The chemical carrier 28 comprises a light-permeable carrier foil 34 and a reagent layer 36 mounted thereon which is built up in a known manner from an upper pigment layer with an underlying dry chemistry film.

The spacers 32 consist of a base strip 40 adhering to the upper adhesive layer 38 of the double-sided adhesive strip 26 and an adhesive layer 42 located thereon for laterally attaching the spreading fabric 30.

The spreading fabric 30 shown only schematically in fig. 2 and with the thickness not to scale, is formed by grid-like interlaced fabric threads 44, 46. These can be connected together as warp threads 44 and weft threads 46 in plane weave and have a non-uniform structure to locally modify the bending stiffness as elucidated in more detail below. The spreading fabric 30 which has a thickness of about 100 µm ensures a rapid uptake of the liquid sample onto the free upper side and a two-dimensional dispersion on the underlying reagent layer 36 due to its capillary interspaces.

The one-sided closure of the fabric openings by the adhesive material of the flanking adhesive layers 42 forms a type of honey comb structure above the spacers 32 which prevents blood flowing to the side edges of the test element 2420. Thus, the liquid dispersion or spreading occurs in a targeted manner in the unglued central area of the fabric 30 above the reagent layer 36 where it is possible to dispense with the hydrophobic edge strips of the prior art that are for example specifically applied as wax strips by means of thermal transfer printing, without disadvantages.

The dry chemistry film which in particular is based on enzymes of the reagent layer 36 responds to an analyte (glucose) by a colour change so that a reflection-photometric detection can take place through the transparent foil composite 22, 26, 34 from the rear side of the test tape 20.

Fig. 3 shows the cassette housing 50 of the test tape cassette 1412 with the housing cover removed. The housing 50 encloses a supply chamber 5250 for the sealed storage of a supply spool 54 for unused test tape. A rotating driven take-up spool 58 for winding used test tape is mounted on a housing flange 56. Thus, the test tape 20 is pulled over a uniform tape guide formed by the cassette housing 50 from the supply spool 54, deflected over the application tip 18 and disposed of on the take-up spool 58 wherein a passage seal 60 on the supply chamber 5250 ensures that tape tension is maintained.

Hence, the test fields 24 can be successively brought into use on the application tip 18 by winding the transport tape 22 forwards in order to apply a small amount of sample in a targeted manner. As a result of the pulling force exerted in this process the multilayer tape structure is subjected to direction-dependent stretching or contractions especially in the area of narrow deflecting points.

In the case of the prior art as shown in fig. 9 for a known application tip 18' with a flat support frame 62, the bending stiffness of the spreading fabric 30' in the longitudinal and transverse tape direction can lead to a lifting or arching over the chemical carrier 28'. This effect is due, on the one hand, to bending at the narrow deflection points 64 and to tape arching in the transverse direction due to the lateral fabric bonding below the level of the chemical carrier 28'. This results in the formation of a gap 66 in the central area between the spreading fabric 30' and chemical carrier 28' that can impair blood transfer and thus the measurement result.

In order to avoid the gap formation described above, the application tip 18 is provided according to figs. 4 to 6 with an outwardly convex guide path 68 for the test tape 20 extending in an arched shape in the tape longitudinal direction or tape transport direction. The apex area of the guide path 68 delimits on all sides a central opening 70 as a measuring window for an optical measurement of the test elements 24 from the rear side.