can be obtained from these lines to the process analyzers using the methods outlined above.

There are also sampling conditions in which one must be able to sustain a high vacuum for a considerable length of time either because one is attempting to control the flow of sample to the sample vessel or the sample is slowly permeating from a trapped zone into the vessel. Collection of a time averaged sample (an integrated bag sample) is often desirable under such circumstances. The inlet valve, **11** can be left partially open to allow sample metering in this case. This can also be the case during the collection of soil gas samples for environmental remediation with a tightly packed ground formation.

This method is also amenable to sampling liquids since their behavior as fluids is similar in many respects to the behavior of gases. It has been found, for example, that many of the problems commonly encountered in sampling liquids for analyzing volatiles are overcome through the practice of this method and the use of the instant apparatus. The commonly used method of determining analyte concentration from Henry's Law provides a representative example of the advantages provided by the practice of the instant invention in its capacity to sample liquids.

As described above, liquid analytes present in a liquid medium are often analyzed by sampling a known quantity of liquid and determining two additional parameters, the temperature of the liquid sample, and the volume of air found in the headspace over the sample. If a sample can be obtained without exposure to the atmosphere a more accurate determination of the analytes present in the liquid can be achieved. Once captured, a known volume of air can be introduced over the liquid to form a headspace. Henry's Law is then applied to determine the analyte concentration in the liquid matrix as a function of the concentration of the analyte in the headspace. "TEDLAR" bags are particularly well suited as collection vessels for such an application.

ILLUSTRATIVE EXAMPLE

A 38.3 ppm H_2S standard sample was obtained from the Scott Specialty Gases Company. Two aliquots were prepared from this standard for sampling by the method of the instant invention with comparison to the methods of the prior art. One aliquot consisted of a 15 ppb sample prepared by diluting 3.5 ml of the standard in nine liters of zero air (ultra high purity air). The other aliquot consisted of an undiluted sample of standard.

Three samples were withdrawn from the aliquots using the device of the instant invention. The device was bellowsed three times before each sample was captured. Captured sample was then analyzed using a GC with a photoionization detector to determine the concentration of analyte. The 15 ppb samples were all within 0.5% of the known value of the concentration with a Cv within 5%. The 40 ppm samples were all within 0.9% of the known value of the concentration with a Cv within 5%.

Three samples were also withdrawn from the aliquots using an "S-1000" syringe manufactured by the Hamilton Company. The method did not incorporate bellowsing before sample capture. The captured sample was analyzed using a GC with a photoionization detector to determine the concentration of analyte. The 15 ppb samples were analyzed as having a 12% greater concentration than what was known to be in the sample. The 40 ppm samples were analyzed as having 2.75% less than the known concentration of the sample. Cvs for both samples were also within 5%.

This example demonstrates that the method and device of the instant invention can be used to take samples which are consistently more accurate than was previously possible. While the invention has been described in detail for the purpose of illustration, it is not to be construed or limited thereby but is intended to cover all changes and modifications within the spirit and scope thereof.

I claim as my invention:

1. A fluid sample collecting apparatus comprising:

a sealable container having an opening and a cover for sealing and unsealing said opening;

an inlet affixed to said container, said inlet including a means for communication between the inside of said container and the environment outside said container;

a sample vessel within said container having an orifice, said orifice being removably fixed to said inlet; and

a means for repeatedly evacuating and pressurizing the space between said vessel and said container during the sampling of a single sample;

wherein actuation of said means for evacuating and pressurizing the space between said vessel bellows said vessel with samples of the environment outside said container.

2. The apparatus of claim **1** wherein said means for selectively evacuating and pressurizing space between said vessel and said container bellows said vessel with sample in cycles.

3. The apparatus of claim **2** wherein means for selectively evacuating and pressurizing space between said vessel and said container comprises a crossover valve, wherein bellowsing is induced by alternately switching said crossover valve between open and closed positions.

4. The apparatus of claim **3** wherein said crossover valve is a four-way valve.

5. The apparatus of claim **2** wherein the means for selectively evacuating and pressurizing the space between said vessel and said container is a syringe so that the transition between cycles is controlled manually.

6. The apparatus of claim **2** wherein the means for selectively evacuating and pressurizing the space between said vessel and said container is a pump.

7. The apparatus of claim **6** wherein the transition between cycles occurs automatically by actuation of a control means comprising a switching means and a microprocessor, said microprocessor programmed to engage said switching means so that evacuation of said space occurs a predetermined number of times at a predetermined vacuum and said collection means fills a predetermined number of times upon actuation of said control means.

8. The apparatus of claim **6** wherein a vacuum between 0.1 and 5.0 inches of Hg is created in said container during fill cycles.

9. The apparatus of claim **2** wherein the evacuation of space between said vessel and said container occurs with substantially equal vacuum among different empty cycles.

10. A method for collecting fluid samples comprising the following steps for the collection of a given sample:

a) placing a sample collection means within a sealable container, said collection means having a communication means attached thereto and being in com-