

GREEN TECH

BIO-POWER[®]

Fuel Oil Biochemical Enzyme



Energy Saving

Environmental Protection

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What Is **BIO-POWER** Environment Protective Fuel Oil Biochemical Enzyme

Main component of **BIO-POWER** is biochemical enzyme, a kind of ferment through fermentation and excretion of microorganism, its end product is protein and amino acid.

◆ Components of **BIO-POWER** Environment Protective Fuel Oil Biochemical Enzyme:

- Biochemical Diesel Oil
- Enzyme Protein
- Micro-emulsifying agent
- Bio-enzyme group

◆ Physical Properties of **BIO-POWER** Environment Protective Fuel Oil Biochemical Enzyme

| ITEM | TEST RESULT | TEST METHOD |
|------------------------------|--------------|------------------|
| Specific Gravity at 15 °C | 0.842 | CNS 12017 |
| Flash point | 35.1 °C | CNS 13429 |
| Copper corrosion(50 °C, 3hr) | 1A | CNS 1219 |
| Lead content (ppm) | Not Detected | CNS 12762 |
| Ash (%) | 0.01% | CNS 3576 |
| Pour point | -12 °C | CNS 3484 |
| Toxicity | Non-toxic | LD ₅₀ |

BIO-POWER has passed LD50 test conducted by Institute of Microbiology and Immunology of NYMU (National Yang Ming University), as well as lead content test (test result: no lead detected) and Copper strip corrosion test (test method: CNS1219, test result: 1A) conducted by Bureau of Standards, Metrology and Inspection, Department of Economic Affairs, Taiwan. Therefore this product is proven very safe.

Products:

- **C-68 for Coal**
- **D-168 for Diesel oil**
- **F-188 for Heavy fuel oil**
- **G-66 for Gasoline**

How **BIO-POWER** Works

Microorganism is a kind of effective Sweeper for the nature. For substrates, microorganism can activate its gene and make it excrete enzymes, a kind of biocatalyst, so as to reduce the energy barrier required for biochemical reactions, make specific chemical reactions take place in a condition that no high temperature and high pressure are necessary. Thus the chemical can be quickly completed under normal temperature and normal pressure, and in addition, a target reaction can even be completed at a high rate of 10^{-6} second.

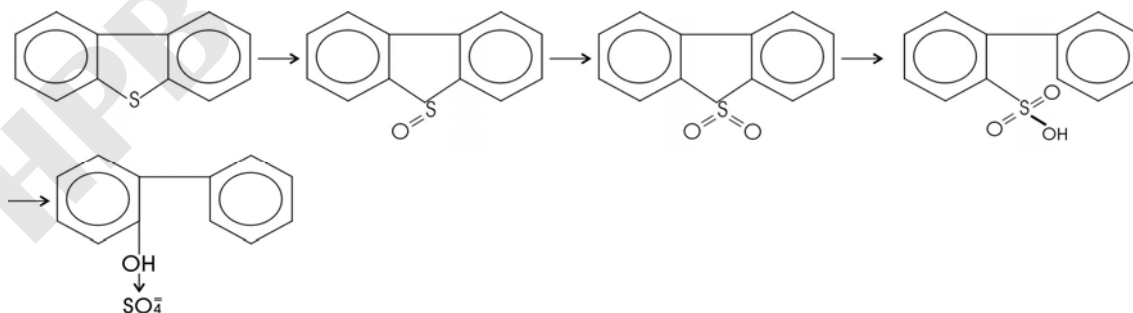
BIO-POWER biochemical enzymes are just protein and amino acid. Both of them belong to ampholytem just like water. After salvation with biochemical enzyme and hydration with water, there will form a layer of polar membrane, i. e. oxygen enrichment membrane, and that is why O/W micell can convert into W/O micelle.

Why **BIO-POWER** Improves Fuel Oil Energy Efficiency

◆ CHOP DOWN

For fuel oil with macron molecule carbon chains, its chemical reaction will move towards the low carbon chain, e. g. C_8 , of the components of gasoline oil after decomposition (chop-down) via specific enzymes. Therefore, fuel oil quality can be effectively improved.

Heterocyclic sulfur contents contained in oils mostly exist in DBT (dibenzothiophene) in the form of organics. The deposition which **BIO-POWER** made to DBT is a kind of non-destructive bio-chemical conversion by means of 4S pathway.

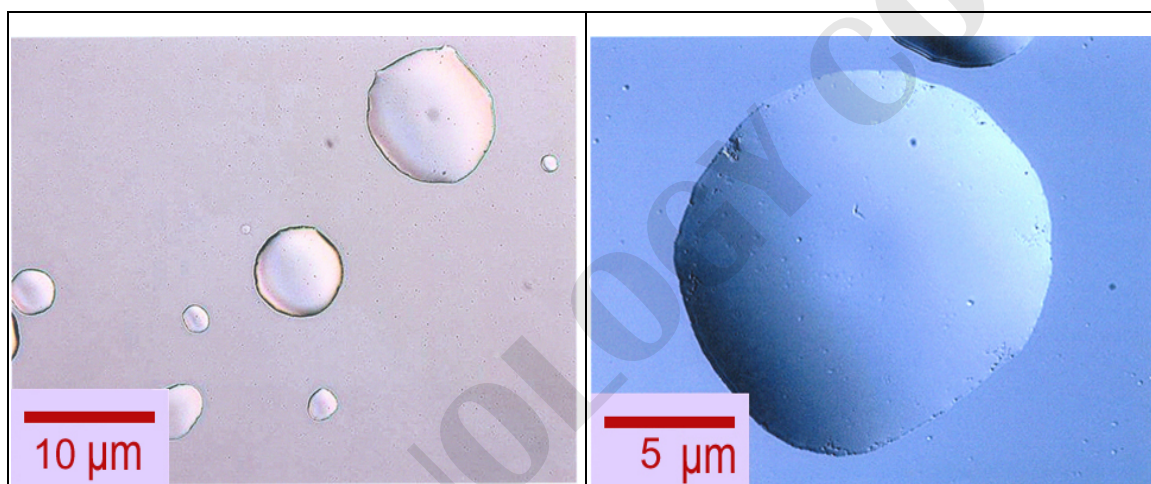


◆ MICRO-EMULSIFICATION

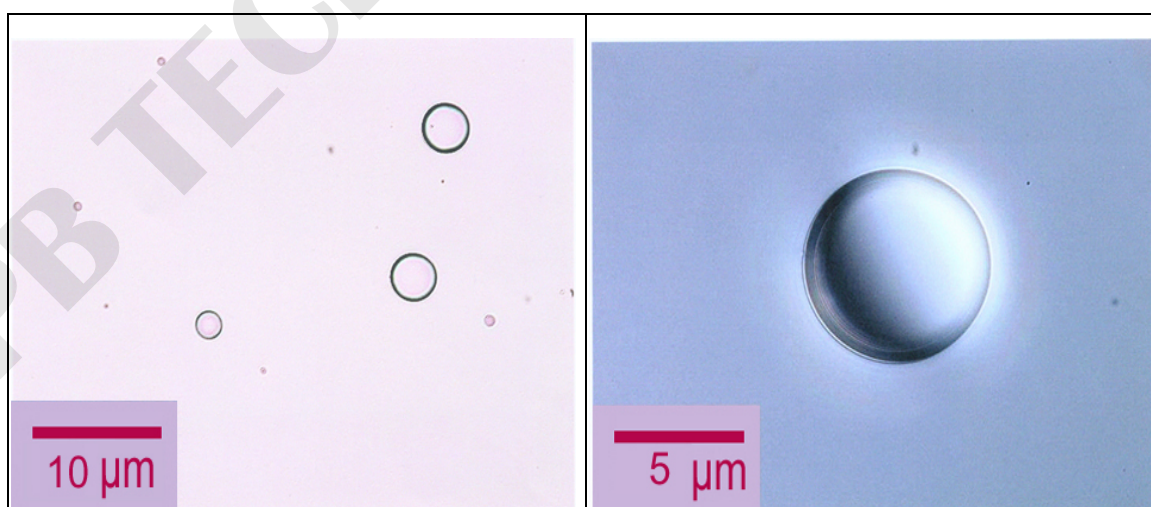
BIO-POWER contains biochemical micro-emulsification component, and this component can convert O/W micell, which is not good for combustion, into W/O micell, good for combustion. During the course of high temperature combustion, an additional energy, i.e. water gas, can be obtained by means of crack of water molecule ($C + H_2O \rightarrow CO + H_2$), while hydrogen gas (H_2) is a kind of clean fuel. Therefore using **BOI-POWER** biochemical products can gain additional energy benefits, make the engine more powerful, and make combustion more complete as well.

Differences of oils after treated by **BIO-POWER** under high power microscope

Before using **BIO-POWER** biochemical enzyme in diesel oil



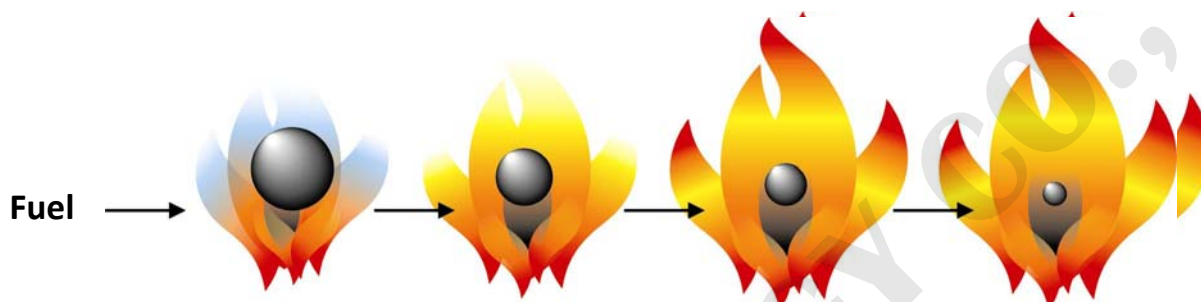
After using **BIO-POWER** biochemical enzyme in diesel oil



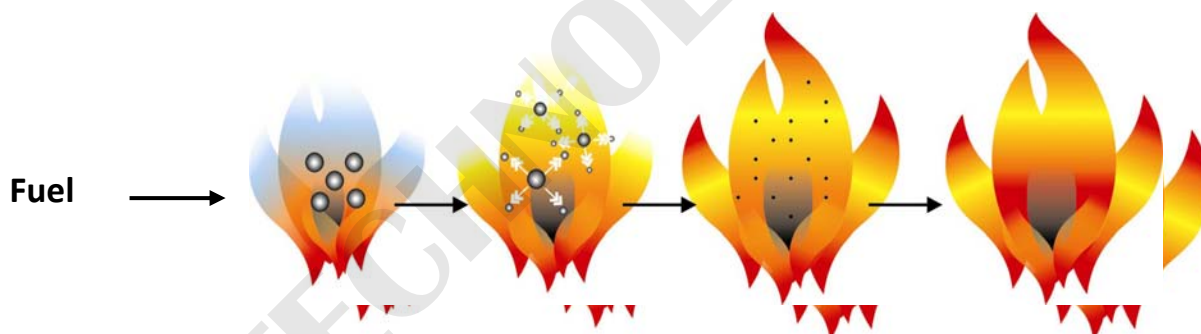
◆ MICRO-DISPERSION

BIO-POWER fuel oil biochemical enzyme can improve dynamic viscosity and fluidity of the fuel oil, disperse those unflammable matters such as oil sludge with slag and dust particles, oil sludge deposit in oil bath or in the pipelines, so as to increase recycling of combustive fuel oil. In addition, after fuel oil is dispersed by **BIO-POWER** biochemical enzyme, there will be less chokages in oil injector and pipeline, and it is easy for spray burning. Thus **BIO-POWER** can boost ignition combustion, increase microexplosion, and reduce carbon deposit and emission of black smoke.

Before using **BIO-POWER**



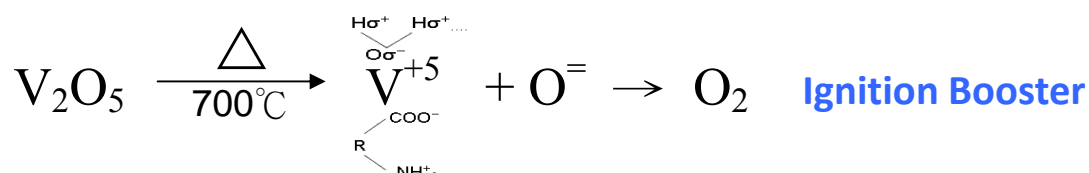
After using **BIO-POWER**



◆ IGNITION BOOSTER

Both combustion and explosion belong to a kind of severe oxidation reaction course. Unique combustion reinforcement formulations such as metalloenzymes, co-enzymes and bio-activators can boost energy conversion in the course of combustion, so as to make oxidation reaction more perfect and smooth and thus increase energy availability.

Vanadium erosion V_2O_5 (M. P. 670°C) under reaction of **BIO-POWER**

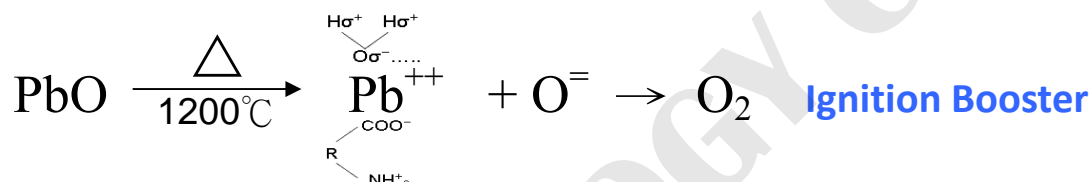


On the contrary, oxygen (o) was discharged as ignition booster, while vanadium got coagulated into fleecy solid state.

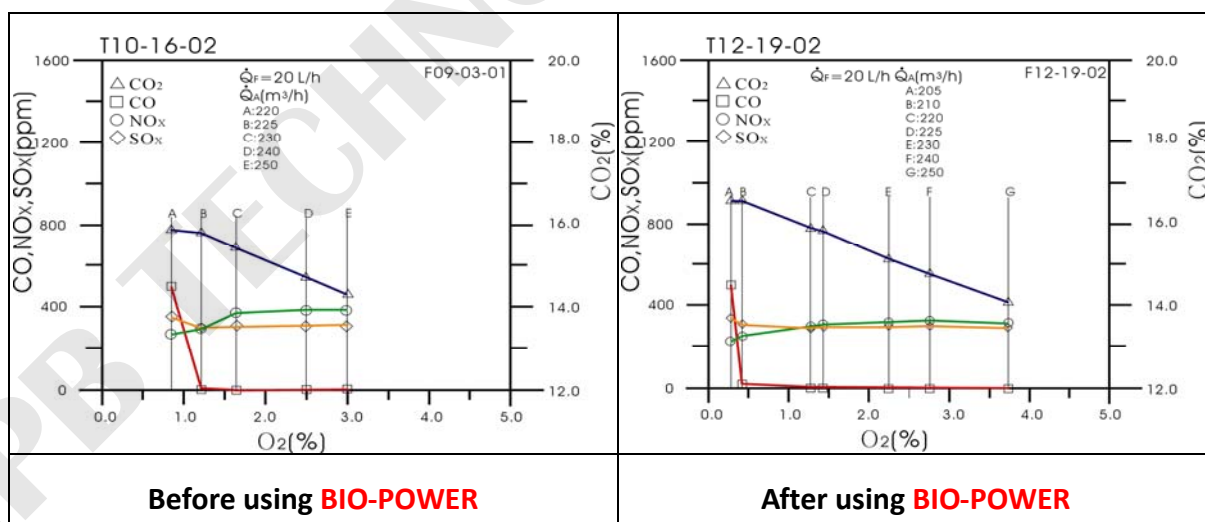
* Metal oxides erosion, e, g, PbO will convert into FeO and cause erosion after combustion.



Under **BIO-POWER's** reaction, oxygen (O) was discharged as ignition booster, while Lead got coagulated into fleecy solid state.



Photogram of combustion, tested in NCKU Combustion Laboratory



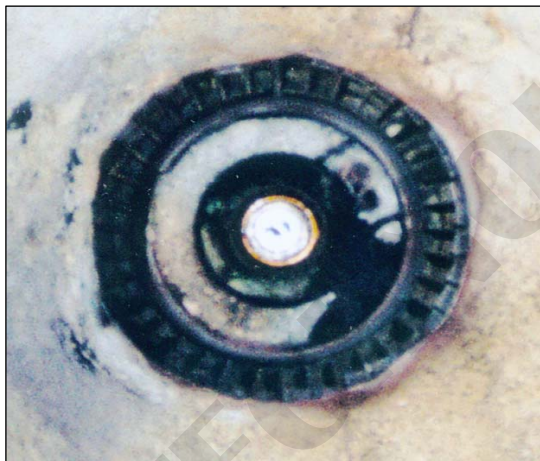
◆ REDUCES LOSS OF HEAT CONDUCTION

Reduced heat energy loss of heat conduction efficiency caused by carbon deposit.

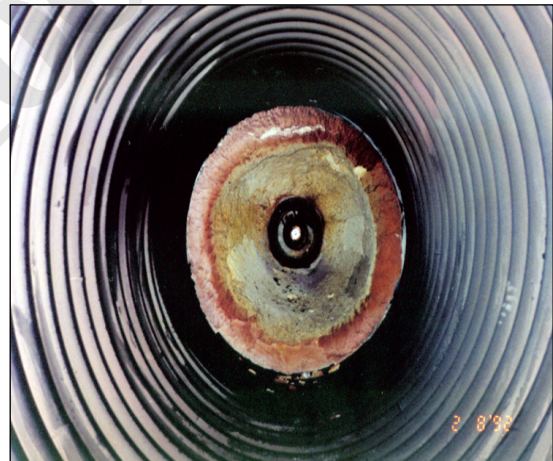
In case of incomplete combustion, lots of carbon deposit will generate and stick on coil pipes of the furnace. After a long time, carbon deposit will result in decrease of heat conduction efficiency, heat energy at the side of flame cannot reach heat exchange and thus dissipation of energy takes place. When the thickness of carbon deposit reaches 1.0 mm, heat conduction efficiency will reduce by 3 ~ 8%.

BIO-POWER can optimize combustion of fuel oil. The biochemical enzyme will make solvation with fuel oil, and all ashes generated from combustion are fleecy solid state matters, which are not easy to stick on coil pipes of the furnace, so as to reduce heat energy loss of heat conduction efficiency caused by carbon deposit.

Before using **BIO-POWER**



After using **BIO-POWER**

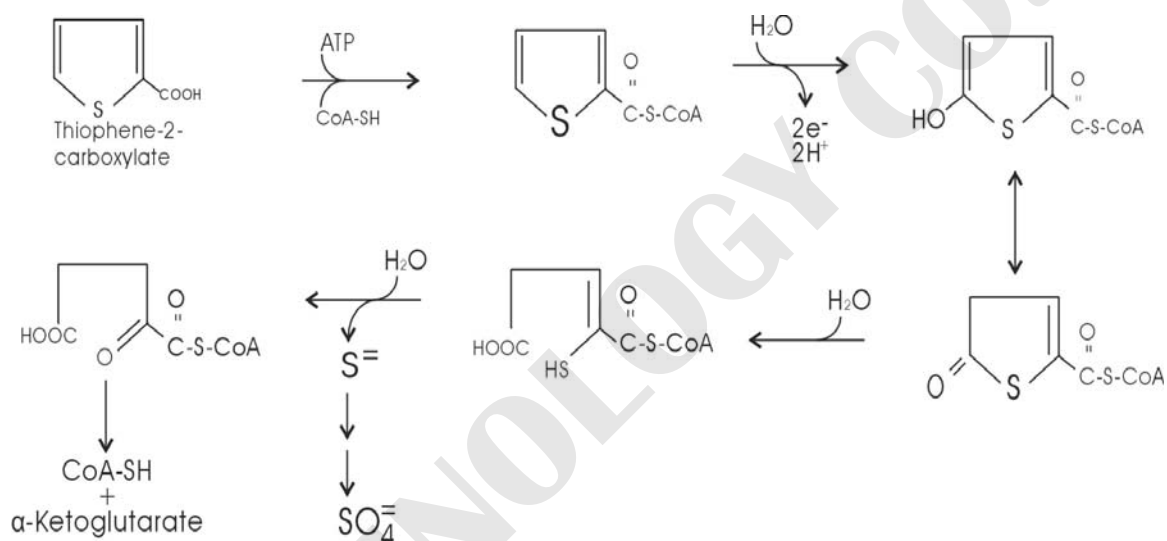


How BIO-POWER Reduces Air Pollution

I. Adopting the Law of Conservation of Matter & Bio-desulphurization Principle

Biochemical action of enzyme is called “Conversion of biochemical sulfur configuration of Enzyme” in scientific terminology, i. e. converting toxic and restrictive reduced state sulfide configuration into non-toxic and stable oxidized state sulfide under normal temperature by utilizing the reactivity of enzyme.

(Oils via microorganism conversion system)



So called SO_x is the general term of sulfur compounds in SO , SO_2 and SO_3 configurations. After high temperature combustion, it will fly into the air along with fumes and dusts, combine with aqueous vapor in the air and form sulfuric acid compound, which will result in acid rain and harm to ecological environment. However, SO_4^{2-} is a kind of completely oxidized and stable state configuration. It is not harmful but beneficial to the ecological environment. It can be used as nutrient or fertilizer, e. g. $(\text{NH}_4)_2\text{SO}_4$.

II. BIO-POWER Can Effectively Reduce Emission of SO_x & NO_x

SO_x comes from sulfur compound contained in the components of fossil fuels. It will convert into SO_4^{2-} , a kind of completely oxidized and stable state configuration, via biochemical actions of enzyme. SO_4^{2-} is not listed as restrictive, and thus it can effectively reduce the value of SO_x during environmental protection monitoring.

NO_x mostly comes from the nitrogen, which accounts for 78% in the air. It is formed by means of oxidation under 700 °C high temperature during the course of combustion. While few NO_x comes from nitrogen compound contained in the components of fuels. **BIO-POWER** biochemical enzyme can convert nitrogen compound into stable oxidized state.



So called NO_x is the general term of nitrogen compounds in NO and NO₂ configurations. It belongs to a kind of environmental hormone, and is prone to result in disorder of internal secretion and furthermore, it is carcinogenic. Therefore it is listed as restrictive. However, NO₃⁻¹ is a kind of completely oxidized and stable state configuration. It is not hazardous, and thus is not listed as restrictive. In addition, **BIO-POWER** can make molecular weight of fuel oil smaller, improve combustion rate, reduce the demand of excess air, and finally, reduce emission of NO_x.

III. **BIO-POWER** Can Effective Reduce Granular Pollutant

Aromatic hydrocarbon contained in fuel oil is composed by mono-cyclic or multi-cyclic benzene hydrocarbon with a relatively high density. It is not easy to get auto ignition. Primary combustion product of aromatic hydrocarbon is carbon granules. **BIO-POWER** biochemical enzyme will decompose molecule weight of this kind of aromatic hydrocarbon, and cut the hexacyclic carbon chain. so as to improve fuel oil quality, achieve a more complete combustion and reduce granular pollutant. While the olein and carbon residues contained in fuel oil is the main caused of generation of granular pollutant during combustion. **BIO-POWER** can reduce the olein and carbon residues contained in fuel oil, for instance, #6 heavy oil by approximately 1% through decomposition of biochemical enzyme.

Before using **BIO-POWER**



After using **BIO-POWER**



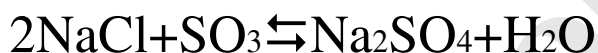
Principle of Anticorrosion Performance of **BIO-POWER**

◆ Main causes of heat erosion

Organics or inorganic metals and sulfide contained in fuel oil will form fine droplets during the course of combustion. Those fine droplets will flow with the air and stick on the furnace body or metal surface, thus a kind of compound with low melting point and high corrosivity is generated, which may corrode the furnace body and machine members.

The following conditions will result in heat erosion:

* **Na₂SO₄ high temperature sulfuration erosion (M. P. 884 °C)**

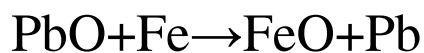


When partial pressure of Na₂SO₄ is greater than equilibrium pressure, Na₂SO₄ will begin to get coagulated and stick on metal surface, and make chemical reactions with oxides such as Cr₂O₃ and form Na₂O • Cr₂O₃ is a kind of low melting point compound, it will destroy protective layer. The sulfur generated from chemical reaction will penetrate into metal interior of and cause sulfidation, and thus protection of oxide layer of Cr₂O₃ is reduced. In addition, Na₂SO₄ will make direct chemical reaction with V₂O₅ and form V₂O₅ • Na₂SO₄ is a kind of low melting point compound salt, which deteriorates erosion.

* **V₂O₅ Vanadium Attack (MP. 690 °C)**

When in low temperature, vanadium will take presence in the form of V₂O₃ or V₂O₄, which is relatively stable and of low volatility. When high temperature is reached, carbide contained in fuel oil will be completely used up, and V₂O₅ (M. P. 690 °C) will generate under this situation. Some vanadium will combine sodium, nickel, iron, magnesium, calcium etc. (melting point 500 °C ~ 1200 °C) and form vanadium compound directly. While some vanadium will condense into fusion state and form low melting point compounds such as Cr₂O₃ • V₂O₅ (M. P. 665 °C), NiO • V₂O₅ (M. P. 640 °C) with Cr₂O₃ and NiO contained in the protective layer on metal surface. Those compounds will destroy the protective layer and finally, deteriorate erosion.

* High temperature caused by PbO metal oxide



PbO、MoO₃、V₂O₅ are of prominent corrosivity to steel materials. Although Bi₂O₃ (M. P. 824 °C), B₂O₃ (M. P. 460 °C) and Sb₂O₃ (M. P. 656 °C) belong to low melting point metal oxides, they have no corrosivity even in liquid state after fusion. When pure iron, which is covered by mixed liquids such as Na₂O、B₂O₃、Na₂O • GeO₂, is pre-heating treated for 2 hours under high temperature of 1200 °C, no acceleration of oxidation will take place. Therefore, low melting point metal oxides in addition to diffusion velocity and electronic conductivity will accelerate high temperature erosion.

* Fine solid state granules in heavy oil

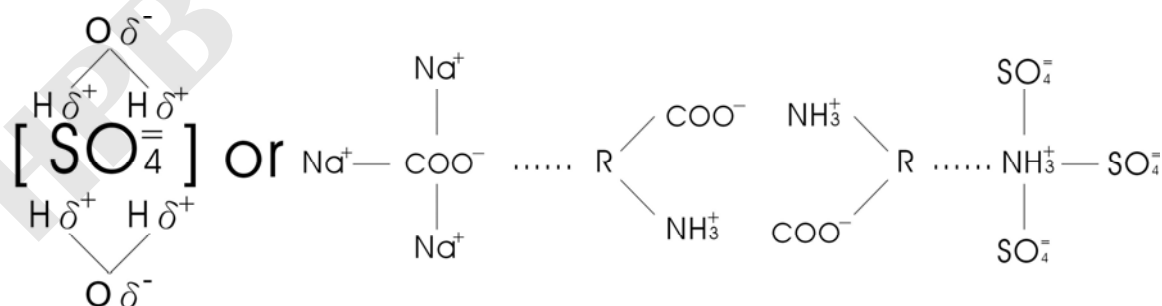
Fine semi-melt solid state matters will generate after oxidation of combustion, they will attack the furnace body and thus abrasion is formed.

BIO-POWER WILL NOT CAUSE HEAT EROSION BECAUSE:

BIO-POWER can convert Sulfur (S), Nitrogen (N) and Oxygen (O) contained in fuel oil into stable oxidized state by means of special biochemical reactions. Ferments contained in

* Principle of **BIO-POWER's** anticorrosion performance under high temperature

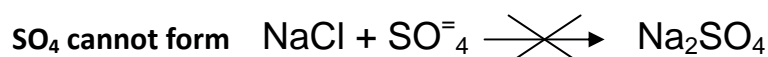
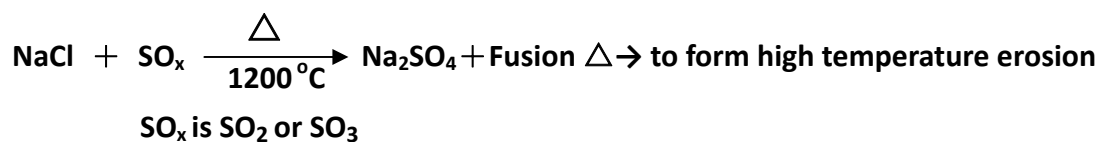
Bio-chemical enzyme converts the heterocyclic substances into stable oxidized state substances and the following arrangement will be formed after solvation or hydration:-



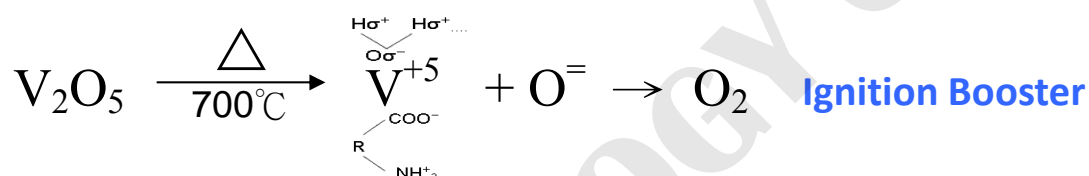
Hydration with water

Solvation with enzyme

- * Main substance for high temperature erosion Na_2SO_4 comes into existence with SO_x .



- * Vanadium erosion V_2O_5 (M. P. 670°C) under reaction of **BIO-POWER**



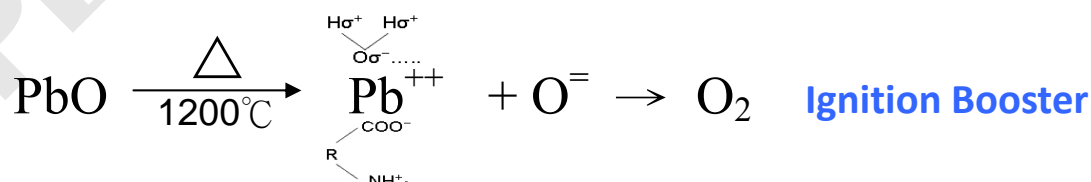
On the contrary, oxygen (o) was discharged as ignition booster, while vanadium got coagulated into fleecy solid state.

Ignition Booster:

- * Metal oxides erosion, e, g, PbO will convert into FeO and cause erosion after combustion.

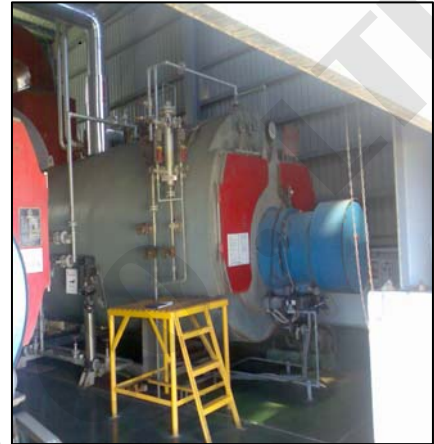


Under **BIO-POWER**'s reaction, oxygen (O) was discharged as ignition booster, while Lead got coagulated into fleecy solid state.



Overall Benefits of **BIO-POWER**

- Save oil consumption: approximately 3 ~ 10% (based on comparison of unit oil consumption and determined by on-site equipment conditions)
- Reduce carbon deposit in furnace.
- Reduce emission of SOx by approximately 20 ~ 45%.
- Reduce emission of NOx by approximately 20 ~ 40%.
- Save electricity: reduce pre-heating temperature by 15 ~ 20 °C.
- Save expenses for air pollution protection equipment.
- Save expenses for equipment, reagent/agent and power electricity for desulfuration and denitrogenation.
- Save expenses for air pollution treatment.
- Reduce damages to exhaust apparatus and equipments arising from high and low temperature erosion.
- Reduce maintenance cost:
 - Reduce cost arising from timeout;
 - Reduce labor coat;
 - Reduce material cost for replacement.
- Improve air pollution:
 - Reduce emission of toxic gas, reduce incidence of respiratory track diseases to operators;
 - Reduce pollution sources for acid rain and air pollution;
 - Create good relationships with neighborhood, no disputes or arguments will occur.
- Assure no rancidification will take place to the reserved oil.



How to maximize the Efficiency of **BIO-POWER**

MIXING RATIO: **BIO-POWER** and Diesel oil = 1: 6000 ; **BIO-POWER** and Fuel oil = 1: 6000

- For the initial use of **BIO-POWER**, it shall regard to the capacity of the fuel tank and the volume of the refueling truck to inject the **BIO-POWER** proportionately into the pumping pipeline of the refueling truck and mix up with oil. Then pump into the fuel tank from the bottom.
- For general use (when refuel the oil), inject the **BIO-POWER** proportionately into the pumping pipeline of the refueling truck and mix up with oil according to the volume of oil refueling. Then pump into the fuel tank from the bottom.
- For vehicle use, inject **BIO-POWER** into the oil tank first than add fuel.

CAUTION:

Please assure adequate mixing time and standing time between **BIO-POWER** and fuel oils prior to use, so as to maximize the efficiency of biochemical enzyme.



Instructions for the Initial Stage of Use of BIO-POWER

Main components of **BIO-POWER** fuel oil enzyme are of protein characteristics, and have no adverse effects. However considerations should be give to the following instructions for the initial stage of use of **BIO-POWER**:

- In case of too much water content in fuel oil, there will be water drops separated out from the bottom of oil storage tank. Use adequate drainage system.
- At the initial stage of adding **BIO-POWER** into fuel oil, there will be a prominent increase of emission of black smoke and SO_x . This is a normal phenomenon, since **BIO-POWER** is proceeding a quick cleaning to the fuel oil at this time.
- The original holes on the flue will expose because the carbon deposit, which covers these holes, was cleaned up. Carry out adequate repair.
- There will be some oil leakage at the pipeline connection position or clamping position, because the oil sludge was cleaned up and the oil quality was improved (oil viscosity is reduced). Replace it or re-fasten the pipelines.
- Because the Pour Point of fuel oil is changes, the flame will get stronger. In this case, moderately decrease oil supply pressure, so as to prevent the furnace wall from burning by too strong flame jet.
- In order to improve energy efficiency, carry out adequate measures including: reduce pre-heating temperature and air supply by 10 ~ 15% during pre-heating to the fuel oil, replace the oil injector with a smaller one, moderately reduce oil pressure, moderately reduce chimney temperature to meet the Dew Point, etc.
- Special attention should be paid to the oil filter at the initial stage of adding **BIO-POWER**, so as to assure a smooth oil supply.
- Oil tank storage temperature should be less than 120 °C.
- When adding **BIO-POWER**, do not immediately pour it from the top end if the oil tank. Since specific gravity is different, **BIO-POWER** will retain on the surface of heavy oil and thus not easy to mix well.
- After the fuel oil is treated by **BIO-POWER**, oxygen enrichment membrane will generate owing to decrease of carbon chains. Reduce air supply by approximately 5 ~ 10%, so as to reduce loss of heat energy.

Important Concepts of Bio-desulphurization during Oil Refining Process

- ◆ Sulfide may cause hazardous acid rain and fumes.
- ◆ Requirement and difficulty for desulphurization during oil refining process is getting higher and higher because:
 - Every country has more strict legislations for environmental protection. Low-sulfur petrochemical oils must be used.
 - Owing to excessive exploitation, sulfur content in crude oil will be higher and higher.
 - As to high sulfur content crude oil, refining technology as well as equipment cost and servicing expense will be greatly increased.
- ◆ Updated Biochemical technology is applied into desulfurization to remove sulfur contained in petroleum oils by utilizing biochemical enzyme. Bio-catalysis desulfurization technology is based on the natural microorganism, which can remove organic substances contained in petroleum oils which combustion value of oil will keep the same (heat calorie remains unchanged).

Comparison between **BIO-POWER** & Conventional Fuel Oil Additive Used in Engine

| Function | Conventional fuel oil additives | BIO-POWER fuel oil environment protective biochemical enzyme |
|------------------|--|--|
| Component | Strong chemical solvents and heavy metals | Biochemical enzyme |
| Action principle | 1. Corrode carbon deposit through strong chemical solvents and fill up the “scar” by black metal, so as to recover horsepower of the engine 2. Increase octane value through metal containing organic matters | Chop down carbon bond through biochemical reactions and cut off the chemical bond between oil and carbon deposit so as to remove carbon deposit and on the other hand, reduce oil viscosity, increase combustion efficiency, increase engine power and save energy through crack of carbon molecule in fuel oil. |

| Effect | Conventional fuel oil additives | BIO-POWER fuel oil environment protective biochemical enzyme |
|---|---|---|
| Remove carbon deposit | Initially it can actually remove carbon deposit at the initial stage of use. But in case of presence of organic compounds, engine wear will increase. | BIO-POWER can continually improve carbon deposit phenomenon and can mix into fuel oil to chop down carbon molecule bond, so as to upgrade oil quality, prevent carbon deposit from forming, and this performance remains effective persistently. |
| Increase engine power | Can only recover the engine to its original power level | Increase engine power by means of increasing thermal efficiency of oil and action of water gas, and no tetraethyl lead or MTBE is used to increase octane value. |
| Oil consumption | At the initial stage it does save oil. However, energy saving largely depends on working conditions of the engine. In case of long-term operation, the effect will decrease successively. | Thermal efficiency of fuel oil is increased by means of improving oil quality. Reduce oil consumption at a average of 8 ~ 15%, and this performance remains effective persistently. |
| Inhibit corrosion | Chemicals arising from combustion of sulfide in strong chemical solvent and fuel oil may cause corrosion to engine cylinder. | Oxidize the sulfide in fuel oil in the course of chopping down carbon bond, make it to sulfur oxide with extremely high stability, so as to reduce emission of sulfide up 35 ~ 60% and protect the engine from corrosion. |
| Improve air pollution | Large quantity of air and oil vapor will mix together and thus NOx is generates under high temperature, therefore no air pollution reduction performance is expected. | After separation of molecule bonds, air demanding quantity for mean unit volume is reduced and total air demanding quantity is reduced accordingly, thus emission of NOx and CO is considerably reduced so as to improve air pollution. |
| Equipment maintenance & economic benefits | In case of long-term operation, no prominence is expected in equipment maintenance and in economic benefit. | Achieve more complete combustion and remove/avoid carbon deposit by means of improving oil quality persistently, therefore good performance in equipment maintenance and in economic benefits is available. |

Heavy-duty Diesel Oil Engine Horsepower Test by Using **BIO-POWER**

Test authority: Vehicle Research and Test Center

Test report No.: B91ED077 / B91ED078

Test date: 91/07/18

| | |
|---|---|
| Engine Data: | |
| Basic engine: HINO EM100 | Total displacement: 9419 cc |
| Engine type: In-line 6 cylinder | Injector timing: 12°BTDC |
| Engine No.: EM100 16815 | Booster: none |
| Before using BIO-POWER | After using BIO-POWER |
| Measured Max. power and speed: 140.9 kW / 2700rpm | Measured Max. power and speed measured: 145.4 kW / 2600rpm |
| Oil consumption at Max. power: 45.2 liters / hr | Oil consumption at Max. power: 43.9 liters / hr |
| Measured Max. torque and speed: 572.1 Nm / 1900rpm | Measured Max. torque and speed: 576.3 Nm / 1901rpm |
| Oil consumption at Max. torque: 33.4 liters / hr | Oil consumption at Max. torque: 33.3 liters / hr |
| Test result: | |
| Differences between measured Max. Power and speed: power increase by 3.19%. | |
| Oil consumption at Max. Power can save oil 1.3 liters/hr; reduce oil consumption by 2.88%. | |
| Differences between measured Max. Torque. Torque increased by 0.73%. | |
| Oil consumption at Max. Torque: can save oil 0.1 liters/hr; reduce oil consumption by 0.3%. | |

Notes: ratio between fuel oil and additive during this test: 200L high-grade diesel oil: 50cc **BIO-POWER** Diesel Bio-Enzymes D-168. The mixture (fuel oil plus **BIO-POWER** additive) is stored for two days prior this test.

Analysis & Test Reports

台美檢驗科技有限公司 Super Laboratory Co., Ltd.

地址：248 台北縣五股工業區五權六路 15 號 6 樓
6F, No. 15, Wu-Chuan 6 Rd., Wugu Shiang, Taipei County 248, Taiwan
Tel : (02) 2298-1887 Fax : (02) 2290-2510

The Animal Acute Toxicity Test (LD₅₀) of Bio-Power (Abstract)

The animal acute toxicity test (LD₅₀) was performed by using Bio-power (provided by Green-Tech Biotechnology Environmental Co., Ltd.), a disinfected agent for cooling tower tubing system. The testing animals, ICR strain of 4 weeks-old mice, were purchased from the National Laboratory Animal Center, Taipei, Taiwan. Before testing, the mice were firstly examined by veterinarian and proved suitable and specific pathogenic free (SPF).

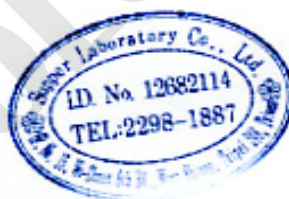
The tested dosage ranges of Bio-power were firstly determined. The ICR strain of mice was divided into 6 groups (including one control group). Two mice were using for each group. Then, the toxicity test was performing with 6 groups of mice, 6 mice for each tested group. As soon as finished the test, the LD₅₀ was calculated. The results indicated that LD₅₀ for Bio-power (SL102V001) is 139,253.8 mg/kg (i.e. 139,253.8 ppm). Based on the toxicity classification of drug dosage (Table 1), it will be non-toxic if the dosage of a drug larger than 15,000 mg/kg.

The causes of death in the ICR strain of animal were searched by gross anatomy. We found that the major pathological expression by Bio-power was the necrosis of liver cell. It was also shown, by naked eyes, the enlargement and congestion of liver in mice. There were necrosis sign and transformed in liver cell by microscopic examination. We concluded that the major target organ of the toxic effect by Bio-power were liver of mice.




Table 1: The dosage classification of acute toxic drug

| Classification | LD ₅₀ (mg/kg) |
|-----------------|--------------------------|
| Extremely toxic | < 5 |
| Very high-toxic | 5~50 |
| High-toxic | 50~500 |
| Moderate-toxic | 500~5,000 |
| Low-toxic | 5,000~15,000 |
| Non-toxic | > 15,000 |



Laboratory Director:

Wen-cheng Tsai


Date: September 3, 2002

BUREAU OF STANDARDS, METROLOGY & INSPECTION
MINISTRY OF ECONOMIC AFFAIRS
REPUBLIC OF CHINA

Application No : 90302002669-01

Page : 1 of 1 Page(s)

Applicant : GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO., LTD.

Product : OIL BIO-ENZYMES

Specifications : (Null)

Model : (Null)

Application Date : 12 MAY 2003

Completion Date : 14 MAY 2003

| Test Items | Results |
|--|--|
| Lead(Pb) | Not detected(minimum limit of detection 3 ppm) |
| <p>Test Description :</p> <ol style="list-style-type: none">1.The test was carried out with reference to CNS 12221.2.Sample drawn by GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO., LTD. | |

**BUREAU OF STANDARDS, METROLOGY & INSPECTION
MINISTRY OF ECONOMIC AFFAIRS
REPUBLIC OF CHINA**

Application No : 90302002668-01

Page : 1 of 1 Page(s)

Applicant : GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO., LTD.

Product : OIL BIO-ENZYMES

Specifications : (Null)

Model : (Null)

Application Date : 16 APR 2003

Completion Date : 15 MAY 2003

| Test Items | Results |
|---|---------|
| Copper Corrosion(40°C + 3hrs + ASTM D130) | 1A |
| <p>Test Description :</p> <ol style="list-style-type: none"> 1. Sample drawn by GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO., LTD. * 2. According to application form of on May 9, 2003, corrected English name 3. 「GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO., LTD. 」 * | |



經濟部標準檢驗局
台北市濟南路一段四號
THE BUREAU OF STANDARDS, METROLOGY AND INSPECTION
MINISTRY OF ECONOMIC AFFAIRS, REPUBLIC OF CHINA
4 CHINAN ROAD, SECTION 1, TAIPEI, 100, TAIWAN
TEL : (02)2343-1700 FAX : (02)2393-2324
WEB SITE : WWW.BSMI.GOV.TW

TEST REPORT

Report Number: 90303004753

Application Date: 16 JUL 2004

Issue Date: 11 AUG 2004

Laboratory: Sixth Division

Address: 4 Chinan Road, Section 1, Taipei, 100, Taiwan

Applicant: GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO.,LTD.

Address: (Null)

Product: BIO-POWER

Specifications: (Null)

Model: (Null)

Results of the test are detailed in the attached page(s) and apply only to the sample(s) tested.
This test report contains 3 pages and cannot be reproduced, except in full, without the
written approval of the laboratory.

J. C. Lai

Signatory of Report

M. C. Jang

Head of Laboratory

M. C. Jang (1)

Authorized Signatory - Director General
The Bureau of Standards, Metrology and Inspection

TEST REPORT

Report Number : 90303004753 Page : 1 of 2 Page(s)
Applicant : GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO.,LTD.
Product : BIO-POWER
Specifications : (Null)
Model : (Null)
Application Date : 16 JUL 2004 Completion Date: 11 AUG 2004

| Test Items | Results |
|--|---------|
| Specific gravity(15°C)(CNS 12017) | 0.842 |
| Flash point(CNS 13429) | 35.1°C |
| Copper corrosion(50°C,3hr.)(CNS 1219) | 1A |
| Pour point(CNS 3484) | -12°C |
| <p>Test Description :</p> <p>The following statement in brackets was added according to applicant's request in accordance with the application information.</p> <p>[Sample drawn by: GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO., LTD].</p> | |

TEST REPORT

Report Number : 90303004753 Page : 2 of 2 Page(s)
Applicant : GREEN-TECH BIOTECHNOLOGY ENVIRONMENTAL CO.,LTD.
Product : BIO-POWER
Specifications : (Null)
Model : (Null)
Application Date : 16 JUL 2004 Completion Date: 11 AUG 2004

| Test Items | Results |
|--|---|
| Ash | 0.01% |
| Lead content(Pb) | Not Detected(Limit of detection 2mg/L) |
| Test Description : 1.Ash was tested in accordance with CNS 3576. 2.Lead content was tested in accordance with CNS 12762. | |

HPV TECHNOLOGY CO., LTD.



HPB TECHNOLOGY CO., LTD.

3F, No. 199-3, Sec. 3, Chung Hsiao E. Rd., Taipei City 106, Taiwan
Tel: +886-2-2752-6181 Fax: +886-2-2752-6096

Website: www.hpb-tech.tw

E-Mail: hpb.tech@msa.hinet.net