Fall 2012

QMI Is Fully Committed To Supply The Dairy Industry With The Highest Quality Aseptic User-Friendly Sampling Systems

QMI Aseptic Sampling System

The QMI® Aseptic Sampling System is widely utilized by the dairy processing industry as an integral part of quality control programs. The system has an aseptic design, is validated and is user-friendly. Dairy farms and milk hauling operations also utilize the QMI® Aseptic Sampling System which provides a safer, more accurate method of sampling.

QMI's Regulatory Approvals Include:

1. The National Conference on Interstate Milk Shipments (NCIMS) and the Food and Drug Administration (FDA) have approved QMI products for collection of the milk producers "universal" dairy farm milk samples by FDA Memo M-I-12-4.

2. The NCIMS and the FDA have approved QMI products for line sampling (direct load sampling) by FDA Memo M-I-06-6.

3. The NCIMS and the FDA have approved the QMI method (QMI sampler and needle only method) as published in FDA Memo M-I-06-12.

4. The NCIMS and the FDA have approved QMI products for sampling tanker trucks. FDA Memo IMS-a-46.

QMI Is Seeking Additional Regulatory Approval For Advanced Sampling Methods:

QMI's latest research project is to sample a farm bulk tank or silo from ground level while loading the milk onto a milk tanker truck using only a single use sampling tube and traditional sample vial. One end of the QMI Aseptic Sampler is attached to the bulk tank outlet valve and the other end is connected to the truck unloading hose. After the bulk tank or silo is properly agitated and the milk is being pumped onto the milk tanker truck, one end of the sampling tube is inserted into an unused hole in the QMI Aseptic Sampler. The other is inserted into the top of the sample vial. The big advantage over the conventional dipper sampling method is that the sample is as aseptic and representative as possible.

These testing results are used to determine the producer's paycheck and quality premiums. Using this QMI Aseptic Sampling System will assure a sample that is truly representative of the milk the producer puts into the bulk tank.

In This Issue:

The Consequences of Inaccurate Sampling of Raw Milk

Written by Rulon A. Chappell, PhD.

The QMI Aseptic Sampling System has been used to demonstrate a substantial difference in composition analysis in samples obtained by the QMI system compared to a conventional dip sample (QMI Newsletter, October 2009). Conventional dip samples are taken at the top of the tanker while QMI samples are taken on the side of the tanker truck. Because of raw milk stratification, dip samples taken without proper agitation will contain a high fat content.

QMI and Dip Samples taken immediately after filling the tanker showed fat content of 3.6% fat on analysis. Samples taken by the dip sampling method four hours after filling had a test of 4.1% fat and after 4 hours it went as high as 5+%.

When stratification in the tank imparts error in the analysis of the milk components, it distorts the cost of milk for cheese making.

Assuming the 0 time sample is accurate and we use that sample to predict the yield of Cheddar Cheese from the milk, we see the following pattern:

1. Using $16.00 per CWT as a reference price for milk, each 0.1% upward deviation in the fat test results in an increase of $0.15/CWT for the milk.

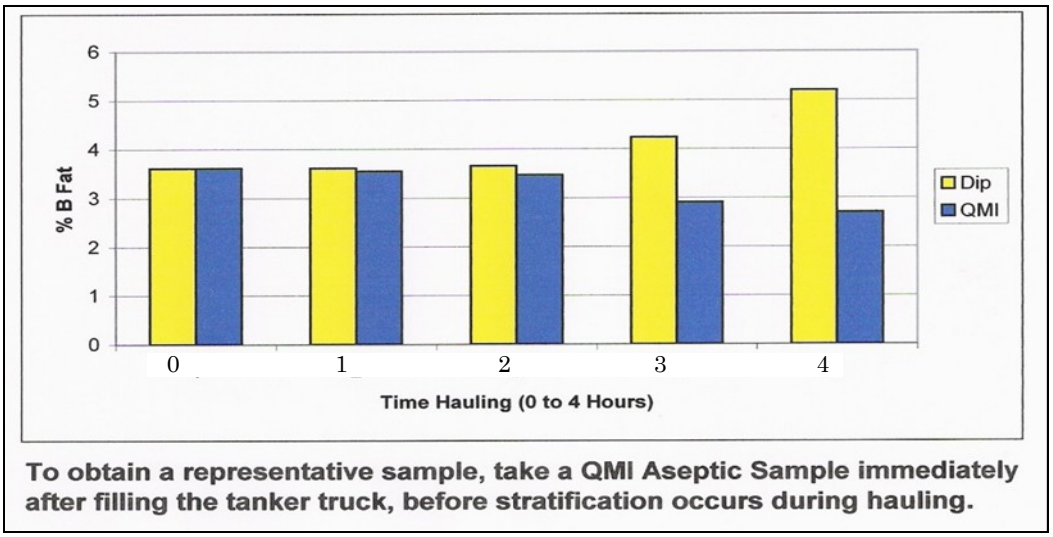
2. Each 0.1% deviation in fat test results in 0.16% deviation in cheese yield expected from the milk.

3. For 40,000 pounds of milk an error of 0.1 % in the fat test results in increased milk cost of $60 ($300 per load for the 0.5% error in the 4 hour example above) even though we do not obtain any more cheese from that composite milk.

The QMI Aseptic Sampling System is NCIMS and FDA approved for truck sampling. FDA Memo: IMS-a-46.

Rulon Chappell, PhD has over 30 years experience in the cheese/dairy industry and has performed numerous yield and quality studies on natural cheeses.

Raw Milk Stratification During Milk Hauling



Data provided by the Division of Regulatory Services, University of Kentucky

QMI® Finds Growing Success In Biotech Market

University of Minnesota Validates the Aseptic Value of the QMI® Safe-Septum

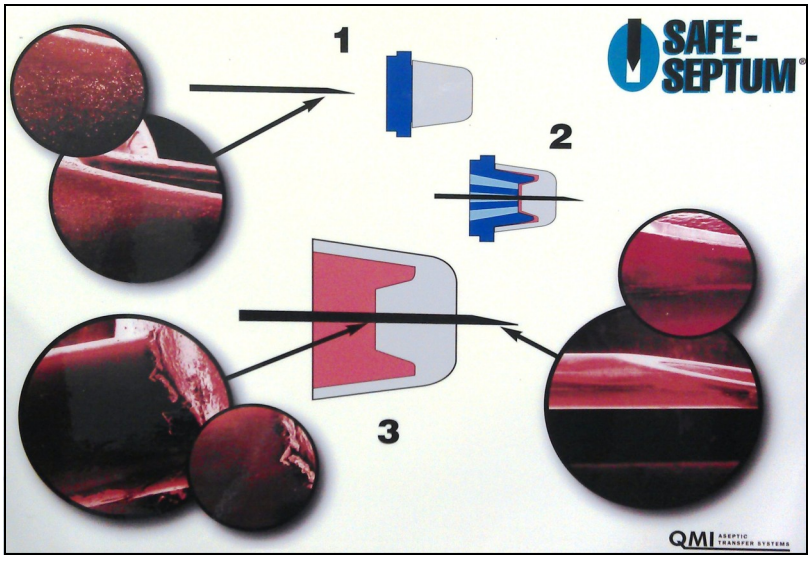
The QMI® Safe-Septum was validated by the Biotechnology Institute of the University of Minnesota in St. Paul. The study tested the Safe-Septum under sub-optimal conditions. For this purpose, the material transfer process across the Safe-Septum was challenged with unusually high levels of *Bacillus stearothermophilus.*

While several challenges were conducted, the most challenging was when both the septum surface and needle were intentionally contaminated with bacteria (full failure).

Of the conditions tested for the Safe-Septum, not one showed any contamination. In contrast, the conventional septum, when challenged by failure conditions, showed contamination.

QMI® advocates always following Standard Operating Procedures (SOPs). However, even when SOP's are not followed, there is an additional layer of protection when using the QMI® Safe-Septum because of its unique design.

The validation study results are published in both the *Genetic Engineering News* (Feb 2000) and *Pharmaceutical Process* magazine (Jan 2000). They also can be found on our website at: www.qmisystems.com.

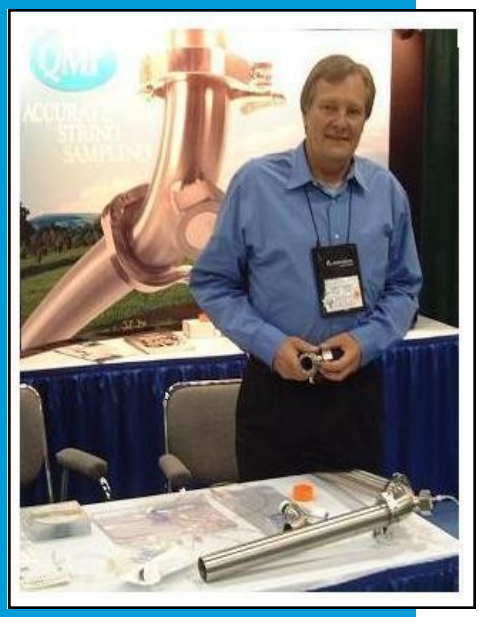


A contaminated needle emerges from the QMI® Safe-Septum free of bacteria

QMI® Safe-Septum

1. Needle contaminated with *Bacillus stearothermophilus* (bacteria).
2. Needle penetrated through QMI Septum.
3. Bacteria physically removed from needle cannot contaminate the bioreactor.

The History of QMI



Darrell Bigalke

President & Owner of QMI

Since 1983, the mission of QMI has been to provide an aseptic, user-friendly, cost-effective method of sampling liquid processes. Because microbial testing is only as accurate as the sample, our mission is to provide the most accurate and aseptic liquid sampling and transfer devices available today.

QMI products are used worldwide in more than 30 countries.

More than 1,000 dairy processing plants utilize the QMI Aseptic Sampling System as an integral part of their quality control program. Several hundred dairy farms use the QMI Aseptic Sampler for string sampling, tank and silo sampling and direct load sampling.

The biotech and brewing industries use QMI products for sampling and inoculating bioreactors.

QMI's story is featured in the *American Dairymen* magazine, Oct. 2012, available on our website.

Worldwide Leaders In Aseptic Fluid Sampling

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