## **Sorptimeter Materials and Instructions**

## Materials

Graduated cylinder Sorptimeter (metal or PVC cylinder) Hammer Water Stopwatch Wooden board Small level Core 2 zip lock bags Trowel Marker (for labeling) Pencil Datasheet Clipboard

## Procedure

- 1) Collect a core outside of the area where you are testing sorptivity to calculate bulk density and volumetric soil moisture (see directions for measuring these). Both may impact your study
- 2) Measure diameter of sorptimeter in centimeters
- 3) Place sorptimeter on the ground with the sharp edge on the bottom
- 4) Place board on top of sorptimeter and hammer the board until the sorptimeter is pushed halfway into the ground
- 5) Place the level on the top of the sorptimeter to make sure it is level with ground
- 6) Tamp down the soil around the edges of the inside of the sorptimeter
- 7) Fill up the graduated cylinder with water until the desired volume is reached. We usually use 80 milliliters so the infiltrated depth (denoted by *I* below) is 1 cm.
- 8) Quickly pour the water inside the sorptimeter and simultaneously start the stopwatch
- 9) As soon as all the water has finished entering the soil and no more is left at the surface, record the time on the stopwatch.
- 10) Sorptivity is calculated as the infiltrated depth I divided by the square root of time (seconds)
- 11) Scoop a small amount of soil from directly underneath the disk at the surface. Put this in a plastic bag to calculate gravimetric soil moisture (see instructions).

Radius of the sorptimeter (cm):

Cross-sectional area of sorptimeter (cm<sup>2</sup>):

Core Volume =  $147.26 \text{ cm}^3$  (if 7.5 cm core)

Initial Soil Moisture									
	A	В	С	D	Ε	F	G	Н	
	Mass of Meas. Container in grams	Mass of Wet Sample + Container in grams	Mass of Wet Sample	Mass of Dry Sample + Container in grams	Mass of Dry Sample	Mass of Water	Gravimetric Soil Moisture	Volumetric Soil Moisture	
How Measured	Measured	Measured	Col A – Col B	Measured	Col D– Col A	Col C– Col E	Col F/ Col E	Col F/ Core volume (above)	

Data					Soil Moisture							
Column	A	В	С	D	Е	F	G	Н	1	J	К	L
Test Number	Time (seconds)	Total Infiltration (milliliters)	Infiltrated depth in centimeters	Sorptivity in centimeters per second to the one half	Mass of Meas. Container in grams	Mass of Wet Sample + Container in grams	Mass of Wet Sample in grams	Mass of Dry Sample + Container in grams	Mass of Dry Sample in grams	Mass of Water in grams	Gravimetric Soil Moisture (no units)	Volumetric Soil Moisture (no units)
	Measured	Measured	Col B divide by x-sectional area	Col C / Sqrt(Col A)	Measured	Measured	Col F – Col E	Measured	Col H – Col E	Col G – Col I	Col J / Col I	Col J / Core volume (above)

Date:

People:

Location: