

an end user does not have to perform a separate manual spectral calibration, making this a calibration-less instrument from an end user's perspective. In other embodiments, the need to perform separate runtime or pre-run calibrations is reduced by the use of in-run calibration or other correction of spectral error.

[0008a] An embodiment provides a method for quality control of a process performed on a sample, the method comprising:

- providing a plurality of capillaries;
 - providing a polymer solution;
 - applying a pressure to the polymer solution and transferring at least a portion of the polymer solution into the capillaries;
 - while applying the pressure, measuring at least one parameter indicative of a sensed value of pressure over time to obtain pressure values;
 - performing an analysis on at least a portion of the pressure values; and
- using the analysis to make a determination whether a capillary electrophoresis run for the sample should proceed.

[0008b] Another embodiment provides a method for quality control of a process performed on a sample, the method comprising:

- providing a plurality of capillaries comprising a detection zone;
- providing a polymer solution;
- applying a pressure to the polymer solution and transferring at least a portion of the polymer solution into the capillaries;
- loading a biological sample into the capillaries;
- beginning a capillary electrophoresis run;
- detecting an optical emission from the detection zone;
- after loading and while applying the pressure, measuring a parameter indicative of a sensed value of pressure;
- determining if the sensed value of pressure is within an acceptable operating range;
- if the pressure is within the acceptable operating range, determining whether the capillary electrophoresis run has ended;
- if the pressure is not within the acceptable operating range, ending the run.

[0009] Various other aspects of the inventive subject matter will become more apparent from the following description, along with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 illustrates a sample separation and identification instrument in accordance with an embodiment of the present invention.

[0011] FIG. 2 illustrates an exemplary method in accordance with an embodiment of the invention to carry out runtime correction of spectral error in the instrument of FIG. 1.

[0012] FIG. 3 illustrates an exemplary method in accordance with an embodiment of the invention to carry out runtime correction of spectral error in the instrument of FIG. 1.

[0013] FIG. 4 illustrates data corresponding to an exemplary dye matrix of the instrument of FIG. 1 that can be calibrated or re-calibrated in accordance with embodiments of the present invention.

[0014] FIG. 5 illustrates exemplary spectral bin data generated by the instrument of FIG. 1.

[0015] FIG. 6 illustrates exemplary dye data obtained by applying an existing dye matrix to spectral bin data.

CLAIMS

1. A method for quality control of a process performed on a sample, the method comprising:
 - providing a plurality of capillaries;
 - providing a polymer solution;
 - applying a pressure to the polymer solution and transferring at least a portion of the polymer solution into the capillaries;
 - while applying the pressure, measuring at least one parameter indicative of a sensed value of pressure over time to obtain pressure values;
 - performing an analysis on at least a portion of the pressure values; and
 - using the analysis to make a determination whether a capillary electrophoresis run for the sample should proceed.
2. The method of claim 1, wherein the analysis comprises determining a noise level in a trace representing the pressure values.
3. The method of claim 1, wherein the analysis comprises determining whether the pressure values remain above a threshold value during a time period in which the pressure is applied.
4. The method of claim 1, wherein the sample comprises a sample solution comprising one or more biological molecules, the method further comprising:
 - while the sample solution is in the plurality of capillaries, detecting the one or more biological molecules;
 - while detecting, measuring a current in one or more capillaries in which the biological samples are being moved by the current over time to determine a current trace;
 - performing an analysis on the current trace; and
 - performing an action based on the analysis.
5. The method of claim 1, wherein measuring the parameter indicative of a sensed value of pressure over time comprises measuring the parameter at a plurality of discrete times.

6. The method of claim 4, wherein measuring the current over time comprises measuring the current at a plurality of discrete times.
7. The method of claim 4, wherein the analysis on the current trace comprises determining a noise metric corresponding to signal noise in the current trace and further wherein performing an action based on the analysis comprises performing an action based on a value of the noise metric.
8. The method of claim 1, further comprising:
 - if the determination is yes, then proceeding with the capillary electrophoresis run;
 - if the determination is no, then performing an action and determining whether the action has been effective; and
 - if the action is determined to be effective, either repeating the method from the step of applying a pressure to the polymer solution or proceeding with the capillary electrophoresis run.
9. The method of claim 8, wherein performing the action comprises one or more of:
 - maintaining the applied pressure;
 - setting a flag;
 - sending a warning signal;
 - sending a service call signal;
 - sending a check cartridge signal;
 - reducing the applied pressure;
 - increasing the applied pressure;
 - closing a valve between a reservoir of polymer solution and a pump used to apply the pressure;
 - discontinuing transferring; or
 - changing a run condition.
10. A method for quality control of a process performed on a sample, the method comprising:
 - providing a plurality of capillaries comprising a detection zone;
 - providing a polymer solution;

applying a pressure to the polymer solution and transferring at least a portion of the polymer solution into the capillaries;
loading a biological sample into the capillaries;
beginning a capillary electrophoresis run;
detecting an optical emission from the detection zone;
after loading and while applying the pressure, measuring a parameter indicative of a sensed value of pressure;
determining if the sensed value of pressure is within an acceptable operating range;
if the pressure is within the acceptable operating range, determining whether the capillary electrophoresis run has ended;
if the pressure is not within the acceptable operating range, ending the run.