Hydrogen Content Analysis System in Post-irradiation Examination Samples

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- To analyze 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 3μSv/h.

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.