What is The PortaSCC® Milk Test?

The PortaSCC® milk test is a simple somatic cell count test developed for the detection of sub-clinical mastitis in dairy cows. It is an ideal and reliable tool for quickly checking herd health right on the farm.

It can be used in the following applications to:
- identify problem cows or quarters
- monitor response to treatment
- check cows at freshening and dry off
- monitor udder health
- screen a herd or a group of cows

In three simple steps, the PortaSCC® milk test estimates the somatic cell count in fresh milk with the use of a color chart or digital reader.

How Does the PortaSCC® Milk Test Work?

The PortaSCC® milk test is based on a chemical reaction between a dye on the test strip and an enzyme (esterase) present in white blood cells. These cells make up close to 100% of the somatic cells in milk. The test strip traps the white blood cells, and the enzyme reacts with the dye to change the sample well to a blue color. The darker the blue color, the higher the somatic cell count.

How Does the PortaSCC® Milk Test Compare to Other Methods?

The PortaSCC® milk test is more sensitive than the California Mastitis Test (CMT) and can detect subclinical mastitis at a much lower level. It provides a numerical reading with a color chart or reader, making it easier to interpret. It can be used for quarter or composite samples, and multiple tests can be run at the same time.

The PortaSCC® milk test uses an enzymatic test method whereas reference laboratory instruments use a technique that stains and counts each cell. PortaSCC® results have been compared to laboratory results in field studies by major universities (see back of this sheet), and have been shown to correlate well with the laboratory method.

How Reliable is the PortaSCC® Milk Test?

The PortaSCC® milk test is being used in over 50 countries. These are some of the results obtained by different users.

<table>
<thead>
<tr>
<th>Test Site</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>79%</td>
<td>88%</td>
<td>0.90</td>
</tr>
<tr>
<td>UK</td>
<td>94%</td>
<td>88%</td>
<td>0.85</td>
</tr>
<tr>
<td>USA</td>
<td>97%</td>
<td>81%</td>
<td>0.87</td>
</tr>
<tr>
<td>Australia</td>
<td>92%</td>
<td>79%</td>
<td>0.86</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>95%</td>
<td>84%</td>
<td>0.92</td>
</tr>
<tr>
<td>Average</td>
<td>92%</td>
<td>85%</td>
<td>0.88</td>
</tr>
</tbody>
</table>

**Accuracy:** PortaSCC® results are very close to laboratory results, with an average correlation of 0.88.

**Sensitivity** (at 200,000 cells/mL): 92%
92% of samples that tested positive for sub-clinical mastitis (>200,000 cells/mL) with the reference lab method also tested positive with the PortaSCC® milk test.

**Specificity** (at 200,000 cells/mL): 85%
85% of samples that tested negative for sub-clinical mastitis (<200,000 cells/mL) with the reference lab method also tested negative with the PortaSCC® milk test.
This study compared the PortaSCC® milk test with the California Mastitis Test (CMT) and laboratory results. Data from 289 samples was used in a statistical analysis. When a threshold of 200,000 cells/mL was used, the agreement between the PortaSCC® and lab results was 87.8%.

**Conclusion:** Results of the PortaSCC® were similar to lab results and a high level of agreement was identified when a threshold of 200,000 cells/mL was used.

This study was performed using milk samples from 615 quarters from 200 cows. Results were read with a color chart only. Many of the false negative results occurred because the milk was too thick to absorb into the test strip. Exclusion of such samples would significantly improve the sensitivity of the test.

**Conclusion:** The PortaSCC® milk test is easy to use and provides sensitive and specific estimations of SCC at cow-side. The high predictive value for a negative test enhances its potential use by dairy producers in their treatment decision making.

This study compared PortaSCC® milk test results to results from two different laboratories. The samples were collected at random from Holstein cows in different stages of lactation. The outlying points (shown in red on graph) were due to thick or clumpy milk that did not absorb evenly into the test strip.

It is important to note that even though the overall correlation is high, any single point can show some deviation from laboratory values.

**Conclusion:** We found the correlation between the PortaSCC® data and the average of the two reference labs to be excellent (98%), except for a few outliers. In general, the results were close enough to lab results to make the PortaSCC® milk test a useful tool for on-farm screening.