

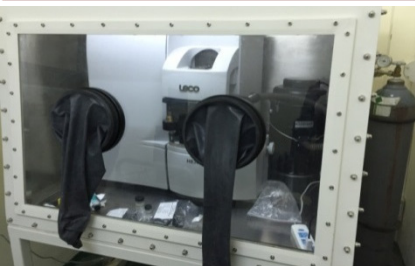
Hydrogen Content Analysis System in Post-irradiation Examination Samples

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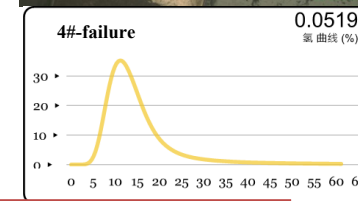
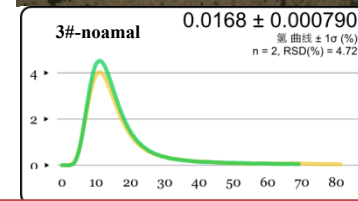
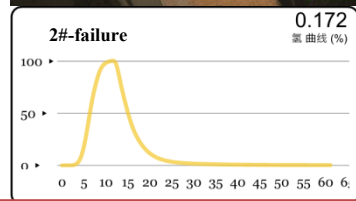
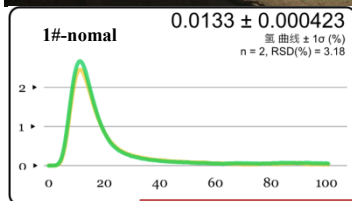
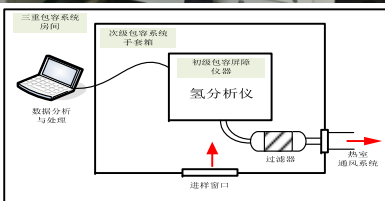
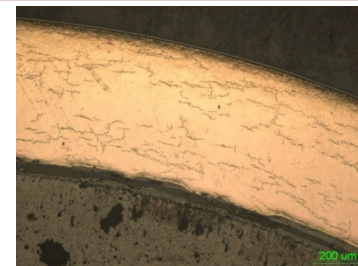
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- To analysis the hydrogen content of fuel rods cladding we found a hydrogen content analysis system.
- Melting** the failure rods cladding **by heating furnace** to gas and getting it into the **infrared detector**.
- The hydrogen measurement range is **0.1ppm-2500ppm** of **1g** sample, hydrogen measurement accuracy is 0.05ppm or 2% RSD.
- The proceedings are in glovebox and exhausted gas is discharged into the hot cell ventilation system.
- Ambient radioactivity level in the glovebox was monitored by less than **3 μ Sv/h**.

Analysis System



The results of Optical Microscope / Hydrogen Analysis



The hydrogen content at the failure position is much higher than that of normal position as expected

Conclusion

- The hydrogen content analysis system of the irradiated sample was successfully developed.
- The system meets the environmental radioactive monitoring limit requirement and the thermal discharge limit of the hot cell during the whole experiment.
- The system successfully completed the verification test and the measurement result was the same as expected.