
BioMax™

BioMax™

is manufactured by

Smorgon Fuels Pty Ltd

Corporate Profile

Victor Smorgon arrived in Australia in

- 1927 from the Ukraine with his father Norman Smorgon and the rest of the Smorgon family.
- During that same year the family started a kosher butcher shop in Carlton (a suburb of Melbourne, Australia where all the immigrants lived at the time).
- By the 1990’s the Smorgon family business, with Victor Smorgon as the Managing Director, and later Chairman, had grown to be the largest private manufacturing business in Australia.

We blend to suit customer requirements:

- **BioMax B100**
- **BioMax B20**
- **All other blends**

BioMax Blended Diesel Test Result

Test	Method	Unit	Result	Australian Diesel Specification[1]
Sulphur	ASTM D5453	mg/kg	**16***	50 max
Ash & Suspended Solids	ASTM D482	mg/kg	**10***	100 max
Carbon Residue 10% distillation sample	ASTM D4530	% mass	**< 0.1***	0.2 max
Water & Sediment	ASTM D2709	% vol	**< 0.005^**	0.05 max
Conductivity @ 19.8ºC	ASTM D2624	pS/m	**256***	50 min
Filter Blocking Tendency	IP 387		**1.01***	2.0 max
Colour	ASTM D1500		**L2.0***	2 max
Lubricity	IP 450	mm	**0.193***	0.460 max
Polyaromatics	IP 391	% Mass	**< 11***	11 max
Density @ 15°C	ASTM D4052	kg/m³	**830^**	820 to 850
Distillation T95	ASTM D86	°C	**345.7***	361 max
Viscosity @ 40°C	ASTM D445	mm²/s	**3.288***	2.0 to 4.5
Flash Point	ASTM D93	°C	**84***	61.5
Copper Strip Corrosion (3 hrs @ 50°C)	ASTM D130		**1a***	No 1 max
Cetane Index (Procedure A)	ASTM D4737		**57.9***	46 min
Bound Glycerol	ASTM 06584	% Mass	**0.076^**	0.22 max
Cold Filter Plug Point	IP309	°C	**-5^**	-
Cloud Point	ASTM D2500	°C	**-3#**	-
Oxidation Stability	ASTM D2274	mg/L	**6.4***	25 max

*Based on typical results
^Determined in-house
#Estimate based on CFPP

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[1] Fuel Standard (Automotive Diesel) Determination 2001

BioMax is manufactured by **Smorgon Fuels Pty Ltd**

Two second generation feed stocks

- **Microalgae**
- **DLJ200**

- **Both feed stocks do not compete with the food chain but add to the food chain.**

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Emissions to Biofuels™

Microalgae

THE VICTOR SMORGON GROUP

Our focus

2005 / 06 focus was on developing algae culture that would:

- Live within our target environment
- Have 30+% oil

2007 / 08

Construct a working reactor at the source of the CO_2 and develop our production process which we call ‘the factory’

2008 / to now

Continuous improvement in developing each process to provide an economic oil for Biodiesel

BioMax™

Algal Biotechnology Converts Flue Gases & Sunlight into Biofuels through Photosynthesis

"Used" Algae have Multiple Potential Uses

Power Plant / Energy Source

Flue Gases

Sunlight

Cleaned Gases

GreenFuel bioreactor

- **Green Power**
- **Bio-Diesel**
- **Ethanol**
- **Bio-Hydrogen**
- **Protein Meal**

$NOx + CO_2$ from combustion flue gas emissions

Patented Algal Biotechnology

BioMax™

BioMax™

- 300 tonnes algae biomass / ha / year
  - 1/3 of biomass = oil
  - 100 tonnes of oil / ha / year
- At Hazelwood = 1000ha = 100,000 MT of oil / year
- 1 kg of biomass = 0.5 kg of “C”
- 27% of CO_2 is “C” → 555 t of CO_2 fixed / year
- 1 black balloon = 50 g of CO_2

BioMax Biodiesel

will fix 11.1 billion black balloons per year

- 1L of diesel = 2.67Kg of CO_2

  Ref: http://www.epa.gov/otaq/climate/420f05001.htm

- Biodiesel reduces net emissions of CO_2 by 78.45%

  Ref: NREL/SR-580-24089 UC Category 1503

- 1L of Biodiesel will save 2.09Kg of CO_2
- 100Megalitres of Biodiesel will save 209kt of CO_2
- 1 black balloon = 50g of CO_2

BioMax Biodiesel

will save 4.2 billion black balloons per year

Oilseed to Biodiesel

Smorgon Fuels Pty Ltd is part of The Victor Smorgon Group

BioMax biodiesel is produced by Smorgon Fuels

Introducing – DLJ200

- Dry Land Juncea
  - Suited to low rainfall cropping areas
  - Second generation feedstock
  - Non food crop

- Suited to farmers who want:
  - A drought tolerant, cost effective rotation / break crop
  - Dependable returns
  - Profitable and sustainable farming

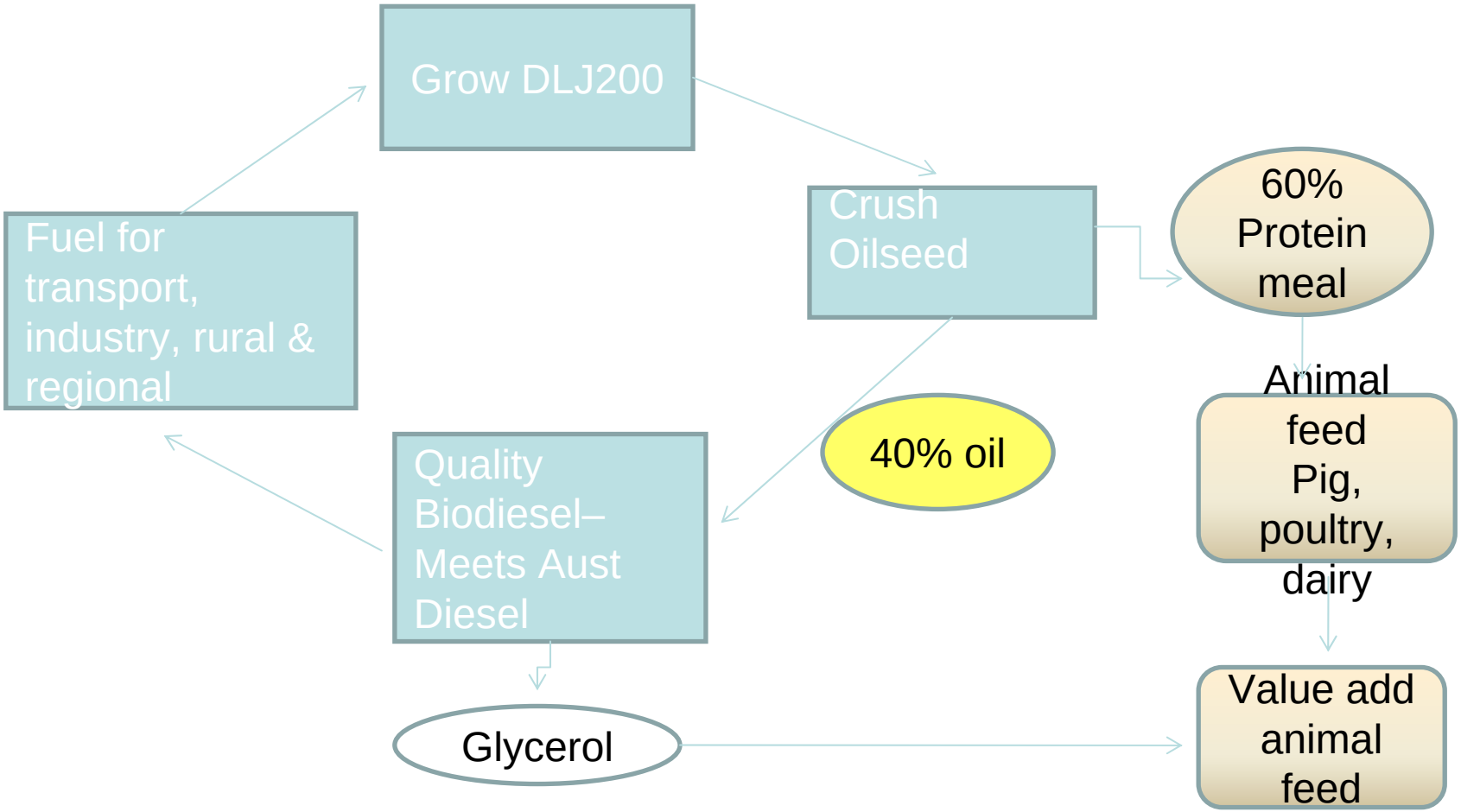
DLJ200 - features

- dryland
- low rainfall
- high temp
- vigorous tap root
- rotation crop
- seed available
- same machinery
- agreed price

homegrown fuel

Today – oilseed to biodiesel

Oilseed to Biodiesel



July 2009

Oct 6th 2009

Benefits

- Makes a good quality biodiesel
  - Low CFPP
- Biodiesel is good for the environment
  - B100 Biodiesel reduces net CO2 emissions by 78% compared to petroleum diesel (USDA & US Dept of Energy Study 1998)
  - On a full life-cycle basis, using a Brassica oilseed B100 Biodiesel saves nearly half (49%) of Greenhouse Gas Emissions (g CO2-e/km)* compared with Low Sulfur Diesel – CSIRO 2007

Regional / National benefits

- Investment – growing, crushing, feeding animals, biodiesel manufacture & distribution
  - A preliminary BAA study identifies that a 200ML biofuel supply expansion creates over time:
    - Jobs
    - GDP growth
    - Current Account growth
    - Net benefit to Australian economy
  - Farm viability – rotation crop for farmers in marginal areas
  - Import replacement for diesel and protein meal
  - Export opportunities for oil, meal and fuel

A sustainable solution

Milk industry turning green

DRIVEN by the desire to reduce its carbon footprint, Poowong-based milk transporter UDT Logistics has decreased its carbon dioxide (CO2) output by 14 per cent, or 874 tonnes, by using biodiesel.

UDT was introduced to the environmental benefits of biodiesel in 2007.

Its director, Rupert Smith, said the company recognised biodiesel as a simple and cost-effective solution to reduce its CO2 output.

"Biodiesel was an obvious cost-effective solution to reduce our carbon footprint," Mr Smith said.

"We've been using Smorgon Fuels' BioMax B20 biodiesel since late 2007 and we soon noticed that the renewable fuel performed just like petroleum diesel, maintaining distance and power performance.

"Biodiesel now accounts for 85 per cent of our total fuel consumption.

"In the past 12 months, this switch reduced our CO2 output by 14 per cent, which is about 874 tonnes of carbon," he said.

UDT Logistics runs a fleet of 17 predominantly B-double trucks to collect and transport milk, mainly from Gippsland and the Western Districts of Victoria, to various storage and processing plants throughout Victoria.

"I believe we are the first company using biodiesel in the dairy industry, an industry that often makes headlines for its water usage and methane output," Mr Smith said.

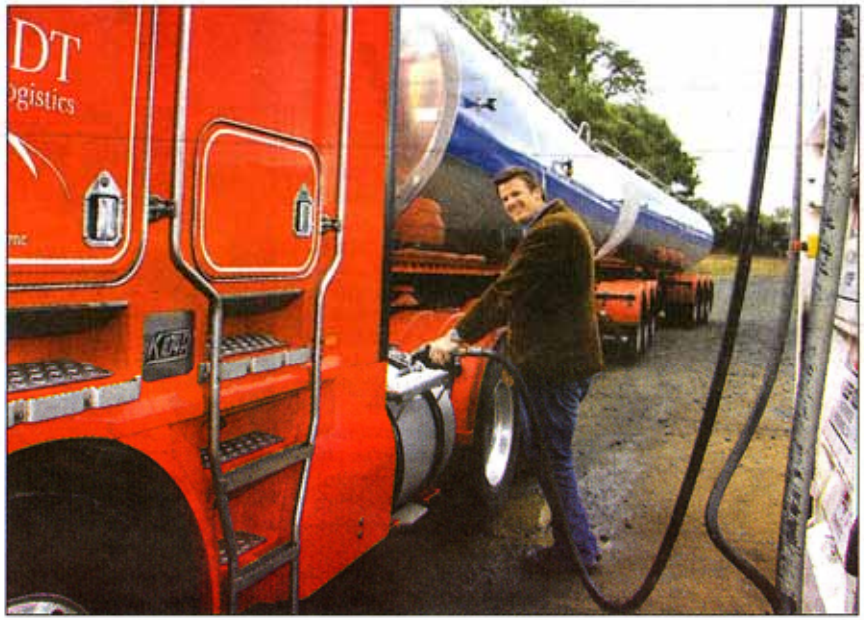
"I'm sure many companies are searching for solutions to reduce their carbon footprint with the emissions trading scheme looming.

"We're just happy to do out bit."

The biodiesel UDT Logistics uses is made from approximately 80 per cent used cooking oil and 20 per cent animal tallow (fats) and canola oil.

UDT Logistics was set up by Poowong-based independent milk company United Dairy Power (UDP) in 2006 to manage its logistics, with the ultimate goal for it to be an independent, efficiently run transport company.

The goal is well and truly being met.



Rupert Smith of UDT Logistics, which is based in Poowong, pumps new green biodiesel into one of the company's 17 trucks.

Tests prompt move to biofuel

By **James Kelly**

AFTER months of trials the Ballarat City Council is about to place most of its 100 trucks and other vehicles onto biodiesel.

With the assistance of a $115,000 Environment Protection Authority grant, the council recently installed a 69,000 litre storage tank at its Ring Rd depot.

The move to biodiesel, fuel and canola, will save council $67,000 a year and reduce emissions by 280 tons, chief executive officer Anthony Schinck said.

"This project brings social, economic, and environmental benefits," he said.

About 30 vehicles, including recycling trucks, mowers, tractors and light vehicles were part of the 15-month pilot program to find if the fuel was causing any damage to vehicles of which no major problems were found.

Mr Schinck said other councils and the Melbourne Zoo wanted to look at the new pump.

It is hoped 95 per cent of the council truck fleet will be using the new fuel by the end of the week.

CONVERSION: City of Ballarat waste co-ordinator Trevor Hall, left, chief executive officer Anthony Schinck, centre, and Mayor Stephen Jones with a vehicle converted to biodiesel.
Picture: **Jeremy Bannister**

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BioMax™

bigwheels

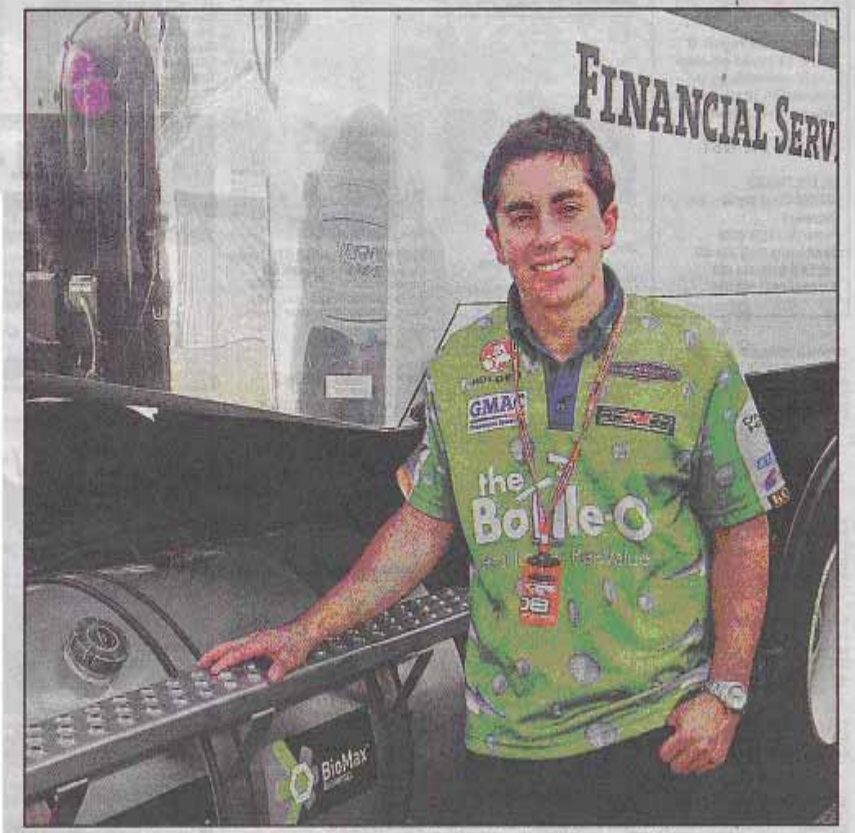
RACING TO CARBON OFFSET

Commodore racer Tony D'Alberto is doing his bit for the environment by running his Rod Nash Racing Isuzu EXY transporter on biodiesel to haul his car to V8 Supercar races. D'Alberto and his team have made a commitment to reduce their carbon footprint by switching to BioMax biodiesel.

The team's transporter driver Marc Duvoisin says the truck performed as well on the biodiesel as it had on regular mineral diesel. The team uses BioMax's B20 diesel, a blend of 20 per cent biodiesel and conventional mineral diesel.

Duvoisin says that in the course of the year the team would save about seven tonnes or 15 per cent on CO_2 emissions. The team's commitment to biodiesel is in line with the V8 Supercar series V8 Racing Green program, which offsets carbon emissions to reduce environmental impacts.

SHORTHAUL



Emission saver . . . Tony D'Alberto with his bio-diesel Isuzu EXY transporter

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Questions and answers