

SAE Inc. Standard No. 112

Air Tightness of EnvirAnode

ABSTRACT

This test method is used to verify the air tightness of Generation 2 EnvirAnodes. EnvirAnodes are placed in a test apparatus and pressurized to 30 psi compressed air for various lengths of time dependent on the length of the wire. The end of the wire is checked for leaks at the completion of the test.

1. EQUIPMENT REQUIRED

- 1.1 Stopwatch
- 1.2 Container of tap water
- 1.3 Leak testing apparatus (2" diameter tube and cap)
- 1.4 Silicone plug
- 1.5 Spooler
- 1.6 Compressed air lines
- 1.7 Slip joint adjustable oil filter wrench

2. PROCEDURE

- 2.1 Speak to Production staff to determine when the EnvirAnode's are ready to be tested. The epoxy in the mixed metal oxide (MMO) tubes need to cure overnight before leak testing can occur.
- 2.2 Once Production staff indicate that the EnvirAnode's are ready for testing look at the production sheets. Ten percent of the EnvirAnode's from each order number need to be tested, i.e. if the order has 24 EnvirAnodes 2 of them need to be leak tested. If the order contains EnvirAnodes with several different wire lengths ideally at least 2 different wire lengths should be tested, i.e. if the order contains 24 EnvirAnodes; 12 with 200 ft wire lengths and 12 with 400 ft wire lengths one 200 ft and one 400 ft should be leak tested.
- 2.3 Move the EnvirAnodes to be tested to the leak testing area.
- 2.4 Leaving the MMO tube in the red sleeve slide it into the 2" diameter leak testing tube until the shrink-wrapped section is fully inside the tube.
- 2.5 Slide the bar on the spooler through the center of the spool and place the spool on the spooler.

- 2.6 Place the silicone plug around the wire and tighten the cap using the slip joint adjustable oil filter wrench to create a leak free seal.
- 2.7 Check that the valve on the leak testing tube is open.
- 2.8 Close the valve on the leak testing tube and then start the flow of compressed air, turning up the flow until the gauge on the leak testing tube reads 30 psi.
- 2.9 Start the stopwatch and leave the compressed air running for the times below based on the length of wire being tested.

Wire Length (ft)	Test Time (min)
< 50	5
50-100	5
150-250	6
300-450	8
500-650	10
700+	12

- 2.10 Once the test time is complete place the end of the wire in a container of water to verify that the EnvirAnode is not leaking. No bubbles should be observed coming out the end of the wire when placed in the water. If there are bubbles coming out the end of the wire when immersed in water notify the R&D Coordinator immediately – the epoxy seal in the EnvirAnode is defective / damaged and is not to be shipped.
- 2.11 Turn off the flow of compressed air.
- 2.12 Place a rag in front of the valve on the leak testing tube and open the valve to release the pressure in the tube.
- 2.13 Loosen the cap on the leak testing tube using the slip joint adjustable oil filter wrench.
- 2.14 Remove the silicone plug from the wire and remove the EnvirAnode from the test tube.
- 2.15 Remove the spool of wire from the spooler and return the EnvirAnode to the production area.
- 2.16 In the lab notebook document: the serial number of the tested EnvirAnode, the wire length, the time tested at 30 psi compressed air, and whether or not the epoxy seal in the EnvirAnode leaked. Any leaking anodes should be tagged, your supervisor and R&D Coordinator notified, and they should not be returned to the production area.
- 2.17 On the production paperwork write Pass or Fail next to the serial number of the tested EnvirAnode and initial the result.
- 2.18 Repeat the above steps until the required number of EnvirAnodes have been tested.

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