

Inorganic Application Note

Moisture in Welding Flux

Sample Preparation

The samples should be of uniform consistency.

Accessories

781-335 Quartz Boat; 782-059 Nickel Liner; 502-156 Fluorhib

Calibration Standard

502-091 Calcium Oxalate @ 12.21% H₂O or other suitable standard

Method Parameters

Sample Weight: 4 gram nominal
Atmosphere: Oxygen or Nitrogen
Analysis Time: Approx. 900 seconds (2 phases)

Procedure

1. The 502-156 Fluorhib must be baked-off at 1000°C for 10 minutes minimum. It can then be stored up to 24 hours in a desiccator prior to use without being re-baked.
2. The 781-335 Quartz Boats and 782-059 Nickel Liner should be baked-off at 1000°C for 5 minutes and stored in a desiccator until used.
3. Calibrate the instrument as described in the operator's manual. If 502-091 Calcium Oxalate is used, follow these furnace parameters:

Phase	Starting Temperature	Ending Temperature	Ramp Rate	Hold Time (seconds)
1	200°C	200°C	0°C	400

4. Set furnace profile parameters for welding flux analysis as follows:

Phase	Starting Temperature	Ending Temperature	Ramp Rate	Hold Time (seconds)
1	105°C	105°C	0°C	360
2	105°C	1000°C	200°C	300

5. Determine the blank.
 - a. Place a "clean" 782-059 Nickel Liner into a "clean" 781-335 Quartz Boat.
 - b. Add 502-156 Fluorhib layered in nickel liner, approximately 0.125" (0.3 cm) thick.
 - c. Enter a 1 gram weight into weight stack and follow the procedure in the operator's manual.
6. Analyze samples.
 - a. Place a "clean" 782-059 Nickel Liner into a "clean" 781-335 Quartz Boat.
 - b. Weigh approximately 4 grams of welding flux into the nickel liner and enter the weight.
 - c. Add 502-156 Fluorhib covering the sample with about a 0.125" (0.3 cm) thick layer.
 - d. Proceed with analysis as described in the operator's manual.



RC-412

Typical Results

Sample	Weight (grams)	% H₂O @ 105°C	% H₂O @ 1000°C	% H₂O Total	Sample	Weight (grams)	% H₂O @ 105°C	% H₂O @ 1000°C	% H₂O Total
welding flux 1	4.0356 4.0448	0.0049 0.0055	0.0415 0.0397	0.0464 0.0452	welding flux 2	4.0244 4.0267	0.0660 0.0601	0.0787 0.0788	0.1447 0.1389



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