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**UPDATE OF THE GUIDELINES FOR THE DETERMINATION OF BLOOD
ALCOHOL CONCENTRATIONS (BAC) FOR FORENSIC PURPOSES
- BAC Guidelines -**

The update of the 2011 guidelines printed in the journal *Blutalkohol* (Volume 48, Issue 3, pages 137 - 143) serves to clarify the procedures for blood alcohol determination described in Chapter 9, especially with regard to the material to be used, and to make a correction in Chapter 7.

The following text replaces the third paragraph in Chapter 7.1 ("General requirements for measuring control samples").

In each series of analyses, control samples are inserted after a maximum of 10 authentic samples (20 individual determinations). In general, the sequence must end with a control sample.

The text printed below replaces Chapter 9.

9. Calculation of blood alcohol concentration and report of results

Samples for forensic blood alcohol determination must be centrifuged as soon as they arrive at the laboratory. The determination of the blood alcohol concentration (BAC) is carried out in serum/plasma as long as a separation of phases can be detected after centrifugation. The concentration in whole blood is stated in the report. The blood alcohol concentration is calculated from the serum or plasma alcohol concentration by dividing the water distribution ratio between serum/plasma and whole blood by 1.20. If calibration solutions are used which indicate alcohol concentrations in mg/mL or g/L, the alcohol concentration must be converted to mg/g or g/kg using the divisor 1.03 (density of the serum). The combined divisor is therefore 1,236. Also for haemolytic serum/plasma the serum divisor is to be used.

If no separation of phases after centrifugation is observed, the previously centrifuged complete material is to be homogenised and then treated as whole blood. In the case of postmortem blood samples, the analysis can be performed directly from whole blood. To take density (whole blood) into account, the divisor 1.06 should be converted to mg/g or g/kg. Deviations from the recommended analytical procedures shall be reported in the report of results.

If diluted samples are used in the headspace method (dilution by at least 4-fold), no correction factor for the increase in vapour pressure needs to be taken into account. The calculated whole blood alcohol concentrations must always be cut off after the second decimal position. From the four individual concentrations thus determined, the arithmetic mean is calculated and also cut to two decimal positions. All individual values and their mean value must be stated in the report in "per mille" (g ethanol per kg blood). Results below the lowest calibrator (lowest calibrator greater than or equal to limit of quantification) must be labelled accordingly. In the report, special features must be pointed out and it must be stated that analysis was carried out in accordance with current guidelines and that a certificate of successful participation in proficiency tests was available for the analysis period.