

Testing additive "Green Booster"

Requirements of NPG InOil during testing:

1. The program-method of testing must be agreed with the delegated representative of the company.
2. Presence of a company representative during testing.
3. Availability of laboratory accreditation for these types of tests.

Fuel Additive Requirements:

The addition of the additive should take place during refueling or just prior to refueling. Also, when adding to fuel tanks after refueling, mechanical agitation is necessary to achieve a homogeneous mixture.

The additive is added at the rate of 1 ml of additive per 20 liters of fuel (1 liter of additive per 20,000 liters of fuel).

General recommendations for comparative testing.

Testing takes place in four stages:

Stage 1. Get Baselines

- 1.1 Record 3-5 days of initial fuel consumption and produced energy or power;
- 1.2 Calculation of average fuel consumption;
- 1.3 Calculation of the ratio of produced energy or power to fuel consumption;

Stage 2. Fuel preparation with additive

- 2.1 Prepare the additive, in the proportion of 1 ml of additive per 20 liters of fuel (1 liter of additive per 20,000 liters of fuel);
- 2.2 It is necessary to prepare a container or fuel tank and the required amount of fuel;
- 2.3 The additive must be poured into the tank when refueling and before completion;
- 2.4 Runtime of fuel with additive;
 - 2.4.1 During road tests on a vehicle, the running time of fuel with an additive must be at least 1500 km or 160 liters;
 - 2.4.2 When testing on a diesel generator or other stationary engine, the operating time of the fuel with the additive must be at least 160 liters or 30 hours;

3. Stage. Obtaining performance indicators on fuel with an additive

- 3.1. Recording of fuel consumption and produced energy for 1-2 days on fuel with additive;
- 3.2 Calculation of average fuel consumption;
- 3.3 Calculation of the ratio of produced energy to fuel consumption (kW / l);

4. Stage. Evaluation of results

4.1 Compare the obtained results with the initial indications;

Important: For comparative tests, the fuel for the base test and for the addition of the additive must be from the same batch purchased!

List of tests to determine the reduction of environmental emissions.

1. On internal combustion engines

For this you need:

- Stand prepared for comparative tests: according to the requirements of UN Regulation No. 49
- Стенд, подготовленный для проведения сравнительных испытаний: по требованиям правил ООН №49 "Uniform provisions concerning the certification of compression-ignition engines and natural gas engines, as well as positive-ignition engines powered by liquefied petroleum gas and vehicles equipped with compression ignition engines, natural gas engines, and positive-ignition engines running on liquefied petroleum gas in relation to emissions of harmful substances" and according to the requirements of UN Regulation No. 24 "Uniform provisions concerning the certification of compression ignition engines with regard to smoke".
- An engine with a capacity of at least 2 liters (preferably naturally aspirated) installed on a stand with at least 500 hours of operation.
- Equipment for the analysis of harmful emissions.
- The developed program is a methodology for conducting comparative tests.

The purpose of the work: this work is based on the method of experimental studies based on comparative test cycles, first of an engine running on base fuel, and then on mixtures of base fuel with the additive under study.

In the first test cycle of an engine running on base fuel, it is necessary to assess its technical condition and obtain basic characteristics, as well as measure emissions of harmful substances.

Such a set of studies is carried out cyclically for each fuel option, starting with the first one on the base fuel, and then for the experimental fuel option based on its mixture with an additive.

All test cycles are calculated based on engine characteristics and in accordance with UN Regulation No. 49.

Depending on the engine design, the following parameters are monitored and determined:

Parameter: Power, Torque, Engine speed, Fuel consumption, Air consumption, Smoke, Content of CO_n, NO_x, CH, in exhaust gases (CO_n, NO_x, CH), Atmospheric pressure, air temperature, Air pressure at the inlet to the internal combustion engine, Exhaust gas pressure of the internal combustion engine, Engine temperature.

Based on the test results, the data obtained are analyzed, the necessary comparative graphs are built, and the effect of the additive on engine operation is revealed.

2. By road

For this you need:

1. Stand prepared for comparative tests:

According to the rules of GOST R 52160-2003 (Russian standard) "Vehicles equipped with engines with compression ignition, Exhaust gas smoke"

2. A car with a diesel engine of at least 2 liters with a mileage of at least 30,000 km.

3. Equipment for the analysis of harmful emissions.

4. Equipment for determining fuel consumption.

5. Equipment for power determination.

6. The developed program is a methodology for conducting comparative tests.

7. Fuel.

3. On diesel generators, comparative testing can be carried out at the same load.

For this you need:

1. Diesel - generator with an operating time of at least 500 hours, with a constant load of at least 30%.

2. Equipment for the analysis of harmful emissions.

3. Equipment for determining fuel consumption.

4. Equipment for determining the generated electricity.

5. The developed program is a methodology for conducting comparative tests.

6. Fuel.

Also, in agreement with NPG InOil, tests can be carried out on other types of stands or during sea trials on vehicles.