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(71) Applicant: **FEX, Tomas** [SE/SE]; Tånguddsbacken 59, S-42672 Västra Frölunda (SE).

(72) Inventor; and

(71) Applicant : **CARLSSON, Dorota** [SE/SE]; Tånguddsbacken 59, S-42672 Västra Frölunda (SE).

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(54) Title: TEST STRIPS FOR FRAGRANCE TESTING

(57) Abstract: The present invention describes a novel type of test strips for fragrance testing. These are characterised in that they carry a print made of thermochromic material which can change colour when heated to temperatures similar to that of the human skin. The fragrance or perfume is applied to the test strip which is subsequently heated until the thermochromic print indicates that it has reached skin temperature. Now, when the test strip is smelled it is capable of closely imitating the smell of the fragrance or perfume when it is applied onto the human skin.



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TEST STRIPS FOR FRAGRANCE TESTING

FIELD OF INVENTION

The invention relates to a method for olfactory testing of a fragrance, said invention allowing the fragrance to generate a pleasing smelling sensation which is very rich in nature and similar to when the fragrance is applied onto the human skin, a clear advantage compared to test strips used today.

BACKGROUND OF THE INVENTION

When looking for a fragrance, for example in a perfumery store, there is usually a need to test several different ones in order to select the most desirable. This is commonly done by spraying the fragrance onto a paper test strip. The solvents, usually ethanol, then need to evaporate from the strip so that the fragrance can be smelled. The test procedure will normally be performed at room temperature, 20-25°C and the smelling sensation of the fragrance will be that which results from the vapour pressure at room temperature of the different components of the fragrance. Actually, If smelling is done shortly after spraying the perfume on the test strip the temperature will be lower since the test strip becomes cold when the solvents evaporates. In Figure 1 is shown a typical example how the test strip becomes cold and slowly returns to room temperature.

When the fragrance is ultimately being used it is applied onto the human skin which has a higher temperature, usually 30-35°C (figure 1.) At this temperature the components of the fragrance will have higher vapour pressures and consequently generate a smelling sensation different and richer in nature than that obtained from the test strips used today. Obviously, test strips in use today are not able to generate the natural smell of the fragrance.

In US 6,467,332 B1 is described an apparatus which allows testing of olfactory substances at different temperatures. This is a complicated device not suitable for use in a perfumery store, but clearly indicate the desire to test a fragrance at skin temperature.

SUMMARY OF THE INVENTION

According to the present invention there are provided a new type of test strips, which are capable of generating the natural smell of the fragrance. This is accomplished by having applied a print onto the test strip, said print characterized in that all, or part of it, is made by a thermochromic material, e.g. ink or paint. The thermochromic print is further characterized in that it changes its colour when the temperature reaches that of the human skin.

Sometimes the paper onto which the fragrance is sprayed has more the format of a card. Such formats are also within the scope of the present invention and the concept of “test strip” is meant to include also these.

The test strips of the present invention are used as follows:

1. The fragrance to be tested is applied, usually by spraying, onto the test strip.
2. The test strip is gently warmed until the print changes its colour. Warming can be done by many means such as holding the test strip over a warm lamp or contacting the test strip with a warm surface.
3. The fragrance is tested, now generating a pleasing smelling sensation, rich in nature and very similar as to when it is applied to the human skin.

DETAILED DESCRIPTION OF THE INVENTION

The test strips of the present invention can have a variety of forms and formats, including all forms and formats of test strips which are being used today for fragrance testing. Some examples are 13x2.5cm, 14x3.5cm, 16x1.7cm, 6x6.2cm, 7.5x5cm, 9.5x6.5cm, and 11.5x5cm. Non-square formats may of course also be used and test strips in the form of “paddles” are for example used.

The test strips are commonly made of paper although various plastic materials may also be contemplated, as can combinations of all these. In a preferred embodiment of the present invention the test strips are made of paper. When the paper is of porous quality it has good absorbing capacity.

The paper can be of a variety of qualities, including all qualities of papers that are used in test strips today. Although test strips are usually white they can have a variety of different colours. According to the present invention it is recognised that certain paper surfaces may in some instances be particularly useful. When it is desirable to retain the fragrance on the paper for an extended period of time the test strip may have a lipophilic or waxy surface. This may allow the customer in the perfume store to bring the test strip with him/her for also testing at a later occasion.

A large variety of thermochromic materials are known in the art, several of which change appearance at skin temperatures. All these, including future developments of such materials, can be used and applied to the present invention. Combinations of different thermochromic materials may also be used. Thermochromic materials can change between different colours and also between colour and transparent. Thermochromic materials which change colour at temperatures in the range of 27 – 35 °C are useful for the invention and those are preferred that change colour in the range 29 – 33 °C. Generally the colour change is reversible, the original colour returning when the temperature is lowered, and this is preferred.

The print on the test strips can have a variety of appearances, text, figures, various patterns etc. and part of the print may be done with normal ink which is not temperature sensitive.

Heating of the test strip may be accomplished in many different ways, the use of an ordinary warm lamp being very convenient. Other alternatives include contacting with a warm surface or holding in a warm air stream. Devices with a warm surface are e.g. cup warmers or hand warmers (Fig. 3).

The test strips of the present invention can be used in perfume stores but may also be used when marketing and promoting individual perfumes and perfume brands. The test strips may then be given away free of charge as part of such efforts.

EXAMPLES

The following examples illustrate the invention without limiting it hereto.

Example 1

On test strips used for perfume testing was painted an orange pattern using a thermochromic ink. A perfume was sprayed onto the test strip which was then heated gently under a lamp until the colour changed (thus reaching skin temperature) (Fig. 4). Now there was a clear difference in perception of the fragrance compared to smelling it at room temperature, the smelling sensation being more pleasing and richer in nature.

Example 2.

On a test strip as described in example 1 was applied a thin layer of vaseline. A perfume was sprayed onto it and the test strip was left at room temperature over night. When applying heat and smelling next day, more of the fragrance remained as compared to a test strip not having a layer of vaseline.

Example 3.

A test strip with a printed flower was produced. The blue colour contained a thermochromic pigment which changed appearance to a much lighter blue colour, when warmed to skin temperature. A perfume was sprayed onto the test strip which was subsequently held against a cup warmer (see Figure 3). The blue colour of the printed flower changed in appearance indicating that the test strip had reached body temperature (Fig. 4). When now smelling the perfume on the test strip, there was a clear difference as to when smelling it at room temperature, the smell being more appealing in appearance.

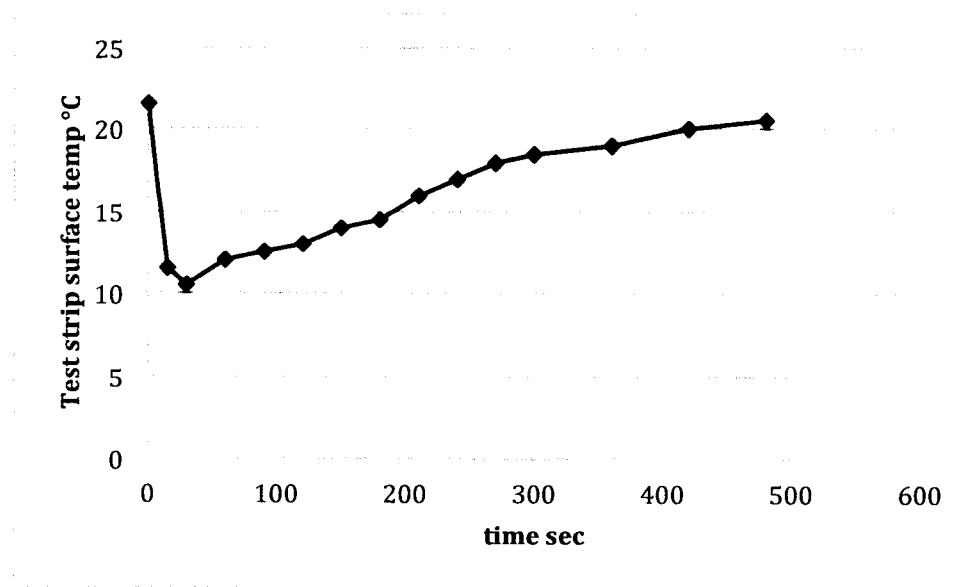
CLAIMS

1. A test strip for fragrance testing bearing a figure and/or text which is made using thermochromic paint or ink, said figure and/or text characterised in that it changes colour when heated above room temperature
2. A test strip according to claim 1 which changes colour in the range 27 – 35 °C and the colour change being reversible
3. A test strip according to claim 1 which changes colour in the range 29 – 33 °C and the colour change being reversible
4. A test strip according to any of claims 1, 2 and 3 characterised in that it has a lipophilic or waxy surface
5. The use of a test strip according to any of claims 1 – 4 for commercial purposes such marketing or promotion of a perfume

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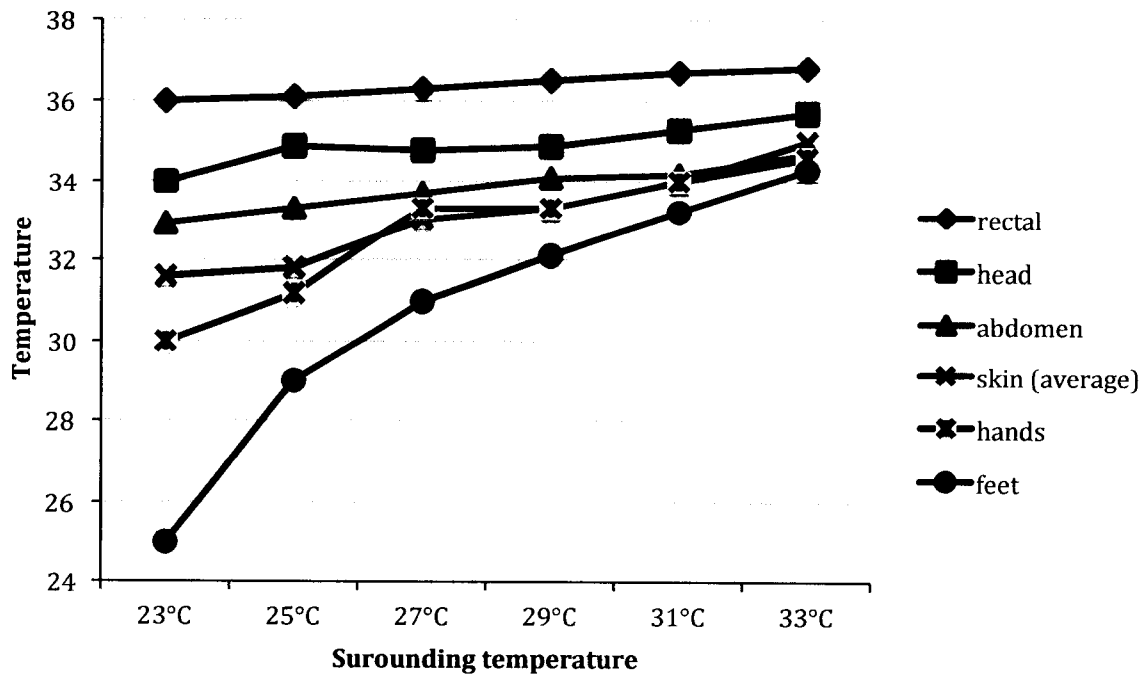
FIGURES

Figure 1.



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Figure 2.



Skin temperature at different parts of the body of a naked person at different surrounding temperatures. After: Oelsen, B. W., 1982. Thermal Comfort, Technical Review, Bruel & Kjaer

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Fig 3.



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Figure 4a.

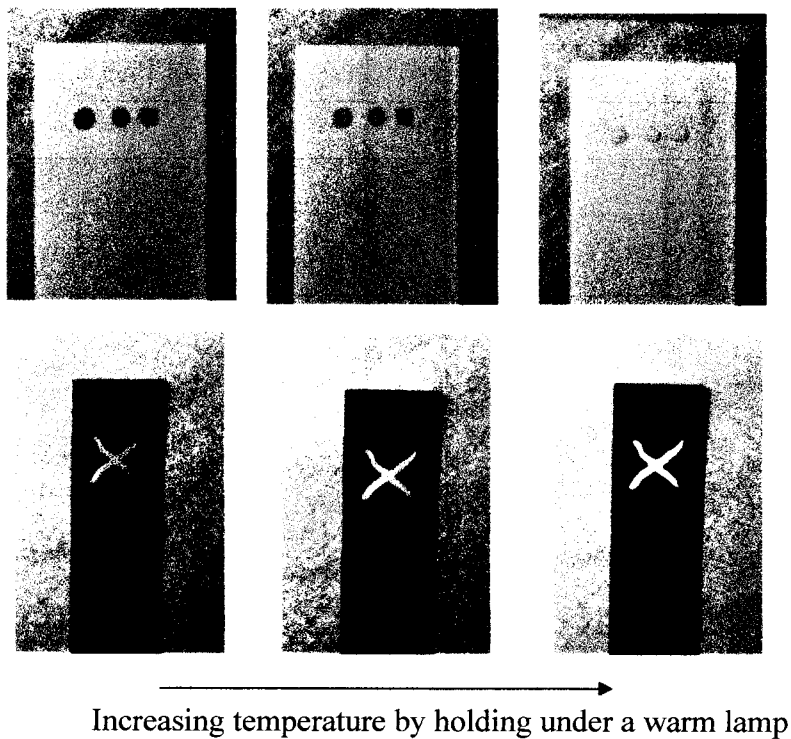
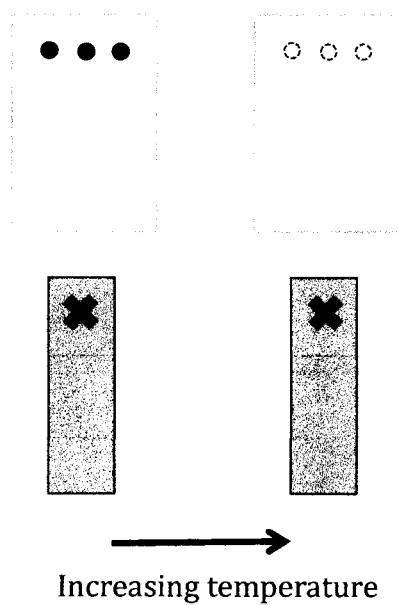


Figure 4b.

Schematic picture showing how the thermochromatic colour changes



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Figure 5a.

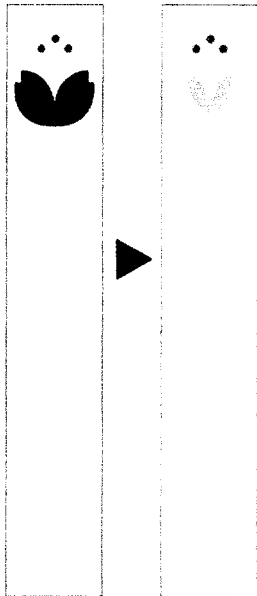
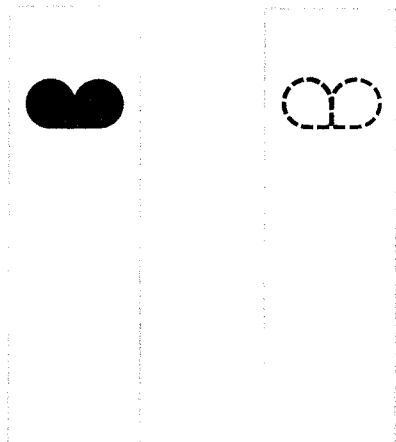


Figure 5b.

Schematic and simplified picture in black and white indicating how the thermochromatic print changes in appearance (simplified).



INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2014/000017

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: A45D, B32B, G01K, G01N, G09F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ, WPI data, BIOSIS, COMPENDEX, EMBASE, INSPEC, MEDLINE, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2012098164 A2 (USP INDICATOR SOLUTIONS GMBH ET AL), 26 July 2012 (2012-07-26); abstract --	1-5
A	WO 2012140661 A1 (NAVNEET KALIA), 18 October 2012 (2012-10-18); abstract --	1-5
A	US 20020013108 A1 (DOBLER SVEN), 31 January 2002 (2002-01-31); abstract --	1-5
A	US 20080054077 A1 (ZELLNER SAMUEL ET AL), 6 March 2008 (2008-03-06); abstract --	1-5



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“E” earlier application or patent but published on or after the international filing date

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“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Name and mailing address of the ISA/SE

Patent- och registreringsverket
Box 5055
S-102 42 STOCKHOLM
Facsimile No. + 46 8 666 02 86

Authorized officer

Frida Rosander

Telephone No. + 46 8 782 25 00

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2188283 A (ADVERTISING AND MARKETING ASSO-(B) ADVERTISING AND MARKETING ASSO), 30 September 1987 (1987-09-30); abstract --	1-5
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Information on patent family members

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			TW	201223501 A	16/06/2012
			US	8573838 B2	05/11/2013
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US	6126313 A	03/10/2000	NONE		