How is hydrogen stored?
Hydrogen is stored in small cartridges (HYDROCORE) at low pressure. When refueling, hydrogen gas is sent into the cartridge at high pressure, and adsorbed onto the surface area of a special metal alloy which is contained inside the cartridges, thus becoming a solid (hydride). When connected to the fuel cell, the HYDROCORE cartridges slowly release hydrogen using a heat exchange process with the ambient temperature.

How can I refill HYDROSTIK cartridges with hydrogen?
Add water into the unit’s water tank, connect the AC-DC adapter and insert a HYDROCORE cartridge. The HYDROLYSER will split water into hydrogen and oxygen, sending hydrogen into the HYDROCORE cartridge. It will take around 4 hours (at 25°C ambient temperature) for one HYDROCORE.

What is the purity level of the hydrogen produced by the HYDROLYSER?
The purity of the hydrogen produced by the HYDROLYSER is 99%. The metal hydrides contained in the cartridge first adsorb hydrogen, then release it at a higher purity into the fuel cell.

What is the purity level of the hydrogen produced by the HYDROLYSER?
The purity of the hydrogen produced by the HYDROLYSER is 99%. The metal hydrides contained in the cartridge first adsorb hydrogen, then release it at a higher purity into the fuel cell.

FREQUENTLY ASKED QUESTIONS

Q: How is hydrogen stored?
A: Hydrogen is stored in small cartridges (HYDROCORE) at low pressure. When refueling, hydrogen gas is sent into the cartridge at high pressure, and adsorbed onto the surface area of a special metal alloy which is contained inside the cartridges, thus becoming a solid (hydride). When connected to the fuel cell, the HYDROCORE cartridges slowly release hydrogen using a heat exchange process with the ambient temperature.

Q: How can I refill HYDROSTIK cartridges with hydrogen?
A: Add water into the unit’s water tank, connect the AC-DC adapter and insert a HYDROCORE cartridge. The HYDROLYSER will split water into hydrogen and oxygen, sending hydrogen into the HYDROCORE cartridge. It will take around 4 hours to fully fill a HYDROCORE cartridge in normal conditions.

Q: What is the purity level of the hydrogen produced by the HYDROLYSER?
A: The purity of the hydrogen produced by the HYDROLYSER is 99%. The metal hydrides contained in the cartridge first adsorb hydrogen, then release it at a higher purity into the fuel cell.

Q: When do I need to add water to the water tank?
A: The status indicator light is flashing red for one-second intervals. Slowly and carefully fill de-ionized or distilled water into the water tank until water reaches the ridge level in the tank (for details please refer to the operation instructions).

Q: When should I empty the drainage tank?
A: When the waste tank is full, pour waste water out and refill the water tank.

Q: Should I empty the water tank after use?
A: Not necessarily. De-ionized or distilled water in the water tank can remain inside after use.

SYSTEM OVERVIEW
The HYDROLYSER system uses a proton exchange membrane (PEM) electrolyzer to recharge Horizon’s HYDROCORE metal hydride cartridges automatically.

INCLUDED IN THIS BOX
a. HYDROLYSER unit
b. AC-DC adapter cord
c. User Manual

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Stack type</th>
<th>Proton exchange membrane electrolysis cell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>145 x 153 x 208 mm (5.7 x 6 x 8.2 in)</td>
</tr>
<tr>
<td>Weight</td>
<td>1.8Kg ±5% (3.97lbs ±5%)</td>
</tr>
<tr>
<td>Rated power</td>
<td>&lt;23W</td>
</tr>
<tr>
<td>Input voltage</td>
<td>DC: 10V-19V</td>
</tr>
<tr>
<td>Water input</td>
<td>De-ionized or distilled water</td>
</tr>
<tr>
<td>Water temperature</td>
<td>10-40°C (50-104°F)</td>
</tr>
<tr>
<td>Water consumption</td>
<td>Approx. 20ml/hr (0.72in/hr)</td>
</tr>
<tr>
<td>Hydrogen output pressure</td>
<td>0-3.3 MPaG (0-478.62 PSI)</td>
</tr>
<tr>
<td>Hydrogen generation capacity</td>
<td>Up to 3L/hr (0-183 in/hr)</td>
</tr>
<tr>
<td>Purity</td>
<td>99% (designed for HYDROCORE only)</td>
</tr>
<tr>
<td>Outlet specification</td>
<td>Designed for HYDROSTIK only</td>
</tr>
<tr>
<td>Refilling time for one HYDROCORE</td>
<td>Around 4 hours (at 25°C ambient temperature)</td>
</tr>
</tbody>
</table>
**OPERATION INSTRUCTIONS**

1. Open the water tank cover located at the top of the unit (Fig. A). Carefully add **de-ionized or distilled water** **EXACTLY** up to the ridge level inside the water tank as shown below in Fig. B. Close the cover.

2. Connect the AC-DC adapter to the unit (Fig. C). Once plugged in to an AC point, the unit’s status indicator light should start to flash green.

3. Fully insert the HYDROCORE cartridge into the HYDROLYSER unit by turning it clockwise into the cartridge port until firmly secured. During the insertion process, the green indicator light may turn red to indicate a connection (Fig D), but continue turning to make sure the HYDROCORE is firmly secured (Fig E). Secure the HYDROCORE tightly to the unit, but be careful not to apply excessive force.

4. While the indicator light is RED, your HYDROCORE cartridge is being filled with hydrogen. The HYDROCORE cartridge is fully charged when the indicator lights GREEN. When completed, disconnect the HYDROCORE cartridge from the HYDROLYSER (turn anti-clockwise to disconnect).

   **WARNING:**
   - Only use **de-ionized or distilled water**.
   - Note: 1. It will be normal to hear short bursts or puffs during the refilling procedure, due to water being purged from the system from time to time.
   - 2. It will be normal to hear the sound of air being released when the HYDROCORE is disconnected from the HYDROLYSER.

5. Disconnect the HYDROLYSER from the AC and empty the water tank if you will not use the HYDROLYSER for more than one week. If more cartridges need to be charged, repeat step 3.

<table>
<thead>
<tr>
<th>Green</th>
<th>Red</th>
<th>System Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>on</td>
<td></td>
<td>HYDROCORE cartridge is full</td>
</tr>
<tr>
<td>on 1 second, off 1 second</td>
<td>Waiting to fill HYDROCORE cartridge</td>
<td></td>
</tr>
<tr>
<td>on 1 second, off 1 seconds</td>
<td>HYDROCORE cartridge is being filled</td>
<td></td>
</tr>
<tr>
<td>on 1 second, off 1 seconds</td>
<td>Add water or empty waste water tank</td>
<td></td>
</tr>
</tbody>
</table>

**SWITCHING FROM AC TO DC SOLAR OR WIND POWER OPTIONS**

HYDROLYSER can be powered by using the standard (included) AC to DC power cable (b), or can be connected to renewable power sources such as solar PV or small wind turbines. Both sources should include a battery buffer to regulate power supplied to the HYDROLYSER.

**USEFUL INFORMATION / MAINTENANCE**

- Only use **de-ionized or distilled water**.
- 4-6 hours of operation will normally be required to fully charge an empty HYDROSTIK.
- The HYDROLYSER can still run and generate hydrogen even if the LED status indicator light alternates between red for 1 second and off for 3 seconds, but HYDROCORE charging time will be slower.
- If the LED status indicator light alternates red for 1 second and off for 1 second, check the water level of the water tank and waste water tank. Either add water to the water tank or remove water from the waste water tank as required. Follow set up instructions carefully.

**TROUBLESHOOTING**

1. The LED status indicator light does not flash green after the power supply cord is connected.
   
   **SOLUTION:** Check the connection between the AC-DC adapter and the power supply.