


The following report is from the National Institute of Environmental Health of India and forms part of the accreditation process to allow Fuel Stick products to be marketed in the country and used in government vehicles and stationary engines.

Many people will be surprised to realize that the testing regime for the importation of products into many African and Asian countries is far more stringent than those imposed on products coming into North America and Europe.

The First laboratory tests we looked at were to evaluate the direct effect of Fuel Stick on different fuels.

The following test looks at the physical effect of Fuel Stick treated on an actual working engine in the field.

	<p><b>राष्ट्रीय व्यावसायिक स्वास्थ्य संस्थान</b> <b>NATIONAL INSTITUTE OF OCCUPATIONAL HEALTH</b> (व्यावसायिक स्वास्थ्य एवं आईपीसीएल सहभागिता संस्थान के लिए विश्व स्वास्थ्य संगठन का सहयोगी केन्द्र) (WHO Collaborative Centre for Occupational Health &amp; IPCS participating Institute) (भारतीय आनुवंशिक अनुसंधान परिषद) (Indian Council of Medical Research) पोस्ट बॉक्स नं. २०३१, मेघानी नगर, अहमदाबाद-३८००१६, भारत P.B. No. 2031, Meghani Nagar, Ahmedabad-380016, India</p>
Ref. No.: APU/Misc/2008/1657	Date: 21 <sup>st</sup> August 2008
<b><u>EVALUATION REPORT OF EFFICIENCY OF FUEL STICK</u></b> <b><u>(FUEL CONDITIONER)</u></b>	
<p>The Air pollution division of National Institute of Occupational Health, Meghaniagar, Ahmedabad has evaluated the levels of sulphur dioxide and oxides of nitrogen in the exhaust gas emission of LMV car on 30<sup>th</sup> July 2008.</p>	
<p>The vehicle used for the test has been approved for "Pollution Under Control Certificate" Motor Vehicles Department, Government of Gujarat.</p>	
<b>Vehicle Reg. No.:</b>	GJ14E793
<b>Make:</b>	Toyota
<b>Model:</b>	Qualis
<b>Mfg. Year:</b>	2001
<b>Fuel:</b>	Diesel
<b>PUC C. No.:</b>	0004447
<b>Date of Analysis:</b>	30 <sup>th</sup> July 2008
<b>Manufacturer of Fuel Stick (Fuel Conditioner):</b>	
Bio-Marine Solutions (NZ) Ltd., Aukland, New Zealand.	
<b>Promoter of this project:</b>	
Khushbu Petro-Chem R & D Centre, Ahmedabad	
<b>Description of Experiment:</b>	
<p>The tests were conducted on 30<sup>th</sup> July 2008 between 12:00 PM to 6:00 PM (IST) at NIOH, Meghaniagar, Ahmedabad. 50 liters of diesel was put into the diesel tank of the vehicle and the vehicle was first made to run under Ideal Conditions</p>	
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for 60 minutes without addition of Fuel Stick (Fuel Conditioner). Then again the vehicle was made to run under ideal condition for 60 minutes after addition of one fuel stick. Air sampling was done to trap sulphur dioxide and oxides of nitrogen in an absorption media as per the CPCB methods which (enclosed). Analysis was done and the concentrations of sulphur dioxide and oxides of nitrogen were given in the following table.

Table.1: Concentration of sulphur dioxide and oxides of nitrogen with/without fuel stick

Sr. No.	Parameters	Units	Test Method	Results		% Reduction
				Diesel (Without addition of Fuel Stick)	Diesel (After Addition of Fuel Stick)	
1.	SO <sub>2</sub>	µg/m <sup>3</sup>	West & Gaeke	1329.54	557.40	58.08
2.	NO <sub>x</sub>	µg/m <sup>3</sup>	Jacob & Hochheiser	4350.98	3164.92	27.25
3.	Consumption of Diesel	Liter	Volumetric	1.75	1.50	14.28

**Conclusion:**

The Fuel Stick (Fuel Conditioner) reduces the levels of sulphur dioxide and oxides of nitrogen in the exhaust gas emission of Diesel run vehicle by 58.08 % & 27.25 % respectively.

It also reduces the consumption of Diesel Fuel by 14.28 %.

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**CONCLUSION:** Reduces the levels of sulphur dioxide by 58.08% and nitrogen oxides by 27.25% in diesel exhaust emissions, as well as reducing the diesel fuel consumption by 14.28%.