Generator / Genset Applications

RENTAR
FUEL CATALYST

Sole Source Technology with 33 Issued Patents

Energy and Emission Solutions
Rentar Fuel Catalyst is Independently Verified to:

- Reduce Fuel Consumption And Extend Range 2.0% To 12.0%
- Reduce Oil Fired Furnace Fuel Consumption 7.0% To 30.0%
- Reduce Greenhouse Gases (NOx, CO and CO2) Up To 19.2%
- Reduce Particulate Matter (PM) Up To 58.2%
- Reduce Black Smoke (Opacity) Up To 44.8%
- Extend Engine Life Between Engine Rebuilds 20% to 50%
- Reduce Organic And Elemental Carbon Up To 35.0%
- Reduce Volatile Organics up to 63.0%

Results vary based on the applications, type of engine and type of fuel utilized
Benefits of the Rentar Fuel Catalyst to the Generator / Genset Industry

- Reduces Fuel Consumption
- Increases Payload Per Gallon / Liter
- Reduces Greenhouse Gas Emission
- Extends Engine Life
- Extends Oil Life
- Reduces Engine Maintenance
- 10 Year Warranty
- Easy to Install
- Pays for Itself in Fuel Savings in 3 to 12 Months
Rentar Is Independently Verified By:

- Southwest Research Institute
- EPA & CARB Recognized Laboratories
- Aberdeen Proving Grounds
- Olson Ecological Laboratories
- Virginia Tech University
- SGS, SA
- Vale Mining
- Yamana Gold
- Vulcan Materials
- CEMEX
Improve Payload Per Gallon / Liter
Reduce Fuel Consumption and Exhaust Pollution
Extend Engine and Oil Life

Extend Engine Life 20% Between Rebuilds
Testimonial Letters

### To Whom It May Concern

This is to certify that HBL Rentar fuel catalyst testing, following specifications have been installed at Tata Motors Ltd., Lucknow plant.

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Model No.</th>
<th>QTY</th>
<th>Mount in Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>HRE-2512</td>
<td>60</td>
<td>L1144 - Currum Oil</td>
</tr>
<tr>
<td>2</td>
<td>HRE-2512</td>
<td>55</td>
<td>L1144 - Currum Oil</td>
</tr>
</tbody>
</table>

Since the installation, Fuel catalysts are performing to our satisfaction at above mentioned DG sets. We are pleased to confirm that we have achieved saving of 11.35% on specific fuel consumption.

For Tata Motors Ltd.

S. K. Singh
DG-4 - Plant Services

### TO WHOM SO EVER IT MAY CONCERN

This is to certify that HBL Rentar fuel catalyst has been installed on our generators and boiler applications.

The performance of HBL Rentar Fuel Catalyst has been good and about 8% - 15% saving achieved.

We appreciate the green energy efforts of M/S HBL Power Systems Ltd. towards reducing the fuel consumption and carbon emission.

Yamaha Motos

### 15 ANOS

March 21st 2019

We at Minas Gerais Mineração e Comércio de Diamantes S.A., YamaniaGOLD, have successfully piloted the Rentar fuel catalyst model HRE-2512 on our CAT 789C haul trucks with results that surpassed our objectives for fuel efficiency with a payback of less than a year. As a result, we have purchased the Rentar fuel catalyst for installation on our fleet.

We are pleased with the support from SOFTRAQ, our Rentar dealer, and from the direct relationship with the manufacturer itself. We are also pleased with the trouble-free performance of the catalysts, to date.

We are looking forward to our continued use of the Rentar fuel catalysts.

Fábio Gersche
Maintenance Coordinator
Tel: +55 62 3000-9018

YamaniaGOLD 15

Minas Gerais Mineração e Comércio de Diamantes S.A. - Patrocínio MG - Brazil
Ouro Mecânico S.A. - Brazil
92400-090
http://www.yamania.com
Testing Conducted on 6SL8800TA 200 KW Kirloskar 250 Genset Engine
Tested with ISO: 8178 D2 - 5 Mode Test Protocol
3.04% Fuel Improvement
58.2% Reduction of Particulate Matter
7.9% NOx Reduction
35.4% CO Reduction
15.4% Hydrocarbon Reduction
See Test Study
SGS
World’s Largest Inspection and Technology Verification Company

SGS Verifies a 17.05% Fuel Reduction*,
a 27.5% Reduction of NO\textsubscript{x}
and 32.5% Reduction of CO.

- Over 97,000 employees
- Over 2,600 offices and laboratories worldwide
- Conducted an emissions study on the Rentar fuel catalyst in 2016
- World’s largest inspection and technology verification company

* Computed by Carbon Balance
Generators / Gensets

Genset with Cat 3306 Engine | Saipan
5.3% Improvement in Fuel Efficiency

Genset with Cat 3516 Engine | Alaska
6.1% Improvement in Fuel Efficiency
Summary of Findings

The test was performed at the CEMEX Plant at Terminal Varreux (Port au Prince) Haiti. The test was managed, and all data was collected by CEMEX technicians. The generator used was a Caterpillar 3406 C.

A baseline was created, the catalyst was installed (a conditioning clean-out period was observed) and “post” data information was gathered.

The data collected demonstrated a **31.1% average improvement in Kilowatts per Gallon**
Generators / Gensets

Stationary Generators Fuel Consumption Reduced 4% to 12%
## Caterpillar 777D

### Schedule of Annual Fuel Savings at Various Fuel Cost Using the Rentar Fuel Catalyst

<table>
<thead>
<tr>
<th>Per Gallon Price</th>
<th>$4.00</th>
<th>$6.00</th>
<th>$8.00</th>
<th>$10.00</th>
<th>$12.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>2% Savings</td>
<td>$9,600</td>
<td>$14,400</td>
<td>$19,200</td>
<td>$24,000</td>
<td>$28,800</td>
</tr>
<tr>
<td>4% Savings</td>
<td>$19,200</td>
<td>$28,800</td>
<td>$38,400</td>
<td>$48,000</td>
<td>$57,600</td>
</tr>
<tr>
<td>6% Savings</td>
<td>$28,800</td>
<td>$43,200</td>
<td>$57,600</td>
<td>$72,000</td>
<td>$86,400</td>
</tr>
<tr>
<td>8% Savings</td>
<td>$38,400</td>
<td>$57,600</td>
<td>$76,800</td>
<td>$96,000</td>
<td>$115,200</td>
</tr>
</tbody>
</table>

Assuming the Caterpillar 777D Consumes 20 GPH / 20 Hours per Day / 6 days per Week / 50 Weeks per Year

Results vary based on the applications, type of engine and type of fuel utilized.
22.1% Fuel Improvement

Summary of Findings

Hanson Aggregate conducted fuel economy studies. They solely managed and collected the data. The results are reported below.

At the Wickenburg, AZ quarry facility, Hanson Aggregate managed the creation of a baseline/ installation of the Rentar Fuel Catalyst under supervision of Mark Jaynes and collection of the "post" data.

The result, as documented in the attached report/ due to the Rentar Fuel Catalyst is a 22.1% average improvement in fuel consumption on a Caterpillar 3406 gen-set.
Heavy Duty Equipment

Wheel Loader 980H with Cat C15 | USA
5.6% Improvement in Fuel Efficiency

Cat 797B with Cat 3524B Engine | Chile
6.3% Improvement in Fuel Efficiency
### VALE S.A. (SOSSEGO MINE)

<table>
<thead>
<tr>
<th>CAT 793D  (CAT3516B)</th>
<th>Liters</th>
<th>US$0.59/L ($ cost)</th>
<th>4% fuel reduction ($ savings)</th>
<th>5.29% fuel reduction ($ savings)</th>
<th>7% fuel reduction ($ savings)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hourly</strong></td>
<td>157.33 L</td>
<td>$92.82</td>
<td>$3.71</td>
<td>$4.91</td>
<td>$6.50</td>
</tr>
<tr>
<td><strong>Day – 12 hours</strong></td>
<td>1,887.96</td>
<td>1,114</td>
<td>44.56</td>
<td>59.00</td>
<td>78.00</td>
</tr>
<tr>
<td><strong>Month – 30 days</strong></td>
<td>57,426</td>
<td>33,881</td>
<td>1,355</td>
<td>1,792</td>
<td>2,372</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td>689,106</td>
<td>406,573</td>
<td>16,263</td>
<td>21,508</td>
<td>28,460</td>
</tr>
<tr>
<td><strong>Five Years</strong></td>
<td>3,445,531</td>
<td>2,032,863</td>
<td>81,315</td>
<td>107,538</td>
<td>142,300</td>
</tr>
<tr>
<td><strong>10 Years</strong></td>
<td>6,891,062</td>
<td>4,065,726</td>
<td>162,629</td>
<td>215,077</td>
<td>284,601</td>
</tr>
</tbody>
</table>

**Approximate time to payback for a haul truck at SOSSEGO Mine is 5.6 months**

*Using a total product cost of US$10,000 for two Rentar fuel catalysts on a CAT 793D haul truck at 5.29 percent fuel reduction

The CAT 793D haul truck requires two HBEN2012 units at an MSRP of US$5,000 per unit.
Simple Installation
Credentials

- Export-Import Bank of the United States
  Official Export Credit Agency

- California Resource Board
  Executive Order (CARB)

- $2 Million International Product Liability Insurance

- World’s 4th Largest Caterpillar Dealer
  A Rentar Distributor
  400 Offices - 4300 Employees
Rentar Case Studies

**CASE STUDY**

**COVANTA ENERGY**
Covanta Holding Corporation (NYSE: CVX) is an international owner and operator of Energy-from-Waste power generation projects converting municipal solid waste into renewable energy for numerous communities throughout the United States. 2009 consolidated operating revenues were $1.55 billion with $397 million in operating cash flow and adjusted EBITDA of $515 million.

**for a cleaner world**

Installed Rentar Fuel Catalyst on entire fleet of heavy-duty diesel vehicles at 28 plants around the United States.

- 5% reduction in fuel consumption.
- 43.6% reduction in CO2 emissions.
- 75.9% reduction in CO.
- 47.7% reduction in NOx.
- 52.6% reduction in particulate matter.

**CASE STUDY**

**U.S. ARMY**
Located in Hartford County, Maryland on 79,000 acres with research capabilities in Automotive, Environmental Effects & Technologies: Fire Control; Firepower; Support and Survivability/Lethality; Warfighter & Support Equipment.

The Aberdeen Test Center tested Rentar units on a Navistar International 3559 cu. in., 170 hp. diesel engine and reported the following:

- 3.6% Fuel Consumption improvement.
- 3.6% Extended Range improvement.
- 12% NOx improvement.
- 14% CO2 improvement.
- 17.4% CO improvement.
- 12.6% HC improvement.
- 10.9% O2 improvement.

**CASE STUDY**

**TOYOTA**
Toyota Motor Company, established in 1937, is today the world's largest automobile manufacturer by sales of 7,051,000 units FY 2009, with 320,808 employees building autos under the DAIHATSU, HINO, LEXUS and TOYOTA brands.

Toyota has installed Rentar Units of all their auto transport trucks operating in the Port of Long Beach & Los Angeles with the following results:

- 11.3% Fuel Consumption improvement.
- 42.2% Particulate Matter improvement.
- 9.7% CO2 improvement.
- 33.5% Carbon Monoxide improvement.
- 36.8% Total Hydrocarbon improvement.

Toyota Laboratory Results conducted by EPA & CARB recognized laboratory.
## Logo’s of Rentar Fuel Catalyst Purchasers

<table>
<thead>
<tr>
<th>MORGAN ENDURANCE RENTAL</th>
<th>Prime Time Transportation Company</th>
<th>FRY &amp; COMPAN</th>
<th>SRAEI</th>
<th>CEMEX Building the Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>JENSEN-HELLSPECK &amp; CO</td>
<td>Cofinusa, USA</td>
<td></td>
<td></td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td>HARRIS</td>
<td>New York City Department of</td>
<td></td>
<td></td>
<td>United States Coast Guard</td>
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<tr>
<td></td>
<td>Environmental Protection</td>
<td></td>
<td></td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td></td>
<td>OXY</td>
<td></td>
<td></td>
<td>United States Coast Guard</td>
</tr>
<tr>
<td></td>
<td>OCCIDENTAL CHEMICAL</td>
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<td>United States Coast Guard</td>
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<td></td>
<td>COVANTA</td>
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<td>United States Coast Guard</td>
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<td>Energy</td>
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<td></td>
<td>HANSON</td>
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<td>SRAG</td>
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<td>OPTIFUEL</td>
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<td></td>
<td>ST. LAWRENCE UNIVERSITY</td>
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<td></td>
<td>United States Coast Guard</td>
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<td></td>
<td>**250 FURNACES INSTALLED</td>
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<td>United States Coast Guard</td>
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<td></td>
<td>NEW ENGLAND SCHOOLS</td>
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<td>United States Coast Guard</td>
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<td></td>
<td><strong>Nevada Ready Mix</strong></td>
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<td>United States Coast Guard</td>
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<td><strong>nordic</strong></td>
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<td></td>
<td><strong>WEST</strong></td>
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<td>United States Coast Guard</td>
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<td></td>
<td><strong>American Infrastructure</strong></td>
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<td>United States Coast Guard</td>
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<tr>
<td></td>
<td><strong>Kinross Gold Corporation</strong></td>
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<td></td>
<td>United States Coast Guard</td>
</tr>
</tbody>
</table>

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Rentar Environmental Solutions, Inc.
Manufacturer of the Rentar Fuel Catalyst

Contact: Joel Ratner - Telephone: (561) 790-0093
Email: JoelRatner@Rentar.com
Website: DieselCatalyst.com