Setting Up an Oscillation Amplitude Sweep Test

1. Press the **Standby** button on the test station front panel. The light will show a steady green when the instrument is ready up to full power.
2. Open **TRIOS** program.
3. Select and install the appropriate geometry.
4. Enter the desired sample information using **TRIOS** program.
5. Configure the selected **geometry** and create the desired experimental procedure.
6. Select an **Oscillation Amplitude** test.
7. Enter the desired start **temperature**, or select **Inherit Value** to maintain the current temperature conditions as the start of this step.

8. Enter the **Soak time** to allow for temperature equilibration. (A ten-minute soak time is sufficient for most samples in cases where the change in temperature is not too large).

9. Enter the **Frequency (Hz)** needed in the test parameters.
10. Choose **Logarithmic Sweep**.
11. Enter the desired range of the **Strain%**.
12. Enter the desired **Points per decade**.
13. Select **Correlation** for the desired Acquisition Mode.
14. Enter the **Delay cycles** and **Delay time**.
15. Select the **Frequency based correlation**, **Save waveform** and **Use additional harmonics**.
16. From **Advanced** select the **Spring mode** which is default setting of the Normal force transducer mode.
17. By using the **Touch Screen** zero the gap between the upper and lower test geometries.

18. Open the gap and load the sample onto the geometry.
19. Lower the upper geometry onto the sample.
20. Trim the sample.
21. Bring the gap down to the final sample gap.
22. Close the oven.
23. Wait for the sample to relax.
24. Start the test by selecting **Home tab > Experiment toolbar > press Start**.
25. After finishing the test sample, open the oven, raise the upper geometry and brush or wipe the sample off of the testing geometries.
26. Press the **Standby** button to shut down the instrument.

Setting Up an Oscillation Frequency Sweep Test

1. Press the **Standby** button on the test station front panel. The light will show a steady green when the instrument is ready up to full power.
2. Open **TRIOS** program.
3. Select and install the appropriate geometry.
4. Enter the desired sample information using **TRIOS** program.
5. Configure the selected geometry and create the desired experimental procedure.
6. Select an Oscillation Frequency test.
7. Enter the desired start temperature, or select Inherit Value to maintain the current temperature conditions as the start of this step.

8. Enter the Soak time to allow for temperature equilibration. (A ten-minute soak time is sufficient for most samples in cases where the change in temperature is not too large).

9. Enter the Specified Strain% where the sample is linear.
10. Choose Logarithmic Sweep.
11. Enter the Frequency (Hz) range needed in the test parameters from (high to low) range.

12. Enter the desired Points per decade.
13. Select Correlation for the desired Acquisition Mode.
14. Enter the Delay cycles and Delay time.
15. Select the Frequency based correlation, save waveform and Use additional harmonics.
16. From Advanced select the Spring mode which is default setting of the Normal force transducer mode.
17. By using the Touch Screen zero the gap between the upper and lower test geometries.

18. Open the gap and load the sample onto the geometry.
19. Lower the upper geometry onto the sample.
20. Trim the sample.
21. Bring the gap down to the final sample gap.
22. Close the oven.
23. Wait for the sample to relax.
24. Start the test by selecting Home tab> Experiment toolbar> press Start.
25. After finishing the test sample, open the oven, raise the upper geometry and brush or wipe the sample off of the testing geometries.
26. Press the Standby button to shut down the instrument.

Setting Up a Flow Ramp Test

1. Press the Standby button on the test station front panel. The light will show a steady green when the instrument is ready up to full power.
2. Open TRIOS program.
3. Select and install the appropriate geometry.
4. Enter the desired sample information using TRIOS program.
5. Configure the selected geometry and create the desired experimental procedure.
7. Enter the desired start temperature, or select Inherit Value to maintain the current temperature conditions as the start of this step.

8. Enter the Soak time to allow for temperature equilibration. (A ten-minute soak time is sufficient for most samples in cases where the change in temperature is not too large).
9. Enter the **Duration** of the test, in seconds.
10. Select **Logarithmic** for the ramping mode.
11. Enter the **Initial shear rate** and **Final shear rate**.
12. Enter the **Sampling rate**.
13. From **Advanced** select the **Spring mode** which is default setting of the Normal force transducer mode.
14. By using the **Touch Screen** zero the gap between the upper and lower test geometries.

15. Open the gap and load the sample onto the geometry.
16. Lower the upper geometry onto the sample.
17. Trim the sample.
18. Bring the gap down to the final sample gap.
19. Close the oven.
20. Wait for the sample to relax.
21. Start the test by selecting **Home tab > Experiment toolbar**> press **Start**.
22. After finishing the test sample, open the oven, raise the upper geometry and brush or wipe the sample off of the testing geometries.
23. Press the **Standby** button to shut down the instrument.

### Setting Up a Flow Sweep Test

1. Press the **Standby** button on the test station front panel. The light will show a steady green when the instrument is ready up to full power.
2. Open **TRIOS** program.
3. Select and install the appropriate geometry.
4. Enter the desired sample information using **TRIOS** program.
5. Configure the selected **geometry** and create the desired experimental procedure.
6. Select a **Flow Sweep** test.
7. Enter the desired start **temperature**, or select **Inherit Value** to maintain the current temperature conditions as the start of this step.

8. Enter the **Soak time** to allow for temperature equilibration. (A ten-minute soak time is sufficient for most samples in cases where the change in temperature is not too large).

9. Select **Logarithmic** for the sweeping mode.
10. Enter the **Initial shear rate** and **Final shear rate**.
11. Enter the **Sampling rate**.
12. Enter the **Equilibrium time** in second.
13. Enter the **Averaging time** in second.
14. From **Advanced** select the **Spring mode** which is default setting of the Normal force transducer mode.
15. By using the **Touch Screen** zero the gap between the upper and lower test geometries.

16. Open the gap and load the sample onto the geometry.
17. Lower the upper geometry onto the sample.
18. Trim the sample.
19. Bring the gap down to the final sample gap.
20. Close the oven.
21. Wait for the sample to relax.
22. Start the test by selecting Home tab > Experiment toolbar > press Start.
23. After finishing the test sample, open the oven, raise the upper geometry and brush or wipe the sample off of the testing geometries.
24. Press the Standby button to shut down the instrument.

Performing Geometry Gap Temperature compensation calibration test

1. Press the Standby button on the test station front panel. The light will show a steady green when the instrument is ready up to full power.
2. Open TRIOS program.
4. Select the installed geometry from the Geometry Name drop-down list. The current gap temperature compensation factor associated with geometry displays.
5. Select Run at Gap and enter the desired gap, which is typically between 1 and 2mm for parallel plates, and approximately 50mm for a cone and plate.
6. Enter the desired Starting Temperature and Start Temperature Equilibrium Time before starting the temperature profile.
7. Select the desired Time/Temperature profile Ramp Temperature or Step Temperature.
8. Enter the desired Final Temperature and a Final Temperature Equilibrium Time at the last temperature.
9. Select Run to start the experiment.
10. Once the test is complete, a gap temperature compensation factor is determined and displayed on the form in the New Expansion Coefficient field. Click Commit to save and associate the new factor with the geometry.
11. When finished, close the Gap Temperature Compensation window.

Performing Torsion Fixture Test

1. Press the Standby button on the test station front panel. The light will show a steady green when the instrument is ready up to full power.
2. Open TRIOS program.
3. Select and install the Torsion Fixture Rectangle geometry.
4. Enter the desired sample information using TRIOS program.
5. Configure the selected geometry, measure and record the sample dimensions (Width, Thickness or Diameter and Length).
Installing the Geometry:

Follow these instructions to install the Torsion geometry:

1. Raise the stage so there is room to mount the geometries.
2. Verify that the motor is on.
3. Mount the upper and lower geometries on actuator shafts.
4. Zero the normal force on the touch screen or the vertical stage panel.
5. Lower the stage to a point where the geometries are in close proximity but are not touching.
6. Ensure that the upper and lower tool openings are aligned.
7. Bring the tools together to establish the zero point for the test tools.
8. Raise the stage to provide sufficient room for sample loading.

Loading the Sample:

1. Select a matching pair of sitting spacers.
2. Place the sample into the lower geometry.
3. Lower the stages until the upper geometry is about 0.25-inch from the sample.
4. While confirming the sample fits into the upper geometry, lower the stage until a compressive normal force of approximately 10% of full-scale of the normal force of approximately 10% of full-scale of the normal force transducer is generated.
5. Ensure that the sample is completely inserted into the geometry.
6. Tighten the lower and upper sliding clamps (using the adjusting screw).
7. Raise the stage until a tensile force of approximately 10% of full-scale of the normal force transducer is generated.
8. Select Conditioning options test
9. Select Active Mode for the axial force adjustment.
10. Select Tension.
11. Enter Axial Force, Sensitivity and Max gap change up and down.
12. Select Return to commanded force.
13. Select Force control for priority.
14. Disable the Auto Strain Adjustment Mode.
15. Select Oscillation Temperature Ramp as a second step.
16. Enter the desired start temperature, or select Inherit Value to maintain the current temperature conditions as the start of this step.
17. Enter the Soak time to allow for temperature equilibration. (A ten-minute soak time is sufficient for most samples in cases where the change in temperature is not too large).
18. Enter the desired Final Temperature, and Ramp rate.
19. Enter the Sampling Rate and % shear.
20. Select Single Point and Enter the Frequency.
21. Select **Correlation** for the desired Acquisition Mode.
22. Enter the **Delay cycles** and **Delay time**.
23. Select the **Frequency based correlation, save waveform**.
24. From **Advanced** select the **Spring mode** which is default setting of the Normal force transducer mode.
25. Close the oven.
26. Wait for the sample to relax.
27. Start the test by selecting **Home tab > Experiment toolbar > press Start**.
28. After finishing the test sample, open the oven, raise the upper geometry and brush or wipe the sample off of the testing geometries.
29. Press the **Standby** button to shut down the instrument.