

REEFER EFFICIENCY

A SUSTAINABLE SOLUTION



THE TRUCKING INDUSTRY TODAY

The trucking industry is experiencing high volumes of demand to transport companies' refrigerated goods all over the country. This increase in demand is creating financial implicating obstacles, including rising fuel consumption, higher fuel costs, and vehicle downtime. System inefficiencies can also cause damaged goods or merchandise, increased labor and maintenance, increased machine replacement, and loss of client(s).



THE SOLUTION IS HERE

Our revolutionary breakthrough synthetic solution creates the ideal environment for a refrigeration system. Enhancing equipment efficiency, longevity, energy reduction, and reducing fuel consumption.

- **The solution is specifically designed to improve the operational performance of refrigeration systems**
- **Improves efficiency of heat exchange within the equipment, which enables the system to reach the temperature set-point faster**
- **Accelerates cooling, yielding long-term fuel savings for a fleet**
- **Increases the life of the equipment**
- **Exceed cold chain standards (warehousing, transportation, storage)**
- **Will not void the manufacturers warranty**
- **Fast and simple installation**

OVERWHELMING BENEFITS



ENERGY EFFICIENCY

Our solution contains no ozone-depleting characteristics. On average, expect a 20%+ increase in energy efficiency.



FUEL/KWH & COST SAVINGS

Reduce cooling times and cost savings across the refrigerated products cool chain, including pre-cooling, storage, transportation, and retail.



GREEN TECHNOLOGY

Our solution is a non-toxic, non-hazardous, certified green technology that reduces energy consumption, lowering carbon emissions.



TESTED AND APPROVED

Vigorous tests completed by an unbiased organization proved reduced fuel consumption, increased cooling capacity, and decreased run time.

CONTACT OUR TEAM

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Maximizing Efficiency and Sustainability

Realize the financial, operational, and environmental benefits

By implementing our technology in refrigerated trailers, companies can make a substantial financial, operational, and environmental impact across various industries.

On average, clients can achieve **more than 20%** in savings, with fleets potentially seeing a 1000% return on investment (ROI) after operating for five years following installation.

- **Diesel Consumption:** By improving compressor efficiency, diesel consumption is significantly reduced, enabling the unit to reach its temperature target faster and cycle off more frequently.
- **Delivery Schedules:** Quicker recovery of temperature set-points in refrigerated trailers leads to reduced equipment downtime, enhancing the quality and safety of perishable shipments.
- **Carbon Emissions:** Lowering a truck's refrigeration unit's diesel consumption has an immediate effect on reducing carbon emissions. Each gallon of diesel burned by a truck's refrigeration compressor produces 22.2 pounds of CO₂. Implementing our technology in a fleet can lead to the reduction of millions of pounds of carbon emissions annually.



The calculations below are based on treating 25 reefer units with maximum equipment utilization considered:

Annual Savings		15% Savings	20% Savings	30% Savings
Diesel Saving Per Unit	275 gallons (1,040L/yr)	412 gallons (1,560L/yr)	549 gallons (2,080 L/yr)	824 gallons (3,120 L/yr)
GHG Reductions Per Unit	6,217 pounds (2.82 tonnes)	9,326 pounds (4.23 tonnes)	12,434 pounds (5.64 tonnes)	18,651 pounds (8.46 tonnes)
Fleet GHG Reductions	155,425 pounds (70.5 tonnes)	233,028 pounds (105.7 tonnes)	310,631 pounds (140.9 tonnes)	466,057 pounds (211.4 tonnes)

Savings Equivalent (based on 20% Savings)

327.7	20.8	15,857	29.8
Barrels of oil consumed	House hold electricity bills	Gallons of gasoline consumed	Passenger vehicles driven for one year

Additional Benefits



Noise Reduction



Cooling Acceleration



Improves lubricity



Optimum efficiency



Tighter temperature control



Less Vibration

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Additive Case Study

Delivering Significant Savings in Operating Costs

A credited third-party technology testing organization conducted tests to measure the solution's impact on fuel consumption of a refrigeration unit (reefer). The tests are conducted on a 48-ft refrigerated van semitrailer in two different conditions:

- The refrigeration unit with no technology installed (**Baseline segment**); and
- The refrigeration unit with the product installed (**Final segment**).

Results of the fuel consumption tests performed on the product installed on the refrigeration unit showed **fuel savings of 14.30%**, which could lead to a reduction in greenhouse gas (GHG) emissions of 2.60 tonnes per vehicle each year.

The product could yield additional benefits during normal vehicle operation, based on its ability to accelerate cooling, which could translate into greater long-term fuel savings for a fleet implementing this product.

Test Run	Consumed Fuel, kg		B/F Ratio	Fuel Savings, %
	Baseline Test Segment	Final Test Segment		
Bringing temp to -10C				
Conditioning	9.88	8.98	1.1	9.11
Fuel Consumption Test Runs				
1	7.58	6.84	1.108	9.76
2	6.6	5.76	1.146	12.73
3	7.08	5.62	1.26	20.62
Total	21.26	18.22	1.167	14.3

Mean B/F Ratio	B/F coefficient of variation %
1.171	6.739
Average Fuel Savings for the three test runs F, %	
14.3	



Decreased Run Time

Increased in average stop time by **15%** for the durations of the test.



Reduced GHG Emissions

Tests conclude reduction in GHG emission of **2.60** tonnes per vehicle each year.



Faster Cool Down Schedules

The time required to bring the trailer interior temperature to -10C was reduced by **15 minutes** after installation.



Reduced Fuel Consumption

Fuel consumption test performed on the unit showed fuel savings of **14.30%**.

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FAQ's

1.

How often does the solution need to be added to the equipment?

In most cases, the solution is **installed once** and lasts for the lifetime of the system. Many fleet operators implement the solution into their next round of maintenance schedules to optimize truck utilization.

2.

What is the average ROI?

The average payback is 10 months or less depending on how frequently the equipment is operated. After 5 years, expect an average of 1000% ROI.

3.

Are there other industries where the application has been applied?

Yes. Our solution has been effective in many other industries, including schools and universities, hospitals, data and server centers, convention centers, airports, apartment buildings, restaurants, hotels, warehouses, and many more.

4.

Will applying this solution to a new reefer unit improve its efficiency?

Yes, the solution will improve the efficiency of new equipment. The compressors that run HVAC and cooling systems suffer from oil fouling. The American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE), recognizes this inefficiency and agrees systems work harder and cost more to operate when this condition is present.

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