



ANALYTICAL REPORT

ECO PILL AND ECO FXO

DIESEL & PETROL SAVING TABLETS **Solid Additive for Fuel**

The ECO PILL and ECO FXO work in many ways. The ECO PILL and ECO FXO line of fuel additives take only seconds to dissolve in your fuel, and will not leave behind any damaging or clogging particles of any kind. It will stabilize the fuel during long term storage. It does this by reducing the effects of fuel oxidation. The ECO PILL and ECO FXO also provide a protective shield against (fuel) gum buildup within the engine's components. This ensures quick engine start-ups with less wear on the engine, saving you time and money.

Enjoy increased performance, lower emissions and less refuelling all year-round. Get your old engine working like it used to again with the ECO PILL and ECO FXO!

THE FLEX-O ECO PILL AND ECO FXO ARE **A WORLDWIDE PATENTED PRODUCT**

The ECO PILL and ECO FXO are a patented product. All laboratory tests that show how it acts and confirm its effects are based on scientific procedures developed by organizations such as SAE (Society of Automotive Engineers), ASTM (American Society for Testing and Materials), QIRC, and US EPA (United States Environmental Protection Agency) etc.

HOW DO THE ECO PILL AND ECO FXO REDUCE EMISSIONS?

The ECO PILL and ECO FXO get to work right from the gas tank. Its detergent based formula frees up and bonds to carbon and silt in the fuel and fuel lines. The ECO PILL and ECO FXO's revolutionary design cleans the injectors without solvents, (which would reduce the fuel's combustibility) and return them to a more efficient state. The ECO PILL and ECO FXO also aid in the atomization process (air-fuel mixing) which gives your internal combustion engine improved efficiency and reduces your emissions approx. 62%



HOW DO THE ECO PILL AND ECO FXO SAVE MONEY?

The tablet cleans the engine and recuperates lost operation. It improves atomization thus providing better combustion, and better usability of the available power. A fuel saving of approx. 10% is expected.

USAGE INSTRUCTIONS

Open the tank cover and remove the cap. Put a tablet in the tank opening and push it down the pipe with a fuel pump gun. Add a tablet during the next two tank refillings. For optimum operation, repeat this treatment several times a year.

WARNING!

This is a safe product if used in compliance with the manufacturer's instructions. In case of swallowing it, immediately contact a physician. It is suggested not to expose the tablets to direct sunlight or excessive heat for a longer period. The tablet's colour will change, but not its effects.

1 TABLET

Max 60 l of fuel

Min 15 l of fuel

It gets dissolved in a few minutes. It is non-toxic

IT IS 100% SAFE. IT IS NOT HARMFUL TO ANY ENGINE IN ANY WAY, ASTM-D 130.

Prior to treatment with the ECO PILL and ECO FXO: dirty fuel injectors are clogged, they dissipate fuel, and reduce the performances. The fuel injectors, after the treatment with ECO PILL and ECO FXO: improved atomization providing optimal performances.

EACH ECO PILL AND ECO FXO

- Reduces discharge of noxious exhaust fumes by 62%
- Is made of 100% organic minerals
- Reduces the fuel consumption by up to 10%
- Restores the lost power and performances
- Eliminates thuds in the engine, tinkling and heating caused by carbon deposits
- Cleans fuel injectors
- Eliminates existing deposits, and reduces maintenance costs
- Dissolves in fuel within minutes, and does not leave any particles that might clog the filters
- **IS SAFE FOR ALL ENGINES, ASTM-D 130.**



TECHNICAL DATA

BOSCH / KOCH

ECO - TEST REPORT

TESTING DEVICES AND THE WAY OF MEASURING

The vehicles have been tested before, and after treatment with pills. The following tests have been performed on the selected vehicles:

- ECO testing,
- compression testing,
- fuel injection valves testing,
- engine power testing,
- fuel consumption testing.

The ECO-test was carried out by using a Bosch BEA 350 device. It is a 4-component device for testing of exhaust gases (CO, CO₂, O₂, and HC). After volume analysis of the said combustion components, this device automatically calculates the LAMBDA value. This device has got a type approval of the National Institute of Standardization, and Measuring, so that it can be applied as a measuring means in public use. Official designation of this gauge is HH GG-1-1017. During the testing, all measuring conditions were satisfied so as to maintain the exactness and validity of testing itself. The software for this device was prepared in compliance with the requirements and instructions of the Croatian Center for Vehicles, and as such, it is used in the Stations for technical inspection of vehicles. At the same time, the number of revolutions and temperature of oil in the engine are measured for each vehicle. The values obtained before, and after testing are entered in the Test Report.

COMPRESSION TESTING is carried out by using a MOTOMETER. The measuring results show the pressure in individual cylinders in bars, at the time of starting the engine. The measuring was carried out in such a way that testing was stopped after 20 revolutions of the crankshaft. The obtained values are shown in the measuring card.

TESTING OF VALVES for fuel injection is carried out with ASNU device. At the beginning, the injectors are checked for permeability. They undergo the operating pressure within 60 seconds. During this period, the valve is shut, and it is checked if, during or after the testing, there is any drop of fuel on the lower side of the valve. Then, the fuel jet is checked. Under the operating pressure, the valves are electrically open in order to check the direction and dispersion of the fuel jet, that is very important for the preparation of the fuel mixture. Each fuel jet is documented with photos taken by a digital camera. The final stage of testing is testing of the injected fuel quantity.



At this stage, the injectors are again electrically open at operating pressure, during 15 seconds, and the valve jet is directed into the measuring glass.

Thus, the information on the quantity of injected fuel in milliliters is obtained, and comparison between the quantities of each cylinder. The results and obtained values are entered in the form of INJECTOR SERVICE DIAGNOSTIC REPORT.

ENGINE POWER TESTING. The engine power is tested on the testing rollers BOSCH LPS 002, provided with a measuring system TAT MESSYSTEME, and software. The measuring principle is based on the acceleration of the rollers mass, and the change of the roller's angular velocity unambiguously determines the power. The power on the engine coupling is obtained by adding the deceleration losses to the power obtained on wheels at acceleration. The device takes into account the suction air temperature at the entry into the engine, and the ambient air pressure, and thus calculates the correction factor used for the conversion of the power obtained into the DIN standards. Thus obtained corrected engine power corresponds to the factory power testing carried out under different conditions regarding the ambient air pressure, and temperature.

This device can provide measurements for engines power up to 600 HP, and for the speed up to 270 km/h. Higher speeds would have important effects on heating the tires and their skidding that would cause an unreliable measuring. Prior to testing, the vehicle should be well fixed to the surface for the safety of personnel themselves. These measurements are performed twice because, at the first acceleration, the tires do not have their operating temperature that causes the measurement uncertainty of 1 to 3%, and their skidding on the roller itself is higher than with warm tires. If the vehicle can achieve speed above 270 km/h at the highest degree of transmission, then the testing should be carried out at the lower degree of transmission. The precision of testing remains the same but only the power curve is somewhat narrower on a diagram itself due to higher acceleration of rollers. These tests are carried out on warm engines. When reaching the speed of about 50 km/h, the gearshift lever is moved to the highest degree of transmission, and the throttle is wide open in order to enable maximal filling of engine, and thus the power and the momentum. Then the engine is accelerated to the maximum number of revolutions. When this maximum is reached, by pressing the coupling pedal, the engine is separated from the gearbox unit. Thus, due to inertia, the roller enabling the measuring of losses from the coupling to the wheels of a vehicle is decelerating. The measurement ends at the moment when the speed falls below 50 km/h. This device is used for engine power measurement by German DTM.

BOSCH / KOCH



TEST RESULTS

GOLF III 1.4L 44 kW

with adjusted catalyzer, central injection system Mono-Motronic.

Mileage: 96235 km
Manufactured: 1992
License plate: ZG 1110 D

Prior to testing, an electronic checking of the injection system, and engine tuning have been performed. There was no error in the vehicle computer memory, so that no correction was necessary in basic tuning of the engine. Oil level was below minimum, so that 1 l of Valvoline Durablend was added. Spark plugs were in good condition, and the combustion lines in cylinders were correct.

Eco-Test - GOLF III 1.4L 44 kW

The vehicle satisfied all testing elements regarding the composition of exhaust gases. It was noticed that it took more time to warm the catalyzer that indicates its worn-out condition. Most probably, the factory fitted catalyzer is still in the vehicle. The exhaust system is well sealed, and there is no permeability.

Measuring in idle run	BEFORE ECO PILL and ECO FXO	AFTER ECO PILL and ECO FXO
Lambda	0.996	0.997
CO	0.055% vol	0.017% vol
CO ₂	15.60% vol	15.55% vol
HC	113 ppm	72 ppm
O ₂	0.07% vol	0.03% vol

Measuring at increased number of revolutions:	BEFORE ECO PILL and ECO FXO	AFTER ECO PILL and ECO FXO
Lambda	1.000	1.000
CO	0.179% vol	0.082% vol
CO ₂	15.41% vol	15.48% vol
HC	63 ppm	29 ppm
O ₂	0.19% vol	0.09% vol

The above values indicate that there was a certain improvement in the combustion. The contents of Co, HC, and O₂ in exhaust gases has been reduced which indicates a better preparation of mixture, and an increased compression after application of pills.



ENGINE COMPRESSION - GOLF III 1.4L 44 kW

	BEFORE ECO PILL and ECO FXO	AFTER ECO PILL and ECO FXO
1st cylinder	12	12
2nd cylinder	12.6	12.9
3rd cylinder	11.5	12.5
4th cylinder	12.5	12.5

The above stated values indicate that there has been a significant increase in compression of the 3rd cylinder (1 bar), while a slight increase of 0.3 bars was measured in the 3rd cylinder. There was no change in the compression of the 1st and 4th cylinder.

TESTING OF FUEL INJECTION VALVE - GOLF III 1.4L 44 kW

As per the Injector Test Report, it is obvious that there was no change on the valve itself. The fuel jet was adequate before and after testing, and the valve has satisfied the permeability test in both cases.

ENGINE POWER TESTING - GOLF III 1.4L 44 kW

	BEFORE ECO PILL and ECO FXO	AFTER ECO PILL and ECO FXO
Engine power	47.0 kW (63.9 HP)	48.7 kW (66.3 HP)
at r.p.m.	5417 1/min	5451 1/min
Engine momentum	98.0 Nm	104.9 Nm
at r.p.m.	3304 1/min	3089 1/min

The above stated values indicate that the engine power was increased by 1.7 kW, i.e. 3.6%, and the engine momentum by 6.9 Nm or 7%.

BOSCH / KOCH

RENAULT TWINGO 1.2i 44 kW

with adjusted catalyzer, MPI injection system (separate injection for each cylinder)

Mileage: 43565 km
Manufactured: 1998
License plate: ZG 1723 K

Prior to the testing itself, the checking of electronic injection system, and engine tuning were performed. There was no error in the computer memory so that no correction was necessary for basic engine tuning.



ECO Test - RENAULT TWINGO 1.2i 44 kW

The vehicle satisfied all testing elements regarding the composition of exhaust gases. The exhaust system is well sealed, and there is no permeability.

Measuring in idle run	BEFORE ECO PILL and ECO FXO	AFTER ECO PILL and ECO FXO
Lambda	1.034	1.054
CO	0.090% vol	0.095% vol
CO ₂	15.01% vol	14.72% vol
HC	104 ppm	94 ppm
O ₂	0.90% vol	1.31% vol

Measuring at increased number of revolutions:	BEFORE ECO PILL and ECO FXO	AFTER ECO PILL and ECO FXO
Lambda	1.001	1.008
CO	0.118% vol	0.017% vol
CO ₂	15.49% vol	15.52% vol
HC	56 ppm	39 ppm
O ₂	0.17% vol	0.23% vol

The above values indicate that there was a certain improvement in the combustion.

ENGINE COMPRESSION - RENAULT TWINGO 1.2i 44 kW

	BEFORE ECO PILL and ECO FXO (bar)	AFTER ECO PILL and ECO FXO (bar)
1st cylinder	12.5	13.3
2nd cylinder	12.0	13.0
3rd cylinder	12.0	12.0
4th cylinder	12.0	13.0

The above stated values indicate that there has been a significant increase in compression of the 1st, 2nd and 4th cylinder (about 1 bar). There was no change in the compression of the 3rd cylinder.

TESTING OF FUEL INJECTION VALVE - RENAULT TWINGO 1.2i 44 kW

As per the Injector Test Report, it is obvious that there were no changes on the valves. The fuel jet was adequate before and after testing on the 1st, 3rd and 4th valve, while the jet on the 2nd valve remained bad even after the treatment. All valves have satisfied the permeability tests in both cases.



ENGINE POWER TESTING - RENAULT TWINGO 1.2i 44 kW

	BEFORE AFTER ECO PILL and ECO FXO	AFTER AFTER ECO PILL and ECO FXO
Engine power	40.0 kW (54.3 HP)	43.2 kW (58.7 HP)
at r.p.m.	4630 1/min	5103 1/min
Engine momentum	84.5 Nm	90.8 Nm
at r.p.m.	2730 1/min	4007 1/min

The above stated values indicate that the engine power was significantly increased by 3.2 kW, i.e. 8%, and the engine momentum by 6.3 Nm or 7.4%). It should be noted here that it was a mere city car. It is expected that under such operating mode, the results of treatment should be optimal.

BOSCH / KOCH

FUEL CONSUMPTION TESTS

The way of testing: the vehicles were filled up with fuel on the filling station of INA – Motel PLITVICE-South, then the vehicle was driven along the beltway, and motorway at a constant speed of 120 km/h to Slavonski Brod, and back – to fill up again each vehicle at the INA – Motel PLITVICE-North filling station. The first test was carried out without adding FLEX-O solid additive. Then we added one pill, and filled up the fuel tank, and when the tank was empty, we added again another pill, and then we filled up the tank and made the second fuel consumption test. The results obtained are shown in the following Tables.

Zoran Bingula, B.Sc. / Slaven Bitanga, Zagreb, August 11, 2003.

Testing without pill carried out on July 2, 2003.

	RENAULT TWINGO	GOLF
Initial Odometer condition	44,086 km	97,460 km
Final Odometer condition	44,500 km	97,874 km
Kilometers passed	414.50 km	414.50 km
Fuel consumed	23.92 l	24.85 l
Average fuel consumption	5.771 l/km	5.995 l/km

Testing after adding the 2nd pill, carried out on July 9, 2003.

	RENAULT TWINGO	GOLF
Initial Odometer condition	44,972 km	98,409 km
Final Odometer condition	45,387 km	98,823 km
Kilometers passed	414.70 km	414.70 km
Fuel consumed	21.26 l	23.57 l
Average fuel consumption	5.127 l/km	5.684 l/km
Consumption saving in%	12.5%	5.4%



TEST SAMPLES

PARTIAL LIST OF TESTS PERFORMED ON FLEX-O ECO PILL ADDITIVE

PROCEDURE	ESULTS
ASTM D 525 (GASOLINE)	INCREASE THE INDUCTION PERIOD UP TO 40%
PEROXIDE CONTENT (GASOLINE)	UP TO COMPLETE ELIMINATION
VISCOSITY OF HFO UNDER MODERATELY HIGH SHEAR (19-57CM/SEC)	REDUCTION OF VISCOSITY IN THE 10% RANGE
ASTM D 2274 (HFO)	20% REDUCTION OF INSOLUBLE
ASTM D 473 (HFO)	REDUCTION OF SEDIMENT BY EXTRACTION OF MORE THAN 50%
SEDIMENT BY HOY FILTRATION (HFO) ASTM D 4870	REDUCTION OF MORE THAN 50%
WATER/OIL INTERFACIAL TENSION ASTM D 971-50	REDUCTION FROM 45 TO 15 DYNES/CM
ATOMIZATION OF HFO	MORE DROPLETS (25%) AND SMALLER DIAMETER
SOCONY MOBIL: "ANTI-SCREEN CLOGGING TEST" METHOD 530-64	REDUCTION OF MORE THAN 90% OF DEPOSITS
COMPATIBILITY BY SPOT TEST (ASTM D-2781)	OVERCOME FUEL OIL INCOMPATIBILITY
SHELL WOOD RIVER TEST	PROPRIETARY SHELL METHOD TO MEASURE THE DISPERSION OF ASPHALTENES IN HEAVY FUELS RESULTS: EXCESS OF 80%
PRODUCT PERFORMANCE EVALUATION ROYAL MILITARY SCHOOL OF BELGIUM FOR NATO APPLICATION DIESEL FUEL	REDUCED FUEL CONSUMPTION BY 3.45% REDUCED INJECTOR DEPOSITS WHICH IMPROVED FLOW BY 70% PARTICLE EMISSIONS REDUCED BY MORE THAN 30%



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