Abstract Title: Black ice warning sticker

A self adhesive sticker which can be applied to existing road signs and road furniture, designed to warn road users of the local conditions cold enough to allow the formation of black ice. At temperatures above 1 °C the sticker is blank (figure 2 item 5). At temperatures at or below 1 °C, the thermochromic ink reveals the warning symbol and legend (figure 2 item 6). The sticker comprises layers: a self adhesive backing 1, a highly visible reflective layer 2, thermochromic ink layer 3 and an ultra violet filter layer 4 which protects the ink from decay.
Drawings

Figure 1

1

2

3

ICE

4

Figure 2

5

6

ICE
**Black Ice Warning Sticker**

**Background**

This invention is designed to warn motorists and other road users of local conditions indicating that black ice may have formed.

**Statement of Invention**

The invention is a self adhesive, flexible, reflective sticker designed to display a warning symbol and legend whenever the ambient temperature is at or below 1 degree Celsius. It is designed to stick onto existing road signs and other road furniture so as to be visible to road users.

**Advantages**

The black ice warning stickers are quick, easy and economical to apply to existing road signs and road furniture in areas where black ice is prevalent. Blanket coverage across the road network could also be achieved if necessary at an economical price.

They will contribute to warning road users of potentially dangerous conditions.

When potentially dangerous black ice conditions are not present the warning symbol and legend is not visible. This has the advantage over permanent warning signs, in that road users are not given false warnings of a hazard that is not present. This has the added benefit that road users should not become complacent to the black ice warnings.

As the black ice warning stickers do not rely on a powered solution they continue to work at all times without running costs.
**Detailed Description**

The sticker utilises a combination of layers to produce the product.

(Figure 1)

Layer one is a self adhesive backing (1) to enable the black ice warning sticker to be applied to a variety of surfaces.

The second layer is a reflective (2) highly visible background.

The third layer comprises a warning symbol and legend in thermochromic sensitive ink (3).

The top layer is an ultra violet filter layer on the surface to prevent decay of the thermochromic ink (4).

(Figure 2)

At temperatures above 1°C the thermochromic ink is not visible (5).

At temperatures at or below 1°C the thermochromic ink is visible (6).
Claims

1. A reflective sticky label that displays a warning when the temperature is at or below 1 degree Celsius and is designed to stick to road furniture.

2. The visible display that appears when the temperature is at or less than 1 degree Celsius according to claim 1 is made from thermochromic Ink.

3. The sticky label according to claim 1 is designed to stick to road furniture so that the warning message can be observed by road users.

4. The visible warning display according to claim 1 is no longer displayed when the temperature rises to above 1 degree Celsius.

5. The sticky label according to claim 1 has an ultraviolet filter covering the thermochromic paint.

6. The sticky label according to claim 1 has a reflective background.

7. The sticky label according to claim 3 can be applied to a variety of road furniture including road signs, lamp posts, traffic light posts, road bollards, etc.
Application No: GB0622763.1
Claims searched: ALL
Examiner: Mike Walker
Date of search: 15 August 2007

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

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P Document published on or after the declared priority date but before the filing date of this invention.
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Field of Search:
Search of GB, EP, WO & US patent documents classified in the following areas of the UKC:

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The following online and other databases have been used in the preparation of this search report

EPODOC, WPI

International Classification:
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