Rentar Fuel Catalyst
Reduces Fuel Consumption and Reduces Harmful Emissions
More Energy on Less Fuel

Mining Applications

18-Year-Old Established Company * Sole Source Technology with 33 Issued Patents
Verified Effective by EPA Recognized Laboratories
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
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
- CEMEX
- Vulcan Materials
Benefits of the Rentar Fuel Catalyst to the Mining 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
How does it work?

The Company’s core product is the Rentar® Fuel Catalyst (“RFC”), which aggressively conditions fuel through a series of complementary processes resulting in a more complete and cleaner burn at combustion. The Rentar technology works with any fossil fuel combustion process.

Fundamentally rooted in “cracking fossil fuels”, a method of altering organic compounds with large molecules, making them more useful compounds with smaller molecules. The RFC enables the clustered molecules in fuel to temporarily repel each other, allowing more surface area of the fuel molecules to be exposed to oxygen at the point of combustion.

The proprietary combination of rare earth elements contained in Rentar’s catalyst cause the saturated straight chain aliphatic (paraffin) molecules to convert into unsaturated ring compound aromatics which in turn releases a small amount of hydrogen. The hydrogen interacts with the dispersed fuel molecules to achieve a more complete combustion.
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 SO EVER IT MAY CONCERN

This is to certify that HBL RENTAR Fuel Catalyst has been installed in our generators and boiler applications.

The performance of HBL RENTAR Fuel Catalyst has been good and about 5% HSD saving achieved.

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

For Mrs. Tata Motors Ltd.

V. M. Singh

DOE - Plant Services

YAMANAGOLD

March 21st 2019

We at Minas de Xorong don’t have a YAMANAGOLD job site, but we have successfully installed the RENTAR fuel catalyst model HBL512 on our CAT 785D 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 ISOTREG, 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.

Fabián Gómez

Maintenance Coordinator

Tel: +502 2230-9458

YAMANAGOLD

Minas de Xorong S.A. - Conducto Alba 3000 Mill - San José de Llano

Alba Hondon 502 - Mail

http://www.xorong.com
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
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
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
SOTREQ CATERPILLAR, the fourth largest Caterpillar Dealer in the world has acquired the right to distribute the Rentar Fuel Catalyst in the eighth largest market in the world, Brazil. In addition to supplying all the new equipment, they maintain tens of thousands of existing pieces of equipment.
ROI: 6 months

Annual Savings: US$28,552 Per Truck

CAT 785C

Test Details

Trucks CB07 & CB12
Installation: 02/11/2018
End of Test: 03/12/2018

Trucks CB02 & CB10
Hours in Baseline: 694 (average)
Consumption in Baseline: 116.23 l/h
Hours in Post-cleanout: 135
Consumption: 124.59 l/h

WITHOUT RENTAR
Consumption on CB02 & CB10
(124.59 – 116.23) / 116.23 = +7.19%

WITH RENTAR
Hours in Baseline: 556 (average)
Consumption in Baseline: 116.15 l/h
Hours in Post-cleanout: 134
Consumption: 119.91 l/h

CONSUMPTION DIFFERENCE
CB07 & CB12 (w/ Rentar):
(119.91 – 116.15) / 116.15 = +3.24%

Final Result
3.24% - 7.19% = -3.95%

Fuel Savings

Hours per Day: 16.3
Days of Annual Operation: 365
Price per Liter of Diesel: US$0.80
Rentar Fuel Catalyst: US$ 10,269*
*2 catalysts per 785C
# 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 utilize
VALE SA, a $134 billion (revenue) company with 76,000 employees is the largest iron and nickel MINING OPERATOR in the world. They are saving $20,000 to $35,000 per piece of heavy-duty equipment annually through fuel savings at a one-time cost between $5,000 to $10,000. They have more than 2,000 pieces of equipment and they have begun equipping their fleet. They recover the cost of the Rentar Fuel Catalyst in less than four months.
## Return-on-Investment (ROI)

### 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.
Yamana Gold Inc. is a Canadian-based gold producer which is a listed NYSE company with more than $1.8 billion in revenues. They have significant gold production, gold development stage properties, exploration properties, and land positions in Canada, Brazil, Chile and Argentina.

Yamana Gold has installed Rentar Fuel Catalysts at their Brazilian mine and provided this letter of endorsement.

We at Mineração Maracá Indústria e Comércio, a YAMANAGOLD job site, have successfully piloted the Rentar fuel catalyst model HBEN 2012 on our CAT 785C 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 SOTREQ, 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.

Fabio Gonçalves
Maintenance Coordinator
Tel: +55 62 3383-4049

YAMANAGOLD
15 ANOS

Mineração Maracá Indústria e Comércio
Rodovia GO 347 s/n – Fazenda Genipapo
Alto Horizonte GO – Brasil
76560-000

http://www.yamana.com
Increase Payload or Kilowatts Per Gallon /Liter
Reduce Fuel Consumption and Exhaust Borne Pollution

Extend Engine Life 20% Between Rebuilds
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
Generators/Gensets

Stationary Generators Fuel Consumption Reduced 4% to 12%
Simple Installation
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.

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.

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 3500 9 cubic, 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 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.
Credentials

United States Department of Commerce

Export Achievement Award

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

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

$2 Million International Product Liability Insurance

UL Listed

Economic Development Organization for the State of Florida

Member

California Resource Board Executive Order (CARB)
Rentar Fuel Catalyst Purchasers
Thank you

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

Contact: Joel Ratner  (561) 345-0359
Email: JoelRatner@Rentar.com
Website: DieselCatalyst.com