

## RhizonBox (19.31.80)

The RhizonBox is a plastic box for root experiments



33,5 cm height x 22,5 cm width

### The RhizonBox consists of several parts:

- 1 white front plate with more than 2000 holes that meet the dimension of MicroRhizons (19.21.81)
- 1 U-formed grey frame of 15 mm
- 1 Perspex plate which allow you to observe the root growth
- 1 dark grey PVC cover plate to guarantee a darkness around the roots
- 13 nylon bolts and butterfly nuts
- 3 grey PVC parts (for outer side)
- 2 anchors
- 1 Rhizon Irrigator (19.21.71)



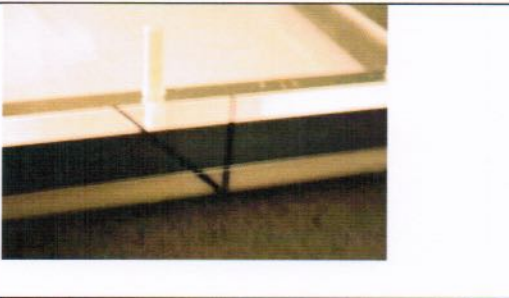

### Procedure to place Clingfilm (plastic wrap) on the inside of the front plate to prevent leakage through the holes in the front plate

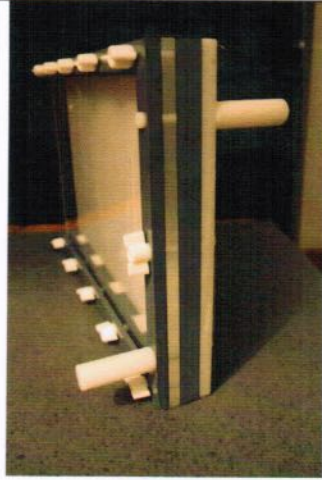


1. Remove all 13 butterfly nuts
2. Lift the 3 grey PVC parts on the outer side of the RhizonBox
3. Remove the Perspex plate
4. Remove the U-formed Perspex
5. Remove the 13 bolts

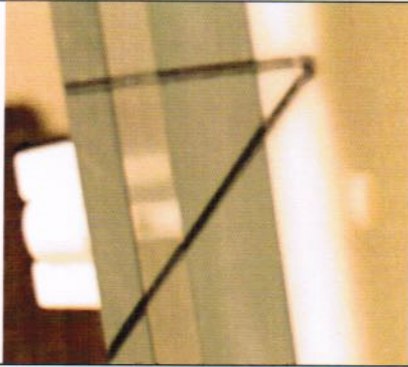


6. Cover the inside of the white front plate (*marked with a black x*) with Clingfilm (plastic wrap)

	<p>7. Rebuild the RhizonBox in the reversed direction:</p> <ol style="list-style-type: none"> <li>a. Place the bolts in the matched holes</li> </ol>
	<ol style="list-style-type: none"> <li>b. Replace the U-shaped grey frame (<i>x on top</i>)</li> </ol>
	<ol style="list-style-type: none"> <li>c. Replace the Perspex plate (<i>x on top</i>)</li> </ol>
	<ol style="list-style-type: none"> <li>d. Replace the 3 PVC parts</li> <li>e. Screw the butterfly bolts on the side faces</li> <li>f. Screw the middle butterfly bolt on the lower side</li> </ol>



- g. Remove one of the empty bolts on the lower side and put it in the same hole, but on the Perspex side
- h. Place an anchor on each of the 2 bolts



- i. Check V on the side
- j. If necessary, remove the plastic wrap hanging over

## Procedure to start experiment with RhizonBox

1. Remove the dark grey PVC cover plate
2. Fill the internal space with sediment (soil) up to a height of approximately 5 cm
3. Install the Rhizon Irrigator (19.21.71) at this height
4. Continue filling the internal space with sediment/soil
5. The soil has to be filled more or less compact, according your experiment
6. Beware of big open spaces, as they will disturb the water flux
7. Tremble gently to enhance soil settlement
8. Once the internal space is filled with soil up to the desired level, insert the experimental growth subjects (small plant or seed)
9. You can check the root growth frequently by removing the cover plate
10. The RhizonBox is now ready for insertion of the MicroRhizons. Choose carefully the positions, for example near the primary or secondary roots.

## How to use the installed Rhizon Irrigator

The Rhizon Irrigator allows you to moist the soil in the RhizonBox with a solution of desired composition (nutrified or polluted)

1. Put the male luer (transparent) into the vessel with the experimental solution
2. Connect the syringe at stopcock, open the stopcock and pull quietly the plunger of the syringe. Beware of air bubbles. Air bubbles in the tubing disturb the flow of water.
3. Close the stopcock when the solution enters the syringe
4. Remove the syringe
5. The system is ready for passive irrigation (the roots will take up water from the soil. The solution from the vessel will be absorbed by the Rhizon Irrigator to remoist the soil)
6. By changing the height of the water level in the vessel, you change indirectly the artificial ground water level in the RhizonBox
7. **Important:** Within a few days air bubbles will appear in the tubing. Repeat nr. 2

*Suggestion:*

*If you are interested in the reaction of primary or secondary plant roots on pollution, you might consider the use of MicroRhizons for injecting the polluted solution very near the tip of the root.*