

# CatX Fuels

2022

## CatX (Catalyst X) ®



“If you have an engine, we have a formula to save you time and money improving the environment at the same time.”

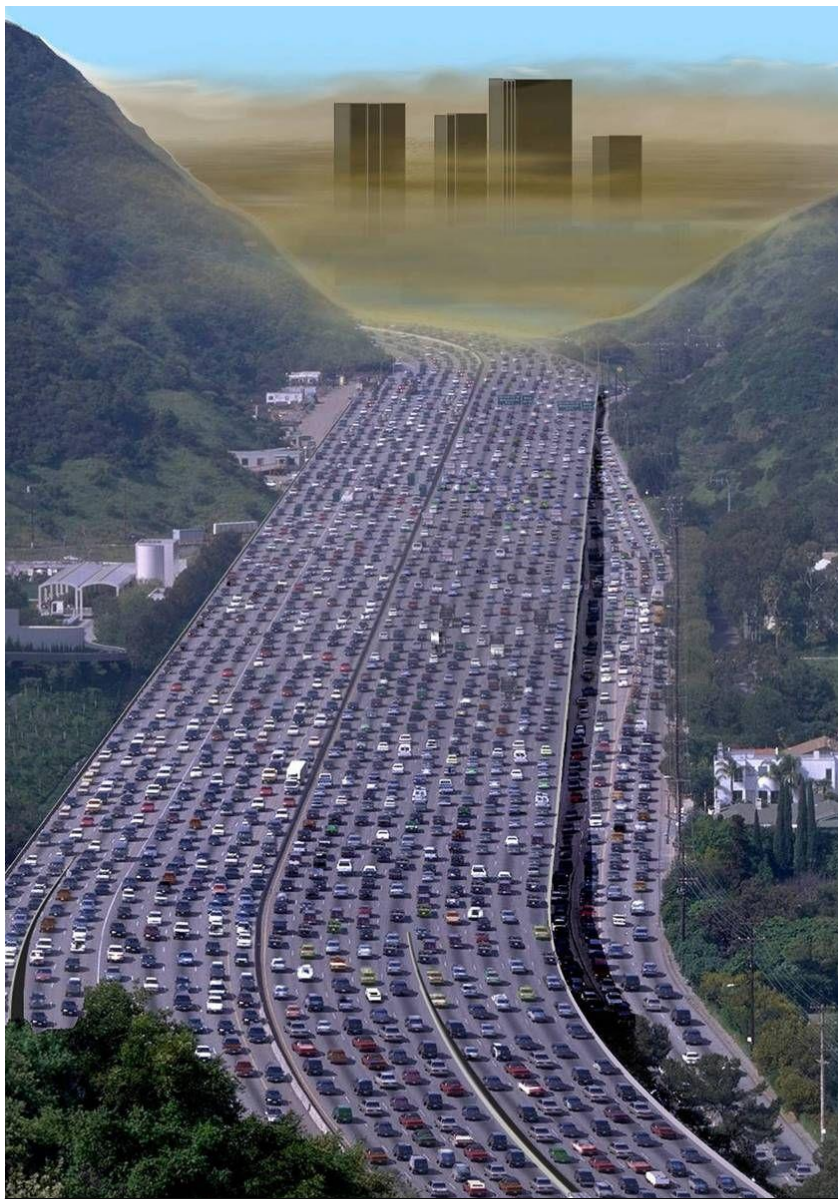
CatX Fuels



**O**ur advanced fuel catalysts for use in petroleum products are unrivaled in the industry. CatX (Catalyst X) is biodegradable, renewable, sustainable, and safe in all engine applications.

By effectively removing the carbon and carbon buildup from engines, CatX cleans injectors, oxygen sensors, valves, spark plugs, catalytic converters, and turbochargers.

CatX maximizes the burn process of all types of fuel such as gasoline, ethanol, diesel, bunker oil, marine, aviation, and heating fuel. The formulations are scientifically designed to “splash blend” with petroleum products for customer convenience.



**CatX**



## ***Proven qualities include:***

- *Increases fuel economy from **10% to 37%***
- *Reduces hydrocarbon (HC) emissions (smog) up to **98%** of Department of Environmental Quality (DEQ) standards*
- *Reduces carbon monoxide (CO) emissions*
- *Passes all **EPA** emission standards through the year 2025*
- *Reduces oil contamination and increases oil life*
- *Reduces engine maintenance expenses*
- *Keeps gasoline sustainable up to **3** years.*



Our company provides unmatched product quality and performance in all products. CatX-M formulations have gone through rigorous tests to validate the benefits associated with our products. Both in-house and independent laboratories have been utilized to certify that all our products meet the strictest of standards.

For use in diesel, regular gasoline and fuels with ethanol

## CatX

**CatX** is formulated to splash blend in diesel, regular gasoline and fuels with or without added ethanol for use in cars, trucks, recreation vehicles and small gasoline engines.

CatX Fuels



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Adding 1-3 ounces of CatalystX per gallon of gas has resulted in increases of economy up 10% to 37% while reducing emissions up to 98%.

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CatX-M (Catalyst X) is the name of our product line with many product formulas in that line. We also have other product lines such as CandleX for use in wax for making smokeless candles, CatX Universal for diesel powered engines, CoalX clean liquid coal and power generation.

CatX Fuels



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*Our products do not contain detergents or heavy metals. Formulas are USA patented, registered by the United States Environmental Protection Agency (US EPA) and tested by third parties, including independent universities, trucking companies, and the Malawi Bureau of Standards.*

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Independent test results show that adding CatX increases fuel efficiency up to **37%**, reduces Hydrocarbon and NOX by up to **98%**, and CO2 emissions by up to **8%**, extends the life of engines, and **eliminates the need for retrofits**, which are currently being mandated for the trucking industry. CatX, formulas have been tested and proven effective in all types of fuels used in many types of combustion engines.

## **80K Semi-Truck Test**

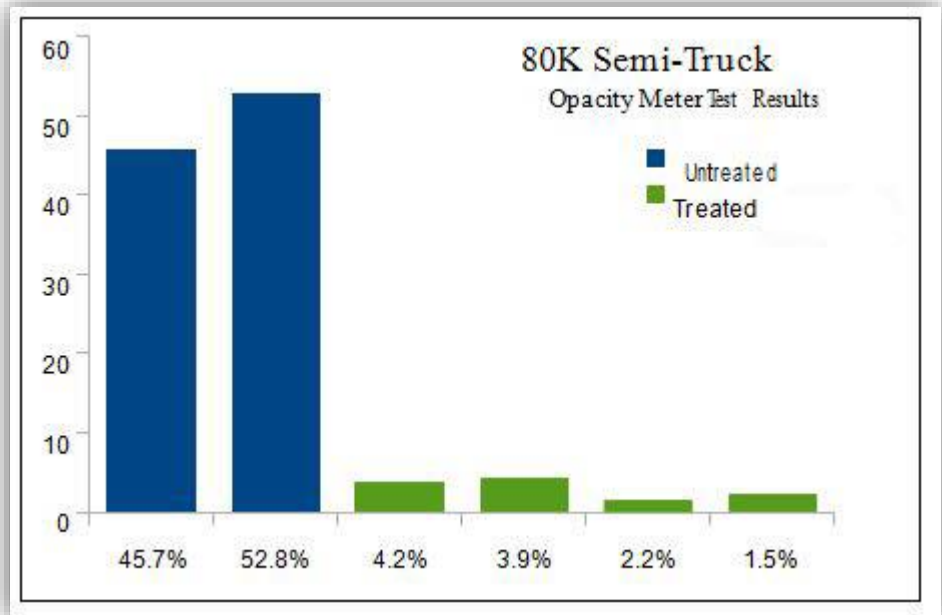
From August, 2008, through November, 2008, CatX-M conducted tests on a 2000 Argosy Freightliner forty-ton semi-truck. The diesel motor that powered the tractor unit was a Caterpillar eight (8) cylinder engine with a five (5) inch emission stack. The test included detailed mileage data recorded for analysis of fuel efficiencies.



CatX-M performed two (2) baseline snap tests and four (4) snap tests after introducing the catalyst. A Wager digital smoke meter: model 6500, was used for the readings. The opacity readings from the two (2) baselines snap tests were 45.7% and 52.8%.

The four (4) opacity readings conducted while using the CatalystX formulation are as follows: During the study, our product was mixed into the fuel at forty (40) parts fuel to one (1) part catalyst. The initial test showed that the density of the emissions was calculated at **4.2%**. The second opacity test showed a smoke density of **3.9%**, later test showed even greater improvement in the reduction of smoke density at **2.2%** and then **1.5%**.

During the testing period, fuel efficiency was also tested in the diesel rig. Prior to commencement of the tests, the truck was averaging **5.81** miles per gallon (mpg). During the three (3) month testing period, the vehicle was driven over **25,000** miles under identical testing conditions. Upon consolidation of the three months and 25,000 miles of statistical data, it was found that the truck averaged **7.29** mpg while using CatalystX, **an average 20.37% increase** in mpg from the base data.



**The opacity readings after using the CatX were 4.2% and final density of 1.5%. Diesel smoke was almost completely eliminated and fuel efficiency was improved.**

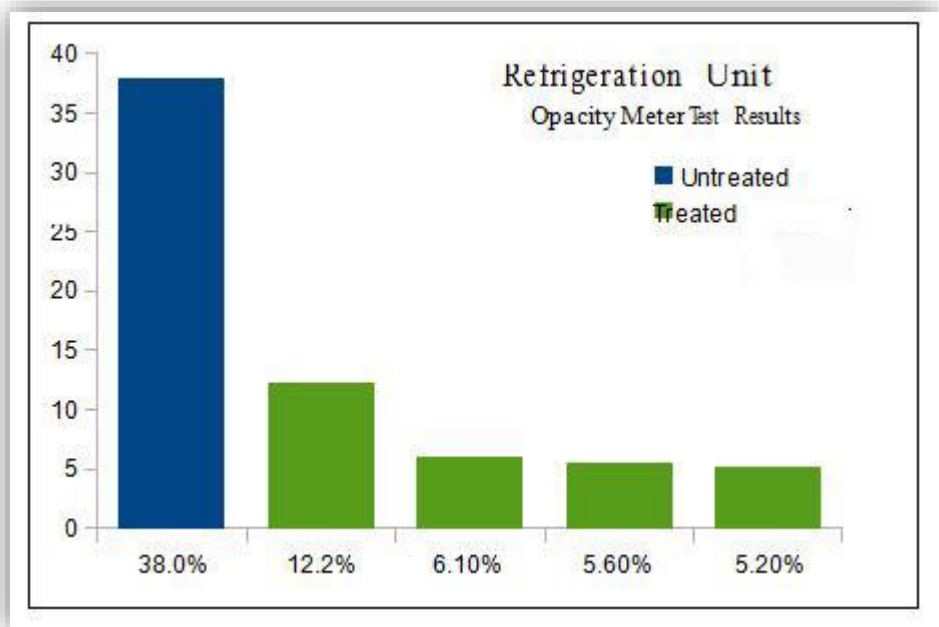
# Thermo King Test

## 1994 Thermo King Refrigeration Unit

On September 19, 2008, CatX-M oversaw the emission testing of a 1994 Thermo King Refrigeration unit. The diesel engine powering the unit was a SB III, BM 048390, and Serial: 048390, with a two (2) inch emission stack. The procedures were conducted with a Wager digital smoke meter, model 6500.

*CatX-M* administered one (1) baseline snap test, followed by four (4) snap tests while using the CatalystX. Upon completion of each snap test, a fifteen (15) minute wait was imposed to allow for the engine to integrate with the formulation.

The baseline reading from the first density test was **38.0%**. Immediately thereafter, the CatalystX was mixed with diesel fuel at **40:1**



The four (4) snap tests following the baseline test rendered the following results: At fifteen minutes the smoke density was **12.2%**; at thirty minutes, **6.1%**; forty-five minutes, **5.6%**; sixty minutes, **5.2%**. Data showed that with the introduction of CatalystX, smoke density decreased **38.2%**.



## 1936 Auburn Test

On December 27, 2008, CatX-M conducted a five gas analyzer emissions test on a 1936 Auburn.

The 1936 Auburn uses a 460 cubic inch balanced and blueprinted motor, with no smog control. A five gas analyzer measures the HC, CO, CO<sub>2</sub>, O<sub>2</sub>, and NO<sub>x</sub> emissions of an engine's exhaust.



**Results are shown below.**

	Idle	2500 rpm	Idle	2500 rpm
HC	2443 ppm	6347 ppm	162 ppm	187 ppm
CO	20.13%	29.27%	5.45%	4.60%
CO <sub>2</sub>	54.30%	55.90%	12.20%	12.70%
NO <sub>x</sub>	27 ppm	75 ppm	22 ppm	54 ppm

While performing the tests, it was noted that the engine temperature of the vehicle was on average, 15° F cooler during the analysis portion with the CatalystX.

## 2002 Acura MDX Test

On April 23, 2007, emission and fuel efficiency tests were conducted on a 2002 Acura MDX. Prior to the testing date, the vehicle had averaged **19.63** mpg over a distance of **47,228** while using consumer grade gasoline. Over the next four (4) months, test data was collected and consolidated upon completion. During the test period, **4,062** miles were logged. It was found that the Acura averaged **23.12** mpg during the CatalystX testing cycle. When compared to the base value, the data showed an average increase of **3.49** mpg, or **17.8%**.

Data showed an average of **23.12** mpg during the testing cycle, or an increase in **3.49** mpg (**17.8%**)

	Idle	2500 rpm	Idle	2500 rpm
HC	24 ppm	101 ppm	0 ppm	3 ppm
CO	0.01%	0.01%	0.01%	0.00%
CO <sub>2</sub>	15.50%	15.60%	14.40%	14.50%
O <sub>2</sub>	0.00%	0.00%	0.13%	0.18%
NO <sub>x</sub>	2 ppm	101 ppm	0 ppm	58 ppm



# School Bus Emissions Test

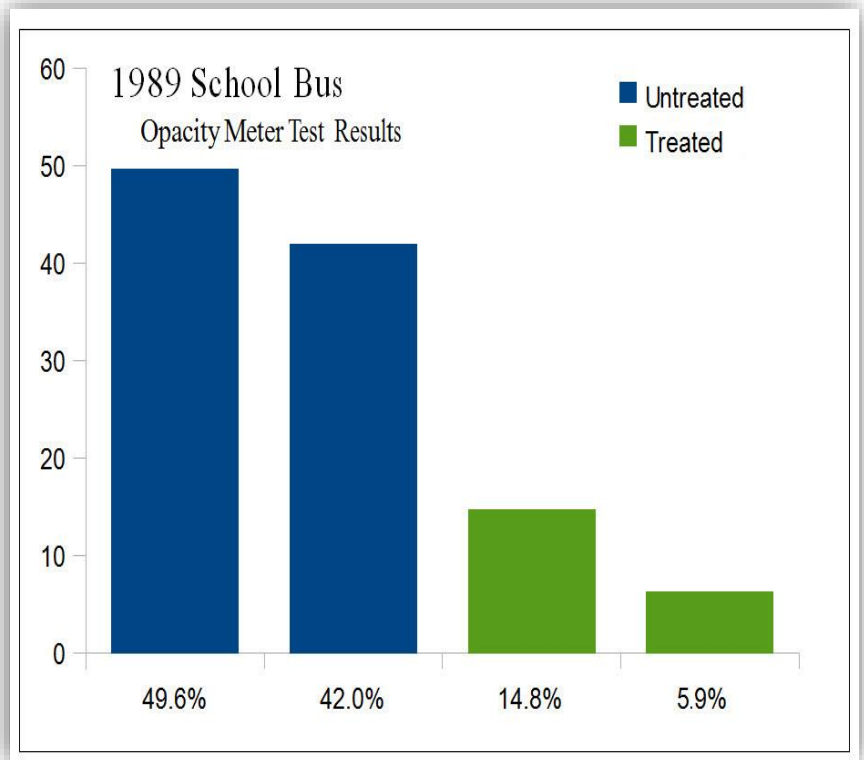
## 1989 School Bus Emissions Test

On February 13, 2009, February 14, 2009, and March 12, 2009, CatX-M conducted tests on a 1989 diesel school bus with an eight cylinder engine and four inch exhaust pipe. The tests administered were to calculate the vehicles emissions using a Wager digital smoke meter, model 6500.

CatX-M, performed two baseline snap tests, and four snap tests with the fuel CatalystX.

**Snap test consists of three max revs of the engine, where an average is taken of the three revs (snap), and rendering one opacity percentage. The opacity reading shows the average smoke density of the exhaust while revving the engine.**

The opacity readings from the two baselines snap tests on February 13, 2009 were **49.6%** and **42.0%**, snap test after adding fuel catalyst were **14.8%** and **5.9%**.



**The opacity final reading while using CatalystX 5.9%.**

***Just think how much we would clean up our air if all buses used CatalystX***





# MALAWI BUREAU OF STANDARDS

Promoting Standardization and Quality Assurance in Malawi

**MALAWI BUREAU OF STANDARDS**  
 Promoting Standardization and Quality Assurance in Malawi  
 Our SA code: **BS/04/0074** Our date: **2010-04-21**  
 Your SA code: \_\_\_\_\_ Your date: \_\_\_\_\_  
 Address Correspondence to the Director General

Mr. G Chima  
 Malawi Marketing Corporation  
 P.O. Box 1790  
 Blantyre

Report No. : **PEY/10/AN 16**  
 Sample : **FUEL ADDITIVE**  
 MBS No : **AN 1376**  
 Sample ID : **E3 Advanced Fuel Catalyst**

Tests required: Density, Appearance, Kinematic Viscosity, Flash Point, Water content, Oxidation, Ash content, Copper corrosion, Total sediment.

Test methods  
 Density : ASTM D1298  
 Appearance : Visual  
 Solubility : Water soluble  
 Kinematic viscosity: D 445  
 Flash point : ASTM D 93  
 Water content: ASTM D 95  
 Oxidation : ASTM D 98  
 Ash content : ASTM D 482  
 Copper corrosion: ASTM D 130

**RESULTS**

MBS No.	DATE TAKEN	PRODUCT NAME	CUSTOMER
AN 1376	2010/04/21	Advanced Fuel Catalyst	E3 Envision, EPC, Energy etc.

TEST	UNIT	AN 1376	Specifications
Density @ 20 °C	kg/l	0.7440	Minimum 0.725
Appearance	Visual	Clear, light	
Kinematic Viscosity, @ 40 °C	cSt	1.12	
Solubility in Water		Clear	Clear
Flash point	°C	47.0	35.4
Water content	mg/kg	12.0	10
Fuel Injector Pressure, 27.8 °C	MPa	12.0	10
Copper corrosion, 100 °C	mg	0	0
Sediment at 20 °C	mg	0	0
10% Recovery B	%	80	80
50% Recovery B	%	80	80
90% Recovery B	%	80	80
100% Recovery B	%	80	80
% Insoluble	%	0	0

**REMARKS**  
 The specifications used are according to the material safety data sheet supplied. The test values obtained are higher than the ones stated.

**EFFECT OF ADVANCED FUEL CATALYST ON FUEL CONSUMPTION AND EMISSIONS**

**FUEL TYPE**  
 An 100ml of unleaded petrol which is blended with ethanol in the ratio of 1 to 1. Ethanol has very low sulphur content. The specification of sulphur in diesel is below 0.005% by mass. This shows that it is a 100% type of fuel that was used in the experiment of checking the effect of the E3 advanced fuel catalyst on fuel consumption and emissions from the exhaust system.

**TYPE OF VEHICLES USED**  
 1.0 and 1.6 litre engines and 1.0 litre diesel engine were chosen for the test. These vehicles were chosen because they represented the population of vehicles plying on the roads of Malawi.

**FUEL CONSUMPTION AND CARBON MONOXIDE EMISSION**  
 A distance of 100km was driven from Blantyre to Mankhwa in Chitwanje was chosen. The trip starts residential area, corporate estate, highway and earth road. Initially, both vehicles ran on straight both with and without the catalyst. No catalyst was added and the distance covered was

note: Emission of carbon monoxide was tested. The same thing was done, this time, with the catalyst added. The results are in the table below.

Type of Fuel	Distance covered Km	Fuel consumption Km/l	CO Emissions (ppm)
Unleaded Petrol	190	11	0.42
Diesel	190	8	0.56
E3Advanced Fuel catalyst added			
Unleaded Petrol	190	13	0.33
Diesel	190	9.5	0.52

**CONCLUSION**  
 Fuel consumption reduced on both vehicles when the catalyst was added. The carbon dioxide emission was also reduced.

**CONSTRAINT**  
 The equipment used is an old one and it could only measure the level of carbon monoxide. It could not measure NOx, and particulate matter. The long term effect could be best assessed after using the catalyst over a long period of time.

**WAY FORWARD**  
 The Polytechnic, a constituent college of University of Malawi has acquired an emission analyser that will be used by students that will be doing research as part of their degree requirement. Hopefully, our experiment could be done again by looking at emission of NOx, ketones, particulate matter and sulphur dioxide in diesel.

**Conditions**  
 This report relates only to the samples tested and does not imply approval by the Malawi Bureau of Standards of quality or performance of the product that has been tested. It does not authorize the use of Standardisation Mark.

W.H. Muyila  
 Director- Technical services  
 For: Director General

Alick Mphembera  
 Scientific Officer (Petrochemicals)

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 For: Director General

  
**Alick Mphembera**  
 Scientific Officer (Petrochemicals)

## ***Testimonial***

### ***Mike Shindell -***

“Our Central Point police department uses a ‘98 Ford Crown Victoria as a marked unit for their volunteers. This car has 120,000 miles on the odometer and has an estimated 900 hours of just idling time during its time in service.

Prior to putting the CatalystX product in the fuel tank this car idled rough, ran sluggish, and backfired anytime you had to require extra performance from it. It would also blow out a significant amount of carbon from the tailpipes whenever the car first started and upon acceleration.

About two hours after putting the product into the vehicle it started to run better, more power and no carbon upon acceleration. When the car idled it was so smooth you could barely hear the engine running. It was a miracle as this car has seen many years of abuse.

I have also used the product in my 79 Dodge pickup, and it has improved everything including performance similar to the aforementioned police car. There is no doubt that this product works as was told to me prior to use.” *Mike Shindell*



[www.catxfuels.com](http://www.catxfuels.com)