

SEMINAR REPORT ON

FUEL ENERGIZER

ABSTRACT

In this era of increasing fuel prices, here a device called 'FUEL ENERGIZER' help us to Reduce Petrol /Diesel /Cooking gas consumption up to 28%, or in other words this would equal to buying the fuel up to 28% cheaper prices.

When fuel flow through powerful magnetic field created by Magnetizer Fuel Energizer, The hydrocarbons change their orientation and molecules in them change their configuration. Result: Molecules get realigned, and actively into locked with oxygen during combustion to produce a near complete burning of fuel in combustion chamber.

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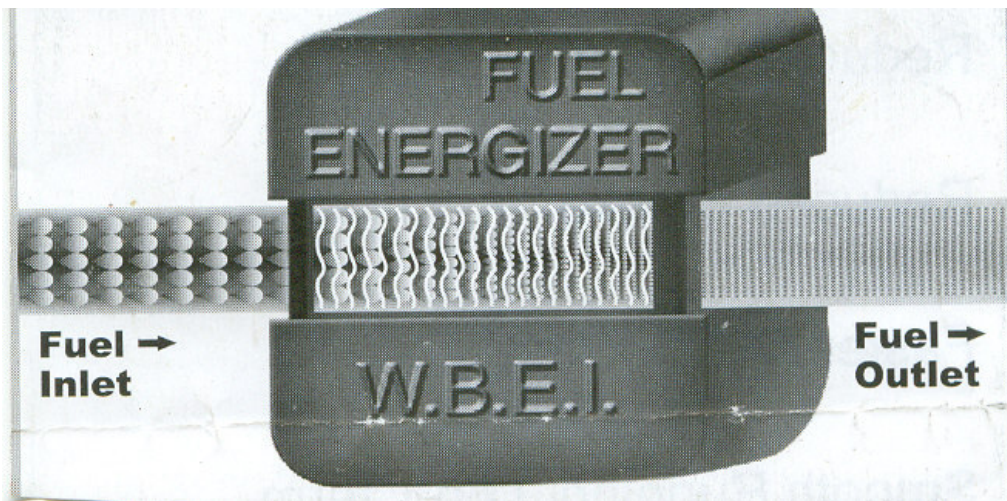


INTRODUCTION

Today's hydrocarbon fuels leave a natural deposit of carbon residue that clogs carburetor, fuel injector, leading to reduced efficiency and wasted fuel. Pinging, stalling, loss of horsepower and greatly decreased mileage on cars are very noticeable. The same is true of home heating units where improper combustion wasted fuel (gas) and cost, money in poor efficiency and repairs due to build-up.

Most fuels for internal combustion engine are liquid, fuels do not combust until they are vaporized and mixed with air. Most emission motor vehicle consists of unburned hydrocarbons, carbon monoxide and oxides of nitrogen. Unburned hydrocarbon and oxides of nitrogen react in the atmosphere and create smog. Smog is prime cause of eye and throat irritation, noxious smell, plat damage and decreased visibility. Oxides of nitrogen are also toxic.

Generally fuels for internal combustion engine is compound of molecules. Each molecule consists of a number of atoms made up of number of nucleus and electrons, which orbit their nucleus. Magnetic movements already exist in their molecules and they therefore already have positive and negative electrical charges. However these molecules have not been realigned, the fuel is not actively inter locked with oxygen during combustion, the fuel molecule or hydrocarbon chains must be ionized and realigned. The ionization and realignment is achieved through the application of magnetic field created by 'Fuel Energizer'.



Fuel mainly consists of hydrocarbon and when fuel flows through a magnetic field, such as the one created by the fuel energizer, the hydrocarbon change their orientation and molecules of hydrocarbon change their configuration. At the same time inter molecular force is considerably reduced or depressed. These mechanisms are believed to help disperse oil particles and to become finely divided. This has the effect of ensuring that fuel actively interlocks with oxygen producing a more complete burn in the combustion chamber. The result is higher engine out put, better fuel economy and reduction in hydrocarbons, carbon monoxide and oxides of nitrogen that are emitted though exhaust. The ionization fuel also helps to dissolve the carbon build-up in carburetor, jets, fuel injector and combustion chamber, there by keeping the engines clear condition. Also it works on any vehicle or device (cooking gas stove) using liquid or gas fuel.

WHAT FUEL ENERGIZER DOES?

- More mileage (up to 28% increase) per liter due to 100% burning fuel.
- No fuel wastage.
- Increased pick-up.
- Reduced engine noise.
- Reduced smoke.
- Faster A/C cooling.
- Smooth running, long term maintenance free engine.
- 30% extra life for expensive catalytic converter.

HOW IT INSTALL?

Magnetizer fuel energizer (eg:- Neodymium super conductor – NSCM) is installed on cars, trucks immediately before carburetor or injector on fuel line. On home cooking gas system it is installed just before burner.

THE MAGNETIZER & HYDROCARBON FUEL

The simplest of hydrocarbons, methane, (CH_4) is the major (90%) constituent of natural gas (fuel) and an important source of hydrogen. Its molecule is composed of one carbon atom and four hydrogen atoms, and is electrically neutral. From the energy point of view, the greatest amount of releasable energy lies in the hydrogen atom. Why? In octane (C_8H_{18}) the carbon content of the molecule is 84.2%. When combusted, the carbon portion of the molecule will generate 12,244 BTU (per pound of carbon). On the other hand, the hydrogen, which comprises only 15.8% of the molecular weight, will generate an amazing 9,801 BTU of heat per pound of hydrogen.

Hydrogen, the lightest and most basic element known to man, is the major constituent of hydrocarbon fuels (besides carbon and smaller amount of sulphur and inert gases). It has one positive charge (proton) and one negative charge (electron), i.e. it possesses a **dipole moment**. It can be either diamagnetic or paramagnetic (weaker or stronger response to the magnetic flux) depending on the relative orientation of its nucleus spins. Even though it is the simplest of all elements, it occurs in two distinct isomeric varieties (forms) - **para** and **ortho**. It is characterized by the different opposite nucleus spins. In the para H_2 molecule, which occupies the even rotation levels (quantum number), the spin state of one atom relative to another is in the opposite direction ("counterclockwise", "antiparallel", "one up & one down"), rendering it diamagnetic; whereas in the ortho molecule, which occupies the odd rotational levels, the spins are parallel ("clockwise", "coincident", "both up"), with the same

orientation for the two atoms; therefore, is paramagnetic and a catalyst for many reactions. Thus, the spin orientation has a pronounced effect on physical properties (specific heat, vapor pressure) as well as behavior of the gas molecule. The coincident spins render orthohydrogen exceedingly unstable. In fact, **orthohydrogen** is more reactive than its **parahydrogen** counterpart. The liquid hydrogen fuel that is used to power the space shuttle or rockets is stored, for safety reasons, in the less energetic, less volatile, less reactive parahydrogen form. During the start of the shuttle, the orthohydrogen form is beneficial since it allows to intensify the combustion processes. To secure conversion of para to ortho state, it is necessary to change the energy of interaction between the spin state of the H_2 molecule.



Design of fuel energizers: a) fragment of a rocket fuel energizer
(Ruskin, 1958)

: b) a "Magnetizer". (P. Kulish, 1984

diagram of a part of fuel)

ATOM OF HYDROGEN IN ITS PARA AND ORTHO STATE

Any utility patent must be proven operable and scientifically correct before issuance. The same principle has been utilized, and the same effect has been achieved by the action of the **Magnetizer** where a strong enough flux field was developed to substantially change the hydrocarbon molecule from its para state to the higher energized ortho state. The spin effect of the fuel molecules can be ascertained optically, based on refraction of light rays passing through liquid fuel as had been demonstrated by scientists while using infrared cameras installed, e.g. in metallurgical ovens where the **Magnetizer's** had been effectively working. Furthermore, the conversion of hydrogen into ortho H₂ (taking place very fast in this strong & unique magnetic field, with the simultaneous transformation of the system from a symmetrical into highly active anti-symmetrical molecular state of increased reactivity and catalytic ability) has been found highly advantageous in many technologies, especially those where hydrogen is used.

Hydrocarbons have basically a "cage-like" structure. That is why oxidizing of their inner carbon atoms during the combustion process are hindered. Furthermore, they bind into larger groups of pseudo-compounds. Such groups form clusters (associations). The access of oxygen in the right quantity to the interior of the groups of molecules is hindered. (It has nothing to do with incoming air from the manifold in the fuel mixture when even though there may be excess of it, this will not provide the required hydrocarbon-oxygen binding.) and stemming from this shortage of oxygen to the cluster that hinders the full combustion. In

order to combust fuel, proper quantity of oxygen from air is necessary for it to oxidize the combustible agents.

For many years, designers of the internal combustion engines have had one goal: to oppose the effect of molecular association of the hydrocarbon fuel and to optimize the combustion process. The peculiar problem in designing engines for air pollution is that in order to fully burn all the hydrocarbons in the combustion chamber, operating temperatures of the cylinders have had to be increased. While older engines may have produced relatively large quantities of unburned hydrocarbons and carbon monoxide, they produced low quantities of oxides of nitrogen. Also, with the renewed interest in performance engines, compression ratios are creeping upward again, and once again the mechanism for producing higher levels of nitrogen toxins is increased. Similarly, turbo charging effectively alters the compression ratio of a vehicle, further adding to the nitrogen problem.

The feed and exhaust systems have been perfected, the ignition controlling electronics has been perfected, the fuel/air mix metering devices have been brought to perfection, and finally the catalytic converters (see below) have been found indispensable. But even then, fumes that leave the "afterburners" are not ideally clean - engine still burns only part of the fuel (or precisely the incompletely oxidized carbon atoms in the form of CO). The rest is discharged as polluting emissions (HC, CO, NO_x) or is deposited on the internal engine walls as black carbon residue. All this has been caused by the incomplete combustion process. The reasons for it being that:

- Hydrocarbons form the so-called associations, close molecular groups, interior of which is deprived of access of the suitable amount of air; the lack of oxygen impedes the full combustion.

Note: The tendency of HC molecules to cluster causes local macro-groupings (condensing) of molecules to clog the pipes and fuel nozzles. The excess of air in the fuel mixture will not provide for the complete combustion. Hence, the exhaust fumes contain considerable amounts of unburned CO, HC, and soots.

- Oxygen with negative 2 valence is negative, and hydrocarbon has neutral molecular structures, which by passing through steel fuel lines gets negatively (micro) charged. Therefore, when these two atoms come together with the same potential in a combustion chamber, they repel, which result in incomplete combustion. Therefore, all serious research has been aimed at bringing about fuel reactivity with oxygen (oxygenated fuels); since increased oxidation means increased combustion, and the following rules had to be taken into consideration:

Rule 1: Unburned hydrocarbon (HC) as well as carbon monoxide (CO) emitted from a vehicle's exhaust system can be viewed as the additional fuel reserve, since, if proper conditions are met, HC & CO can be further burned in the combustion chamber. Therefore, creating such proper combustion conditions is paramount.

Rule 2: Hydrogen's chemical reaction, determined by its valence (the electron "surplus" in the "outer" orbital shell), is affected by a

magnetic field since proper magnets are the prime source of control of the position of electrons.

Rule 3: The application of a proper magnetic field enforces beneficial changes in fuel structure and enhances its general reactivity in the combustion process.

Rule 4: If a hydrocarbon molecule could better bind with oxygen molecules (be more completely oxidized), then the toxicity of fumes would be considerably limited and in principle, one could dispense with catalytic converters.

HOW DOES MAGNETIZER ALLOW TO MEET THE REQUIRMENTS OF RULE 1-4

- **Rule 1:**

When hydrocarbon fuel (methane molecule) is combusted, the first to be oxidized are the hydrogen atoms (or precisely electrons on their outer shells). Only then, are the carbon atoms subsequently burned ($\text{CH}_4 + 2\text{O}_2 = \text{CO}_2 + 2\text{H}_2\text{O}$). Since it takes less time to oxidize hydrogen atoms in a high-speed internal combustion process, in normal conditions some of the carbon will be only partially oxidized; this is responsible for the incomplete combustion. Oxygen combines with hydrogen readily; however, the carbon-oxygen reaction is far less energetic. We should keep in mind: oxygen always has a valence of minus two. The valence of carbon, on the other hand, can be plus or minus due to the configuration of its four electrons in the outer shell, which requires a total of eight electrons for completion. The optimum combustion efficiency (performance) obtained from the **Magnetizer** application on fuel is first indicated by the amount of increase in carbon dioxide (CO_2) produced, which has been validated by state emissions control devices. Furthermore, as the pollutants decrease, the combustion efficiency increases. The drop of HC & CO emissions is easily proven by comparative gas flue analysis & opacimeter emissions tests. The stoichiometric tests indicate reduction in hydrocarbon HC (unburned fuel) approx. 75 - up to 92% and carbon monoxide (CO) up to 99.9%, due to the **Magnetizer** use. Remember, as HC goes down, mileage goes up. This results in scientifically measurable emission reduction/combustion

efficiency ratio and an average increase in mileage of 15-25%. Since the Fuel Energizer saves fuel by increasing combustion efficiency, less CO is being emitted; thereby, less fuel is being used. In principal, the lowest fuel savings occur in the range velocity of the maximum torque, when the highest increase of horsepower can be noted (about 10 HP); the **Magnetizer** giving a trade-off between driving a Porsche versus Volkswagen.

- **Rule 2**

Altering the spin properties of the outer shell ("valence") electron enhances the reactivity of the fuel (and related combustion process). The higher energized spin state of hydrogen molecule clearly shows a high electrical potential (reactivity), which attracts additional oxygen. Combustion engineering teaches that additional oxygenation increases combustion efficiency; therefore, by altering the spin properties of the H₂ molecule, we can give rise to its magnetic moment and enhance the reactivity of the hydrocarbon fuel and ameliorate the related combustion process. The **Magnetizer** 's extremely strong magnetic field, with sufficient flux density to have the required affect on fluid passing through it, **substantially changes** the isomeric form of the hydrocarbon atom from its para-hydrogen state to the higher energized, more volatile, ortho state, thus attracting additional oxygen. Fuel structure and properties, such as e.g. electrical conductivity, density, viscosity, or light extinction are changed; its macrostructure beneficially homogenized

- **Rule 3**

Hydrocarbon molecules form clusters called "associations." It has been technically possible to enhance van der Waals' discovery due to the application of the **Magnetizer**, a high power, permanent magnetic device, strong enough to break down, i.e. de-cluster these HC associations. They become normalized & independent, distanced from each other, having bigger surface available for binding (attraction) with more oxygen (better oxidation). A simple analogy is of burning coal dust and a coal bricket. There, where one aims at higher efficiency, during the combustion process, one has to give a molecule the greater access to oxygen. In case of burning of powdered coal dust, adding of oxygen may even cause explosions. Thus, with our fuel energizer, the oxygenation and the combustion efficiency increase. Fuel is more active and dynamic, and the combustion process faster and more complete. These "new" hydrocarbon molecules have one more important characteristic: they not only dissolve and eliminate carbon varnish in the combustion chambers, on the surface of jet nozzles, spark plugs and exhaust pipe, but do not allow new and harmful deposits to reform. Furthermore, the energizer's work ensures better performance of carburetor or fuel injectors, makes start ups easier, considerably increases driving dynamics, etc. The power and torque in the whole range of rotational velocity of crankshaft also go up. Thanks to de-clustering of hydrogen molecules, in the combustion chamber, increased saturation & reactivity of the fuel mixture with oxygen is achieved, resulting in a more complete oxidation of the primary hydrogen element and further oxidation of carbon (C), the secondary fuel element, since, in accordance with van der Waals discovery of a weak clustering force, there is a very strong binding of hydrocarbons with oxygen in such magnetized fuel, which ensures optimal burning of the mixture in the engine chamber. The positively charged fuel, so to speak, swells,

thickens, and needs larger quantity of air, which is easily remedied by adjusting the change in air/fuel ratio in carbureted cars. When we attach the **Magnetizer** unit to the fuel line of an automobile (before carburetor, in tandem series, placed 1/4" apart, or in Fuel Injection Systems - on fuel line to the injectors + before the injection pump; make sure it is not in contact with the engine's metal parts), we see an immediate (approx. after 5 min., 4-5 miles/6-8 kms upon start-up) drop in unburned hydrocarbons and carbon monoxide due to the magnetic conditioning of the fuel which makes it more reactive. As explicitly stated in our instructions, upon the **Magnetizer** installation (5-10 minutes thereafter) engine will undergo the so-called "**Stabilization Period**", i.e. the time of the gradual disappearance of prior carbon varnish sediments and the total magnetic saturation of all ferromagnetic metal parts of the feeding system between the installed energizer and the combustion chamber in order to fully activate fuel. The initial saturation lasts about a week (even though in the past we received positive reports already after 2-3 days upon installation), while the complete engine cleaning from the carbon residue lasts about 30 to 70 days (old engines). On passenger cars this means about 1,000-1,125 miles (1600-1800 kms) driven (depending on vehicle class, age, internal cleanliness of its engine, driving habits, etc.), on trucks - about 1,250-2,000 miles (2,000-3,200 kms). When after a month from the correct installation, the improvement is not readily apparent, it is caused by too little amount of oxygen in the fuel mixture. One has then to change the dirty or oiled air filter and adjust the carburetor in order to increase the amount of air in the mixture (make it leaner) or adjust fuel pressure of a diesel pump to restore the O₂ level to where it was prior to the energizer's installation. Fuel injected cars are self-adjustable, with the exception of quite rare cases when the lambda (excess air) probe has been worn out

(needs replacement) and the system "overrides" the **Magnetizer** 's action. Ideally, the adjustment should be done by the professional diagnostic station, which based on the exhaust analysis will optimally adjust the engine. Without the adjustment, the **Magnetizer** can cause the effect reverse from the required. Also, in the first intensive phase of decarbonization there may be a disturbance in the engine's work and unstable fuel consumption caused by the temporary clogging of jet nozzles by the liquidated deposits. The temporary occlusions are removed in a natural way. At that time it is not recommended to do the engine adjustment. However, during the Stabilization Period the periodic oil change is recommended. Subsequently, one has again to change oil after the Stabilization Period. Compared to savings during the exploitation of the vehicle and extending the engine's life, this is a really small investment..

- **Rule 4**

The chief function and purpose of a catalytic converter is to convert engine's unburned hydrocarbons and reduce by oxidizing (burning), all carbon monoxide (CO) to carbon dioxide (CO₂) and water (vapor). A converter neutralizes exhaust, which has left the combustion chamber of an engine. Such exhaust is less toxic, but the energy from such an after-burning process is not utilized. While catalytic converters are designed to function beyond 5 years and 50,000 miles (80,000 kms), there are problems that can occur (trace amounts of oil escaping to the exhaust, etc.) that can dramatically shorten their life (destroy them). Example: the sticking-on of an automatic choke will, within a short period of time, cause catalytic converter to overheat and go into meltdown due to an excessively rich mixture.

The melting of a catalytic converter will cause the gas passages to clog, which in turn will overheat and burn the engine exhaust valves.

A COMPARISON BETWEEN A CATALYTIC CONVERTER AND THE "MAGNETIZER":

1 Most catalytic converters require air pumps to initiate catalysis. Air pumps rob power from the engine, reduce fuel economy, and are costly to install. Catalytic converters with air pumps reduce gas mileage - the **Magnetizer** increases gas mileage and performance.

2 Catalytic converters require a light-off temperature to be attained before they become operative (between 3 to 5 miles). Cold converter does not work, so the exhaust fumes right after start-up are equally toxic as without it. The **Magnetizer** is instantaneous.

3 Catalytic converters are subject to meltdown under rich gas mixtures - the **Magnetizer** is not. It is a fully permanent device.

4 The **Magnetizer** can easily be transferred from car to car with almost no labor. Converters cannot.

5 The **Magnetizer** units cost a fraction of the cost of the catalytic converter system.

6 Since catalytic converters reduce power and eventually go bad, they are subject to being removed; they are often not replaced because of the high cost and reduced engine performance.

7 Use of the unleaded gas does eliminate the problem of the most toxic lead compounds, but there is an increase in the air of other carcinogenic substances; the exhaust problem comes around. Very often unleaded gas is transported in the same tank trucks that carry "normal" gasoline with the lead additives. From daily practice we know that even trace quantities of lead are sufficient to destroy ("poison") a converter. As a result, the amount of toxic substances released to the atmosphere can subsequently increase. The **Magnetizer** works well and with excellent results on all types of fuel - unleaded, as well as leaded gasoline, diesel, or liquid petroleum gas (LPG).

8 Catalytic converters have a finite lifetime under optimal conditions, shorter under adverse conditions. It is important to note that although it takes a bit of time for the **Magnetizer** fuel system to stabilize, one finds the "Magnetizer Energizer Systems" constantly work better and better as time goes on (see the comment on the "Stabilization Period" below).

9 The **Magnetizer** is totally friendly to the environment. The converter is not fully so. The traces of oil that escape to exhaust not only can destroy the action of a converter (the car becoming instantly a polluter), but what is even worse, they are the cause of small amount of highly toxic chemical compounds such as prussic acid; sulphuretted hydrogen; and platinum compounds released to the atmosphere.

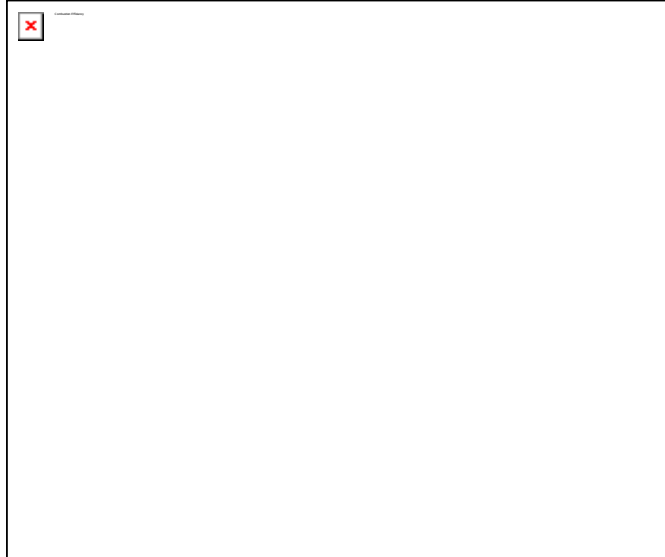
As emphatically stated by Hannover-based, world-reknowned German scientist, **Dr. Hans A. Nieper**, President of the German Society of Oncology, et al., author of 320 scientific articles, essays, & books: "First of all, all catalytic converters should be removed from cars as soon as

possible". The reason - nerve gas (phosphoric esters) being generated by the automotive catalytic converters. Those interested further are referred to Dr. Nieper's article "Nerve Gas from Catalytic Converters", which appeared in the September 1995 issue of the *NEXUS* magazine.

Waver Motors port Co. from Poland offers the highest quality engine tuning with the use of the American measuring devices, "Super chips," in one of the most modern test benches in Europe called "Super flow". The owner of Waver, Mr. Andrzej Zajàc, did an experiment by putting the **Magnetizer** on Engine Energizer System on and ... cutting off a catalytic converter on his Opel Calibra Turbo. The results have been "unbelievable": CO on idle went down from 0.5 to 0.2, HC lowered from 100 to 70, and the car, which should burn 15 liters per 100 km (15.9 miles per gallon) uses now, according to information received from Mr. A. Zajàc, 11 liters per 100 km (21.7 miles per gallon) - almost a 27% fuel saving.

As related in stoichiometric charts representing ideal combustion parameters (see below), the highest burning efficiency will be achieved at the highest carbon dioxide level, since carbon dioxide cannot be subsequently oxidized. The amazing part is that apart from the "converter-less" carbureted cars, the **Magnetizer** reduces emissions on cars with catalytic converters. The increased combustion efficiency is occurring within the engine due to increased fuel reactivity with oxygen (increased oxidation), the main factor responsible for increased combustion efficiency. It is a complete waste to allow an engine to run inefficiently and to burn the excess carbon monoxide in its catalytic converter, the wasted heat merely "heating up" the exhaust system instead of providing useful work within the engine. By establishing the correct

fuel burning parameters through proper magnetic means, we can be assured that an internal combustion engine is getting the maximum energy per gallon of fuel, as well as providing the environment with the lowest possible level of toxic emissions.



OXIDES OF NITROGEN AND THE MAGNETIZER FUEL TREATMENT

One of the chief reasons for the **Magnetizer** to have possibility to lower the NO_x level, as reported elsewhere, is due to the low reactivity of nitrogen gas. If we can bind up all the available oxygen with the hydrocarbon fuel, there simply will be no oxygen left over to form the unwanted nitrogen compounds. It appears that magnetic treatment is the simplest means of achieving this feat. As documented by numerous state certified emissions tests, the **Magnetizer** fuel treatment has shown decreases in unburned hydrocarbon by 75-100% and CO reductions of 90-100%. Stoichiometrically, there is very little oxygen left to produce any additional toxic compounds with nitrogen.

CONCLUSION

By establishing correct fuel burning parameters through proper magnetic means (Fuel Energizer) we can assumed that an internal combustion engine is getting maximum energy per liter as well as environment with lowest possible level toxic emission.

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