

# Package: infiltrdiscR (via r-universe)

August 21, 2024

**Title** Minidisc Infiltrometer Data Management

**Version** 0.0.5

**Description** A set of functions for the modeling of data derived from the Minidisc Infiltrometer device. It calculates cumulative infiltration and square root of time. Also, it calculates the A parameter based on soil physical properties.

**License** MIT + file LICENSE

**Depends** R (>= 2.10)

**Imports** dplyr, tidyr, utils

**Suggests** testthat (>= 3.0.0), tibble, tidyverse

**Config/testthat/edition** 3

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.3.1

**NeedsCompilation** no

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**Repository** CRAN

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infiltration	<i>Cumulative infiltration and sqrt of time Using time and volume from field spreadsheets, the Cumulative infiltration and sqrt of time are calculated</i>
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**Description**

Cumulative infiltration and sqrt of time Using time and volume from field spreadsheets, the Cumulative infiltration and sqrt of time are calculated

**Usage**

```
infiltration(dataset, col_name)
```

**Arguments**

dataset	A tibble or data.frame including time and volume
col_name	vars including time and volume

**Value**

A tibble giving three new columns: sqrt\_time, volume\_infiltrated and infiltration

**Examples**

```
infiltration(data.frame(time = c(0, 30, 60, 90, 120, 150, 180, 210, 240, 270, 300,
0, 35, 65, 95, 125, 155, 185, 215, 245, 275, 305),
volume = c(95, 89, 86, 83, 80, 77, 74, 73, 71, 69, 67,
83, 77, 64, 61, 58, 45, 42, 35, 29, 17, 15)))
```

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parameter_A	<i>Calculates parameter A from (Philip, 1957)</i>
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**Description**

Calculates parameter A from (Philip, 1957)

**Usage**

```
parameter_A(dataset, col_name)
```

**Arguments**

dataset	A tibble or data.frame including n_ho, alpha and suction
col_name	vars including n_ho, alpha and suction

**Value**

A tibble giving two new columns: suction\_num, and parameter\_A

**Examples**

```
parameter_A(data.frame(alpha = c(0.145, 0.008), n_ho = c(2.68, 1.09), suction = c("2cm", "3cm")))
```

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vg_par	<i>Tabulated VG parameters Van Genuchten parameters and values of A, n and alpha for the Minidisk Infiltrimeter (Decagon Devices, Inc., 2005). 12 soil texture classes and suction from 0.5 to 7 cm are tabulated</i>
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**Description**

Tabulated VG parameters Van Genuchten parameters and values of A, n and alpha for the Minidisk Infiltrimeter (Decagon Devices, Inc., 2005). 12 soil texture classes and suction from 0.5 to 7 cm are tabulated

**Usage**

```
vg_par(dataset, col_name)
```

**Arguments**

dataset	A tibble or data.frame including suction and texture
col_name	vars including suction and texture

**Value**

A tibble giving three new columns: n\_ho, alpha and A value

**Examples**

```
vg_par(data.frame(suction = c("2cm", "3cm"), texture = c("sand", "clay")))
```

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vg\_parameters\_bytexture

*van Genuchten parameters*

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### Description

van Genuchten parameters for 12 soil texture classes and A values for a 2.25 cm disk radius and suction values from 0.5 to 6 cm.

### Usage

vg\_parameters\_bytexture

### Format

vg\_parameters\_bytexture:

A data frame with 12 rows and 11 columns:

**texture** soil texture according to the USDA

**alpha** values of parameter alpha

**n\_ho** values of parameter n

**0.5** Values of parameter A at 0.5cm

**1cm** Values of parameter A at 1cm

**2cm** Values of parameter A at 2cm

**3cm** Values of parameter A at 3cm

**4cm** Values of parameter A at 4cm

**5cm** Values of parameter A at 5cm

**6cm** Values of parameter A at 6cm

**7cm** Values of parameter A at 7cm

### Source

<https://metergroup.com/products/mini-disk-infiltrrometer/>

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