

# Package: ssddata (via r-universe)

September 16, 2024

**Title** Species Sensitivity Distribution Data

**Version** 1.0.0

**Description** Reference data sets of species sensitivities to compare the results of fitting species sensitivity distributions using software such as 'ssdtools' and 'Burrlioz'. It consists of 17 primary data sets from four different Australian and Canadian organizations as well as five datasets from anonymous sources. It also includes a data set of the results of fitting various distributions using different software.

**License** Apache License (== 2.0)

**Depends** R (>= 3.5)

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**Suggests** covr, testthat (>= 3.0.0)

**RdMacros** Rdpack

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---

aims\_aluminium\_marine *Species Sensitivity Data for aluminium\_marine*

---

### Description

Species Sensitivity Data provided by the Australian Institute of Marine Science for aluminium in marine water.

### Usage

```
aims_aluminium_marine
```

### Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 20 rows and 9 columns.

## Details

These data were sourced from: van Dam JW, Trenfield MA, Streten C, Harford AJ, Parry D, van Dam RA (2018). “Water quality guideline values for aluminium, gallium and molybdenum in marine environments.” *Environmental Science and Pollution Research*, **25**(26), 26592–26602. ISSN 16147499, <https://link.springer.com/article/10.1007/s11356-018-2702-y>.

The columns are as follows:

**Common** The species common name (chr).

**Conc** The chemical concentration in micrograms per Litre (dbl).

**Domain** Tropical, temperate or other filter (chr).

**Life\_stage** Life stage of the test organism (chr).

**Phylum** The Phylum name (chr).

**Source** The endpoint primary data source (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

## Examples

```
print(aims_aluminium_marine, n=Inf)
```

---

aims\_data

*Species Sensitivity Data provided by AIMS*

---

## Description

Species Sensitivity Data provided by the Australian Institute of Marine Science.

## Usage

```
aims_data
```

## Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 40 rows and 11 columns.

## Details

Additional information may be available from the primary source for each chemical:

**aluminium\_marine** van Dam JW, Trenfield MA, Streten C, Harford AJ, Parry D, van Dam RA (2018). “Water quality guideline values for aluminium, gallium and molybdenum in marine environments.” *Environmental Science and Pollution Research*, **25**(26), 26592–26602. ISSN 16147499, <https://link.springer.com/article/10.1007/s11356-018-2702-y>.

**gallium\_marine** van Dam JW, Trenfield MA, Streten C, Harford AJ, Parry D, van Dam RA (2018). “Water quality guideline values for aluminium, gallium and molybdenum in marine environments.” *Environmental Science and Pollution Research*, **25**(26), 26592–26602. ISSN 16147499, <https://link.springer.com/article/10.1007/s11356-018-2702-y>.

**molybdenum\_marine** van Dam JW, Trenfield MA, Streten C, Harford AJ, Parry D, van Dam RA (2018). “Water quality guideline values for aluminium, gallium and molybdenum in marine environments.” *Environmental Science and Pollution Research*, **25**(26), 26592–26602. ISSN 16147499, <https://link.springer.com/article/10.1007/s11356-018-2702-y>.

The columns are as follows, noting that all information may not be available for all chemicals:

**Chemical** The chemical name (chr).

**Common** The species common name (chr).

**Conc** The chemical concentration in micrograms per Litre (dbl).

**Domain** Tropical, temperate or other filter (chr).

**Life\_stage** Life stage of the test organism (chr).

**Medium** The medium - fresh or marine water (chr).

**Phylum** The Phylum name (chr).

**Source** The endpoint primary data source (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

## Examples

```
head(aims_data)
```

---

aims\_gallium\_marine    *Species Sensitivity Data for gallium\_marine*

---

## Description

Species Sensitivity Data provided by the Australian Institute of Marine Science for gallium in marine water.

**Usage**

```
aims_gallium_marine
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 6 rows and 9 columns.

**Details**

These data were sourced from: van Dam JW, Trenfield MA, Streten C, Harford AJ, Parry D, van Dam RA (2018). “Water quality guideline values for aluminium, gallium and molybdenum in marine environments.” *Environmental Science and Pollution Research*, **25**(26), 26592–26602. ISSN 16147499, <https://link.springer.com/article/10.1007/s11356-018-2702-y>.

The columns are as follows:

**Common** The species common name (chr).

**Conc** The chemical concentration in micrograms per Litre (dbl).

**Domain** Tropical, temperate or other filter (chr).

**Life\_stage** Life stage of the test organism (chr).

**Phylum** The Phylum name (chr).

**Source** The endpoint primary data source (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

**Examples**

```
print(aims_gallium_marine, n=Inf)
```

---

```
aims_molybdenum_marine
```

*Species Sensitivity Data for molybdenum\_marine*

---

**Description**

Species Sensitivity Data provided by the Australian Institute of Marine Science for molybdenum in marine water.

**Usage**

```
aims_molybdenum_marine
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 14 rows and 9 columns.

**Details**

These data were sourced from: van Dam JW, Trenfield MA, Streten C, Harford AJ, Parry D, van Dam RA (2018). “Water quality guideline values for aluminium, gallium and molybdenum in marine environments.” *Environmental Science and Pollution Research*, **25**(26), 26592–26602. ISSN 16147499, <https://link.springer.com/article/10.1007/s11356-018-2702-y>.

The columns are as follows:

**Common** The species common name (chr).

**Conc** The chemical concentration in micrograms per Litre (dbl).

**Domain** Tropical, temperate or other filter (chr).

**Life\_stage** Life stage of the test organism (chr).

**Phylum** The Phylum name (chr).

**Source** The endpoint primary data source (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

**Examples**

```
print(aims_molybdenum_marine, n=Inf)
```

---

anon\_a

*Anonymous Species Sensitivity Data anon\_a*

---

**Description**

Species Sensitivity Data from anonymous sources.

**Usage**

anon\_a

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 18 rows and 2 columns.

**Details**

This example data were sourced from:

DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.

The columns are as follows:

**Chemical** The chemical name (chr).

**Conc** The chemical concentration (dbl).

**Examples**

```
print(anon_a, n=Inf)
```

---

anon_b	<i>Anonymous Species Sensitivity Data anon_b</i>
--------	--

---

**Description**

Species Sensitivity Data from anonymous sources.

**Usage**

```
anon_b
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 10 rows and 2 columns.

**Details**

This example data were sourced from:

DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.

The columns are as follows:

**Chemical** The chemical name (chr).

**Conc** The chemical concentration (dbl).

**Examples**

```
print(anon_b, n=Inf)
```

---

anon\_c

*Anonymous Species Sensitivity Data anon\_c*

---

### Description

Species Sensitivity Data from anonymous sources.

### Usage

anon\_c

### Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 16 rows and 2 columns.

### Details

This example data were sourced from:

DAWE (2021). "Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia." April 20.

The columns are as follows:

**Chemical** The chemical name (`chr`).

**Conc** The chemical concentration (`dbl`).

### Examples

```
print(anon_c, n=Inf)
```

---

anon\_d

*Anonymous Species Sensitivity Data anon\_d*

---

### Description

Species Sensitivity Data from anonymous sources.

### Usage

anon\_d

### Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 12 rows and 2 columns.



**Details**

This example data were sourced from:

DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.

The columns are as follows:

**Chemical** The chemical name (chr).

**Conc** The chemical concentration (dbl).

**Examples**

```
print(anon_d, n=Inf)
```

---

anon_data	<i>Anonymous Species Sensitivity Data</i>
-----------	---

---

**Description**

Species Sensitivity Data from Anonymous sources

**Usage**

```
anon_data
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 73 rows and 2 columns.

**Details**

Additional information on each of the chemicals may be available from their primary source, at:

- a** DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.
- c** DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.
- d** DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.
- b** DAWE (2021). “Unpublished data, anonymous/confidential information supplied by Department of Agriculture Water and the Environment, Australia.” April 20.
- e** Fox DR, van Dam RA, Fisher R, Batley GE, Tillmanns AR, Thorley J, Schwarz CJ, Spry DJ, McTavish K (2021). “Recent developments in Species Sensitivity Distribution Modeling.” *Environmental Toxicology and Chemistry*, **40**(2), 293–308. doi: [10.1002/etc.4925](https://doi.org/10.1002/etc.4925), <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4925>.

**Chemical** The chemical (chr), in this case an anonymous unique identifier.

**Conc** The chemical concentration (dbl).

## Examples

```
head(anon_data)
```

---

anon_e	<i>Anonymous Species Sensitivity Data anon_e</i>
--------	--

---

## Description

Species Sensitivity Data from anonymous sources.

## Usage

```
anon_e
```

## Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 17 rows and 2 columns.

## Details

This example data were sourced from:

Fox DR, van Dam RA, Fisher R, Batley GE, Tillmanns AR, Thorley J, Schwarz CJ, Spry DJ, McTavish K (2021). “Recent developments in Species Sensitivity Distribution Modeling.” *Environmental Toxicology and Chemistry*, **40**(2), 293–308. doi: [10.1002/etc.4925](https://doi.org/10.1002/etc.4925), <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4925>.

The columns are as follows:

**Chemical** The chemical name (chr).

**Conc** The chemical concentration (dbl).

## Examples

```
print(anon_e, n=Inf)
```

anzg\_data

*ANZG Species Sensitivity Data***Description**

ANZG Species Sensitivity Data provided by the Department of Agriculture Water and the Environment, Australia.

**Usage**

anzg\_data

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 21 rows and 12 columns.

**Details**

These data are licensed under CC BY 4.0 (summary of terms provided here: <https://creativecommons.org/licenses/by/4.0/>).

Additional information is available from the Water Quality website at <https://www.waterquality.gov.au/>.

Additional information may be available from the primary source for each chemical:

**metolachlor\_fresh** ANZG (2020). “Toxicant default guideline values for aquatic ecosystem protection: Metolachlor in freshwater.” Australian and New Zealand Governments and Australian State and Territory Governments, Canberra, Australia. <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/toxicants/metolachlor-fresh-2020>.

The columns are as follows, noting that some information may not be available for all chemicals:

**Chemical** The chemical name (chr).

**Conc** The chemical concentration in micrograms per Litre (dbl).

**Duration** The duration of the test in days (dbl).

**Genus** The Genus name (chr).

**Group** The taxonomic group (chr).

**Life\_stage** Life stage of the test organism (chr).

**Medium** The medium - fresh or marine water (chr).

**Notes** Other notes (chr).

**Phylum** The Phylum name (chr).

**Species** The species binomial name (chr).

**Test\_endpoint** The test endpoint measure (chr).

**Toxicity\_measure** The toxicity measure used (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

### Examples

```
head(anzg_data)
```

---

```
anzg_metolachlor_fresh
```

```
Species Sensitivity Data for metolachlor_fresh
```

---

### Description

ANZG Species Sensitivity Data provided by the Department of Agriculture Water and the Environment, Australia for metolachlor in fresh water.

### Usage

```
anzg_metolachlor_fresh
```

### Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 21 rows and 10 columns.

### Details

These data are licensed under CC BY 4.0 (summary of terms provided here: <https://creativecommons.org/licenses/by/4.0/>) Additional information is available from the Water Quality website at <https://www.waterquality.gov.au/>

Please cite these data as: ANZG (2020). “Toxicant default guideline values for aquatic ecosystem protection: Metolachlor in freshwater.” Australian and New Zealand Governments and Australian State and Territory Governments, Canberra, Australia. <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants/toxicants/metolachlor-fresh-2020>.

The columns are as follows:

**Conc** The chemical concentration in micrograms per Litre (dbl).

**Duration** The duration of the test in days (dbl).

**Genus** The Genus name (chr).

**Group** The taxonomic group (chr).

**Life\_stage** Life stage of the test organism (chr).

**Notes** Other notes (chr).

**Phylum** The Phylum name (chr).

**Species** The species binomial name (chr).

**Test\_endpoint** The test endpoint measure (chr).

**Toxicity\_measure** The toxicity measure used (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

### Examples

```
print(anzg_metolachlor_fresh, n=Inf)
```

---

ccme\_boron

*CCME Species Sensitivity Data for ccme\_boron*

---

### Description

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for boron.

### Usage

```
ccme_boron
```

### Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 28 rows and 5 columns.

### Details

Additional information is available from (2021). "CCME." May 06, <https://ccme.ca/en/chemical/16>.

The columns are as follows:

**Chemical** The chemical (chr).

**Species** The species binomial name (chr).

**Conc** The chemical concentration (dbl).

**Group** The taxonomic group (fct).

**Units** The units of Conc (chr).

### Examples

```
print(ccme_boron, n=Inf)
```

---

`ccme_cadmium`*CCME Species Sensitivity Data for ccme\_cadmium*

---

**Description**

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for cadmium.

**Usage**`ccme_cadmium`**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 36 rows and 5 columns.

**Details**

Additional information is available from (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/20>.

The columns are as follows:

**Chemical** The chemical (`chr`).

**Species** The species binomial name (`chr`).

**Conc** The chemical concentration (`dbl`).

**Group** The taxonomic group (`fct`).

**Units** The units of `Conc` (`chr`).

**Examples**

```
print(ccme_cadmium, n=Inf)
```

---

`ccme_chloride`*CCME Species Sensitivity Data for ccme\_chloride*

---

**Description**

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for chloride.

**Usage**`ccme_chloride`

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 28 rows and 5 columns.

**Details**

Additional information is available from (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/28>.

The columns are as follows:

**Chemical** The chemical (`chr`).

**Species** The species binomial name (`chr`).

**Conc** The chemical concentration (`dbl`).

**Group** The taxonomic group (`fct`).

**Units** The units of `Conc` (`chr`).

**Examples**

```
print(ccme_chloride, n=Inf)
```

---

ccme\_data

*CCME Species Sensitivity Data*

---

**Description**

Species Sensitivity Data from the Canadian Council of Ministers of the Environment. The taxonomic groups are Amphibian, Fish, Invertebrate and Plant. Plants includes freshwater algae.

**Usage**

```
ccme_data
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 144 rows and 5 columns.

**Details**

Additional information on each of the chemicals is available from the CCME website.

**boron** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/16>.

**cadmium** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/20>.

**chloride** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/28>.

**endosulfan** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/93>.

**glyphosate** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/102>.

**uranium** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/225>.

**silver** (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/198>.

The columns are as follows:

**Chemical** The chemical (chr).

**Species** The species binomial name (chr).

**Conc** The chemical concentration (dbl).

**Group** The taxonomic group (fct).

**Units** The units of Conc (chr).

### Examples

```
head(ccme_data)
```

---

ccme_endosulfan	<i>CCME Species Sensitivity Data for ccme_endosulfan</i>
-----------------	--

---

### Description

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for endosulfan.

### Usage

```
ccme_endosulfan
```

### Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 12 rows and 5 columns.

### Details

Additional information is available from (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/93>.

The columns are as follows:

**Chemical** The chemical (chr).

**Species** The species binomial name (chr).

**Conc** The chemical concentration (dbl).

**Group** The taxonomic group (fct).

**Units** The units of Conc (chr).

### Examples

```
print(ccme_endosulfan, n=Inf)
```



---

ccme_glyphosate	<i>CCME Species Sensitivity Data for ccme_glyphosate</i>
-----------------	--

---

**Description**

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for glyphosate.

**Usage**

```
ccme_glyphosate
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 18 rows and 5 columns.

**Details**

Additional information is available from (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/102>.

The columns are as follows:

**Chemical** The chemical (chr).

**Species** The species binomial name (chr).

**Conc** The chemical concentration (dbl).

**Group** The taxonomic group (fct).

**Units** The units of Conc (chr).

**Examples**

```
print(ccme_glyphosate, n=Inf)
```

---

ccme_silver	<i>CCME Species Sensitivity Data for ccme_silver</i>
-------------	--

---

**Description**

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for silver.

**Usage**

```
ccme_silver
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 9 rows and 5 columns.

**Details**

Additional information is available from (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/198>.

The columns are as follows:

**Chemical** The chemical (chr).

**Species** The species binomial name (chr).

**Conc** The chemical concentration (dbl).

**Group** The taxonomic group (fct).

**Units** The units of Conc (chr).

**Examples**

```
print(ccme_silver, n=Inf)
```

---

ccme\_uranium

*CCME Species Sensitivity Data for ccme\_uranium*

---

**Description**

Species Sensitivity Data from the Canadian Council of Ministers of the Environment for uranium.

**Usage**

```
ccme_uranium
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 13 rows and 5 columns.

**Details**

Additional information is available from (2021). “CCME.” May 06, <https://ccme.ca/en/chemical/225>.

The columns are as follows:

**Chemical** The chemical (chr).

**Species** The species binomial name (chr).

**Conc** The chemical concentration (dbl).

**Group** The taxonomic group (fct).

**Units** The units of Conc (chr).

**Examples**

```
print(ccme_uranium, n=Inf)
```

---

csiro\_chlorine\_marine *Species Sensitivity Data for chlorine\_marine*

---

**Description**

Species Sensitivity Data provided by the Commonwealth Scientific and Industrial Research Organisation of Australia for chlorine in marine water.

**Usage**

```
csiro_chlorine_marine
```

**Format**

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 30 rows and 2 columns.

**Details**

These data were sourced from: Batley GE, Simpson SL (2020). "Short-Term Guideline Values for Chlorine in Marine Waters." *Environmental Toxicology and Chemistry*. ISSN 15528618, <https://setac.onlinelibrary.wiley.com/doi/full/10.1002/etc.4661>.

The columns are as follows:

**Conc** The chemical concentration (dbl).

**Group** Taxonomic grouping information (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

All concentration data are ug/L unless otherwise stated.

**Examples**

```
print(csiro_chlorine_marine, n=Inf)
```

---

csiro\_cobalt\_marine *Species Sensitivity Data for cobalt\_marine*

---

## Description

Species Sensitivity Data provided by the Commonwealth Scientific and Industrial Research Organisation of Australia for cobalt in marine water.

## Usage

csiro\_cobalt\_marine

## Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 14 rows and 7 columns.

## Details

These data were sourced from: Batley G (2021). “Unpublished data, anonymous/confidential information.” March 23.

The columns are as follows:

**Conc** The chemical concentration (dbl).

**Duration** Test duration (chr).

**Group** Taxonomic grouping information (chr).

**Life\_stage** Life stage of the test organism (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

All concentration data are ug/L unless otherwise stated.

## Examples

```
print(csiro_cobalt_marine, n=Inf)
```

---

csiro\_data

*Species Sensitivity Data provided by CSIRO*

---

## Description

Species Sensitivity Data provided by the Commonwealth Scientific and Industrial Research Organisation of Australia.

## Usage

csiro\_data

## Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 91 rows and 11 columns.

## Details

Additional information may be available from the primary source for each chemical:

**chlorine\_marine** Batley GE, Simpson SL (2020). “Short-Term Guideline Values for Chlorine in Marine Waters.” *Environmental Toxicology and Chemistry*. ISSN 15528618, <https://setac.onlinelibrary.wiley.com/doi/full/10.1002/etc.4661>.

**nickel\_fresh** Stauber J, Golding L, Peters A, Merrington G, Adams M, Binet M, Batley G, Gissi F, Mcknight K, Garman E, Middleton E, Gadd J, Schlekat C (2021). “Environmental Toxicology Application of Bioavailability Models to Derive Chronic Guideline Values for Nickel in Freshwaters of Australia and New Zealand.” *Environmental Toxicology and Chemistry*, **40**(1), 100–112. doi: [10.1002/etc.4885](https://doi.org/10.1002/etc.4885), <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4885>.

**cobalt\_marine** Batley G (2021). “Unpublished data, anonymous/confidential information.” March 23.

**lead\_marine** Batley G (2021). “Unpublished data, anonymous/confidential information.” March 23.

The columns are as follows, noting that not all information are available for all chemicals:

**Chemical** The chemical name (chr).

**Conc** The chemical concentration (dbl).

**Domain** Tropical, temperate or other filter (chr).

**Duration** Test duration (chr).

**Group** Taxonomic grouping information (chr).

**Life\_stage** Life stage of the test organism (chr).

**Medium** The medium - fresh or marine water (chr).

**Notes** Other notes (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

All concentration data are ug/L unless otherwise stated.

## Examples

```
head(csiro_data)
```

---

csiro_lead_marine	<i>Species Sensitivity Data for lead_marine</i>
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---

## Description

Species Sensitivity Data provided by the Commonwealth Scientific and Industrial Research Organisation of Australia for lead in marine water.

## Usage

```
csiro_lead_marine
```

## Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 16 rows and 7 columns.

## Details

These data were sourced from: Batley G (2021). “Unpublished data, anonymous/confidential information.” March 23.

The columns are as follows:

**Conc** The chemical concentration (dbl).

**Duration** Test duration (chr).

**Group** Taxonomic grouping information (chr).

**Life\_stage** Life stage of the test organism (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

**Toxicity\_measure** Type of toxicity measure used (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

All concentration data are ug/L unless otherwise stated.

## Examples

```
print(csiro_lead_marine, n=Inf)
```

---

csiro_nickel_fresh	<i>Species Sensitivity Data for nickel_fresh</i>
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---

## Description

Species Sensitivity Data provided by the Commonwealth Scientific and Industrial Research Organisation of Australia for nickel in fresh water.

## Usage

```
csiro_nickel_fresh
```

## Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 31 rows and 6 columns.

## Details

These data were sourced from: Stauber J, Golding L, Peters A, Merrington G, Adams M, Binet M, Batley G, Gissi F, Mcknight K, Garman E, Middleton E, Gadd J, Schlekot C (2021). “Environmental Toxicology Application of Bioavailability Models to Derive Chronic Guideline Values for Nickel in Freshwaters of Australia and New Zealand.” *Environmental Toxicology and Chemistry*, **40**(1), 100–112. doi: [10.1002/etc.4885](https://doi.org/10.1002/etc.4885), <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4885>.

The columns are as follows:

**Conc** The chemical concentration (dbl).

**Domain** Tropical, temperate or other filter (chr).

**Group** Taxonomic grouping information (chr).

**Notes** Other notes (chr).

**Species** The species names name (chr).

**Test\_endpoint** Endpoint statistic, EC10, NEC etc (chr).

Where toxicity measure is not a chronic NEC, EC10 or NOEC value, concentration has been converted using the appropriate default ratio, as follows: 10 from acute EC50/LC50 to chronic EC10; 5 from chronic EC50 to EC10; 2.5 from LOEC to EC10. Please see the primary reference material for more information.

All concentration data are ug/L unless otherwise stated.

## Examples

```
print(csiro_nickel_fresh, n=Inf)
```

---

get_ssddata	<i>Get SSD dataset</i>
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**Description**

Retrieves a specific SSD dataset, filtering and groups by species and applies a geometric mean in the case of duplicate records.

**Usage**

```
get_ssddata(
  dataset_name,
  filter_val = NULL,
  use_gmmean = TRUE,
  spp_vec = c("Species", "Genus"),
  conc = "Conc"
)
```

**Arguments**

dataset_name	The name (chr) of the desired dataset in ssddata.
filter_val	A character string, indicating the filter to be applied (value) (colname) and which column it applies to, separated by "_". Must be in the form colname_value.
use_gmmean	Logical indicating if a geometric mean should be applied.
spp_vec	The group_by columns to use for grouping data and applying a geometric mean.
conc	The name of the concentration (x data) column.

**Value**

The data.frame for dataset\_name with any applied groupings and summary.

**Examples**

```
get_ssddata("ccme_boron")
```

---

gm_mean	<i>Calculate geometric mean</i>
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---

**Description**

Calculates the geometric mean of a numeric vector

**Usage**

```
gm_mean(x, na.rm = FALSE, zero.propagate = TRUE)
```



**Arguments**

`x` A numeric vector  
`na.rm` A flag specifying whether to remove missing values.  
`zero.propagate` A flag specifying whether to propagate zero values.

**Value**

A number of the geometric mean.

**Examples**

```
gm_mean(c(3, 66, 22, 17))
```

---

ssd\_fits

*Species Sensitivity Distribution Fit Data*


---

**Description**

Species Sensitivity Distribution Fit Data

**Usage**

```
ssd_fits
```

**Format**

A tibble with 12 columns.

**Dataset** The name of the dataset in the ssddata package (chr).

**Filter** Any filtering applied to the data (chr).

**Software** The name of the software (chr).

**Version** The version of the software (chr).

**Distribution** The name of the distribution (chr)

**PC** The percent of the community protected (int).

**Estimate** The estimated concentration (dbl).

**SE** The standard error of the estimated concentration (dbl).

**Lower** The lower 95% CI of the estimated concentration (dbl).

**Upper** The upper 95% CI of the estimated concentration (dbl).

**Source** The source of the fit (chr).

**Notes** Additional information on the fitting process (chr).

**Examples**

```
head(ssd_fits)
```

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