

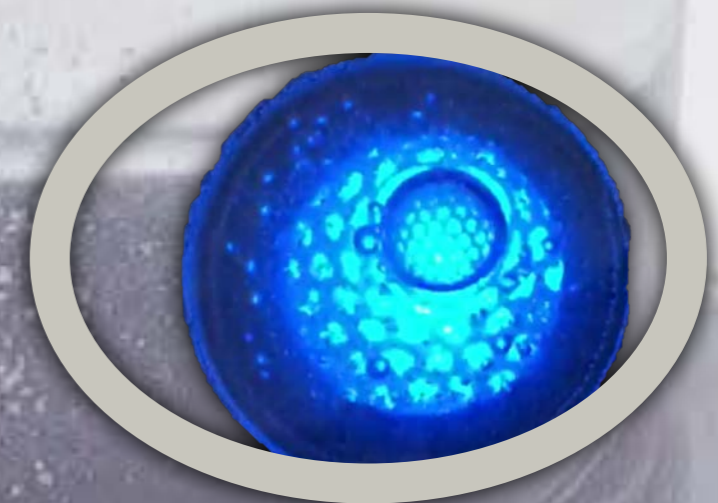
AQUAVOLTA®

Hydrogen Booster

classic

by Karl Heinz Asenbaum

Manual



2 - What is AquaVolta®?

AQUAVOLTA®



The brand name AquaVolta® derives from the latin term for water(aqua) and the name of the inventor of the battery, Alessandro Volta. It stands for electro activated water.

In Germany one originally spoke of electrolyte-water, afterwards of “activated water”. In english it is often referred to as „reduced“ or „ionized“ water.

- The characteristic of AquaVolta® is that a negative electrical tension with a measurement electrode shows a so-called negative redox potential. The lower the redox potential, the higher the willingness water has of giving off electrons. Per 0,018 Volt (18 Millivolt) lower redox potential does the willingness double. AquaVolta® has about an 400 to 800 Millivolt lower redox potential than tap water or mineral water from a bottle.
- Because of its high willingness to give off electrons, AquaVolta® is also described as antioxidant water. It is not only used by doctors for therapy, it has also established itself because of its good taste as a modern day to day drink.

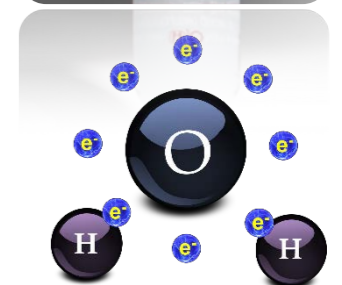
Responsible for the antioxidant power of AquaVolta® according to the current scientific view is the content of dissolved hydrogen, or DH_2 . The AquaVolta® Hydrogen Booster was developed to enhance this.

3 - Hydrogen – The fundamental concepts

„I run on Hydrogen“. To see Hydrogen cars, out of which no emissions are emitted and only clear water drips out, is still seldom in our smog-laden cities. Yet there is no doubt that Hydrogen gas presents the most interesting form of alternative energies of the future. For 1 kg of Hydrogen brings 33,33 kWh/kg onto the road. Neither petrol (12 kWh/kg) nor natural gas (max. 13,1 kWh/kg) can keep up. Hydrogen, with the H symbol that stands for Hydrogenium (“The Water Producer”) is the most common element in the universe. It makes up 75% of the total mass of our solar system. Yet on our planet Earth it is more of a scarce good. Only 0.12% of the total mass consists of Hydrogen. Most of it is H₂O which has bonded as “energy-less” water in our oceans. Water, H₂O, is Hydrogen gas H₂ which has been combusted by oxygen. This occurs, for example, with sugar which is converted from food into energy. So Hydrogen doesn’t only provide energy for fuel cells for cars, but also for the cells in the body. The H Hydrogen atom is made up of one positively charged nucleus, the proton, which is orbited by a negatively charged electron. The smallest of all atoms is also called “nascent” Hydrogen: That means “hydrogen in its birth phase”, for an H-atom does not stay alone for long, it bonds with a second H-atom to make what we usually call Hydrogen, H₂... A further description for this Hydrogen atom is “Hydrogen radical”.

Often Hydrogen gas H₂ is confused with the **Hydrogen ion H⁺**. This corresponds to an H-atom without an electron, in short it is a single proton. Positively charged Hydrogen ions are the measure of “acidity”. They occur by the splitting off of a hydroxide ion (OH⁻) from water (H₂O). If there are more hydroxide ions in an aqueous solution, it is alkaline, if there are more H⁺ ions (protons), then it is acidic.

Negatively charged Hydrogen ions (Hydride ions) theoretically also exist. Yet they are so unstable that they only occur as compounds.



4 - What is a Hydrogen - Booster?

For many years it was irrefutable that activated water keeps its negative redox potential and therefore its electron abundance for just a few hours or days.

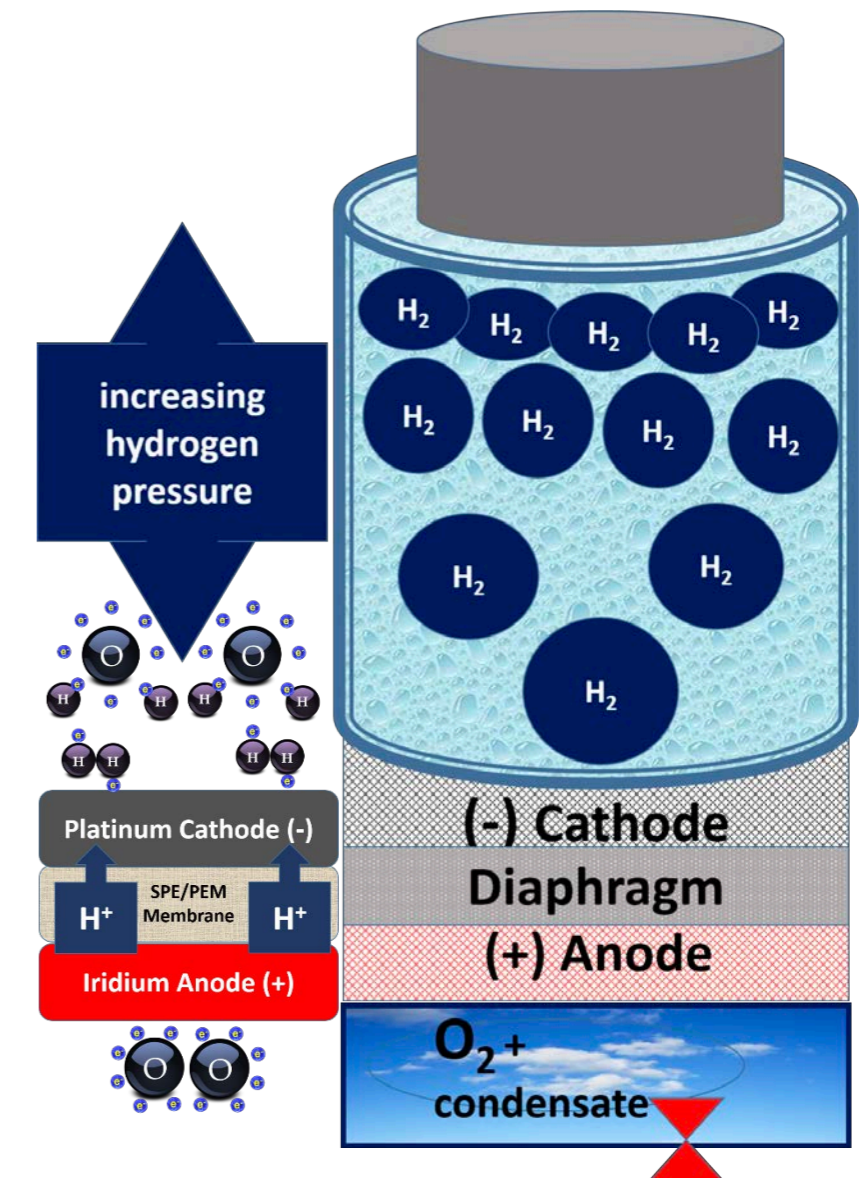
Yet when it was discovered, in the 21c, that dissolved Hydrogen is the deciding factor for the antioxidant effect, an industry was developed that presses Hydrogen under high pressure into multilayered water bags, where the positive qualities were able to be kept for some months. Such a bag with 0,2 l of Hydrogen water costs around 4 € and also creates big waste problems.

Hydrogen rich water was until now only produced by stationary electric water ionizers. But one does also want to drink fresh activated water when on the go. Initially just small electrolysis devices were converted to battery power. These, however, were not able to store enough because they did not remove the oxygen, instead increased it. Also Hydrogen-Infusion-Machines (HIM) exist that allow H₂ molecules to bubble into the water. Yet these seldom reach more than 1,2 ppm, mostly a lot less.

Hydrogen dissolves very reluctantly in water, unless, it is pressed in with high pressure. That is exactly what a Hydrogen Booster does. It is a high-pressure-diaphragm-water-ionizer with a PEM cell, that only produces a few drops of waste water as a condensate, and removes the oxidising water components.

Result: Hydrogen rich water without a pH change.

Whilst the Hydrogen water bag can be filled with 2,8 ppm Hydrogen content, can the AquaVolta® Hydrogen Booster produce almost double if required.



5 – Oxygen water?

Oxygen rusts everything. It provides an electron gain for that which utilises it, so also for us. It is the weapon with which we squeeze the energy carrier Hydrogen out of food for our own energy balance. Why is it nonsense to drink oxygen water and better to remove the dissolved oxygen, something which happens in water ionizers?

We need a minimum of 20 g oxygen per hour. This is a condition shortly before passing away. By drinking 1 Liter of the best available oxygen water we can certainly reach that. We even reach 13 % more than necessary.

A performance athlete needs 500 g oxygen/hour. Only 4,52 % can be covered with a Liter of the best oxygen water. Every breath brings much more.

A high performance fish with our bodyweight would have to press 20 Liters of “Hydrogen water” every hour through its gills to have the same combustion efficiency in its cells in order to produce this like a human athlete.

Humans get as much oxygen as necessary into the body, since the air contains 21 % oxygen. Also dolphins, equally big as sharks, are far superior with their efficiency.

Source: <https://www.test.de/Sauerstoffangereicherte-Waesser-Luftnummern-1097408-0/>:

6 – Hydrogen water – The new benchmark for drinking

Previously only the ORP was measured to determine the antioxidant effect of activated water. Yet this is very inaccurate and a relative value, because the ORP is influenced not only by the dissolved hydrogen, but also from the different ORPs of the different materials dissolved in the water, e.g. minerals and gases.

After the role of Hydrogen was recognised as being important, Japan produced the first pseudo-measuring-device on the market. The Trustlex ENH 1000, which wanted to differentiate a content of dissolved Hydrogen with the measured ORP over an experience based conversion factor of ca. -2,14. This factor was severely criticised by experts and Trustlex admits it doesn't work properly.

Laboratory determination of actual dissolved Hydrogen in water is really still very complex and still afflicted with unsolved problems. Electronic measuring devices demand high expertise and are very expensive. Therefore we recommend a chemical titration method with the H2 Blue Kit®, something developed by the American Hydrogen researcher Tyler Le Baron.

These drops have been customised to ionised water and European water types. Because of their amount of the precious metal platinum are these test drops relatively expensive and therefore available as an optional accessory for the AquaVolta® Hydrogen Booster.



1 drop of the H2 Blue Kit® is internationally valid as evidence for 100 ppb (0,1 ppm) dissolved Hydrogen in water. Above (centre) you see the normal container of the AquaVolta® Hydrogen Booster, which was filled with 0,2 l Munich tap water and 10 drops of the Reagent H2 Blue Kit® were added.

After operating 25 seconds, the solution discoloured and indicated the amount of dissolved Hydrogen. In the operating level, after 7 minutes the AquaVolta® Hydrogen Booster reached 1,7 ppm with the same tap water.

7 – Always fresh Hydrogen - a free choice of water

With a device for on the move it is clear: There is no point enriching water with hydrogen energy if it does not make challenging demands on drinking water. Therefore we have designed the AquaVolta® Hydrogen Booster in such a way that, unlike a stationary water ionizer, it is not limited to one type of water. If you do not trust the available tap water, you can use all trustworthy bottled water and even water from a reverse osmosis device (RO water).

With the Booster “classic” you can fill the cylinder included in the package or a bottle of your choice. Thanks to various bottle adapters can water be ionized directly in the bottle and be enriched with Hydrogen. Only restriction: The water cannot be carbonated. The total gas pressure would rise too greatly.

Standard delivery of the Booster “classic” is with 1 production cylinder and bottle adapters of different sizes.

Suitable for RO water!



8- Chapter overview

- 09 - General safety instructions
- 10 – Components of basic device
- 10 – Delivery contents Booster „blue“
- 11 – Production unit Booster
- 12 – Accessories
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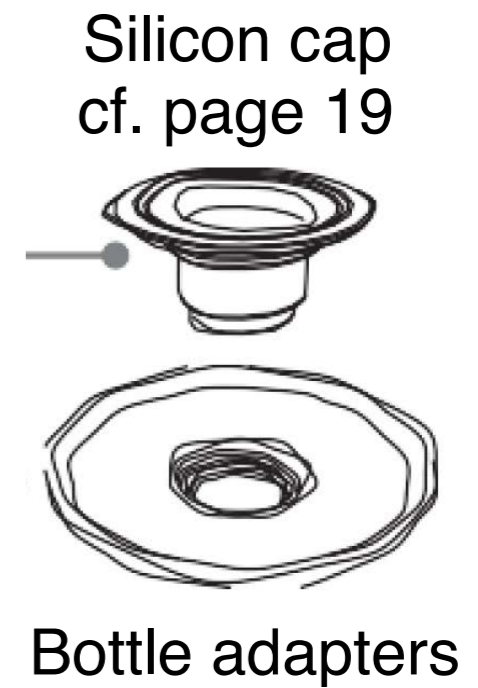
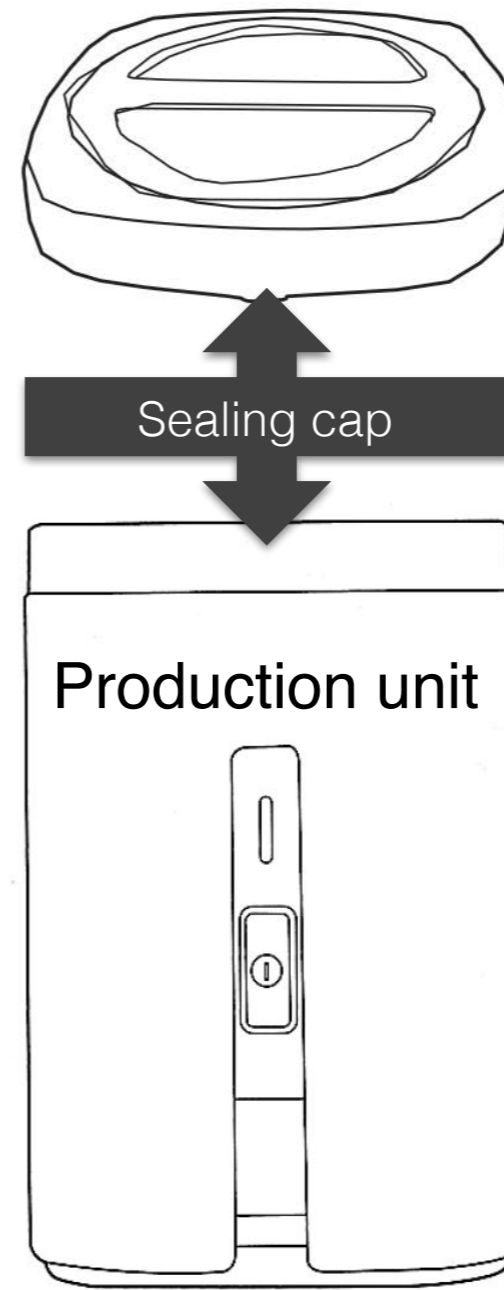
9 - General safety instructions

- Only use the device once you have read and understood the instruction manual.
- Before switching the device on, the water container has to be filled with water. Otherwise the electrolysis cell can be damaged and the guarantee claims expire.
- You cannot fill it with water over 80 Degrees C.
- Only operate the device with 220 Volt.
- Please ensure that children do not have access to this device.
- Never place the device under water. A moist cloth is enough to clean it. Do not use chemical cleaning products.
- Never drop the device.
- You should usually use cold water (under 30° C)
- Do not place the device in direct sunlight or subject to temperatures over 50 Degrees.
- Do not place the device in moist or polluted rooms.
- Do not place the device outdoors.
- Do not use the power charger if it got damaged or the cable got kinked.
- Do not place heavy or pointed objects on the cable.
- Do not touch any of the components connected to the power grid with moist fingers.
- Only use water of the best drinking quality if you want to drink the water afterwards.
- You cannot use carbonated water (fizzy water, sparkling water). The device could explode.
- Do not open the power grid nor the base unit if defect. Do not try to repair it. Disconnect the device immediately from the power supply and inform your dealer.

10 – Components of basic device



Production cylinder with 2 screw caps and bottling aid



Production unit



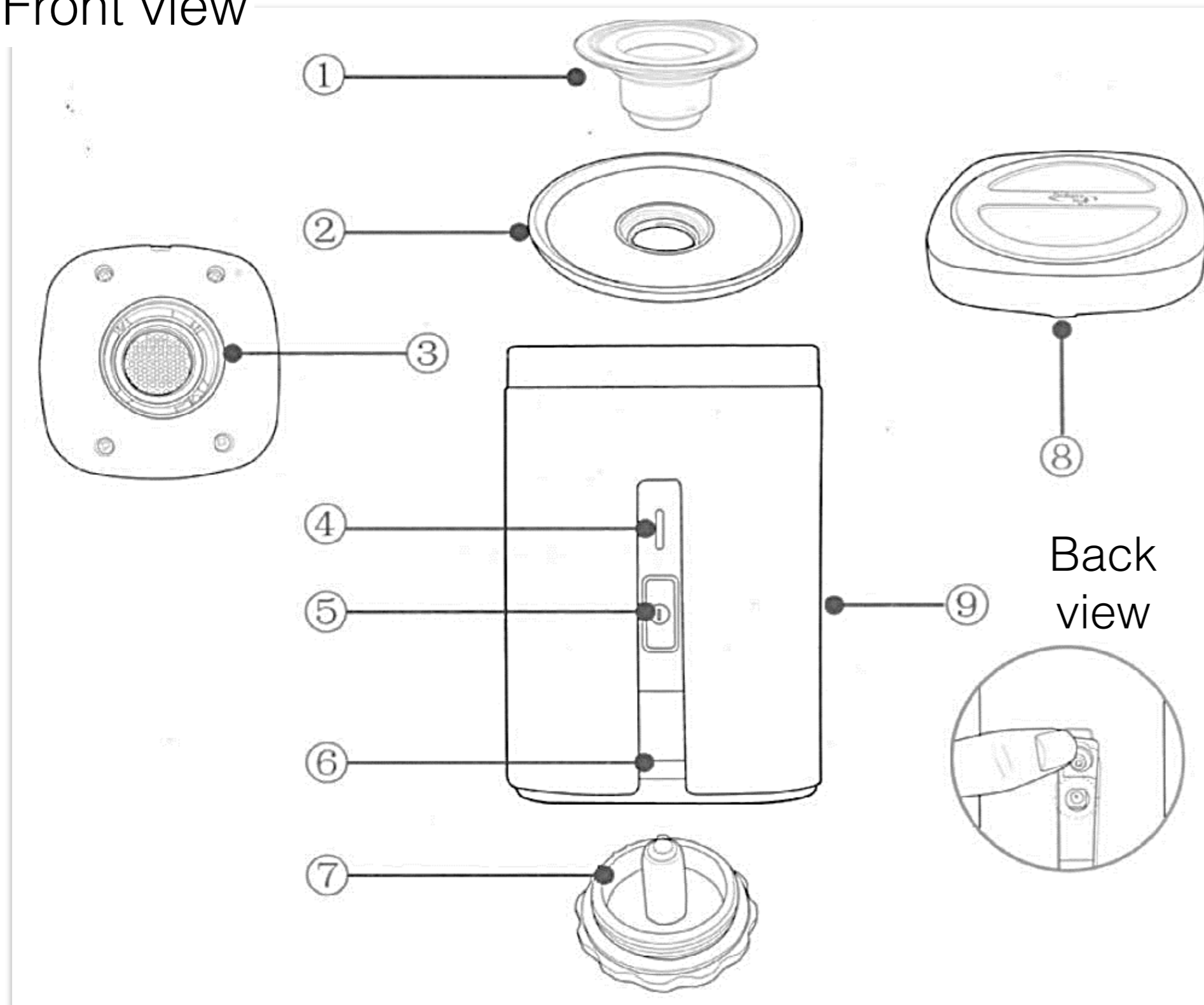
Bottle adapters

Screw cap for waste water tank and air valve



11 – Production unit Booster

Front view



1. Screw thread
2. Adapter for pressure container or bottle
3. Hydrogen generator (view from above)
4. LED display
5. On / Off switch
6. Condensed water tank and oxygen pressure chamber
7. Tank cap with overpressure valve
8. Screw cap for pressure container
9. Charging socket under rubber flap

12 – Accessories



Power supply +
charger



1 Liter Violet glass
bottle



Replacement
seals



Cleaning powder
(Citric acid)



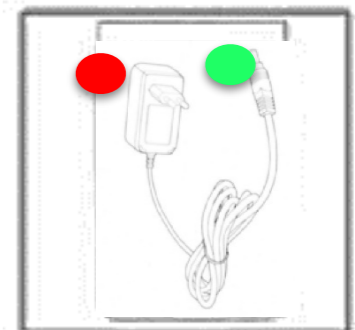
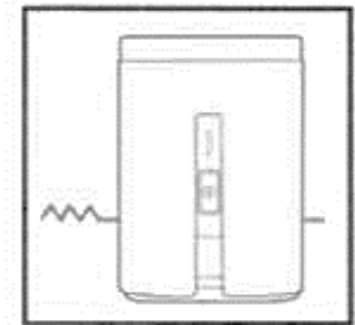
Inner lid for drinking
and pouring



How to attach the
bottle adapter

13 – Charging mode

1. Place the device on a dry, flat surface
2. Open the rubber flap over the charging socket
3. Place the plug into the device and then plug it in. Before first use the device has to be fully charged
4. LED of the plug (not the device!) shines permanently red
5. When completely charged it will shine permanently green
6. Remove the plug from the charger and close the flap
7. When the LED blinks during operation, the charger has to be connected again until the battery is fully charged



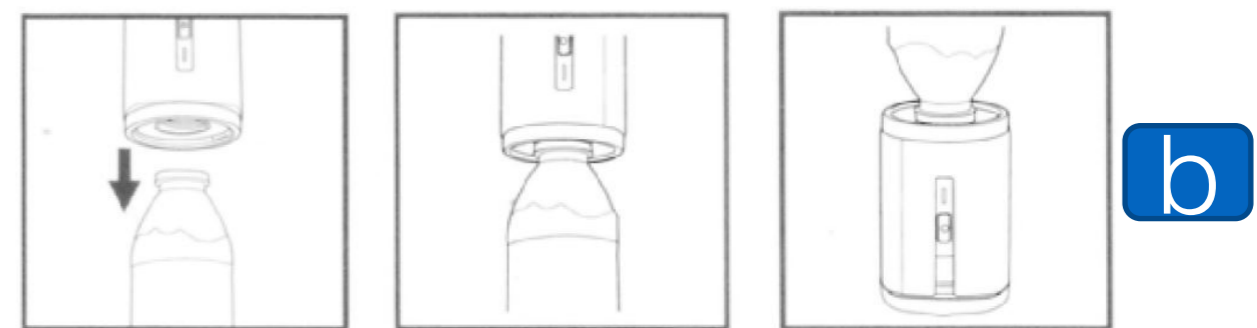
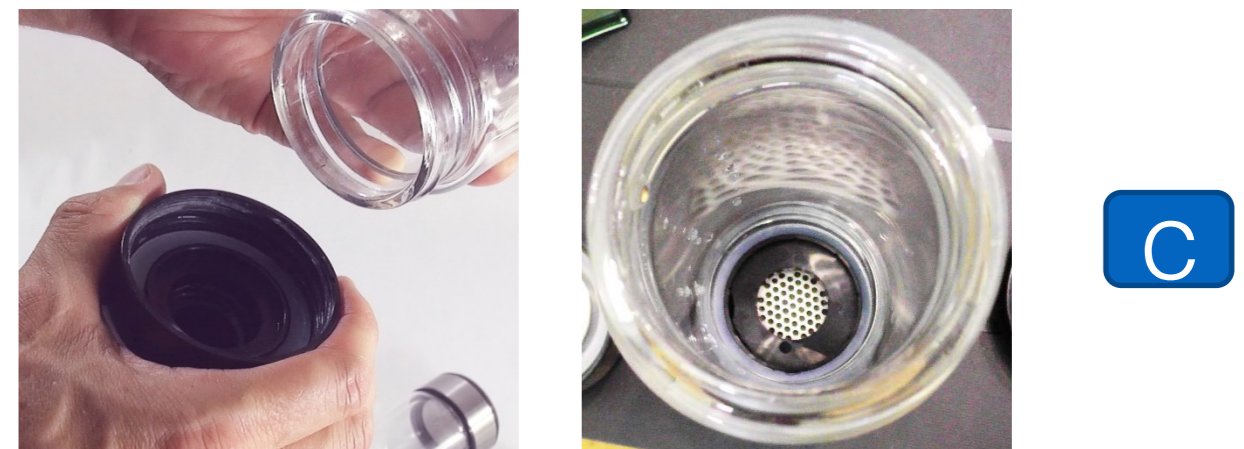
14 – Both operating modes

After pulling off the protection cap (a) and removing the silicon cap above the electrode does the AquaVolta® Hydrogen Booster offer 2 possibilities of producing Hydrogen water: Either use a water bottle up to 0,75l as a pressure chamber (b) or you fill the delivered production cylinder (c) with water that you trust.

First of all, one of the adapters has to be screwed into the unit for both operating modes. Its inner thread differs depending on the desired bottle size. Not all bottles on the market are the same size for them to be 100% pressure tight. Best is to use a particularly nice bottle, which is pressure tight and fill it with trustworthy water. There tend to be fewer problems with PET bottles than with glass bottles, since the soft screw thread fits more easily on the adapter.

When operating (c) is the production cylinder screwed tightly to the adapter and filled with water from above. To connect a water bottle (b), the device is fitted with the suitable adapter from above and held upside down. The bottle is screwed in upright and then the device is flipped over.

Attention: Only use still water! No carbonic acid in the water.



15 – Producing Hydrogen water

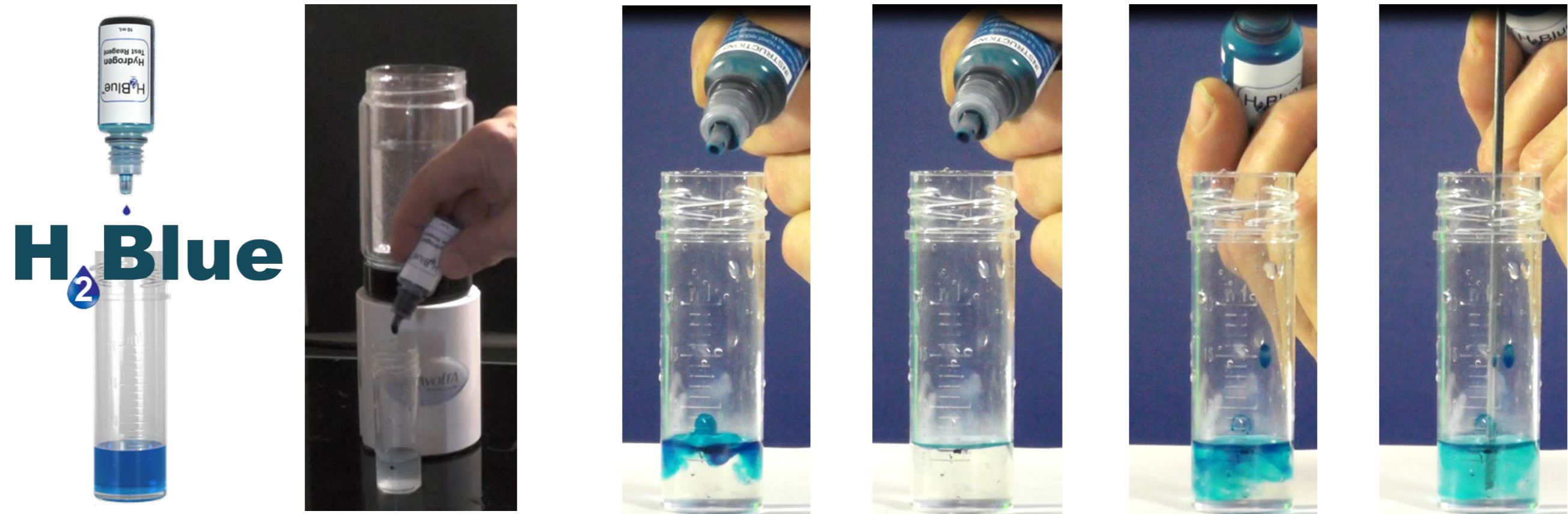
During production the AquaVolta® Hydrogen Booster has to be placed on solid, flat ground. If the surface is too soft, can the valve on the bottom not open and the oxygen cannot diffuse. Should no hard surface be available, then you can use the sealing cap of the device (a) as a surface. Like this the device stands on solid ground (red circle).

- With the On/Off button you start Hydrogen production, something you can recognise from the fine, rising bubbles.
- By pressing the button once the LED shines white and produces for 3 minutes. By pressing again the LED shines white/blue and produces for 5 minutes.

With accumulating production time an always growing pressure bubble will form on the surface (c). If you filled the container without any air bubbles, then it is predominantly hydrogen gas, which because of its pressure increases the solubility of the hydrogen in the water. The bigger the bottle, the longer the electrolysis time should be. The production cylinder has a capacity of 0,33 Liter and produces 0,1 ppm per minute of dissolved Hydrogen (water dependant fluctuations). To avoid high pressure should production time be a maximum of 40 minutes.



16 – Optional accessory: Hydrogen measuring drops



Testing the amount of molecular hydrogen is carried out immediately after production with the optional H₂ Blue® Kit. A water sample of 6 ml is filled carefully into the measuring cup and one drop of the blue measuring liquid is added. Each drop that discolours means 0,1 ppm (=100 ppb) dissolved hydrogen gas.

If a drop does not discolour automatically one can stir gently. If the liquid still does not discolour, then the last drop does not count. Water under normal air pressure can contain up to 1,6 ppm Hydrogen gas (full saturation). With the AquaVolta® Hydrogen Booster you can also produce an over saturated water with more than 6 ppm. Yet this falls back to full saturation after a few minutes when this water comes into contact with the normal atmosphere. Whoever wants a lot of hydrogen, has to drink quickly or bottle the water without air.

Do not drink the test liquid and keep it out of reach of children! Use protective gloves, a surface that can be wiped clean and watch out for clothing or dishcloths. The drops contain methylene blue, a very intense dye.

17 – Fill to the brim – The trick with the pressure

When using the production cylinder we recommend to fill it with water to the lower edge of the perforated inner lid. Like that little air remains in the container and the Hydrogen pressure above the water can build up better.



Less residual air inside an opened bottle means more pressure during PEM electrolysis which can push Hydrogen, already being pressed to the top, back into the water and therefore temporarily increase the solubility.

If you want to use the device optimally, then you should only see a small air bubble or no air bubble at all after sealing the pressure container. The standard fill level of a mineral water bottle is ideal. Avoid overfilling since the pressure can rise quickly.

A negative effect occurs if the bottle is not filled to the standard fill. Instead of using a half-full Liter bottle, it is more efficient to choose a smaller, fuller bottle.



18 – Emptying the condensed water tank and cleaning the interior

After about 40-50 minutes operating time has the condensed water tank on the bottom of the device filled up. It has to be emptied when you see in the viewing window that it is more than half full.

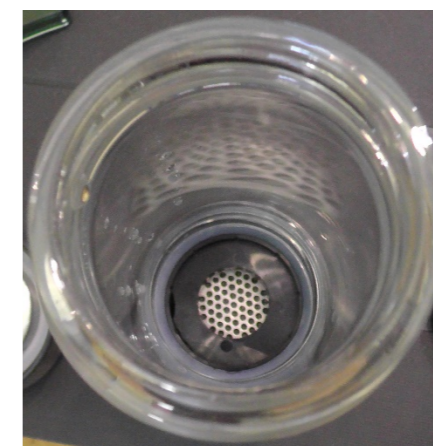
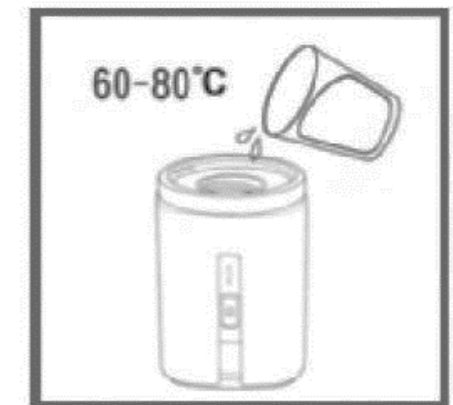
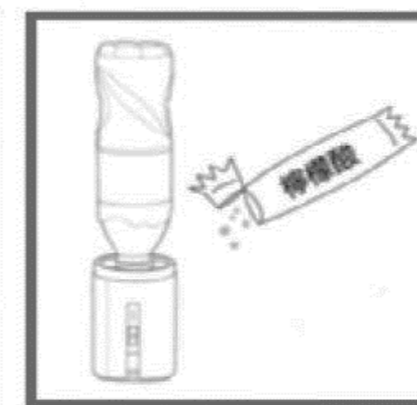
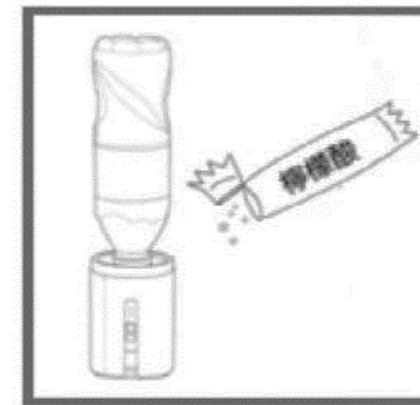
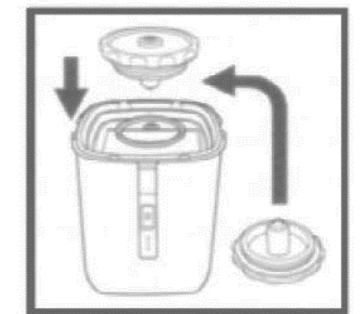
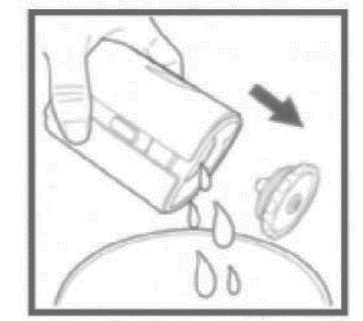
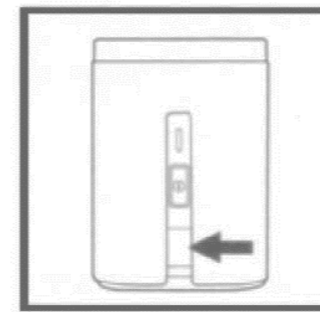
Please unscrew the tank cap with the built in pressure valve and pour/shake the water out. Watch out that the device does not get wet when doing this. Afterwards you screw the tank cap back on.

The inside of the pressure container and the grid patterned negative electrode, which produces the Hydrogen, must be cleaned if you have visible limescale traces.

Place 5g of citric acid in warm water and when dissolved, pour into the container and let it work for 1 hour. Afterwards, rinse the container and the electrode repeatedly with hot water.

This cleaning process should also be carried out if an unpleasant odour is perceived from the device. In this case the water should be 60 - 80 Degrees C.

These cleaning instructions are also applicable for the bottles you have used. Keep your eye on perfect hygiene and remove any limescale traces with citric acid.



19– External cleaning / storage. Technical data

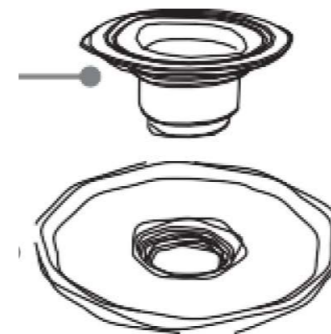
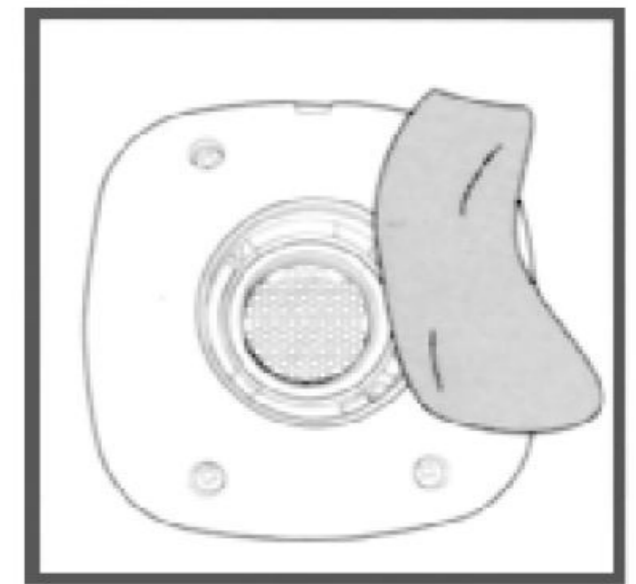
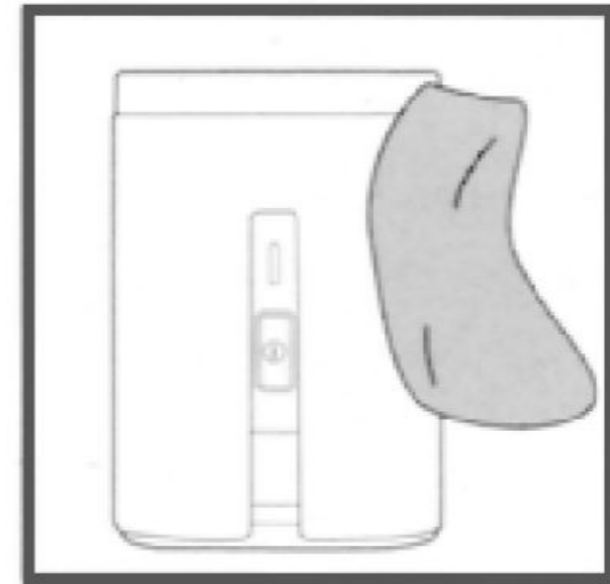
Wipe the outside of the device with a moist, soft cloth.

You can also remove heavy dirt stains from the inside of the pressure container if you half fill it with warm water and shake vigorously. Then pour the water out.

Store the device at room temperature and do not place in direct sunlight.

If not in use for over a week or when transporting, the electrode must be kept moist with some water. This is also usually the case when you receive the new device.

The humidity solution is kept there thanks to the silicon cap. Please keep it for future use.



Dimensions	Diameter 72 mm. Height 103 mm.
Weight	Base unit: 270 g
Output	10 W (operation) / 8,4 W (charging)
Power reserve	Ca. 10 uses (5 min.) – fully charged
Charging time	Ca. 1,5 hours
Charger	100 – 240 V, 50/60 Hz
Hydrogen output	Depending on time and water. 0,8 – 6,0 ppm
ORP	(-) 300 to (-) 700 mV (CSE)

20 - Hydrogen water – not just for drinking!



- As opposed to alkaline activated water from a classic water ionizer, the pH value of the treated water remains the same. Hydrogen water can also be slightly acidic, although not as much Hydrogen will be stored like with alkaline water. We have measured, for example, with a slightly acidic, reverse osmosis water a clearly lower hydrogen content to a slightly alkaline mineral water like Aqua Panna: the ratio is 1,2 ppm to 1,9 ppm with the mineral water.
- Drink up to 0,3 l of water per 10 kg of bodyweight daily. With high temperatures and / or strenuous physical activity respectively more. Preferably use alkaline water. Optimal would be water from an Aquavolta® Water Ionizer that already makes filtered, alkaline water which contains 0,6 to 1,2 ppm of Hydrogen. Then the AquaVolta® Hydrogen Booster can store more Hydrogen thanks to its high pressure technique and this water is then suitable for laying foods in:
- Lay fruit, salads, cut flowers, raw eggs and vegetables in fresh, Hydrogen rich, electrolysis water for 15-30 minutes. These refresh themselves by absorbing Hydrogen, which is even absorbed through eggshells. With the absorption of hydrogen does the ORP of the foods sink, something the foods inspector Dr. Manfred Hoffmann regards as a sign of higher quality of nourishment. Mix milk powders, diet powders, fitness powders etc. with hydrogen water. Dissolve mineral and vitamin mixes with this water. Also like this the ORP sinks favourably thanks to the dissolved hydrogen.
- Buy juice concentrates - preferably organic. Like this you put an end to carrying the juice cartons and consequential pollution. No seller on the market can deliver juices with a better ORP. See: Asenbaum, K. H., Electro Activated Water, Munich 2016, page 42 ff.
- Mix alcoholic drinks and cocktails with Hydrogen water. They become milder, the taste can be appreciated more. Make ice-cubes out of hydrogen water.
- After alcohol intake drink 2 glasses in the evening as well as 2 glasses the next morning on an empty stomach.
- Give your pets (dogs, cats ...) hydrogen rich electrolysis water to drink and observe how their fur and general health is positively improved.

20 – Trouble shooting

Problem	Cause analysis	Solution
Booster not working (no bubble production)	<ul style="list-style-type: none">• Battery charged?• Foreign object in the pressure container?	Connect to the charger Clean interior, p. 18
LED not shining	<ul style="list-style-type: none">• Battery charged?	Connect to the charger
Does not charge	Check plug and cable	If the charger is defect inform your dealer. Do not use a different charger.
Red LED blinks for 5 seconds and operation stops	The water's conductivity is too high.	Use water with a lower conductivity.

22 - Service and guarantee





Your responsible contact person for guarantee services is your dealer. This applies, in particular, to commitments which have surpassed the two-year legal warranty. All guarantee assurances will be listed on your dealers purchase receipt (invoice).

Manufacturer (main importer and service centre): Aquacentrum.
Owner: Yasin Akgün, Fraunhoferstrasse 13, 80469 Munich, Germany.

www.aquacentrum.de

www.aquacentrum.com

Aquavolta® is protected with the German Department for Patents and Brand Names under file number: 30 2015 207 850.

EG-Konformitätserklärung	CE
Fa. Aquacentrum Inh. Dipl. Ing. TU München Yasin Akgün Fraunhoferstraße 13 80469 München	
erklärt hiermit, dass folgendes Produkt:	
Produktbezeichnung:	AquaVolta Wasserstoff Booster Mobiler Wasserionisierer zur Herstellung
Typenbezeichnung:	von pH-neutralem Wasserstoffwasser
Baujahr:	ab 2016
allen einschlägigen Bestimmungen der Richtlinien Elektrische Betriebsmittel (2006/95/EG) und Elektromagnetische Verträglichkeit (2006/42/EG) entspricht.	
Folgende harmonisierte Normen wurden angewandt:	
DIN EN 55014-1:2000+A1+A2:2002 DIN EN 55014-2:1997+A1:2001 DIN EN 61000-3-2:2006 DIN EN 61000-3-3:1995+A1:2001+A2:2005 DIN EN 61335-1:2002+A1:2004+A11:2004+A12:2006 DIN EN 61000-3-2:2006 DIN EN 50366:2003+ A1:2006	
München, 21.09.2016	 
Dipl. Ing. (TU München) Yasin Akgün Inhaber Aquacentrum	

23 – Rechtliches und Impressum

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IMPORTANT NOTES

This instruction book contains important information. Read the whole book and if necessary repeatedly. Do not throw it away in case you wish to read it again!

You can and should ask questions and queries. The contact address is shown above.

No responsibility is taken for improper handling and/or operation.

DISPOSAL INSTRUCTIONS

The device contains batteries and cannot be disposed of with household waste. If you would like to dispose of the device, you are obliged to return it to the sales point or send it to the producer. Upon request you can receive a parcel label from the sales point or the producer (p. 22) for returning it.

EXCLUSION OF LIABILITY

Molecular Hydrogen is a naturally and continually occurring gas in the human body, produced amongst other things in the intestinal flora. Risks and side effects from consuming Hydrogen rich water have not been mentioned in scientific literature. Therefore, we do not assume liability for medicinal claims or articles about the effect of ionized water, Hydrogen water and/or electrolyte water.

Author, publisher and producer do not bear liability for decisions and practices made by someone because of the statements made in this publication. Never use this publication as the sole source for health related measures. With health related complaints please seek advice from an accredited doctor or therapist.

The AquaVolta® Hydrogen Booster



Video-description: <https://www.youtube.com/watch?v=Sj20X3HwSPU>

The currently most effective device for enjoying, mobile and cost effectively, high quality Hydrogen water.

Another masterstroke by AquaVolta®, in collaboration with Engineer Yasin Akgün from Aquacentrum, the leading engineering office for water treatment.

