

Regulatory Model for Calculating of the Vehicles' Emissions and Pollutants' Concentration in the Surface Layer - Software *TRAFFIC ORACLE*

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Abstract

The software *Traffic Oracle* is a PC utility tool used for the purposes of environmental policy in the development of road communications as well as for the impact assessments of vehicle emissions in the surface layer. The method developed, has been funded by the Bulgarian Ministry of Environment and Waters (Contract No. 270-599Y, 2001) and the project outputs have been approved as a national regulatory standard.

The program consists of two main modules – *EMISSIONS* and *DIFFUSION*. The first module calculates the emission estimates from the road transport based on the *Joint EMEP/CORINAIR Atmospheric Emission Inventory Guidebook, Third Edition, Road Transport*, Copenhagen, EEA, 2001. It has been assumed that emissions of burnt-out gases of motor vehicles in their motion along streets and highways can be approximated as continuous linear or area sources with finite length. The second module calculates the concentration of the vehicle pollutants by the conventional Gaussian plume dispersion approach. The *DIFFUSION* module has two options concerning the input meteorological information: climate (wind roses) and time series. In both of the cases the meteorological input can be taken from ground observations or from synoptic data. The set of mostly unfavorable meteorological conditions, at which the pollution from a given source configuration is maximal, can be also calculated, by varying the meteorological parameters.

The software package has been coded in Visual Basic and works under **WINDOWS' 9X, NT and XP**. Its structure provides an easy way across the tasks, which the users have to carry out. The input information entering interface is user-friendly, well provided with warning messages in case of missing data or restrictions to it.