Wire Ignition – Standard Operating Procedure

Modified 08/14/2013

a. Turn on the IR pyrometer monitor; note the stabilization time required: 15 min

2. Open the software **Redlake MiDAS** on the computer attached to the High Speed Camera
    a. Select "***Open Camera***" in the software
3. Straighten wire and cut wire to appropriate length, about 6~7cm.
4. Open the wire ignition chamber, load the wire and coat the powder.
    a. Loosen the holders (both end),
    b. Place the wire and secure them in the groves etched in the holders
    c. Tighten up the holder on the right hand side first
    d. Make sure the wire does not bend.
    e. Tighten the right holder
    f. Put a spacer-template between the two holders, and push the left holder against the spacer, then tighten the left holder
    g. Mix the powder with hexane, put the spacer between the holders again, and use a brush to make a thin coating of powder in the space provided in the spacer-template.
    h. Lock the chamber
5. Select Record on the MiDAS software
    a. Set the Frame Rate to 25 fps
6. Adjusting camera:
    a. Set aperture initially at 2.5,
    b. Move the red light into the frame of the camera,
    c. Choose zoom ring to zoom in/out to focus on the wire and powder,
    d. Choose focus ring to focus on the powder. Then change the aperture to 8-11
7. Open the file Wire Ignition Evin 1 on computer connected to the pyro-meter.
    a. Choose signal 0 and channel 1, then click on √ button to change signal 1 and channel to 3, and then click √ again to save,
    b. Change the number of scans of acquire to 3000
8. Turn in the resistance box according to what current we need.
9. After turning lights off, change the Frame Rate to 500 fps.
10. Once the red light of the thermal monitor is on,
    a. Click the → button on pyro-meter computer,
    b. Press Record on the main computer
11. Once the green light is on, close the switch. When wire is burned, open the circuit / switch.
12. Stop video recording.
13. Record the frame rate and temperature when the small light is on. Select a time window in the recorded video that captured the ignition event.
14. Save the recorded data.
15. Save the data from the pyrometer.
16. Once when all the runs are completed, turn off the IR pyrometer monitor.