

Residual Gas Analysis of the FS8 Pressure Suit Glove

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Vacuum pressure: 2.5 x10⁻⁵torr

Operational Notes: This test was completed to better understand the off-gassing impacts of a pressure suit into a vacuum chamber or low-pressure spacecraft. We placed one of the FS8 gloves into a tube chamber operated by Ruben Dominguez at the University of Arizona's Applied Research Building (ARB). The system used to obtain readings was a Stanford RGA 100. The vacuum pump took about three hours to obtain the pressures needed to operate the RGA in both the first and second tests.

The glove was known to contain many of the elements of an entire suit however it would be advantageous to analyze a full suit at a later date. The glove did not contain any silicone seals or polycarbonate as found in the entire suit system. In our first test we noticed that the materials contained lots of water. On our second run we received a better reading across the spectrum of materials. The analyzer is limited to an AMU max value of 200 so would not detect anything past this range.

The glove was made of polyurethane coated nylon, aluminum, polyactic acid plastic, and polyester. Further materials found in the full suit include polycarbonate, silicone, steel, nylon, and acrylic.

It was decided in the end that the glove components were capable of being used in the ARB's large optical chamber however the full suit should not be tested in its current configuration to avoid chamber contamination.



Figure 1 Example of the glove tested

RGA Readings

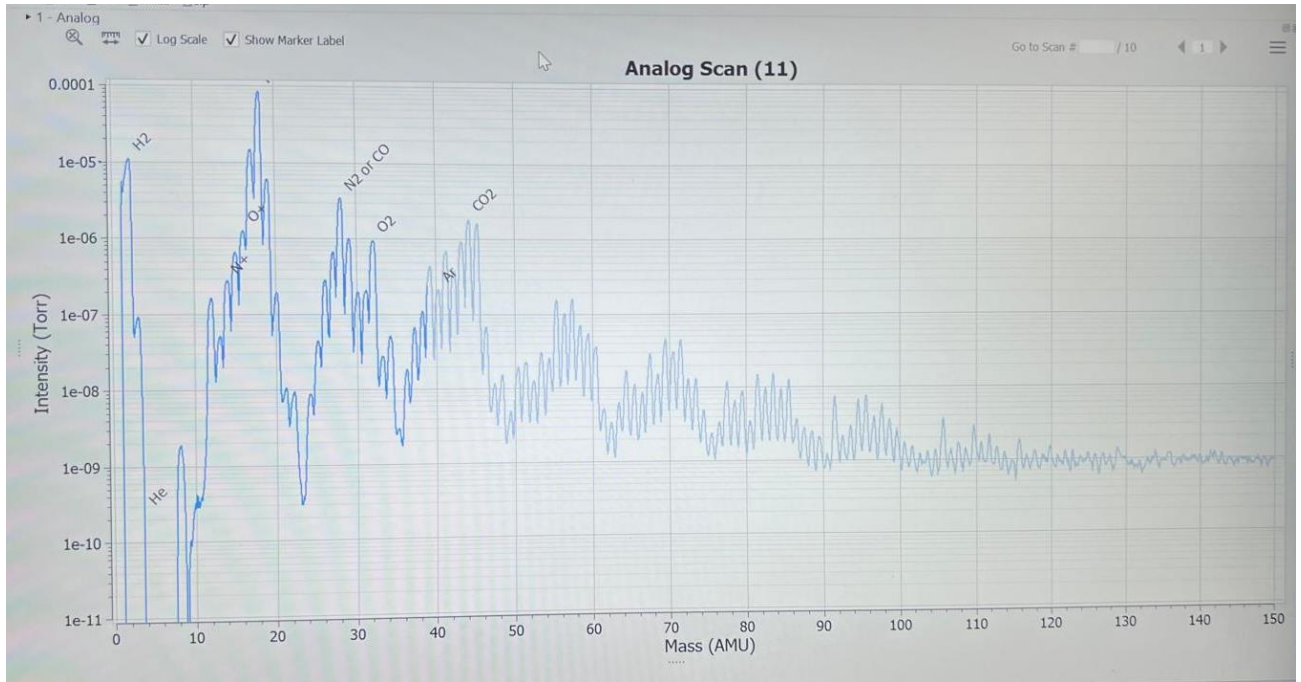


Figure 2 First test with ample water off-gassing

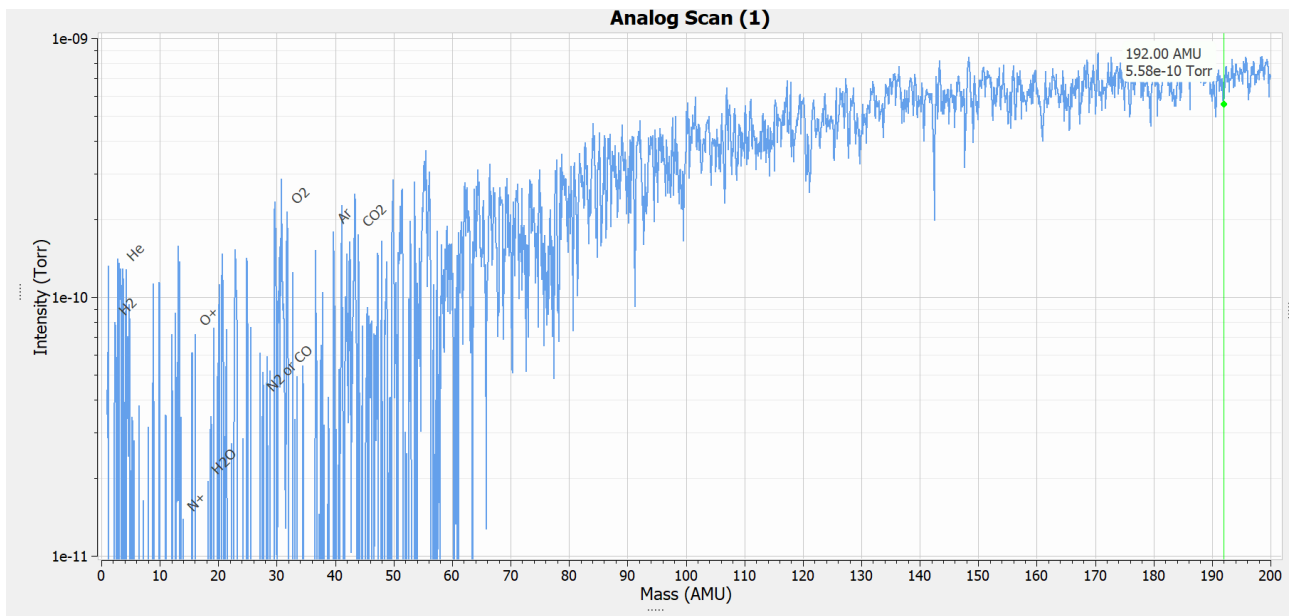


Figure 3 Second and final test completed