Alcohol testers for private use

The „simple“ alcohol testers frequently offered today for private use in electronic shops and super markets with low prices are not suitable for reliable measurement of alcohol concentrations. This is published in an official consumer alert of the European Commission and in the test reports of several journals. In many cases the measured alcohol concentrations are well to low.

Consumer Alert (RAPEX) 0314/04 of the European Commission, Week 51/2004:

„Sixteen Models of Electronic Alcoholmeters

The results provided are below the real alcohol concentration, or are unreliable. As a consequence, the user of such alcoholmeters increases the risk of road accidents.

Measures: voluntary consumer information by the distributors and compulsory suspension of the placing on the market ordered by the authorities.“

Promilletester auf dem Prüfstand

ADAC-Motorwelt 1/2004
(Journal of the German automobile club):

„**Per mill testers on the test stand. Failed. The instruments checked by the ADAC are not reliable**

... For crosscheck the per mill values have been measured with a screening instrument of the police and an evidential breath-alcohol measuring instrument as well as with blood analysis. ...

Conclusion: You should not waste your money for these per mill testers.“

Men’s Health 1/2004:

„Alcohol-measuring instruments tested

... We have tested four breath-alcohol measuring instruments. ... Unfortunately, only after the first bottle of beer okay - the more the inaccurate it is. ... Results rather inaccurate. ... Measured values and handling are lousy.“

Blick (Switzerland) 2/2004:

„Only fools trust in alco-testers!

... The common opinion: the clever instruments display when one has to much alcohol. But caution: the reliability of the common alco-testers is mostly insufficient as an actual sample shows. ... Obtainable are the instruments mostly in pharmacies, at gas stations, shops for car accessories or also by catalogue selling. ...

Conclusion: All instruments failed. The alco-testers for domestic use are as imprecise as the off-beat carnival music.“

The result is clear. Independent auditors advise not to buy these instruments.

Why are these simple alcohol testers so imprecise?

These alcohol testers mostly use so-called semiconductor sensors for measuring the breath alcohol concentration. By contrast the instruments used by the police have electrochemical sensors. The use of semiconductor sensors enables a low instrument price, but results in an inadequate measuring quality.

The very restricted applicability of the semiconductor sensors has mainly two reasons:

Semiconductor sensors are not stable in sensitivity. They drift with time leading to false concentration readings. Therefore, the indicated alcohol concentrations are often to low. So alcohol testers with semiconductor sensors actually would have to be calibrated with test gas once per week, but latest once per month. This has been done for example in the past for instruments of older generations with semiconductor sensors used by the police.

Semiconductor sensors measure not only alcohols in the breath air, but can be sensitive also to other substances being possibly exhaled by a person. These are for example carbon monoxide from cigarette smoke or acetone and ammonia from persons with certain diseases as for example diabetes. This can result in to high, but also in to low measured values. In contrast electrochemical sensors measure only alcohol and are not sensitive to the substances mentioned above.

If great importance is attached to reliable measuring results of the breath alcohol concentration it is absolutely necessary to use the high-quality measuring instruments with electrochemical sensors. So for reliable measurements of the alcohol concentration the use of instruments with the technique of electrochemical sensors is recommended in documents of the German federal association of physicians of the compulsory health insurance (“kassenärztliche Bundesvereinigung"). This technique has been proved successful in professional applications over many years and has been shown to be reliable world-wide again and again.

That’s why all hand-held Dräger Alcotest instruments are provided with electrochemical DrägerSensors.

Dräger Alcotest 6510