

# Alpha Biofuels (S) Pte Ltd

November 2010

Product Catalogue

## Alpha Biodiesel



1

Alpha's biodiesel is recycled from waste cooking oil from restaurants and food establishments. It is completely biodegradable, sustainable and renewable form of energy.

## Micro-Refinery



2

World first building integrated micro-refinery uses Alpha's innovative proprietary technology in converting urban waste to energy.

## Alpha Bio-OSR



3

Bio-OSR is specially formulated from biodegradable esters primarily for marine oil and gas industries.



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**biofuels**

energy from waste



- Pioneer in recycling waste cooking oil to biodiesel locally
- The ONLY sustainable biodiesel plant in Singapore
- Manufacture and distribute biodiesel in Singapore
- Design and Build Micro-Refinery
- Urban Waste to Energy Solutions



# Alpha Biodiesel

## Results – Net Life cycle emissions

Net life cycle emissions (kg/kg transportation fuel)	Ultra Low Sulphur Diesel	Alpha Biodiesel	Percentage (%) Change
Net life cycle SO <sub>2</sub>	2.85E+00	1.13E-03	-99.96
Net life cycle NO <sub>x</sub>	4.54E-01	9.21E-03	-97.97
Net life cycle N <sub>2</sub> O	5.13E-05	2.16E-06	-95.79
Net life cycle fossil fuel CO <sub>2</sub>	5.35	2.01	-62.33
Net life cycle CO	1.15E-01	1.72E-02	-84.97
Net life cycle total PM <sub>2.5</sub> & PM <sub>10</sub>	8.08E-01	8.23E-05	-99.99
Net life cycle NMVOC	4.11E-02	9.21E-03	-77.56
Net life cycle CH <sub>4</sub>	2.43E-02	5.50E-03	-77.35
GWP <sub>100 years</sub> (kg CO <sub>2</sub> eq.)	6.33	2.22	-64.92

 SIMTech

 for Industry

- Clean emissions with significant reduction in SO<sub>x</sub>, NO<sub>x</sub>, CO, N<sub>2</sub>O and particulate matters
- Negligible greenhouse gases (GHG)
- Net carbon positive
- Sustainable form of renewable energy using generation 2 feedstock



# Alpha Bio-OSR

- Unprecedented eco-friendly biodegreaser
- Non-hazardous due to absence of volatile carcinogenic hydrocarbons
- Cost effective per unit volume per unit area of surface cleaned
- Bio-degradable
- Non-flammable
- Non-corrosive



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# Biodiesel Micro-Refinery



- World first in-situ biodiesel Micro-refinery integrated in Commercial building in financial district
- Low Capital Investment
- Minimal energy consumption
- No waste water generated
- One man operation
- Integrated with ion exchange resins for purification
- Program Logic Control system via a touch screen panel
- >94% yield of biodiesel
- 100% compatible to Capstone Turbine and all diesel engines without modification
- Low production cost of SGD\$0.2584 per kg (Excluding cost of feedstock)
- Portable for quick deployment
- Scalable to higher capacity
- Self-sustainable integrated with glycerin powered generator
- Optional integration with biocatalyst to treat unconventional feedstock. Typically with FFA > 10%

For more information, kindly refer to our website:

[www.alphabiofuels.sg](http://www.alphabiofuels.sg)

Project Site: Asia Square Tower 1, Singapore Financial District

Client: MGPA

First Building Integrated Biodiesel from Waste system in the world

Awarded Platinum Greenmark building By Singapore Building Control Authority



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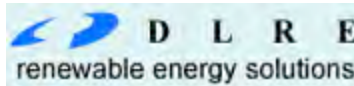
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# Alpha's Partners and Collaborators



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