cation Exchange Capacity Mean Operator
	Media CEC Mean	Media Cation Exchange Capacity Mean Value
	Media CEC Min Op	Media Cation Exchange Capacity Minimum Operator
	Media CEC Min	Media Cation Exchange Capacity Minimum Value
	Media CEC Max Op	Media Cation Exchange Capacity Maximum Operator

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
	Media CEC Max	Media Cation Exchange Capacity Maximum Value
	Media CEC Units	Media Cation Exchange Capacity Units
Media Moist. (6 fields)	Media Moisture Mean Op	Media Moisture Mean Operator
	Media Moisture Mean	Media Moisture Mean Value
	Media Moisture Min Op	Media Moisture Minimum Operator
	Media Moisture Min	Media Moisture Minimum Value
	Media Moisture Max Op	Media Moisture Maximum Operator
	Media Moisture Max	Media Moisture Maximum Value
Media Orgnc. Mat. (7 fields)	Media Organic Matter Mean Op	Media Organic Matter Mean Operator
	Media Organic Matter Mean	Media Organic Matter Mean Value
	Media Organic Matter Min Op	Media Organic Matter Minimum Operator
	Media Organic Matter Min	Media Organic Matter Minimum Value
	Media Organic Matter Max Op	Media Organic Matter Maximum Operator
	Media Organic Matter Max	Media Organic Matter Maximum Value
	Media Organic Matter Units	Media Organic Matter Units
Media Type	Media Type	Media Type
Obs. Dur. (Author), (Days)	Observation Duration Mean Op	Observation Duration Mean Operator (Author) or (Days)
	Observation Duration Mean	Observation Duration Mean Value (Author) or (Days)
	Observation Duration Min Op	Observation Duration Minimum Operator (Author) or (Days)
	Observation Duration Min	Observation Duration Minimum Value (Author) or (Days)
	Observation Duration Max Op	Observation Duration Maximum (Author) or (Days)
	Observation Duration Max	Observation Duration Maximum Value (Author) or (Days)
	Observation Duration Unit	(Author) or (Days)
<Not available in Tabular Report>	Observed Response Mean	Observed Response Mean Value
	Observed Response Min	Observed Response Minimum Value

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
	Observed Response Max	Observed Response Maximum Value
	Observed Response Value	Observed Response Statistical Method Value
	Observed Response Mean Op	Observed Response Mean Operator
	Observed Response Min Op	Observed Response Minimum Operator
	Observed Response Max Op	Observed Response Maximum Operator
	Observed Response Units	Observed Response Units
Org. Comment	Organism Comment	Organism Comment
Org. Age (7 fields)	Organism Age Mean OP	Organism Age Mean Operator
	Organism Age Mean	Organism Age Mean
	Organism Age Min OP	Organism Age Minimum Operator
	Organism Age Min	Organism Age Minimum
	Organism Age Max OP	Organism Age Maximum Operator
	Organism Age Max	Organism Age Maximum
	Organism Age Units	Organism Age Units
Org. Comment	Organism Comment	Organism Comment
Org. Init. Wt.	Organism Initial Weight Mean OP	Organism Initial Weight Mean Operator
	Organism Initial Weight Mean	Organism Initial Weight Mean
	Organism Initial Weight Min OP	Organism Initial Weight Minimum Operator
	Organism Initial Weight Min	Organism Initial Weight Minimum
	Organism Initial Weight Max OP	Organism Initial Weight Maximum Operator
	Organism Initial Weight Max	Organism Initial Weight Maximum
	Organism Initial Weight Units	Organism Initial Weight Units
Org. Lifestg.	Organism Lifestage	Organism Lifestage
Org. Source	Organism Source	Organism Source
Other Effects	Other Effects	Other Effects
Ref. #	Reference Number	Reference Number

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
Reference Citation (2 fields, author, year) Click on "References" to obtain full citation	Author Title Year Source	Author Title Year Source
Resp. Site	Response Site	Response Site
Result Comment	Result Comment	Result Comment
Result % Dry/Wet Weight	Result Percent Dry/Wet Weight	Result Percent Dry/Wet Weight
Result % Lipid	Result Percent Lipid	Result Percent Lipid
Result Rec. Num.	Result Record Number	Result Record Number
<Not available in Tabular Report>	Result Statistical Method	(see "Observed Response Value" field to locate associated value)
<Not available in Tabular Report>	Result Sample Number	Result Sample Number
<Not available in Tabular Report>	Result Sample Unit	Result Sample Unit
Sig. Level	Significance Level	Significance Level
Soil Dose Meas.	Soil Dose	Soil Does Measured
Soil Clay % (6 fields)	Soil Clay Percent Mean Op	Soil Clay Percent Mean Operator
	Soil Clay Percent Mean	Soil Clay Percent Mean Value
	Soil Clay Percent Min Op	Soil Clay Percent Minimum Operator
	Soil Clay Percent Min	Soil Clay Percent Minimum Value
	Soil Clay Percent Max Op	Soil Clay Percent Maximum Operator
	Soil Clay Percent Maximum	Soil Clay Percent Maximum Value
Soil Sand % (6 fields)	Soil Sand Percent Mean Op	Soil Sand Percent Mean Operator
	Soil Sand Percent Mean	Soil Sand Percent Mean Value
	Soil Sand Percent Min Op	Soil Sand Percent Minimum Operator
	Soil Sand Percent Min	Soil Sand Percent Minimum Value
	Soil Sand Percent Max Op	Soil Sand Percent Maximum Operator
	Soil Sand Percent Max	Soil Sand Percent Maximum Value

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
Soil Silt % (6 fields)	Soil Silt Percent Mean Op	Soil Silt Percent Mean Operator
	Soil Silt Percent Mean	Soil Silt Percent Mean Value
	Soil Silt Percent Min Op	Soil Silt Percent Minimum Operator
	Soil Silt Percent Min	Soil Silt Percent Minimum Value
	Soil Silt Percent Max Op	Soil Silt Percent Maximum Operator
	Soil Silt Percent Max	Soil Silt Percent Maximum Value
Soil pH (6 fields)	Soil pH Mean Op	Soil pH Mean Operator
	Soil pH Mean	Soil pH Mean Value
	Soil pH Min Op	Soil pH Minimum Operator
	Soil pH Min	Soil pH Minimum Value
	Soil pH Max Op	Soil pH Maximum Operator
	Soil pH Max	Soil pH Maximum Value
Soil Type	Soil Type	Soil Type
Source	Source	Bibliographic Source
Spec. Common Name	Species Common Name	
Org. Final Wt	Species Final Weight Mean OP	Species Final Weight Mean Operator
	Species Final Weight Mean	Species Final Weight Mean
	Species Final Weight Min OP	Species Final Weight Minimum Operator
	Species Final Weight Min	Species Final Weight Minimum
	Species Final Weight Max OP	Species Final Weight Maximum Operator
	Species Final Weight Max	Species Final Weight Maximum
	Species Final Weight Units	Species Final Weight Units
Species Group	Species Group	Species Group
Species Taxon. Info. (8 fields)	Species Kingdom	Species Kingdom
	Species Phylum	Species Phylum
	Species Subphylum	Species Subphylum
	Species Superclass	Species Superclass
	Species Class	Species Class
	Species Genus Species	Species Genus Species

Web Page Report Header	Delimited File Header Name	Delimited Header Definition
	Species Variety	Species Variety
Spec. #	Species Number	Species Number
Spec. Sci. Name	Species Scientific Name	Species Scientific Name
Signif.	Statistical Significance	Statistical Significance
Steady State	Steady State	Steady State
Study Dur. (7 fields)	Study Mean Op	Study Duration Mean Operator (Author) or (Days)
	Study Mean	Study Duration Mean Value (Author) or (Days)
	Study Min Op	Study Duration Minimum Operator (Author) or (Days)
	Study Min	Study Duration Minimum Value (Author) or (Days)
	Study Max Op	Study Duration Maximum Operator (Author) or (Days)
	Study Max	Study Duration Maximum Value (Author) or (Days)
	Study Duration Unit	(Author) or (Days)
Test Comments	Test Comment	Test Comment
Test Loc.	Test Location	Test Location
Test #	Test Number	Test Number
Test Method	Test Method	Test Method
Test Type	Test Type	Test Type
Trend	Trend	Trend
Title	Title	Title of Publication
Pub. Year	Year	Publication Year