Extending Oil Drain Intervals Safely with Balanced Formulations

The webinar will begin in less than 10 minutes.

Mystik LUBRICANTS

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Extending Oil Drain Intervals Safely with Balanced Formulations

The webinar will begin in less than 5 minutes.

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CITGO LUBRICANTS

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TEST YOUR KNOWLEDGE

Which of the following factors primarily influences oil drain intervals in heavy-duty trucks?

- Engine Type and Operating Conditions
- Tire Size and Brake Type
- Truck Color and Driver Experience
- Fuel Type Only

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TEST YOUR KNOWLEDGE

CITGARD 700 Synthetic Blend 10W-30 engine oil helps extend oil drain intervals by providing enhanced wear protection and increased oxidation resistance.

True

False

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TEST YOUR KNOWLEDGE

Why is cylinder wall honing important?

- Helps Create the Perfect Engine Sound
- Helps Retain Engine Oil in the Cylinder Wall to Lubricate the Piston Rings
- It's Not Important
- Creates Friction Energy That is Used to Charge Batteries

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Extending Oil Drain Intervals Safely with Balanced Formulations

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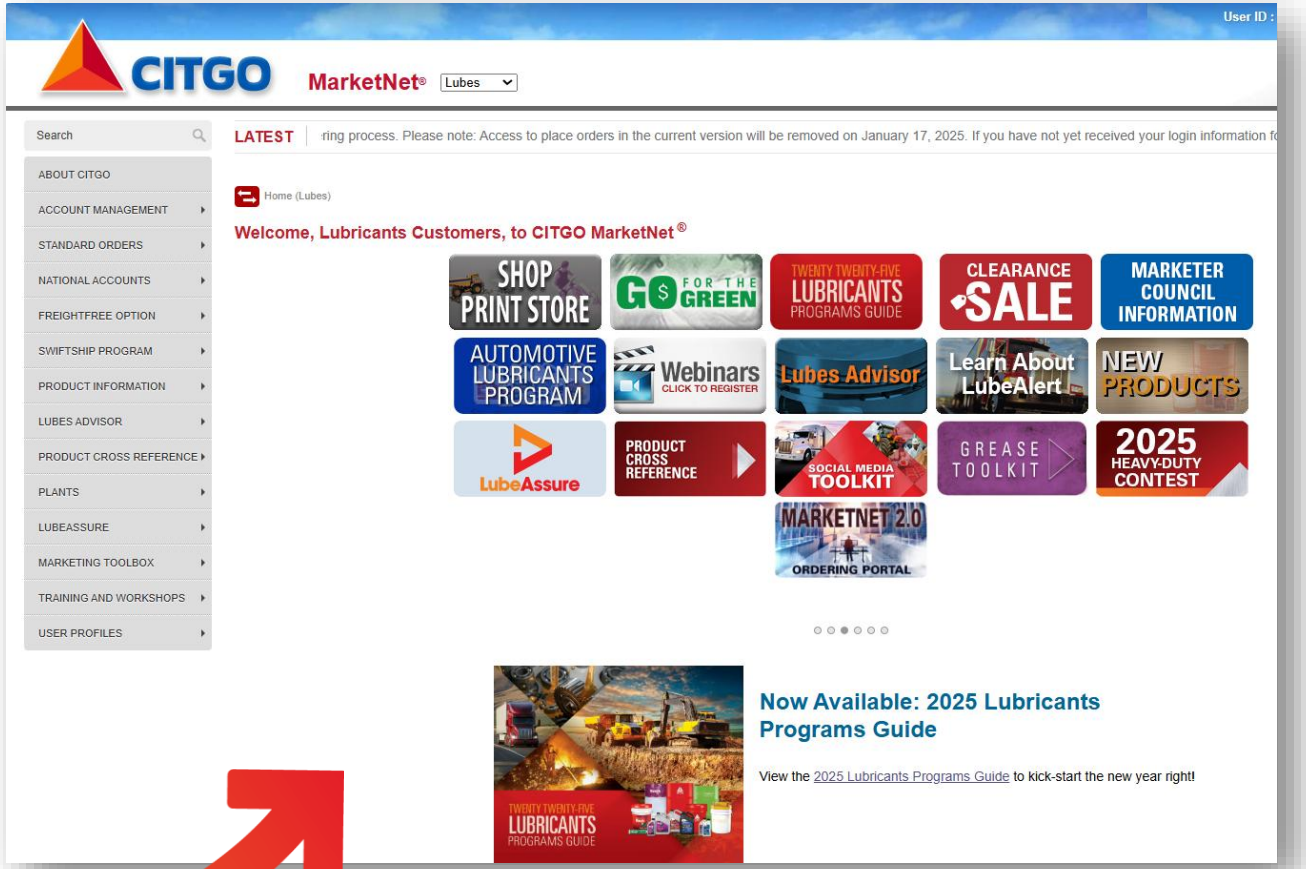
Amber Fessler - NLGI CLGS; STLE CLS & OMA-I

- CITGO Senior Sector Manager
- Materials Engineer
- 14 Years of Experience in Lubricants
- STLE Certified
  - Certified Lubrication Specialist
  - Oil Monitoring Analyst I
- NLGI Certified
  - Certified Lubricating Grease Specialist

Want Resources?

- Program Guides
- Support Literature
- Social Media Toolkit
- Webinars



Future Webinars

August 25: Building Your Industrial Expertise

September 29: Creating Value Through Oil Analysis, Part I

October 27: Creating Value Through Oil Analysis, Part II

Steven Bowles – CLS & OMA-I

- CITGO Sr. Product Specialist
- B.S. Zoology & M.S. Environmental Science
- 21 Years of Experience in Lubricants
- 16 Years of Experience in Laboratory Supervision/Analytical Chemistry

Brandon Thompson

- Product Manager
- B.S. Chemistry
- 20 Years of Experience in Lubricants including:
  - QC Lab Technician
  - QC Laboratory Manager
  - Product Specialist
  - Sr. Lubes Compliance Specialist

Agenda

- Heavy-Duty Truck Maintenance
- Understanding Oil Drain Intervals
- Introducing CITGARD 700
- Extending Oil Drain Intervals Safely
- Implementing CITGARD 700

What to Know About

Heavy-Duty Truck Maintenance

Overview

Heavy-Duty Truck Operations

Demanding Operating Conditions

Heavy-duty trucks are designed to operate in tough environments, facing challenges such as long hours and heavy loads.

Maintenance Schedules

Regular and robust maintenance schedules are crucial to keep heavy-duty trucks in optimal working condition and prevent breakdowns.

Wear and Tear Management

Significant wear and tear occur during operations, making it essential to address maintenance proactively to ensure reliability.

Importance of Regular Maintenance

Safety Assurance

Regular maintenance ensures the safety of heavy-duty trucks, preventing accidents caused by mechanical failures.

Performance Optimization

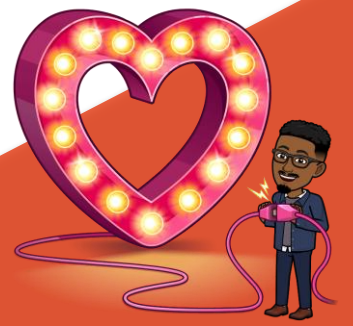
Routine maintenance optimizes the performance of trucks, ensuring they operate efficiently under demanding conditions.

Cost Prevention

Regular maintenance helps in preventing costly breakdowns and repairs, saving money in the long run.

Longevity of Vehicles

Frequent maintenance extends the lifespan of heavy-duty trucks, ensuring they meet operational demands over time.



Common Maintenance Challenges

High Operational Costs

Heavy-duty truck maintenance often incurs high operational costs, affecting overall budget and profitability.

Demanding Operating Conditions

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Understanding

Oil Drain Intervals

What Are Oil Drain Intervals?

Definition

Oil drain intervals refer to the specific duration or mileage that engine oil can be utilized before it needs replacement.

Importance

Maintaining proper oil drain intervals is essential for optimal engine performance, ensuring smooth operation and efficiency.

Prevention

Regularly changing oil according to recommended intervals helps prevent damage caused by oil degradation and contaminants.

Industry Standards & Practices

Factors Influencing Standards

Industry standards for oil change intervals depend on engine type, operating conditions, and the quality of oil used.

Fleet Management Scheduling

Setting appropriate maintenance schedules based on industry standards helps fleet managers optimize vehicle operation and minimize downtime.

Factors Affecting Oil Drain Intervals

	<5.0 MPG	5.0-5.5 MPG	5.5-6.0 MPG	6.0-6.5 MPG	6.5-7.0 MPG	>7.0 MPG	> 7.5 MPG
Cummins X15	25k miles	50k miles		60k miles		75k miles (up to 100k with Oil Guard)	
Detroit DD15	35k miles	45k miles		60k miles		75k miles	
Detroit DD13	35k miles	40k miles		55k miles		65k miles	
Navistar A26	20k miles		30k miles		50k (up to 70k with oil sampling)		
Mack MP7/MP8	35k miles* / 30k miles	45k miles* / 40k miles		60k miles* / 55k miles			
Volvo D11/D13	35k miles**/ 30k miles	45k miles**/ 40k miles		60k miles**/ 55k miles			75k miles**/ 55k miles

	Severe / Vocational	Normal / Line Haul, >20% Idle	Normal / Line Haul, < 20% Idle
PACCAR MX-11/MX13	25k miles	50k miles	60k miles

* Using Genuine Mack EOS-4.5 Premium Oil
** Using Volvo Premium Motor Oil VDS-5

Severe
Short Haul / Heavy
Long Haul / Normal
Efficient Long Haul / Light / Economy

Introducing

CITGARD 700
Synthetic Blend 10W-30

Enhanced Wear Protection

CITGARD 700 provides enhanced wear protection for equipment, ensuring optimal performance and longevity under various conditions.

Increased Oxidation Resistance

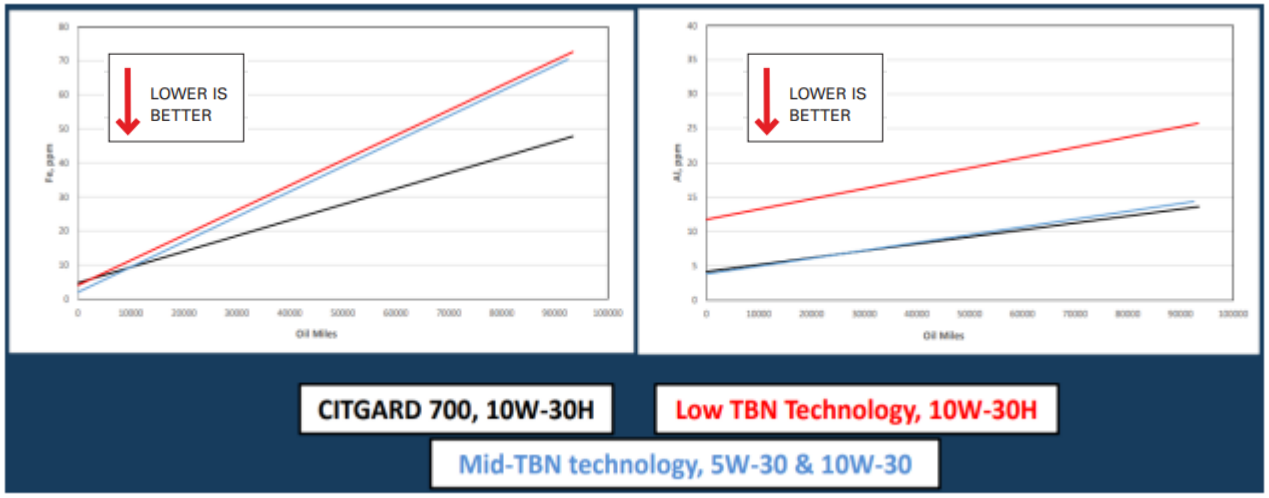
CITGARD 700's increased resistance to oxidation helps maintain oil quality, leading to reduced maintenance and operational costs.

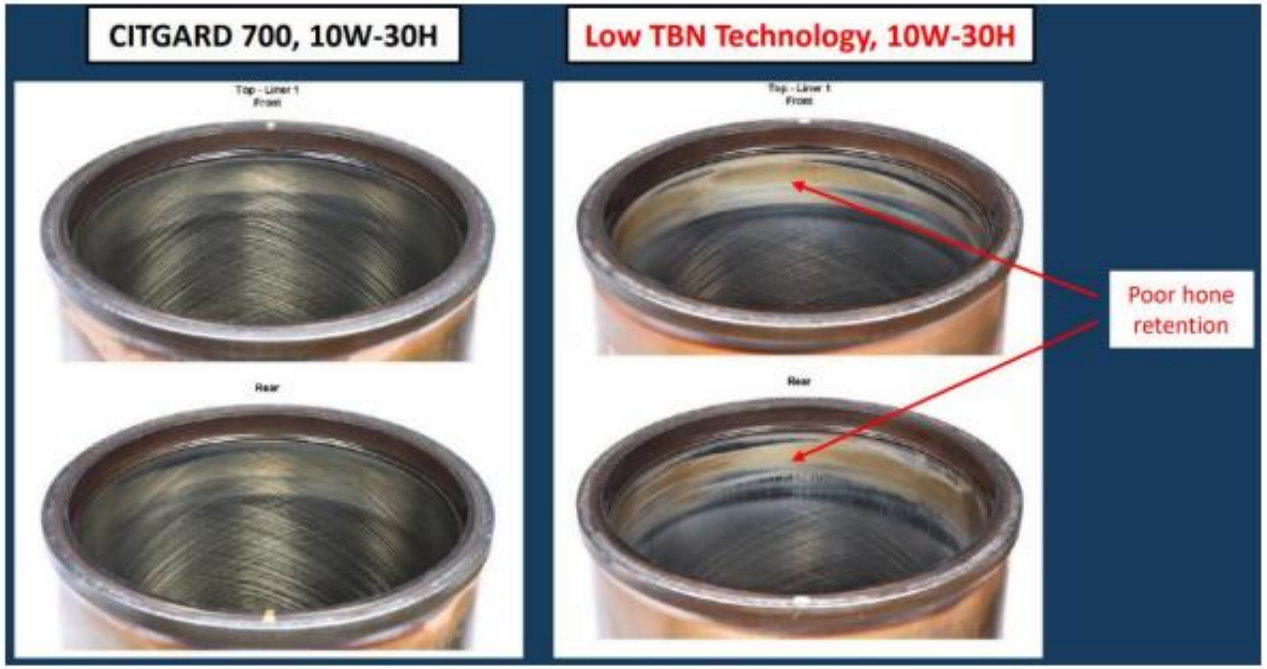
Longer Oil TBN Life

With these benefits, CITGARD 700 contributes to longer oil TBN life, promoting efficiency and cost-effectiveness in maintenance.

CITGARD 700 Features and Benefits

Enhanced Wear Protection





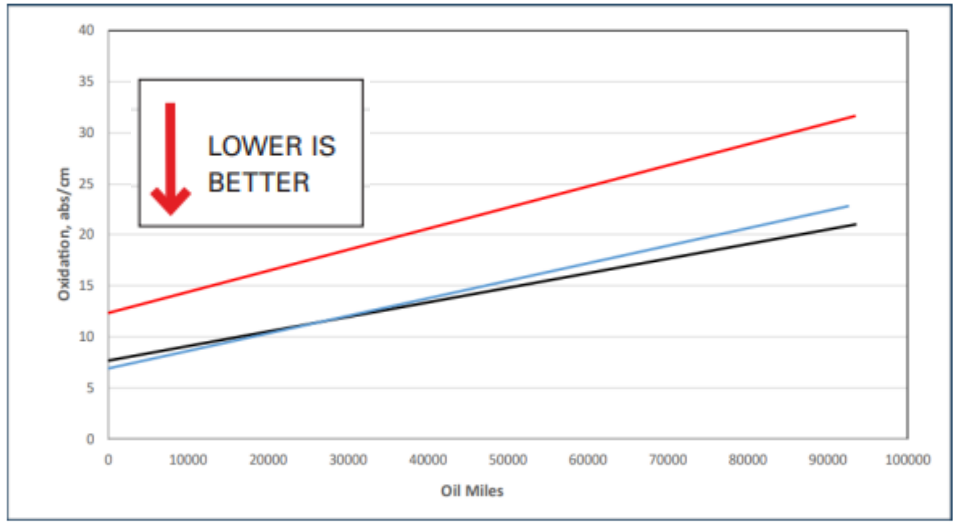
Wear Protection

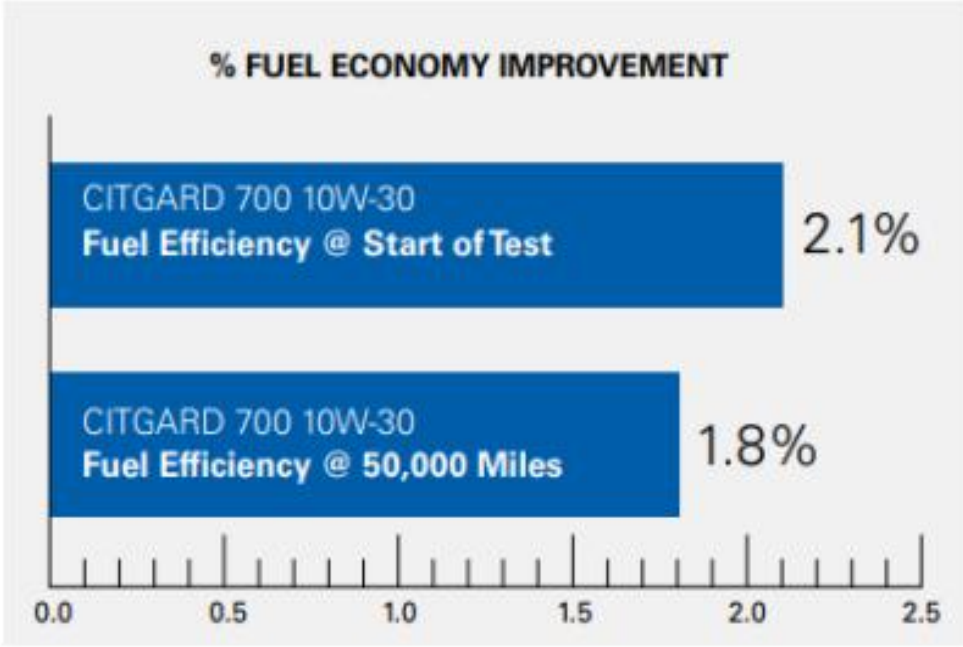
CITGARD 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30 protects the engine through superior wear protection.

Field Trial Results

- Lower Fe and Al than competitors
- Better honing retention

Increased Oxidation Resistance



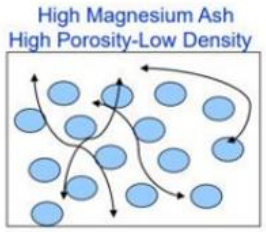


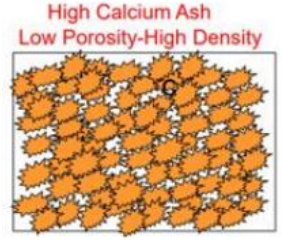
Longer TBN Life

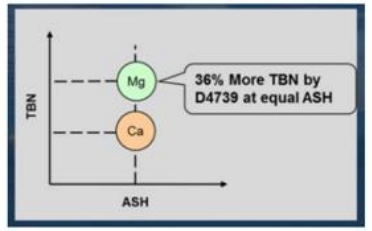
CITGARD 700 Synthetic Blend 10W-30 has among the **highest TBN and TBN retention performance in the industry** due to its balanced detergent additive package.

Magnesium ash tends to be more porous and less dense than Calcium ash, which produces the following benefits:

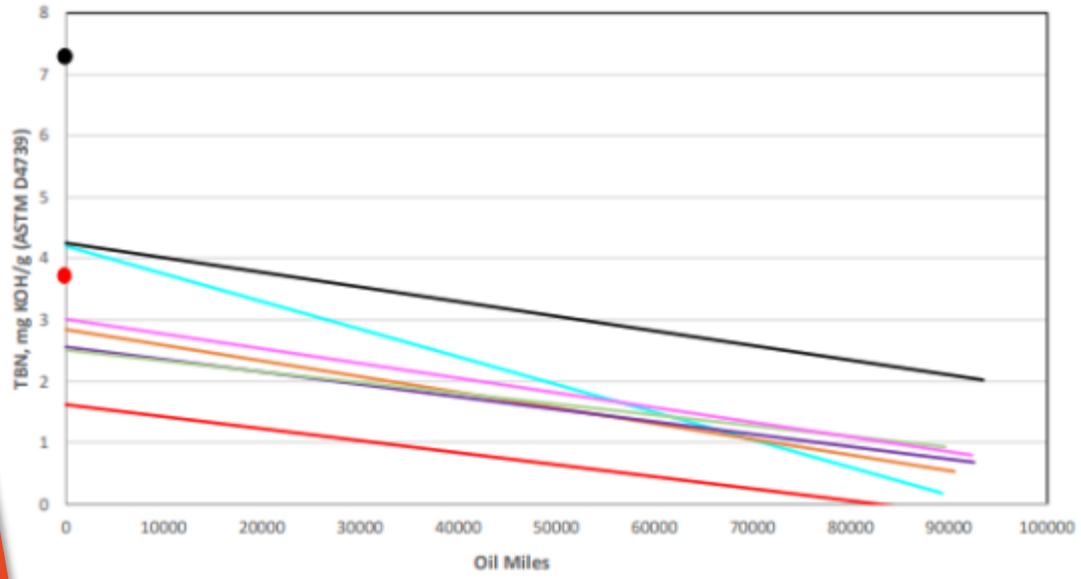
- Reduced exhaust flow resistance
- Reduced back pressure (50%)
- Less workload on engine
- Improved fuel efficiency







Technology	85K TBN	SOT TBN
CITGARD 700	2.3	7.2
Low TBN Technology	0	3.7
Mid TBN Technology (average)	1.0	5.5



Efficiency: Fuel Economy Concept

	Major Brand API FA-4 10W-30	CITGARD 700 MFE API FA-4 10W-30
Ca ppm	2028	1044
Mg ppm	100	1000
P ppm	964	1152
Miles/Regen	913	3153
Overall MPG	6.91	7.23
Fuel savings (USD) ~$19,500/vehicle per lifetime		

Source: Infineum Run ~500K Mile DD15 Field Trial

Extending

Oil Drain Intervals Safely

Field Tests & Performance Data

Foodliner®/Quest Liner® Increased Oil Drain Intervals by 24.3% After Transitioning to CITGARD® 700 MFE Synthetic Blend Heavy Duty Engine Oil SAE 10W-30

One of the largest bulk food grade and specialty chemical carriers in the United States – Foodliner/Quest Liner– operates a fleet consisting of older and newer diesel and multi-fuel engines transiting varying temperature ranges across North America. Extending engine oil drain intervals and reducing annual fuel costs are top business priorities.

Always looking to deliver better results, CITGO presented tools and resources to help Foodliner/Quest Liner analyze their fleet to gain insights on how low viscosity engine oils, specifically formulated to extend oil drain intervals and improve fuel economy, could exceed their expectations.

Following consultations with CITGO technical experts and utilizing CITGO LubeAlert® Fluid Condition Monitoring Service, Foodliner/Quest Liner doubled their oil drain interval to 48,000 miles with CITGARD 600 and then increased to 72,000 miles with CITGARD 700 SAE 10W-30. **After evaluating fleet performance, Foodliner/Quest Liner transitioned to CITGARD 700 MFE Synthetic Blend Heavy Duty Engine Oil SAE 10W-30, extending their oil drain interval to 90,000 miles. The data proved that switching to CITGARD 700 MFE Synthetic Blend Heavy Duty Engine Oil 10W-30 increased their oil drain interval by 24.3%.**

In 2021, Foodliner/Quest Liner acquired another fleet. The acquisition came with a new set of challenges, including new engine technology that utilized compressed natural gas (CNG) fuel. After consultation with the CITGO team, Foodliner/Quest Liner, began using Multi-Fuel CITGARD 800 Synthetic Blend Heavy Duty Engine Oil (formerly CITGARD CNG/LNG Engine Oil).

The Dependable Approach to Sales

The CITGO team worked closely with Foodliner/Quest Liner's Maintenance Director, Kyle Neumann, to provide excellent lubrication recommendations. Doing so gave the maintenance team the confidence to prolong oil drain intervals, extend dry preventive maintenance and drop several wet maintenance schedules. For Foodliner/Quest Liner, these changes translated to lower cost per mile, increased driver uptime, lower maintenance costs and improvement in delivery timelines.

Results may vary based on operating conditions and other factors. For guaranteed results, speak to your CITGO authorized representative about the CITGO Guaranteed Efficiency Program.

"When we first joined the CITGO team, we were at 24,000 mile oil drain intervals. We thought we took a great big leap when we went to 48,000. And it was with the help of the whole CITGO team that we were able to extend that to where we're at now at 90,000 miles."

– Kyle Neumann
Maintenance Director at Foodliner/Quest Liner

Foodliner Going The Distance | QUEST LINER

CITGO LUBRICANTS

MDS, Inc. Increased Oil Drain Interval to 75,000 Miles After Utilizing CITGARD 700 & Mystik Lubricants

MDS, Inc., an asset-based logistics provider, operates a fleet of 268 trucks and 510 trailers that services the contiguous United States and Canada. Controlling their costs for maintenance and repairs in order to keep their trucks on the road for longer is a top business priority.

Always looking to suggest products that can deliver better results, the CITGO Lubricants team recommended CITGO® CITGARD® 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30. The low-viscosity engine oil is specifically formulated to extend oil drain intervals and improve fuel economy.

Once MDS, Inc. upgraded to the Cummins-approved CITGARD 700 SAE 10W-30 oil and other supporting Mystik lubricant products, it allowed them to safely increase their oil drain interval to 75,000 miles with zero failures attributed to lubrication.

"Due to our experience with CITGARD and Mystik® Lubricants, we feel comfortable extending our oil drain interval to 75,000 miles. We use any product offered by CITGO in our trucks."

– David Hyde
Director of Maintenance, MDS, Inc.

The Trustworthy Approach to Sales

CITGO Lubricants technical experts have partnered with MDS, Inc. since 2018 to deliver top-tier lubrication recommendations. This collaboration has consistently ensured their fleet's maintenance performance and operations run smoothly and efficiently.

CITGO LUBRICANTS | Mystik LUBRICANTS | MDS MORRISTOWN DRIVERS SERVICE INC.

Results may vary based on operating conditions and other factors.

For guaranteed results, speak to your CITGO authorized representative about the CITGO Guaranteed Efficiency Program.

Best Practices

for Safe Extension

1. Monitor Engine Oil Performance
2. Regular Inspections
3. Follow Manufacturer Guidelines

Implementing

CITGARD 700

Steps for Integration

Into Existing Maintenance Plans

Assess Current Practices

Evaluate existing maintenance procedures to identify areas for integration of CITGARD 700 effectively.

Training Programs

Implement training programs for staff on the benefits and usage of CITGARD 700 in maintenance routines.

Adjusting Schedules

Modify maintenance schedules to optimize the benefits of integrating CITGARD 700 into operations.

Training and Education

Training equips fleet managers with knowledge about CITGARD 700, enhancing operational efficiency and effectiveness.

Fleet managers need to understand the advantages of CITGARD 700 to maximize its potential within their operations.

Proper implementation is crucial for fleet managers to achieve optimal results and improved fleet performance.

Monitoring &

Adjustment Strategies

- Regular monitoring maintains efficiency and prevents potential issues during operation.
- Oil analysis provides insights into engine wear and lubrication.
- Adjusting maintenance strategies based on monitored data ensures optimal performance and prolongs the lifespan of components.

CITGARD 700

Benefits: CITGO CITGARD 700 Synthetic Blend 10W-30 significantly extends oil drain intervals, benefiting overall maintenance strategies.

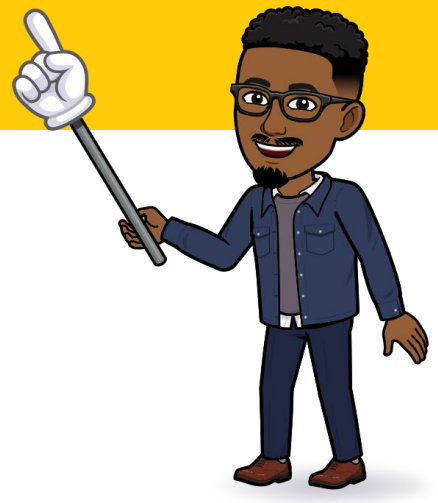
Enhanced Engine Performance

Fuel Efficiency Improvement

Cost Savings Achieved

Questions?

Please post your questions using the Q&A function.



For technical inquiries or issues:
Lubes Answer Line 800-248-4684
lubeshelp@citgo.com

CITGO LUBRICANTS

Thank You!

See you next time