Package 'ssddata'

November 5, 2021

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)

Imports chk, dplyr, Rdpack, utils

Suggests covr, testthat (>= 3.0.0)

RdMacros Rdpack

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Repository CRAN

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R topics documented:

`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 *Anonymous Species Sensitivity Data anon_b*

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 *Anonymous Species Sensitivity Data*

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://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 *Anonymous Species Sensitivity Data anon_e*

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://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 *CCME Species Sensitivity Data for ccme_endosulfan*

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 *CCME Species Sensitivity Data for ccme_glyphosate*

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 *CCME Species Sensitivity Data for ccme_silver*

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://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` *Species Sensitivity Data for lead_marine*

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` *Species Sensitivity Data for nickel_fresh*

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, 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://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` *Get SSD dataset*

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 *Calculate geometric mean*

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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