"A device"

Introduction

The invention relates to analysis of samples such as serum for glucose testing.

At present, there is a two-stage analysis of samples, namely point-of-care and laboratory analysis. Typically the point-of-care analysis is performed using "dry chemistry" techniques. This is because such techniques are simple and convenient to perform: a sample being placed on a strip coated with a dry reagent and the strip being inserted into an inspection instrument.

The laboratory analysis is typically performed using "wet chemistry" techniques in which controlled volumes of fluid sample and reagent(s) are admixed and optically inspected. The "wet chemistry" techniques are regarded a being full and reliable tests, whereas the "dry chemistry" techniques are reliable only for screening purposes. Thus, a large number of patients may be unnecessarily subjected to the trouble and worry of further unwarranted tests beyond the point-of-care.

The invention addresses this problem.

Statements of Invention

According to the invention, there is provided a reagent cuvette comprising at least two reagent chambers for containing controlled quantities of reagents, and a valve for allowing transfer and admixture of the reagents.

In another embodiment, the value comprises a membrane across an opening of a chamber, and a piercing member in another chamber, whereby the membrane is pierced as the chambers are pressed towards each other.

In a further embodiment, a chamber comprises a socket for receiving another chamber.

In one embodiment, the socket comprises the piercing member.

In another embodiment, the socket and chamber to fit in the socket are of generally cylindrical or frusto-conical configuration.

In a further embodiment, the piercing member comprises a pointed tip at the extremity of a plurality of radial supports having gaps therebetween for flow of reagent or sample.

In another aspect, the invention provides a method of performing wet chemistry reagent admixture comprising the steps of:

providing a first chamber containing a controlled quantity of a first reagent,

providing a second chamber containing a controlled quantity of a second reagent, and

pressing the chambers together to cause a valve to open so that one reagent flows into the chamber of the other reagent.

In one embodiment, the action of pressing the chambers together causes a membrane to be pierced.

Detailed Description of the Invention

The invention will be more clearly understood from the following description of some embodiments thereof, given by way of example only with reference to the accompanying drawings in which:-

Fig. 1 is a two-step diagram showing use of a reagent cuvette of the invention.

Referring to Fig. 1, a reagent cuvette of the invention comprises a base 1 and a top part 10. The base 1 comprises a first reagent chamber 2, above which there is a socket 3 for receiving the top part 10. A foil membrane 4 extends across the top of the socket 3. The first reagent chamber 2 contains a reagent R1 to a specific controlled volume. The top part 10 contains a second reagent, R2, also to a specific controlled quantity. A foil membrane 11 extends across an opening of the top part 10. Also, a piercing member 15 is an integral part of the base 1, being located immediately above the first reagent chamber 2. The piercing member 15 and the membrane 11 together form a single-use valve.

In use, the foil membrane 4 is removed to open the base. A controlled volume of sample S is dropped by pipette by an operator (such as general practitioner) into the first reagent chamber 2.

The (still sealed) top part 10 containing reagent R2 is pushed into the socket 3 until its lower foil membrane 11 is pierced by the member 15. This allows a

the chamber 2 now contains the exact desired volumes of reagents R1 and R2 together with the sample S. The cuvette is than placed in an optical analysis instrument for a full analysis. All of this takes place at the point-of-care.

Thus, the invention provides for wet chemistry analysis at the point-of-care, effectively bringing full laboratory analysis to the point-of-care in a simple and convenient manner.

The invention funds application at many locations such a point-of-care emergency clinics, non-laboratory facilities in hospitals, and remote doctor clinics in the developing world.

The invention is not limited to the embodiments described but may be varied in construction and detail.

Claims

1. A reagent cuvette comprising at least two reagent chambers for containing controlled quantities of reagents, and a valve for allowing transfer and admixture of the reagents.

2. A reagent cuvette as claimed in claim 1, wherein the valve is configured for single and destructive use.

3. A reagent cuvette as claimed in claim 2, wherein the value comprises a membrane across an opening of a chamber, and a piercing member in another chamber, whereby the membrane is pierced as the chambers are pressed towards each other.

4. A reagent cuvette as claimed in claim 3, wherein a chamber comprises a socket for receiving another chamber.

5. A reagent cuvette as claimed in claim 4, wherein the socket comprises the piercing member.

6. A reagent cuvette as claimed in claim 4 or 5, wherein the socket and chamber to fit in the socket are of generally cylindrical or frusto-conical configuration.

7. A reagent cuvette as claimed in any of claims 3 to 6, wherein the piercing member comprises a pointed tip at the extremity of a plurality of radial supports having gaps therebetween for flow of reagent or sample.

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