ChannelChecks™ Reagent Pads

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The ChannelChecks™ test strips are comprised of three individual reagent pads, each sensitive to a different organic soil: hemoglobin, protein, carbohydrates. These are soils are identified by scientific studies as frequently remaining in the lumens of surgical instruments after clinical use. Following are the reactions on each pad:

Carbohydrates: Specifically tests for glucose. This test is based on a sequential enzyme reaction and employs the use of the glucose oxidase test. Glucose oxidase converts the glucose to gluconic acid and hydrogen peroxide. A second enzyme, peroxidase, catalyzes the reaction of peroxides to produce a positive color change. The limit of detection of the carbohydrate pad is ≥210 µg/ml.

Protein: Protein is detected using the pH indicator Bromophenol blue. The test area of the reagent strip is infused with Bromophenol blue buffered to pH 3.0. At this pH Bromophenol blue is yellow in the absence of protein. Presence of a protein slightly increases the pH of the solution. This increased pH causes Bromophenol blue to change its color from yellow to greenish blue. Thus, presence of a protein can be confirmed if the test area of the strip changes its color from yellow to greenish blue. The limit of detection of the protein pad is ≥120 µg/ml.

Blood: Hemoglobin is detected using a peroxide reaction. The test relies on the peroxidase-like activity of hemoglobin in blood to catalyze the oxidation of some compounds in the presence of hydrogen peroxide to yield colored substances, which are easily detected. This reaction can show blood residues in liquids or on surfaces by a color change to blue. Peroxidases in blood will still show a positive result after the influence of heat, alkalinity or aldehydes. The limit of detection of the blood pad is ≥0.25 µg/ml.