

SIMULATION OF REDUCED EXHAUST EMISSIONS FOR MOTOR VEHICLES IN
THE REPUBLIC OF CROATIA FOLLOWING
THE USE OF FLEX-O TABLETS
- Approximate calculation -

The calculation methodology used for the requirements of this simulation is in accordance with the methodology used for the preparation of national inventory reports regarding the emission of greenhouse gases, as prescribed in the document *Revised 1996 IPCC Guidelines for National GHG Inventories*, and it is based on calorific value of fuels.

The abovementioned document was prepared by the Intergovernmental Panel on Climate Change – IPCC, which was established by the World Meteorological Organization – WMO and the United Nations Environment Programme – UNEP.

The calculation is based on the incoming data on produced/consumed fuel quantity for road motor vehicles (the presumption given is that INA d.d. is the only fuel producer/distributor in the Republic of Croatia) at the level of the Republic of Croatia over a one-year period (2003). The results obtained, i.e. the calculated values, should be treated as approximate (with the intention of creating an idea of the order of magnitude) and not as absolute, since the imprecision/calculation error is large.

The simulation consists of two calculations for exhaust emissions (CO₂, NO_x, HC, CO, CH₄ and SO₂).

- Calculation 1 – implies the emission of exhaust gases, which occurs under conditions of real combustion in motor vehicles for a referenced quantity of fuel consumed in the Republic of Croatia within one year
- Calculation 2 – implies the emission of exhaust gases, which occurs under conditions of real combustion in motor vehicles for a decreased quantity of fuel (from Calculation 1). The decrease percentage of the consumed fuel quantity corresponds to the mean value of lower fuel savings percentages, established in the report by the State Inspectorate of the Republic of Croatia, Classification number 336-02/03-01/26 of 17 June 2003)

(Fuel savings of 8% for passenger cars and 4.48% for cargo vehicles – mean value 6.24%)

From analysis of the obtained results, i.e. the comparison of calculated values from Calculation 1 and Calculation 2, differences in the emission levels of individual exhaust gases are obvious.

CONCLUSIONS

Based on the comparison of the calculated values obtained in Calculation 1 and Calculation 2, it follows that the use of FLEX-O tablets (according to the prescribed dynamics) which ensure average fuel savings of 6.24% during a one-year period, decreased exhaust emissions (in tons) at the level of the Republic of Croatia may be expected as shown in Table 1.

Table 1 - Calculated decrease of exhaust emissions in the Republic of Croatia

	Mass exhaust gas emission		
	Referenced quantity (tons/a)	Decreased quantity (tons/a)	Difference (decrease of ...) (tons/a)
Gases			
CO ₂	6543700	6135650	408050
NO _x	65940	61820	4120
HC	66050	61920	4130
CO	348600	326850	21750
CH ₄	1000	930	70
SO ₂	9240	8650	590
FUEL			
PETROL	819564	768420	51144
DIESEL	1266879	1187826	79053