

TREBLEX®

SOLUTIONS FOR INDUSTRY



DYNA FUEL

Unit1/26 Ilda Road, CANNING VALE WA 6155

www.treblex.com.au

Dyna Fuel provides total fuel system maintenance to give improved engine performance and economy.



Solutions for Industry

About us

Treblex Industrial Pty Ltd supplies high quality Industrial, Marine and Aerosol Products.

- AEROSOLS
- GREASES
- HAND CLEANERS
- CLEANERS & DEGREASERS
- AUTOMOTIVE
- SOLVENTS & DEGREASERS
- METAL PROTECTORS & CLEANERS
- ENVIROMENTALLY FRIENDLY PRODUCTS

Our objective wherever possible has been to select a safer and more environmentally responsible approach in the selection of all our raw materials. Our commitment is to remain proactive and focused on all environmental and personal safety situations when developing our range of products.

Treblex Industrial Pty Ltd has also formulated and developed an extensive range of high quality, environmentally responsible aerosol products. This range of user friendly products can be applied with confidence as they contain no chlorinated solvents.

Contact Us:

Managing Director: Ken Jones

Phone: 08 9456 5825 Fax: 08 9456 5875

Email: sales@treblex.com.au Web: www.treblex.com.au

Postal Address

**U 1 / 26 Ilda Road
Canning Vale
Western Australia 6155**

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DYNA FUEL



Dyna Fuel provides total fuel system maintenance to give improved engine performance and economy.

Dyna Fuel is suitable for use in leaded, unleaded & high octane petrol, diesel, heating kerosene and bunker fuels.



Dyna Fuel only needs to be used at 1 litre per 4000 litres of bulk fuel and is extremely cost effective.

Dyna Fuel removes water from fuel and fuel lines and retards fungal growth.

The presence of water from condensation, seal leakage, etc can accelerate the degradation of the fuel, especially if high sulphur levels are present. In diesel, water allows microbial growth (eg: *Hormoconis resiniae*) to proliferate. This 'diesel bug' feeds on the fuel, but propagates in the water and causes fuel degradation and filter and injector blockages. No water no "diesel bug".



Dyna Fuel is also more effective than other products at neutralising the harmful effects of acids formed in aged, water-contaminated or high sulphur fuels, and in reducing the formation of gum and varnish deposits that can result from this. Not only are these acids corrosive, but they can also catalyse oxidation and premature fuel aging.

Dyna Fuel allows fuel to burn cleanly and efficiently, and helps keep injectors and combustion chambers clean.



Fuel injectors build up deposits from a variety of causes (poor quality fuel, waxes or biofouling, improper engine tuning, etc). Such deposits affect the spray pattern of fuel from the injectors into the combustion chamber so that there are areas of lean burn and rich burn. The results of this include higher exhaust emission of unburnt hydrocarbons and carbon monoxide, rough engine running, excessive fuel consumption and loss of engine power.



Dyna Fuel contains dispersants to reduce the aggregation of wax particles, as well as high detergency to keep injectors clean and promote improved fuel combustion. This leads to reduced levels of unburnt hydrocarbons and carbon monoxide in the exhaust gases.



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DESCRIPTION

This advanced technology product provides the following benefits:

- * Suitable for petrol & diesel,
- * Absorbs and removes water from fuel and lines
- * Helps neutralise acids in aged or high sulphur fuels
- * Dissolves and prevents wax, gum and varnish deposits in the fuel tank, lines & Injectors
- * Helps decarbonise combustion chambers
- * Prevents fungal and microbial growth
- * Reduces harmful exhaust emissions
- * Burns off completely and harmlessly
- * Contains no corrosive ingredients
- * Super concentrated - super economical
- * Contains premium top end lubricant

USE

For Cars: Mix 50ml or more of Dyna Fuel per fuel tank.

For Trucks: Mix 125 ml or more of **Dyna Fuel** per 200 litres of fuel in fuel tank.

For fleet use, bulk holding tanks should be dosed (preferably at time of filling, to ensure adequate mixing).

Where more viscous fuels are used, such as bunker fuels in power stations, **Dyna Fuel** may be metered into the fuel tank outlet line at 1 part **Dyna Fuel** to 1000-4000 parts fuel.

Note: Because of the specific nature of Dyna Fuel it is almost impossible to over treat your vehicle.

SAFETY

Read Material Safety Data Sheet before use. Keep out of reach of children.



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PROPERTIES

- Appearance: coloured mobile liquid
- pH: neutral
- Specific Gravity: approx 0.95 – 1.05
- Boiling Point : > 120° C
- Flash Point : >75° C
- Flammability: non-flammable
- Corrosivity : non-corrosive
- Toxicity: non-toxic. Skin and eye irritant.
- Use Rate: 1:1000 to 1:4000
- Fuel Types: all hydrocarbons fuels
- Phosphate Content: nil
- Metal Content: nil
- Alcohol Content: nil
- Aromatic Solvent Content: nil

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Dyna Fuel contains dispersants to reduce the aggregation of wax particles as well as high detergency to keep injectors clean and promote improved fuel combustion. This leads to reduced levels of unburnt hydrocarbons and carbon monoxide in the exhaust gases, as illustrated below:



EXHAUST EMISSIONS

Renault 25 (United Kingdom)

- exhaust emissions measured before use of **DynaFuel** and after 1700 miles (2720 km) with **Dyna Fuel**

- Fuel saving		+15.9 %
- Emission improvement	Carbon Monoxide	-51.6 %
	Carbon Dioxide	+12.0 %
	Hydrocarbons	-21.0 %



Caterpillar Diesel (Underground mine, Western Australia)

- emissions measured after 16 hours continuous underground use

- Emission change	Carbon Monoxide	-46.2 % (low idle)
	Carbon Monoxide	-14.3 % (high idle)
	Hydrocarbons	Reduced

Italy

- Testing for smoke reduction gave positive results of 4-10%

Indonesia

- Testing under the authority of the Badepal and East Java Pollution Control Authority showed significant reduction in both carbon monoxide and unburnt hydrocarbon levels.

China

- Testing by the Beijing Automotive Research Institute on diesel bus after top-end purging and flushing and use of **Dyna Fuel**

- Emission improvement (hydrocarbons)	
	after purging/flushing -55.6%
	after Dyna Fuel -18.7%



Fishing Boats

we have received a number of reports relating to the much greater use life of marine exhaust systems of vessels using **Dyna Fuel**, presumably due to the reduction of acidic exhaust gases.

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FUEL CONSUMPTION

Fleet trials undertaken by end-users over the years have given strongly positive results:

City Council 1 (Victoria, Australia)

- 7 diesel trucks, various makes; one month fuel consumption baseline plus one month evaluation of **Dyna Fuel** used at 1:4000
- Fuel Savings (weighted average) +7.0%

City Council 2 (Western Australia)

- 7 petrol cars and 3 diesel trucks, various makes; 3 weeks baseline measurement followed by 4 weeks using **Dyna Fuel**.
- Fuel Savings Cars +1.4%
 Trucks +13.6%

Food Distribution Company (Western Australia)

- 5 Diesel trucks, various makes; total fuel used 156,000L; initial system clean-up dose of **Dyna Fuel** 1:2000, thereafter 1:4000.
- Fuel Savings Truck 1 no change
 Trucks 2-5 +3.5%

Fishing Vessel

- 20m with Fiat V8 Twin Turbo
- Fuel Savings after 2 refuelling's +10%

Transport Company (rural Western Australia)

- 8 Volvo diesel trucks, covering 360,000 km
- Fuel Savings +6.3%

Bus Company (China)

- Diesel bus tested by Beijing Automotive Research Institute Vehicle purged, flushed and then **Dyna Fuel** added.
- Fuel Savings +5.2%

Railways (China, Malaysia)

- diesel locos trailing **Dyna Fuel** in China and Malaysia gave excellent fuel savings.



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OTHER BENEFITS

Dyna Fuel is suitable for all liquid petroleum hydrocarbon fuels: leaded, unleaded & high octane petrol's, summer or winter grade diesels, heating kerosene and bunker fuels. It has not been formally assessed for use in avgas and is not approved for use in aircraft.

Dyna Fuel exhibits good biocidal activity, as shown by independent testing on diesel fuel with a gross infestation of *Cladosporium resinae*:



Time	Dilution Rate	DynaFuel	Competitor
2 Days	1 : 2000	No growth	Bacterial colony present
	1 : 4000	No growth	Bacterial colony present
	1 : 6000	No growth	Bacterial colony present

Dyna Fuel does not contain phosphates, boron or corrosive ingredients. It has a high flashpoint (> 70 °C) and low toxicity and is free from many transportation restrictions.

Dyna Fuel variants have been formulated to, for example:

- remain liquid to -30 °C for use in sub-arctic conditions
- contain a premium synthetic top-end lubricant blend
- be much more strongly biocidal for severe bug infestations
- blend with cheap solvents to give 'economy' products for retail sale (use rate 1:200 to 1:1000)
- give optimal performance in low grade bunker fuels



Dyna Fuel is a total fuel system treatment. It preserves the fuel and keeps the entire fuel / combustion / exhaust system clean, from the tank, through the fuel lines, injectors, combustion chambers and exhaust. The result is greater engine efficiency, improved fuel economy, reduced exhaust emissions and less maintenance downtime. **Dyna Fuel** will pay for itself.



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Exhaust Emission Test Summary

An assessment of **Dyna Fuel** fuel additive was carried out in an underground mine to determine its benefits in reducing harmful exhaust emissions as follows:

Site: Western Mining, Kambalda, Western Australia
Vehicle/Engine type: Caterpillar 12G Diesel
Dynafuel Use Rate: 1 to 4000 v/v in diesel
Testing Authority: BGC Consultants for the Department of Minerals and Energy, WA

Test Results (February, 1996) :

	<u>Low Idle</u>	<u>Fast Idle</u>
<u>Carbon Monoxide (CO)</u>		
No Additive	465 ppm	287 ppm
15 mins after addition	378 ppm	262 ppm
16 hrs after addition	250 ppm	246 ppm
Reduction (%)	46.2 %	14.3 %
<u>Nitrogen Dioxide (NO₂)</u>		
No Additive	102 ppm	72 ppm
15 mins after addition	88 ppm	71 ppm
16 hrs after addition	80 ppm	71 ppm
Reduction (%)	21.6 %	1.4 %

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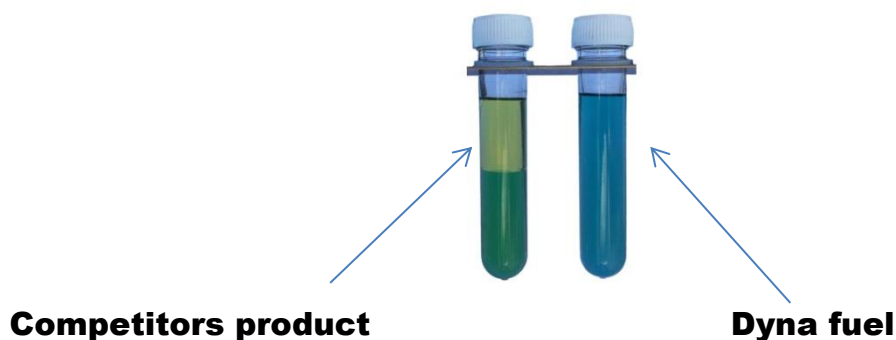
DEMONSTRATIONS

These tests are designed only to illustrate the principals involved. Although the proportions of each liquid used here are obviously not the same as found in practice, these demonstrations nevertheless do indicate the types of benefits obtained by using **Dyna Fuel**, and its advantages over many older technology competitor products.

1 . WATER UPTAKE

The presence of water in fuel (from, e.g. condensation in the tank, leaks, etc.) allows the fouling of fuel tanks, lines and filters through the propagation of biological organisms such as *Cladisporum resinae*, facilitates the formation of sulphur acids and accelerates corrosion. This demonstration shows the superior water uptake capacity of **Dyna Fuel** over traditional fuel additives.

- i) Add 10ml of diesel and add 1ml of water to a test tube (approx 25ml capacity). Add 4ml of competitor fuel additive, shake the test tube and observe that either the water settles to the bottom of the tube, or sends the diesel milky.
- ii) Repeat in another test tube using 10ml diesel and add 1ml of water, add 4ml **Dyna Fuel**, shake the test tube. The mixture should be clear with no signs of separation. The water has 'dissolved' into the fuel. It will not settle out.





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2 . GUM & VARNISH REMOVAL

Dyna Fuel is also more effective than other products at neutralising the harmful effects of acids in aged or high sulphur fuels, and in reducing the formation of, and removing existing, gum and varnish deposits.

- i) To each of 2 glass test tubes, add about 10 ml DIESEL and 10 drops of concentrated sulphuric acid (98%). Brown tarry deposits form.
- ii) To one of the test tubes, add 3 ml of **Dyna Fuel** and shake thoroughly. The deposits are completely dissolved.
To the other test tube, add 3 ml of competitor product and shake. The deposits will not dissolve completely, and become increasingly evident on standing for a few minutes.
- iii) Now fold a paper tissue over several times to form a flat wad. Hold it over the open end of the test tube containing the competitor product with a finger, and invert the tube to wet the tissue.
Repeat with the tube containing **Dyna Fuel**.
Note the appearance of the area in contact with the acid/fuel/additive mixtures. The **Dyna Fuel** one is much cleaner.



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THIS REPORT CONFIRMS THAT DIESEL FUEL CONFORMS TO THE FUEL STANDARDS OF AUSTRALIA AFTER DYNA FUEL HAS BEEN ADDED

T & S Laboratory Services

PH/FAX: 8783 6268
MOB: 0416381893
EMAIL tslab@bigpond.com
P.O. BOX 358 MILLER
NSW 2168
ABN 43 102 579 730

REPORT NUMBER 6E4257/58
CUSTOMER CODE: ATO1

DATE; 14 JUNE 2006

ANALYSIS RESULTS

TEST	6E4257 Straight diesel	6E4258 DynaFuel	METHOD	SPECIFICATION *
Cetane index	56	58	ASTM D976	46 min
Density@15 C (kg/l)	0.831	0.831	ASTM D1298	0.82- 0.85
Distillation T95 (C)	339	340	ASTM D86	360 max
Ash and suspended solids (%)	20	20	ASTM D482	100 max
Viscosity @ 40C	2.930	2.935	ASTM D445	2.0-4.5
Carbon residue (10% residue) %	0.12	0.12	ASTM D524	0.2 max
Oxidation stability (mg/l)	4	5	ASTM D2274	25 max
Colour	0.5	0.5	ASTM D1500	2 max
Copper corrosion (3hrs @50C)	1	1	ASTM D130	1 max
Flash point (C)	80.0	80-.0	ASTM D 93	61.5 min
Filter block tendency	1.0	1.0	ASTM D2068	2 max

* Fuel Standard (Diesel) Determination 2001

COMMENTS: 1. Results conform to the Fuel Standard (Diesel) Determination 2001

Signed S. Brennan
Dip. Chem. Technology

Sample tested as received
T&S do not accept responsibility for any action taken as a result of this report



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RACWA EMISSION TEST									
(Modified CVS-75)									
Test Number: 140703									
Product: DYNA FUEL									
Date of Test: July, 2003									
Vehicle Details: Make / Model Toyota Landcruiser HJZ105 4.2L (non-turbo) Date of Manufacture June 2000 Registration No. 1BIN814 Odometer 97088 km. initial / 97415 km. final									
Metal Content:									
Metals	Al	Cd	Cr	Cu	Fe	Mn	Ni	Pb	Zn
mg/l	none	none	none	none	none	none	none	none	none
Exhaust Emissions: Dyno & Computer Tune Centre Exhaust Emission Analyser Diesel fuel (winter grade) 8 ml/L product									
		<i>Before Addition</i>			<i>After Addition</i>				<i>+/-%</i>
IDLE					+ 110 k	+ 327 k			
H/C		1.7			1.3	1.1			- 35.3
CO		0.58			0.43	0.41			- 12.1
NO _x		0.67			0.65	0.62			- 8.1
<u>CRUISE - LIGHT LOAD</u>									
H/C		3.6			2.6	2.3			- 36.1
CO		0.71			0.53	0.49			- 31.0
NO _x		0.82			0.78	0.71			- 11.0
<u>CRUISE - MEDIUM LOAD**</u>									
H/C		28.1			14.9	14.1			- 49.8
CO		0.89			0.45	0.39			- 56.2
NO _x		0.98			0.83	0.81			- 17.3
(** 90 kph)									
Final Assessment: PASS									

Peter Matthews MSc(Hons) MRACI CChem FAICD
Chartered Chemist



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THIS REPORT CONFIRMS THAT THE ADDITION OF DYNAFUEL TO DIESEL FUEL WILL INCREASE THE LUBRICITY OF THE FUEL BY APPROXIMATELY 23%



41-45 Furnace Road, Welshpool, Western Australia 6106
Locked Bag 27, Cannington, Western Australia 6987
ACN 050 543 194 ABN 25 050 543 194

Telephone : (08) 9458 8877 (24 Hours)
Facsimile : (08) 9458 8857
Email: mark@geotechnical-services.com.au



Your Order No: 00005863

Our Ref. No: 0607-08

REPORT ON FUEL SAMPLES

Introduction:

Three samples of Dyna Fuel (marked as below) were received on 5 July 2006 for testing as requested. The samples were homogenised by shaking in the original container before sub-samples were taken for testing.

Methods of Analysis & Testing / Results:

Sample identity Lubricity (ASTM D6079-04)

Diesel Fuel 0.410 mm (410 μ m)

Fuel Power 0.391 mm (391 μ m)

Dyna Fuel 0.315 mm (315 μ m)

GEOTECHNICAL SERVICES

Mark Gloyn
Manager, Industrial Chemistry Division

Neal Broomhead
Senior Chemist

Ref. Lubricity Test1 Page 14 of 14

Test results apply to the sample/s as received, unless stated otherwise. This report should only be reproduced in full. Samples are stored for six (6) months, then disposed of without notice unless other arrangements are made.

