

For Pressurized In-Line Field Sampling without Plant Shutdown!

Laser Probe is Benchmark for Accurate Pressurized In- Line Testing.

Research and Technology Services at Peerless Mfg. Co. has developed a new field sampling tool for pressured gas streams. The Laser Isokinetic Sampling Probe (LISPSM) was developed, custom designed and built to Peerless' specifications to collect and weigh entrained liquids and solids both up and downstream of separators or filters at very high system operating pressures.

The result? The most accurate and reliable equipment performance evaluations in the industry. The LISP makes it possible to learn two factors critical to determining equipment performance: mass separation efficiency and droplet/particle efficiency of removal. These results can be used to determine the optimum separation/filtration technology for the application.



Troubleshoot systems, optimize designs or qualify products with the LISP. Above, a Peerless field engineer utilizes the LISP to count and size pipeline particulates.

Mass Separation Efficiency

Sampling is conducted both up and downstream of the filter or separator. Samples are drawn using the accurate isokinetic method of sampling.

A hydraulically controlled probe makes the pipeline traverse possible. Traversing is necessary to get an overall sample which is representative of the entire flow. Direct comparison of up and downstream samples enables calculation of mass loading, mass penetration and overall mass separation efficiency.

Droplet/Particle Removal Efficiency

The laser-based sizer/velocimeter can count and size droplets and solid particles from 0.3 to 40 microns in diameter with an exceptionally high degree of accuracy.

Since the droplet/particle count is taken both up and downstream of the filter or separator, an efficiency ratio can be generated for a variety of droplet/particle sizes.

Knowing the droplet/particle size distribution can help to determine which type of available separation/filtration equipment is optimum for the job.



Laser Isokinetic Sampling Probe
Field Test Services



Troubleshoot, Qualify or Evaluate Separation/Filtration Equipment!

Questions to ask about Other Pressurized Field Test Methods

Does the Proposed Method Use Isokinetic Gas Sampling with Pitot-Style Probes?

Isokinetic sampling is necessary to avoid enriching or leaning of the gas with aerosols, droplets, or particles. Some testing services use a syringe-type probe. This type of probe can draw a very lean sample by missing most particles above 5 microns in diameter, resulting in serious misrepresentations of both mass concentration and mass efficiency of separation. A single 10 micron droplet is 1000 times more massive than a 1 micron droplet. Isokinetic sampling avoids such bias.

Does the Proposed Method Traverse Properly for Accurate Samples?

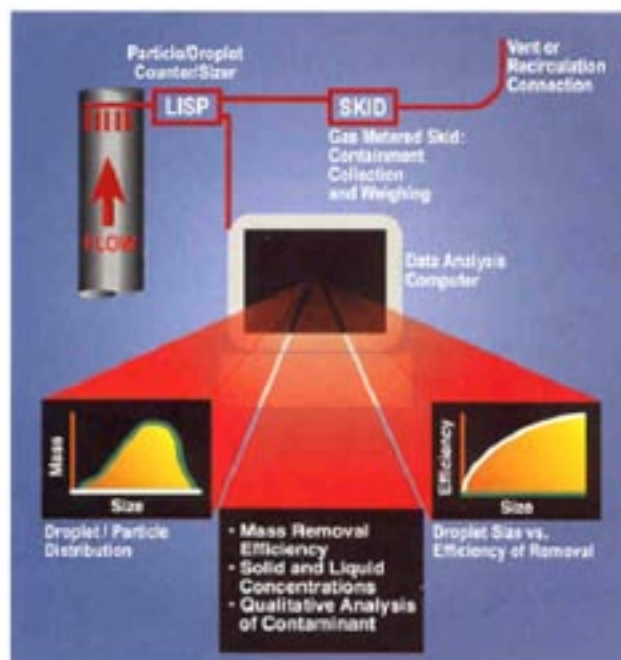
Peerless performs computational fluid dynamics (CFD) simulation studies before field testing. Analysis of the flow simulation will reveal characteristics of the two-phase flow pattern so that sampling taps can be tailored to the piping geometry and resulting flow pattern. Correct sampling procedures insure an unbiased sampling traverse, yielding an accurately measured mass concentration.

Does the Proposed Method Include Droplet/Particle Counting and Sizing?

Liquid carryover can be caused by several factors such as re-entrainment of separated liquids or penetration by fine aerosols. When droplet/particle sizes are large (>10 microns), vane separators are both adequate and less costly. But if the sizes are small (<8 microns), filtration may be necessary for efficient separation. If the droplet/particle size is unknown, the application of proper equipment or design solutions is a guessing game and problem isolation may be impossible.



Field engineer prepares to extract gas sample from a pipeline for laser counting and sizing using the Peerless LISP.



Laser Isokinetic Sampling Probe (LISP) Field Test Set-Up and Field Analysis

Accurate Measurements Solve Problems

Separation/filtration products represent an enormous investment made to achieve successful plant operation. Breakdowns or operation at less than peak efficiency of even one piece of equipment can result in the loss of many thousands of dollars in downtime and production efficiency. If your operation is challenged by separation problems, or if you want to assure peak efficiency and avoid problems before they begin, call Peerless for a quotation on the most accurate and thorough in-line pressurized testing in the industry.

Consult a Peerless specialist for your separation, retrofit and spares requirements.

Visit Our Website at www.peerlessmfg.com

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