eter, luminometer, photomultiplier tube, photodiode, nephlometer, photon counter, voltmeter, ammeter, pH meter, capacitative sensor, radio-frequency transmitter, magnetoresistometer, or Hall-effect device. Magnetic particles, beads and microspheres haing or impregnated color or having a higher diffraction index may be used to facilitate visual or machine-enhanced detection of an assay endpoint. Magnifying lenses in the cover plate, optical filters, colored fluids and labeling may be used to improve detection and interpretation of assay results. Means for detection of magnetic particles, beads and microspheres may also include embedded or coated "labels" or "tags" such as, but not limited to, dyes such as chromophores and fluorophores; radio frequency tags, plasmon resonance, spintronic, radiolabel, Raman scattering, chemoluminescence, or inductive moment as are known in the prior art. Colloidal particles with unique chromogenic signatures depending on their self-association are also anticipated to provide detectable endpoints. QDots, such as CdSe coated with ZnS, decorated on magnetic beads, or amalgamations of QDots and paramagnetic Fe**304** microparticles, optionally in a sol gel microparticulate matrix or prepared in a reverse emulsion, are a convenient method of improving the sensitivity of an assay of the present invention, thereby permitting smaller test pads and larger arrays. Fluorescence quenching detection endpoints are also anticipated. A variety of substrate and product chromophores associated with enzyme-linked immunoassays are also well known in the art and provide a means for amplifying a detection signal so as to improve the sensitivity of the assay, for example "up-converting" fluorophores. Detection systems are optionally qualitative, quantitative or semi-quantitative. Visual detection is preferred for its simplicity, however detection means can involve visual detection, machine detection, manual detection or automated detection.

[0066] Means for isolation include impermeable cartridge body, gas permeable hydrophobic venting, bibulous padding in waste chamber, disinfectant in waste chamber, elastomeric membrane separating pneumatic actuator from blister pack, valve with elastomeric membrane actuated by suction pressure, suction pressure in said sample entry port, on-board reagent pack, self-locking single-entry sample port, gasketed closure, and disposable external skin or skins Isolation refers both to the protection of the user from potentially biohazardous specimens, and to the protection of the specimen from contamination by the user or by foreign environmental materials. Closure means, or "means for sealingly closing", include caps, lids, threaded closures, "ziplock" closures, ball valves, gasketed closures, gaskets, seals, snap caps of all sorts, bungs, corks, stoppers, lip seals, press seals, adhesive seals, waterproof seals, single-entry seals, tamper-proof seals, locking seals, track-slidable sealable covers, compression seals, one-way valves, spring-loaded valves, spring-loaded lids, septa, tee-valves, snap-locking closures in general, piston-valves, double-reed valves, diaphragm closures, hinged closures, folding closures, Luer lock closures, and so forth.

[0067] Unless the context requires otherwise, throughout the specification and claims which follow, the word "comprise" and variations thereof, such as, "comprises" and "comprising" are to be construed in an open, inclusive sense, that is, as "including, but not limited to".

[0068] "Conventional" is a term designating that which is known in the prior art to which this invention relates.

[0069] "About" and "generally" are broadening expressions of inexactitude, describing a condition of being "more or less", "approximately", or "almost" in the sense of "just about", where variation would be insignificant, obvious, or of equivalent utility or function, and further indicating the existence of obvious minor exceptions to a norm, rule or limit.

[0070] Reference throughout this specification to "one embodiment" or "an embodiment" means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearances of the phrases "in one embodiment" or "in an embodiment" in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more embodiments. Turning now to the figures, FIG. **1** is a conceptual view of a microfluidic analytical device (**1**) with integrated sanitary swab collection features. The device, which is hand sized, is provided with upper and lower disposable external skins (**2**, lower not shown). Tabs (**4**,**5**) assist in peeling off the skins. These skins are removed after the specimen collection process is completed. Also shown is the swab receiving orifice (**6**) and sliding closure (**7**) in the open position for receiving a swab. The closure is provided with a seal and track guide (**8**) whereby the closure is slid into position sealingly covering the swab receiving orifice. The closure is textured with ribs (**9**) to aid the thumb in moving from left to right (as shown here) in order to effectuate swab capture within the device. The card body (**10**) is bounded by external surfaces (**11**).

[0071] FIG. **2** is a representation of a swab (**20**) as would be used in an embodiment of the invention. The swab comprises a shaft (**21**) with handle portion (**22**), neck portion (**23**), frangible breakaway notch (**24**), and tip (**25**) mounted at the distal end of the shaft. The shaft may be of various shapes or materials. Shaft materials include polypropylene, polyurethane, polycarbonate, polyethylene terephthalate, and other polyesters. Also conceived are polyimides such as nylon and natural fibers such as pine, bamboo, compressed paper, and so forth.

[0072] The tip may be of various shapes or materials. Preferred swab shapes include a pipe-cleaner shape of bristles, a spade shape with sponge pad, and a "bud" shape with fiber bat. Non-limiting examples of synthetic fiber materials useful in forming swabs include acetate fibers, aramide fibers, polyamide fibers, e.g. nylons, polyester fibers, e.g. polyethylene terephthalate fibers (PET), polyolefin fibers, e.g. polypropylene and polyethylene fibers, polyvinyl alcohol fibers, polyurethane fibers or foams, and mixtures thereof. Further suitable synthetic fibers include bi- or tricomponent fibers such as PE/PET- or PP/PE fibers. These fibers can for example be so-called core-sheath-, side-by-side- or island-in-the-sea type fibers, as may be useful in selected applications. Lyocell fibers are also useful. Non-synthetic materials include woven paper or cotton. Fiber chemistry is generally chosen to be compatible with extraction or analytical chemistries.

[0073] Swab fibers may be interlaid, either knitted or randomly entwined. Interlaid webs or fabrics have been formed from many processes, such as, for example, meltblowing processes, spunbonding processes, and bonded carded web processes. In particular embodiments, interlaid swab materials as utilized in the present invention are produced from polymers, such as, for example, polyethylene or polypropy-