

Metrological assurance of alcohol control in breath of a vehicle driver

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According to the legislation of the Russian Federation there is a prohibition for vehicle drivers to use substances causing alcohol intoxication. There is an administrative and criminal liability in a case of the proved fact of alcohol use when alcohol concentration in a breath exceeds 0.16 mg/L.

When examining drivers by the police and medical staff, breath alcohol analyzers equipped with printers are used. The regulatory legal acts of the country establish mandatory requirements for the range of measurement and a measurement error of mass concentration of ethanol vapor in a breath. There are more than 15 different types of breath alcohol analyzers of Russian and foreign production used in the Russian Federation which have undergone a mandatory test procedure for a type approval (certification) and have annual calibration (verification) procedure.

Generators of vapor-gas mixtures in the air in combination with certified reference materials (CRM) of aqueous solutions of ethanol as well as CRM of composition of gas mixtures in cylinders under pressure are used for certification and calibration (verification) of breath alcohol analyzers. Metrological centers use both CRM of aqueous solutions of ethanol and ethanol gas mixtures in cylinders under pressure produced in Russia.

There is State primary measurement standard GET 154-2016 for units of molar fraction and mass concentration of components in gaseous medium in D.I. Mendeleev Institute for metrology (VNIIM). It has the highest accuracy in Russia in the field of ethanol measurements gas media. Accuracy characteristics of this State primary measurement standard GET 154-2016 are constantly being confirmed by participation in international key comparisons.