What is claimed is:

1. An oxidation-reduction potential test device, comprising:

a substrate;

a sample chamber;

a first test lead supported by the substrate, the first test lead including:

a first area extending into the sample chamber;

a second area extending from the sample chamber;

a reference cell;

a reference lead, including;

a first area in electrical contact with the reference cell;

a second area extending from the reference cell;

a bridge, wherein a fluid sample in the sample chamber is placed in electrical contact with the reference cell by the bridge.

2. The device of Claim 1, further comprising:

an overlay, wherein at least a portion of the first test lead, the reference cell, at least a portion of the reference lead, and the bridge are held between the substrate and the overlay when the overlay is interconnected to the substrate.

3. The device of Claim 2, wherein the overlay includes an aperture, and wherein the aperture corresponds to at least a portion of the sample chamber when the overlay is interconnected to the substrate.

4. The device of Claim 3, further comprising:

a filter element, wherein the filter element at least one of extends over and is contained within the sample chamber.

5. The device of Claim 1, further comprising:

a gel volume, wherein the bridge comprises an electrolytic gel contained within the gel volume, and wherein the electrolytic gel is in contact with the reference cell.

6. The device of Claim 5, wherein the gel volume is in communication with the sample chamber.

7. The device of Claim 1, wherein the reference cell includes a silver/silver chloride reference cell.

8. The device of Claim 1, wherein the first substance added to the bridge comprises a wetting agent, and wherein the bridge and the wetting agent form a salt bridge electrically interconnecting the first area of the first test lead to the reference cell.

9. The device of Claim 1, wherein the first test lead is formed from an electrically conductive material having a constant composition.

10. The device of Claim 2, wherein the first test lead includes a read out portion, wherein the first reference lead includes a readout portion, wherein the read out portion of the test lead and the readout portion of the reference lead are accessible to a test device when the overlay is interconnected to the substrate.

11. A method for determining the oxidation-reduction potential of a fluid sample, comprising:

providing a test strip with a sample chamber, a reference cell, a first test lead, and a reference lead;

placing a fluid sample in a sample chamber, wherein the first test lead and the reference lead are electrically interconnected to one another via the fluid sample in the sample chamber and a salt bridge between the sample chamber and the reference cell;

reading a voltage from the sample chamber via the first test lead and the reference lead, wherein the reference lead is interconnected to the sample chamber by the reference cell and the bridge.

12. The method of Claim 11, further comprising:

providing a first filter element extending between the sample chamber and the reference cell, wherein the bridge is formed from wetting of the filter element by a component of the fluid sample.

13. The method of Claim 12, further comprising:

providing a second filter element overlaying the sample chamber, wherein placing the fluid sample in the sample chamber includes filtering the fluid using the second filter element.

14. The method of Claim 12, wherein the first filter element overlays the sample chamber, and wherein placing the fluid sample in the sample chamber includes filtering the fluid using the first filter element.

15. The method of Claim 11, further comprising:

providing a gel volume that is in communication with the sample chamber, wherein a gel within the gel volume electrically interconnects the fluid sample or a component of the fluid sample to the reference cell.

16. The method of Claim 11, wherein providing a test strip with a sample chamber, a reference cell, a first test lead, and a reference cell further comprises:

providing a substrate;

providing an overlay;

providing the first test lead, wherein the first test lead has a sample portion, a transfer portion, and a readout portion, and wherein the first test lead is a substantially uniform, electrically conductive material;

providing a bridging material;

providing the reference cell;

providing the reference lead having a reference cell contact portion electrically interconnected to the reference cell, and a readout portion;

interconnecting the overlay to the substrate, wherein the test lead, the bridging material, and the reference cell are all at least partially held between the overlay and the substrate, wherein one of the substrate and the overlay includes a sample chamber aperture defining a sample chamber, wherein the sample portion of the test lead extends into the sample chamber, and wherein the readout portion of the test lead and a readout portion of the reference lead are accessible to a readout device.

17. The method of Claim 11, wherein the fluid sample is whole blood.

18. A system for determining the oxidation-reduction potential of a blood product, comprising:

a test strip, the test strip including:

a substrate, wherein a first surface of the substrate defines a first plane;

an overlay, wherein a sample chamber aperture that at least partially defines a sample chamber is formed in the overlay, wherein a first surface of the overlay defines a second plane, and wherein the first and second planes are parallel to one another;

a working electrode, including a sample chamber portion, and a readout portion, wherein the working electrode is located between the first plane defined by the first surface of the substrate and the second plane defined by the first surface of the overlay;

a reference cell, wherein the reference cell contains a material having a known electrical potential;

a bridge component, wherein the bridge component is in communication with the sample chamber and is electrically interconnected to the reference cell;

a reference lead, including a first portion that is in electrical contact with the reference cell and a readout portion;

a blood product, wherein the reference cell is electrically interconnected to the first test lead when the blood product is placed in the sample chamber;

a voltmeter, wherein the electrical potential between the reference lead and at least one of the working electrode and the counter electrode is read by the voltmeter.

19. The system of Claim 18, wherein the working electrode and the counter electrode comprise a material with a constant composition.

20. The system of Claim 18, wherein the working electrode and the counter electrode are free of at least one of oxidation-reduction potential and anti-biofouling agents.

What is claimed is:

1. An oxidation-reduction potential test device, comprising:

a substrate;

a sample chamber;

a first test lead supported by the substrate, the first test lead including:

a first area extending into the sample chamber;

a second area extending from the sample chamber;

a reference cell;

a reference lead, including;

a first area in electrical contact with the reference cell;

a second area extending from the reference cell;

a bridge, wherein a fluid sample in the sample chamber is placed in electrical contact with the reference cell by the bridge;

an overlay, wherein at least a portion of the first test lead, the reference cell, at least a portion of the reference lead, and the bridge are held between the substrate and the overlay when the overlay is interconnected to the substrate, wherein the overlay includes an aperture, and wherein the aperture corresponds to at least a portion of the sample chamber when the overlay is interconnected to the substrate;

a filter element, wherein the filter element at least one of extends over and is contained within the sample chamber.

2. The device of claim 1, further comprising:

a gel volume, wherein the bridge comprises an electrolytic gel contained within the gel volume, and wherein the electrolytic gel is in contact with the reference cell.

3. The device of claim 2, wherein the gel volume is in communication with the sample chamber.

4. The device of claim 1, wherein the reference cell includes a silver/silver chloride reference cell.

5. The device of claim 1, wherein a first substance added to the bridge comprises a wetting agent, and wherein the bridge and the wetting agent form a salt bridge electrically interconnecting the first area of the first test lead to the reference cell.

6. The device of claim 1, wherein the first test lead is formed from an electrically conductive material having a constant composition.

7. The device of claim 1, wherein the first test lead includes a read out portion, wherein the reference lead includes a readout portion, wherein the read out portion of the first test lead and the readout portion of the reference lead are accessible to a test device when the overlay is interconnected to the substrate.

8. A method for determining the oxidation-reduction potential of a fluid sample, comprising:

providing a test strip with a sample chamber, a reference cell, a first test lead, and a reference lead;

placing a fluid sample in the sample chamber, wherein the first test lead and the reference lead are electrically interconnected to one another via the fluid sample in the sample chamber and a salt bridge between the sample chamber and the reference cell;

reading a voltage from the sample chamber via the first test lead and the reference lead, wherein the reference lead is interconnected to the sample chamber by the reference cell and the salt bridge.

9. The method of claim 8, further comprising:

providing a first filter element extending between the sample chamber and the reference cell, wherein the salt bridge is formed from wetting of the first filter element by a component of the fluid sample.

10. The method of claim 9, further comprising:

providing a second filter element overlaying the sample chamber, wherein placing the fluid sample in the sample chamber includes filtering the fluid sample using the second filter element.

11. The method of claim 9, wherein the first filter element overlays the sample chamber, and wherein placing the fluid sample in the sample chamber includes filtering the fluid sample using the first filter element.

12. The method of claim 8, further comprising:

providing a gel volume that is in communication with the sample chamber, wherein a gel within the gel volume electrically interconnects the fluid sample or a component of the fluid sample to the reference cell.

13. The method of claim 8, wherein providing a test strip with a sample chamber, a reference cell, a first test lead, and a reference lead further comprises:

providing a substrate;

providing an overlay;

providing the first test lead, wherein the first test lead has a sample portion, a transfer portion, and a readout portion, and wherein the first test lead is a substantially uniform, electrically conductive material;

providing a bridging material;

providing the reference cell;

providing the reference lead having a reference cell contact portion electrically interconnected to the reference cell, and a readout portion;

interconnecting the overlay to the substrate, wherein the first test lead, the bridging material, and the reference cell are all at least partially held between the overlay and the substrate, wherein one of the substrate and the overlay includes a sample chamber aperture defining a sample chamber, wherein the sample portion of the first test lead extends into the sample chamber, and wherein the readout portion of the first test lead and a readout portion of the reference lead are accessible to a readout device.

14. The method of claim 8, wherein the fluid sample is whole blood.