



2. On Road

- Why can't it be tested through the consumptions tables (*uncontrollable variables*) ?
- How can we test it in a scientific way:
 - Touriel (**Protocol SAE J1321**)
 - Gas emissions

EuroFuelSaver

SUPERTECH®



**Ask the fleet's Chief-Technician
to show you the fuel consumption tables
of the averaged averages of the last years.**

**You will notice that the monthly averages
show differences between them, of 15% to
25%, reaching peaks of even 40%!**

See Table



EuroFuelSaver

SUPERTECH®



Typical fuel table for the control of fleets' fuel consumptions

	Mv.	Data	Litros	Km's	Media	Instalação	Media Total	Km's Percorridos	Km's Totais
Cachapela	8538	27/11/2005	605	181465		12/12/2005	31,85	2839	41110
	8538	04/12/2005	958	184304	33,74			3183	
	8538	09/12/2005	960	187487	30,16			2592	
	8538	15/12/2005	828	190079	31,94			2829	
	8538	22/12/2005	930	192908	32,87			2645	
	8538	27/12/2005	945	195553	35,73		1778		
	8538	01/01/2006	569	197331	32,00		2820		
	8538	08/01/2006	968	200151	34,33		2474		
	8538	12/01/2006	900	202625	36,38		2666		
	8538	18/01/2006	865	205291	32,45		1613		
	8538	22/01/2006	580	206904	35,96		2714		
	8538	26/01/2006	920	209618	33,90		2208		
	8538	01/02/2006	760	211826	34,42		1783		
	8538	05/02/2006	572	213609	32,08		2213		
	8538	08/02/2006	754	215822	34,07		1357		
	8538	10/02/2006	465	217179	34,27		2660		
	8538	17/02/2006	873	219839	32,82		2736		
	8538	23/02/2006	960	222575	35,09		1827		
	8538	28/03/2006	659	224402	36,07		2302		
	8538	04/03/2006	766	226704	33,28				
						33,95		6,6%	

EuroFuelSaver

SUPERTECH®



**How we can test it
in a scientific way?**



1. TOURIEL TEST

(PROTOCOL SAE J1321)

Touriel test is a Technical Experimental PROTOCOL regarding REDUCTION of consumptions on hydrocarbon combusted vehicles (fuel and diesel).

Preamble:

Verify the up mentioned fuel saving through our genius of the tank is extremely difficult since fuel consumption on all vehicles having hydrocarbon combusted endothermic engines (fuel and diesel) is influenced by two kinds of variables: **controllable** (mileage ran, consumed liters, load transported) and **uncontrollable** (climate conditions, rain, wind, traffic, driving style, speed, type of path etc etc)



Why is it so difficult to measure the exact daily consumption of a vehicle?

UNCONTROLLABLE VARIABLES:

1. WEATHER (RAIN, SNOW...)
2. WIND
3. TRAFFIC
4. CONDITION OF PNEUS
5. AIR CONDITIONER
6. GEAR USE
7. +10% SPEED
8. +10% WEIGHT (in the urban transport, for example)

TIPE OF ROAD

1. MIXED
2. URBAN
3. HIGHWAY



EurofuelSaver

SUPERTECH®



The Uncontrollable Variables influence:

1. Fuel **Saving**
2. Fuel **Consumption**

Stick to speed limits and make your fuel go further – driving at 85mph rather than 70mph uses 25% more fuel.

From www.est.org.uk/transport

EurofuelSaver

SUPERTECH®



There is only one

CONTROLLED VARIABLES: Km/h speed



EuroFuelSaver

SUPERTECH®



How can we quickly demonstrate that our “genius” gives a fuel saving?

It is necessary to eliminate those uncontrollable variables!!

This could be possible only if two possibly identical vehicles or however two vehicles very similar one to the other, run a certain mileage together, in respect of some points necessary to eliminate the possible variables which, also in this case, do exist and therefore:

- A) the two driver's driving style
- B) the usage of the two vehicles



EurofuelSaver

SUPERTECH®



1st Phase – Preliminary path

In order to eliminate the first variable it is sufficient to have the two drivers drive both vehicles by switching vehicles between them every x number of kilometers driven. For example if the established path to run is of 200 km. the drivers should switch vehicles every 100 km. of mileage giving the possibility to both drivers to drive both vehicles.

In order to eliminate the second variable it would be optimal to have two NEW vehicles of identical mark and model.

If this shouldn't be possible then it would be absolutely necessary to establish preliminarily the fuel consumptions of both vehicles by having them run the chosen path first **WITHOUT THE DEVICE** installed.

This would give us the possibility to establish in advance (before the testing with device) the fuel consumptions of both vehicles and therefore the **DELTA** of difference between them.

Once established exactly the difference of fuel consumption between the two vehicles in test you could proceed in testing respecting the following:

EuroFuelSaver

SUPERTECH®



- A) the two vehicles must run at a distance which shouldn't be inferior to 20 meters (*see the picture*) one from the other and this to avoid the second vehicle to take advantage from the trail of the vehicle running ahead and therefore have less resistance to wind.
- B) The two vehicles must be in the same condition as the preliminary test and this to avoid to fake the delta of difference previously established.
- C) The two vehicles must be driven by the same drivers of the preliminary test.
- D) One of the two vehicles must have installed SUPER TECH in its fuel tank while the other must be **WITHOUT SUPER TECH.**





EuroFuelSaver

SUPERTECH®



2st Phase – Test path

The mileage done on road must be exactly the same to the one done in the preliminary test.
This mileage could be of just 200km and should include different kinds of path (road, highway, city)

3st Phase – Measurement of the fuel

Fuel must be measured through the method of “REFILLING” and therefore:

- Have a full fill in of fuel done on both vehicles at the same gas station and eliminate the possible air balloons which could be created inside the fuel tank during the fuel filling.
- At the end of the designed mileage proceed in having another fuel filling in order to have a full fuel filling of the tank on both vehicles.

This second fuel filling must be done through an external container which should give the possibility to fill in the fuel tank up to the top without spilling the same fuel.

It is evident that the quantity necessary to REFILL THE FUEL TANK will be exactly the quantity of fuel that has been used/consumed for the established mileage.

EurofuelSaver

SUPERTECH®



Refueling

It is absolutely necessary *to avoid leaving air balloons* inside the fuel tank during both first and second refueling of the two vehicles. Therefore it is necessary *to move/wave* the same vehicle soon after the refueling in order to be sure that the fuel tank has been refueled up to the top.

In some cases these up mentioned air balloons take the place of several centiliters of fuel and therefore this would fake the same test.

In the following video it is shown to wait at least 30 minutes to be sure that no foam remains inside the fuel tank, before continuing to refuel.



EurofuelSaver

SUPERTECH®



[Click to
START
video](#)



Instead of having a pause of 15-20 minutes you may move the vehicle for a couple of minutes so that the fuel inside the fuel tank will settle eliminating eventual foam

EuroFuelSaver

SUPERTECH®



2. GAS EMISSIONS

As a scale demonstrates the efficacy of a diet, in the same way an opacimeter demonstrates the efficacy of Supertech, pointing out the gas emission reduction.



EuroFuelSaver

SUPERTECH®



What do we do to verify the results of a diet?

We weigh before starting the diet.; then we weigh again to verify the weight during and after the diet itself..

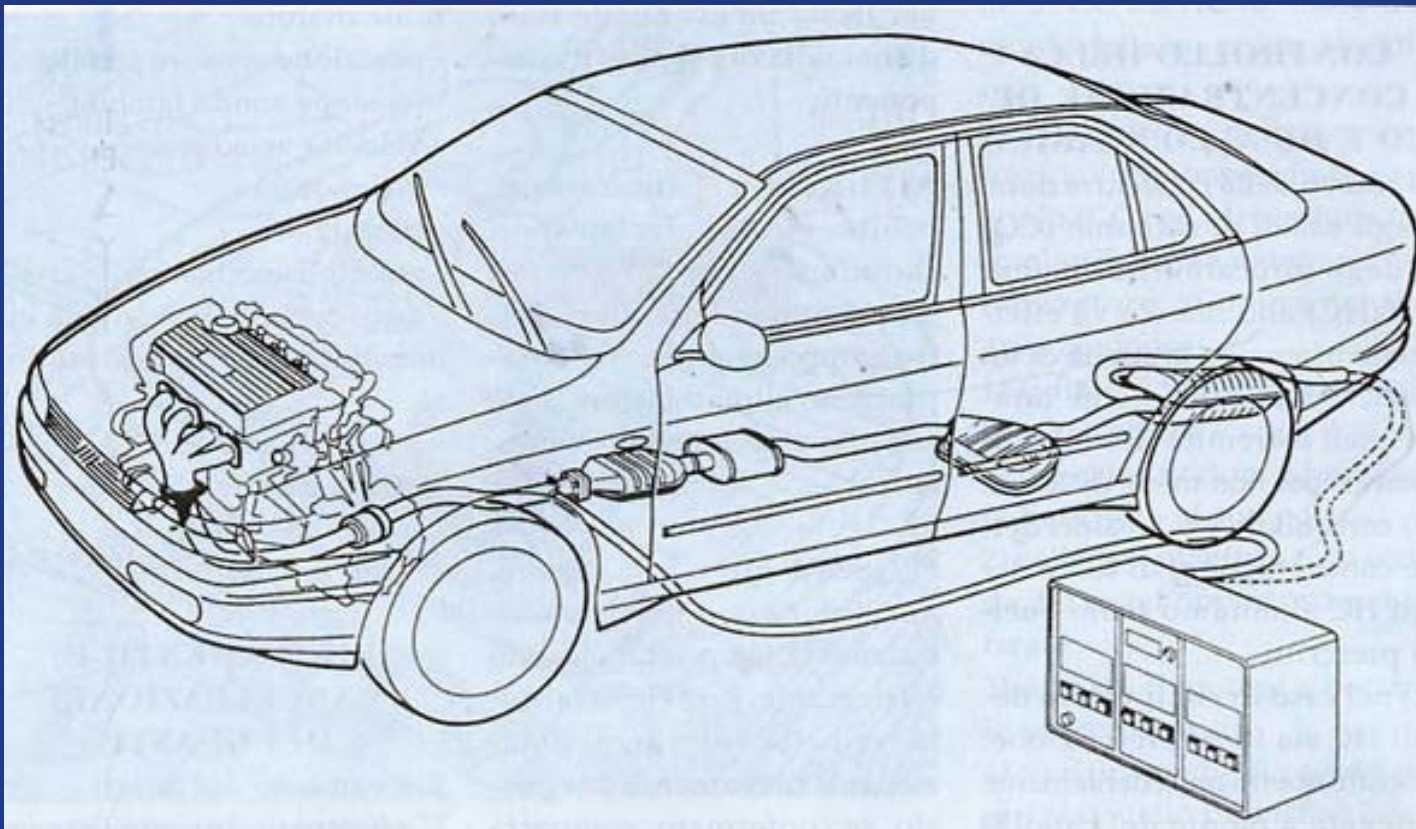
In the same way we must verify the vehicle's gas emissions before the installation, then install and measure again (see attached protocol) until the end of the "chimneysweeper effect".

EurofuelSaver

SUPERTECH®



Position of the gas analyser's probe in case of tests being done **on vehicles with catalytic converter**



EurofuelSaver

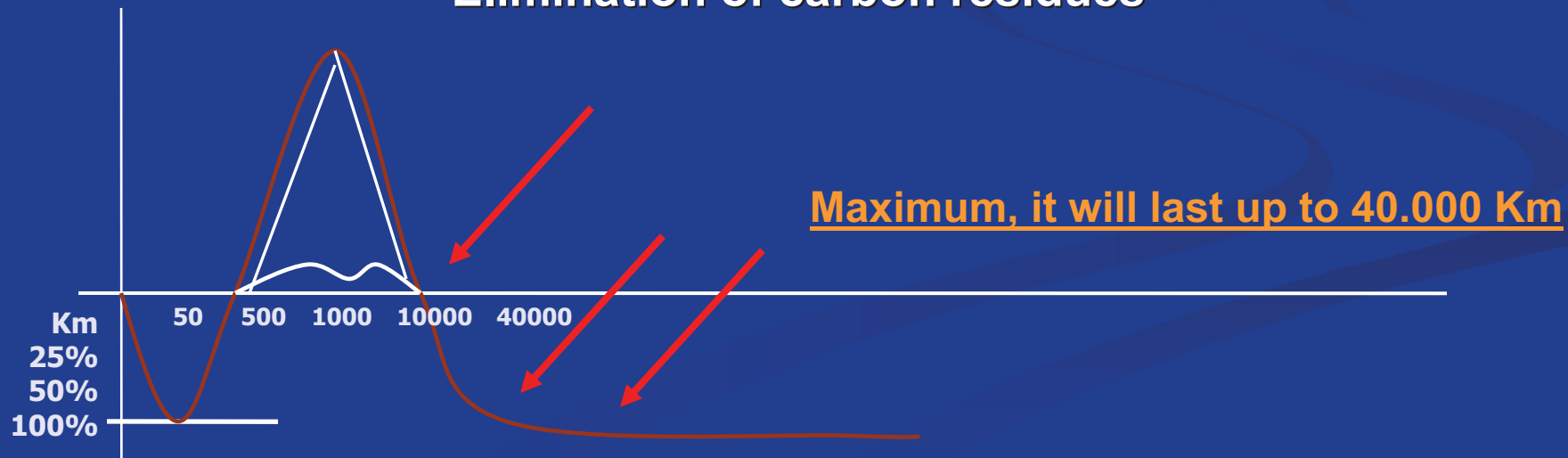
SUPERTECH®



PROTOCOLS OF CORRECT TESTING PROCEDURE











CHIMNEYSWEEPER EFFECT Elimination of carbon residues





Protocols of verify

CHIMNEYSWEEPER EFFECT and its duration in km

<u>Exhaust pipe Diameter</u>	<u>Type of Vehicle</u>		<u>Km run</u>
	MOTORCYCLE		3/500
	CAR		4.000/5.000
	LITTLE BUS/VAN		10/15.000
	TRUCK		40/50.000

EuroFuelSaver

SUPERTECH®



Correspondence between values of opacity measured in percentage and Km-1

Opacity (%)	Opacity (Km-1)	Opacity (%)	Opacity (Km-1)
1	0.02	48	1.59
5	0.13	49	1.64
10	0.26	50	1.69
15	0.50	51	1.74
20	0.54	52	1.79
25	0.70	53	1.84
30	0.87	54	1.89
35	1.05	55	1.95
36	1.09	56	2.00
37	1.13	57	2.06
38	1.17	58	2.12
39	1.21	59	2.17
40	1.25	60	2.23
41	1.29	61	2.30
42	1.33	65	2.56
43	1.37	70	2.94
44	1.41	75	3.38
45	1.46	80	3.93
46	1.50	85	4.63

What are gas emissions composed of?

CO, Co2, Nox, HC ppm

What are HC?

HC= Fuel which goes into the combustion chamber and comes out exactly as it went in (therefore unburnt)

What does opacimeter measure?

HC = UNCOMBUSTED HYDROCARBONS

What happens if, thanks to Super Tech, HC emissions are reduced?

Fuel consumptions are reduced!

EuroFuelSaver

SUPERTECH®



What % of fuel
consumption reduction?

6 - 12 %

What % of gas
emission reduction?

40 - 80 %