Railroad Applications

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 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 Work per Gallon
- 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
- Engine System Development Center
- Virginia Tech University
- SGS, SA
- Vale Mining
- Yamana Gold
- CEMEX
Reduce Fuel Consumption and Exhaust Pollution
Extend Engine and Oil Life

Extend Engine Life 20% Between Rebuilds
Testimonial Letters

Tata

To Whom It May Concern

This is to certify that HBL - Rentar Fuel Catalyst meeting the 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>Mounted on Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RB0212</td>
<td>02</td>
<td>1600Kw Daimler OM644</td>
</tr>
<tr>
<td>2</td>
<td>RB0212</td>
<td>02</td>
<td>1600Kw Daimler OM644</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 11.37% on specific fuel consumption.

For Mr. Tata Motors Ltd.

V. Singh
Manager - Plant Services

Mahindra & Mahindra Ltd

TO WHOMSOEVER 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 4% HSD saving achieved.

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

YAMANAGOLD

March 21st 2019

We at Minasengas Minerales Ltda e Companhia, a YAMANAGOLD job site, have successfully piloted the Rentar fuel catalyst model RB0212 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 SOTREIG, 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 Gregoretti
Maintenance Coordinator
Tel: +55 22 3297-9319

YAMANAGOLD
15 ANOS
Automotive Research Association of India is co-operative industrial research association by the automotive industry with the Ministry of Industries, Government Of India

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
Railroad Engine Laboratory Results

• Laboratory Recognized by American Railroad Association

• Laboratory Reduction Results:
  At Idle 7.5%
  At 50% and 100% Power 1.5%
  Particulate Matter Reduction 11.8%
  NOx Reduction 15.3%
  CO Reduction 9.1%
  Benzene* Reduction 28.3%
  Toulene* Reduction 36.2%
  Ethylbenzene* Reduction 35.2%
  M-xylene* Reduction 52.1

• Cancer Causing Volatile Organic Emissions
• See Published Report
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%
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.
Caterpillar 3508B Engine
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 3508B Engine Powered Equipment
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.
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 haul truck requires two HBEN2012 units at an MSRP of US$5,000 per unit.
Simple Installation
Credentials

- UL LISTED
- World’s 4th Largest Caterpillar Dealer
  A Rentar Distributor
  400 Offices - 4300 Employees
- Sotreq
- Export-Import Bank of the United States
  Official Export Credit Agency
- California Resource Board
  Executive Order (CARB)
- $2 Million International Product Liability Insurance
- BBB Accredited Business A+ Rating

Rentar Case Studies

CASE STUDY
COVANTA ENERGY
Covanta Holding Corporation (NYSE: CVA) 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.

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 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 Portals of Long Beach & Los Angeles with the following results:

STEADY STATE (Highway Driving)
- 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.
Logos of Rentar Fuel Catalyst Purchasers
Rentar Environmental Solutions, Inc.
Manufacturer of the Rentar Fuel Catalyst

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