

C/N/S Determination by LECO Analysis

Turn on the gas the night before if the instrument hasn't been used for a long time. If not turn the gas right before using.

Every morning perform a **Leak check**

Select Diagnostic and then Leak Check

Select the desired type of leak to perform

OPTIONAL: Select Use next to either Furnace Plug or Furnace Bypass, if desired. Furnace Plug—replaces the auto loader door to seal the furnace. Furnace Bypass—bypasses the combustion tube and primary filter and other right panel components, if desired, to shorten the leak check segment.

Note: Furnace Plug and Furnace Bypass cannot be selected at the same time. Some leak checks do not accommodate the use of these tools and cannot be started if Furnace Plug or Furnace Bypass is selected.

For **Segmented check** and **Segmented Inert leak** checks only: Next to Dose Loop Size, select either Large (10 cm³) or Small (3 cm³) to choose which loop will be part of the flow path.

Select Start at the bottom of the screen. If Use was selected for Furnace Plug or Furnace Bypass in step 2.3, complete the appropriate steps in Installing the Leak Check Tools (Optional), following. If Don't Use was selected for both tools, continue with step 2.6, following.

The system will pressurize and display the Initial Pressure, the Current Pressure, and the Change in Pressure. Upon completion of the leak check, a pass/fail result will be displayed. This result will remain until the next leak check of that type is performed.

Calibration checks. A Standard can be used to perform automatic calibration checks if the upper and lower control limits have been set. Because Standard Calibration is saved with each method, each method must be calibrated after it is created. For check standards, results that are out of range will be indicated by orange text in the software; saturated cell results will be indicated by blue text in the software.

Select Settings, and then select Standards.

To add a new standard, select Add .





To edit an existing standard, select the standard, and then select Edit .

Enter a name for the standard. The part number and lot number of the standard is recommended to be used as the name.

OPTIONAL: Add a description. The type of standard can be entered as the description.

NOTE: Last Used and Last Modified display information about the standard. These fields cannot be edited.

Select the tab for the desired analyte. The parameters that appear depend on the selected analyte. Range—select the calibration range or ranges for which this is a valid standard.

NOTE: Range is not available on all instrument configurations.

Certified—enter the certified concentration of the standard. The units entered can be changed within the keyboard. Certified values should be entered on dry basis.

Uncertainty—enter the uncertainty of the certified value.


Lower Control Limit—enter the lowest value in which the standard is still considered within range. If the standard analysis result is below this value and Yes is selected for Check Standard, then the result will appear in orange type. The software automatically sets the value to the certified value minus the uncertainty.

Upper Control Limit—enter the highest value in which the standard is still considered within range. If the standard analysis result is above this value and Yes is selected for Check Standard, then the result will appear in orange type. The software automatically sets the value to the certified value plus the uncertainty.

Check Standard—select Yes if the standard will be used as a check standard. If the standard result is outside the Lower or Upper Control Limit values, then the result will appear in orange type. If No is selected, the instrument will not check the standard result. This parameter is an option only if there is an Uncertainty entered.

Select Save to keep the information, or select Cancel and the standard information will not be saved.

To view Standards history select the orb next to the desired standard. If more than one

standard is desired, select Multi  on the Action bar, and then select the orbs next to the desired standards.

Select History



System Check. The System Check is used to check all basic functions necessary for the unit to perform an analysis. Depending on the instrument configuration, this may include checks of the communication, electrical, pressure, flow, temperature, motor(s), and interlock systems. If any of the items fail, it will be necessary for the user or service engineer to correct the problems before the unit can be used for analysis.

Prior to performing a system check, ensure that the system has been On for at least 30 min to allow all temperatures to stabilize.

In the software, select Diagnostics, and then select the System Check tab.

Select Start, and then wait for the System Check sequence to finish.

Address any items that do not pass.

Turn on the Furnace.

Select Instrument, and then select Furnace.

Turn On the furnace by selecting On in the parameter field next to Furnace. Selecting Off will disable power to the furnace. Selecting Ramp to Off will cool the furnace at the chosen Ramp Rate until the temperature reaches 200 °C and then turn Off the furnace.

Select the box next to Set Point, and then enter the temperature.

Select the box next to Ramp Rate, and then enter the maximum allowed furnace ramp rate.

Ramp rates above 12 °C/min may shorten the useful lifetime of the combustion tubes.

NOTE: The software will ramp at full speed up to 800 °C before using the ramp rate and setpoint specified by the user.

Furnace Standby Furnace Standby Mode-Select Enabled to set up a furnace standby state.

NOTE: Furnace Standby Mode must be set to Enabled before the Furnace Standby Time and Temperature can be selected.

Furnace Standby Time-Select the time, in minutes, that the instrument waits before it automatically changes the furnace setpoint to the Standby Temperature.

Furnace Standby Temperature-Select the temperature setpoint that the furnace automatically switches to when the Furnace Standby Time has passed.

Logging in a Blank.

Enter the number of replicates for the blank set by adjusting the + or – buttons on the Login bar.

Select Blank on the Login bar. All blanks automatically have a mass determined by the Nominal Mass field set in the Method. This value can be edited only from the Method Edit screen.

Select Method, and then select a method name from the list.



Logging in a Standard.

Enter the number of replicates for the sample adjusting by the + or – buttons on the Login bar.

Select Standard on the Login bar.

Select a standard from the list, and then select Enter. The standard list displays only included standards from the Settings/Standards screen.

Creating and Editing Standards. For check standards, results that are out of range will be indicated by orange text in the software; saturated cell results will be indicated by blue text in the software.

- Select Settings, and then select Standards. To add a new standard, select Add . To edit an existing standard, select the standard, and then select Edit .
- Enter a name for the standard. The part number and lot number of the standard is recommended to be used as the name.
- OPTIONAL: Add a description. The type of standard can be entered as the description. Last Used and Last Modified display information about the standard. These fields cannot be edited.
- Select the tab for the desired analyte. The parameters that appear depend on the selected analyte.

Range—select the calibration range or ranges for which this is a valid standard. Range is not available on all instrument configurations.

Certified—enter the certified concentration of the standard. Enter units. Certified values should be entered on dry basis.

Uncertainty—enter the uncertainty of the certified value.

Lower Control Limit—enter the lowest value in which the standard is still considered within range. If the standard analysis result is below this value and Yes is selected for Check Standard, then the result will appear in orange type. The software automatically sets the value to the certified value minus the uncertainty.

Upper Control Limit—enter the highest value in which the standard is still considered within range. If the standard analysis result is above this value and Yes is selected for Check Standard, then the result will appear in orange type.

The software automatically sets the value to the certified value plus the uncertainty.

Check Standard—select Yes if the standard will be used as a check standard. If the standard result is outside the Lower or Upper Control Limit values, then the result will appear in orange type. If No is selected, the instrument will not check the standard result. This parameter is an option only if there is an Uncertainty entered.

Select Save to keep the information, or select Cancel and the standard information will not be saved.

For each rep, enter the mass of the standard, select Default: [X], select Read Mass from Balance, or press the Print button on the balance, and then select Enter.

Select Method, and then select the desired method name from the list.