

Product sheet – Chrysal Aquastick

General

- Chrysal Aquastick is an innovative watering system that transfers water with capillarity force from a reservoir in the cover pot to the potted plant.
- It is effective on all plants with the exception of cactus and succulents.
- Enables potted plants to regulate their own water supply and ensures they stay hydrated at all times.
- The water reservoir in the potted plant contains on average 1 to 3 weeks of water, depending on the size of the reservoir and how thirsty the plant is.
- Aquastick is a durable, long lasting product which remains effective for at least 9 months.
- Available in different thicknesses and lengths (see table on page 2).
- Easy to use and apply.



Effects

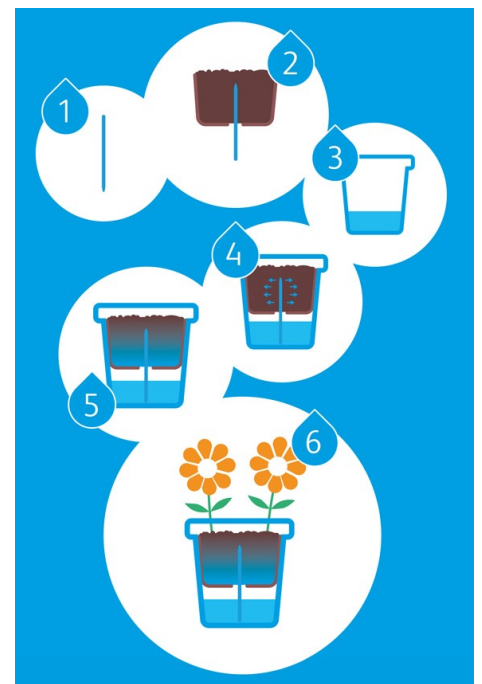
- Ensures healthier plants, better growth and longer lasting freshness.
- Water uptake is determined naturally by the conditions, driving the required amount of water up to the plant.
- The Aquastick provides water until the saturation level of the substrate is reached. The choice of substrate will influence the water uptake of the plant.
- Reduced frequency of watering whilst on display in-store and at the consumer.
- Increases sales; improved shelf presentation as a result of fresh looking plants.
- Reduces plant waste in the total supply chain.
- No overwatering possible after the saturation level is reached (still air in the substrate).
- Can also be used to facilitate a longer logistic chain or for product to be produced in advance.

Applications

- To be used by plant growers, packers and retailers.

Instructions for use

1. Take the Aquastick from its package.
2. Insert the Aquastick in one of the holes of the grower pot. We advise to insert the Aquastick up through the middle of the grower pot until it reaches half way in the substrate of the plant.
3. Fill the reservoir of the outer pot with water, but make sure that the grower pot will not be in contact with the water.
4. Place the plant with the Aquastick in the outer pot.
5. For optimal use, the Aquastick should always be in contact with the bottom of the outer pot.
6. Enjoy a longer healthier and fresher plant!



Aquastick length & thickness

Standard Chrysal Aquasticks are available in the 6 following sizes:

Pot diameter (indicative)	Stick length		
	Stick diameter 2 mm	Stick diameter 3 mm	Stick diameter 3.5 mm with point
6 cm	6 cm	-	-
9 cm	9 cm	-	-
12 cm	12 cm	12 cm	12 cm
15 cm	-	15 cm	-

Stick length

- In general the length of the Aquastick should be the same length as the diameter of the grower pot.
- The Aquastick should reach far enough into the soil whilst still being in contact with the bottom of the cover pot.
- Depending on the size of the grower and cover pot the length of the Aquastick should be adjusted.
- For coarse substrates as used in e.g. Phalaenopsis it is important that the stick reaches into the original growing plug to ensure good contact with the growing medium.
- Length of the stick does not influence the effectiveness, i.e. a 15 cm stick transfers the same amount of water as a 6 cm Aquastick with the same thickness.
- The total surface of the Aquastick absorbs water, so the thicker the stick the more water uptake takes place.

Stick thickness

- In general a 2 mm Aquastick has a sufficient water uptake to keep up with the evaporation. For larger pots (> 12 cm pot) and plants that are sensitive to wilting a 3 mm stick is advised.
- Use more than one Aquastick for grower pots larger than size (diameter) 17 cm.
- The Aquastick diameter influences the rate of water movement; the bigger the diameter, the faster the water uptake.
- When the substrate is hard to penetrate (like bark particles) a 3 – 3.5 mm Aquastick is recommended for use, also the pointed end of the Aquastick makes application easier.
- If the length of the Aquastick has to be 15 cm or more, a thicker Aquastick is advised. A thicker Aquastick is firmer and prevents bending of the Aquastick.

Recommendations

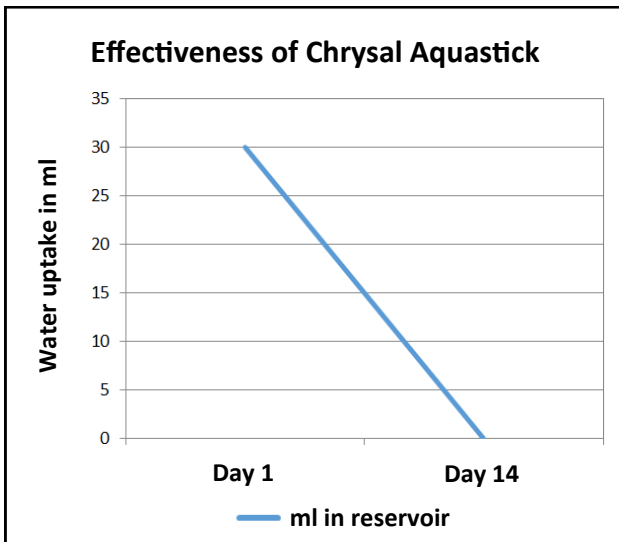
- To keep the water reservoir clean, avoid contact between the grower pot and the water level during transport.
- Use clean water to prevent the pores of the stick from becoming blocked over time. If needed refill reservoir with clean water.
- Can be combined with a Chrysal Aqua Pad to avoid free water.
- Unused Aquasticks have no expiration date if stored under dry conditions.
- The Aquastick is made of non-organic material, so it can be discarded with other household waste.

Chrysal Aquastick is particularly effective on the following plants which are sensitive to wilting:

- | | | |
|---------------|-----------------------|------------------|
| Azalea | Cyclamen | Impatiens |
| Anthurium | Euphorbia Pulcherrima | Lavandula |
| Bougainvillea | Gerbera | Phalaenopsis |
| Calathea | Hebe | Primula Obconica |
| Campanula | Helianthus | Rosa |
| Celosia | Herbs | Senecio Senetti |
| Chrysanthemum | Hibiscus | Spatiphyllum |
| Curcuma | Hydrangea | |

Test results

- Tests showed that Chrysal Aquastick was effective in transferring water from the reservoir to the plant; 100 % water uptake after 14 days.
- Evaporation of these mini Phalaenopsis was 2-3 ml per day.
- A 30 ml reservoir is enough water for up to 2 weeks in this case (mini Phalaenopsis).
- Plants treated with Chrysal Aquastick showed no sign of root damage.



Shelf life Phalaenopsis



Treatment: on the left – with Chrysal Aquastick
on the right – control

Photo taken: day 35

Chrysal Aquastick – Test Protocol

Want to test the effects of Chrysal Aquastick for yourself?

With this test protocol we will guide you.

In order to compare, the test should always contain treated and control plants. Select plants that are uniform in stage of development. Use at least 6 plants per treatment.

Place the plants in a room with a stable climate (ideally $\pm 20^{\circ}\text{C}$ and $\pm 60\%$ relative humidity) and make sure that the plants of each treatment are in similar conditions (light, airflow) to be able to make good comparisons.

Requirements for the test:

- Chrysal Aquasticks
- Cover pots
- Plants with grower pot
- Balance (optional)

Example cover pot:



The following test scheme can be used:

Plant group	Treatment
1	None (control)
2	Chrysal Aquastick

Test procedure:

1. Fully saturate the soil/substrate with water and number each plant related to a treatment.
2. Fill the water reservoir of all cover pots with approx. 200 ml of water, depending on the size of the cover pot. In order to be able to view the water uptake and performance of the Aquastick during the trial, it is recommended that a transparent cover pot with a reservoir is used (e.g. www.plantpot.nl or see photo above).
3. Also use a cover pot without water for the control plants for uniformity.
4. Insert the Aquastick in one of the holes of the grower pot.
5. Place the plant with the Aquastick in the cover pot. The Chrysal Aquastick should always be in contact with the bottom of the cover pot. Make sure the grower pot is not in direct contact with the water.
6. Do not re-water the plants.
7. Observe and note the first day of wilting of each plant.
8. Weigh the plant (including cover pots with water) each day (optional).

Example observations:

- Record the weight loss in grams in the first 7 days:

	Weight of the plant (g)		
	Day 1	Day 4	Day 7
Control	500	420	360
Chrysal Aquastick*	700	620	560

* Weigh plant including reservoir

- Record the time (in days) till wilting:

	Wilting of the plant (days)						
	Plant 1	Plant 2	Plant 3	Plant 4	Plant 5	Plant 6	Average shelf life
Control	5	6	6	7	5	7	6
Aquastick	15	16	16	17	16	19	17

- Take pictures to record the effects you have seen.

Calculate water evaporation:

It is also possible to calculate and compare evaporation per day:

- The weight at the start minus the weight at day 4 divided by 4 days gives the evaporation per day.

Example: Day 1 500 g
 Day 4 420 g
 Evaporation 80 g (20 ml per day; 80 g / 4 days)

- Compare the evaporation per day between the treatments and over time.

	Evaporation of the plant (g)	
	After 4 days	After 7 days
Control	20 ml / day	20 ml / day
Chrysal Aquastick	20 ml / day	20 ml / day

- If we divide the total amount of water in the reservoir by the evaporation per day, we get the predicted added shelf life with the Aquastick:
 200 ml water reservoir / 20 ml evaporation a day = 10 days extra shelf life in theory.