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**1.0 System**

1.1 The system must produce hydrogen gas.

1.1.1 The system must produce enough hydrogen to get the fuel cell to steady state and then run for 10 minutes at 1 watt.

1.1.2 The system must be able to determine the rate of hydrogen gas produced.

1.2 The storage method must run the fuel cell for a minimum of 5 minutes.

1.2.1 The system must measure the amount of hydrogen stored.

1.3 The system must fit into the stem 114 vent hood.

1.4 The system must interface with the Embry-Riddle fuel cell.

1.4.1 The system output must be a ¼” PTFE tube.

1.5 The fuel cell must not exceed the pressure of 0.29 psi.

**2.0 Safety**

2.1 The system must allow for safe production and extraction of hydrogen gas.

2.2 <https://myerauedu.sharepoint.com/teams/APPM/section-2/Pages/2-4-policy.aspx>

**3.0 Electrolysis**

3.1 The system must be able to be dissembled and reassembled to replace parts.

3.2 The machine must not allow the hydrogen and oxygen produced to mix.

3.3 The machine components must not be embrittled by hydrogen.

3.4 The amperage going into the system must be controlled and limited to 22.89 amps.

**4.0 Storage**

4.1 The storage material must be heated to 300 degrees Celsius and not exceed 350 degrees Celsius.

4.2 The storage material must be fully contained within the system.

4.3 The storage material must be at the end of the hydrogen flow.

4.4 The storage material must have a minimum hydrogen density of 2%wt.

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**5.0 Piping**5.1 The subsystem must transport hydrogen gas from the electrolyzer to the material storage, and from the material storage to the fuel cell.

5.2 The system must withstand temperatures up to 350°C.

5.3 The temperature at the valves must not exceed 50°C.

**6.0 Instrumentation**

6.1 The instrumentation subsystem must be self-reliant