

DETERMINATION OF RELATIONSHIP BETWEEN TYPE OF INDICATORS OF OPACITY OF ICE EXHAUST GASES AND ACCURACY OF CONVERSION FORMULA

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Analysis of mathematical apparatuses of known conversion formulas as well as the nomenclature of the most common indicators of the ICE exhaust gas (EG) opacity was performed. Based on results of such analysis for following calculated studies the prof. Parsadanov conversion formula was selected because it takes into account not only indicators of EG opacity but also indicators of EG toxicity. Analysis of mathematical apparatus of that conversion formula is carried out and features of influence of physical values of its independent variables on the value obtained for it by are revealed. The formula was transformed to a form adapted to carrying out of the study.

The methodic of calculated assessment of magnitudes of instrumental accuracy of obtaining of values of mass hourly emission of particulate matter in EG flow based on provisions of scientific discipline «Metrology» in two consecutive approximations was developed. Calculated assessment of such instrumental accuracy using the investigated conversion formula for the basic indicator of EG opacity and actual value of passport accuracy of measuring devices was executed. Such value averaged for special operational regimes of diesel engine 2Ch10.5/12 is equal $\pm 8.3\%$.

It was detected and analyzed the influence of type of EG opacity indicator with appropriate to it measuring units on instrumental accuracy of investigated conversion formula. Based on magnitudes of such accuracy for actual magnitude of passport accuracy of measuring devices known indicators of EG opacity was ranking.

Results of the ranking presented on Fig. 1.

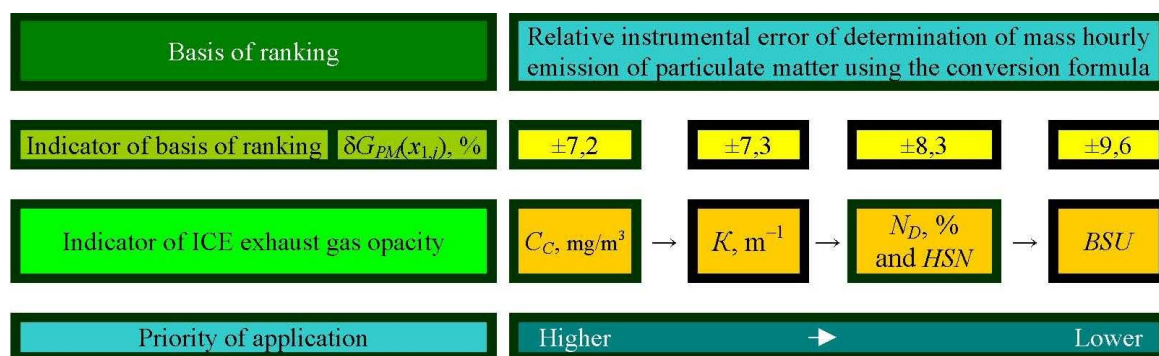


Fig. 1 – The ranking of the studied indicators of ICE exhaust gas opacity

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