

Guiding Customers and Solving Problems with PI Sheets

The webinar will begin in
less than 10 minutes.



Guiding Customers and Solving Problems with PI Sheets

The webinar will begin in
less than 5 minutes.





TEST YOUR KNOWLEDGE

How many spark plugs does a 12-cylinder Diesel engine have?

6

8

12

0





TEST YOUR KNOWLEDGE

What does the W in 5W-30 stand for?



Whole

Winter

Weight

Wrap





TEST YOUR KNOWLEDGE

What is the most important property of an oil?



Base Number (TBN)

Color

Viscosity

Cleanliness



Guiding Customers and Solving Problems with PI Sheets



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?



CITGO MarketNet® Lubes

Search

ABOUT CITGO

ACCOUNT MANAGEMENT

STANDARD ORDERS

NATIONAL ACCOUNTS

FREIGHTFREE OPTION

SWIFTSHIP PROGRAM

PRODUCT INFORMATION

LUBES ADVISOR

PRODUCT CROSS REFERENCE

PLANTS

LUBEASSURE

MARKETING TOOLBOX

TRAINING AND WORKSHOPS

USER PROFILES

LATEST

Welcome, Lubricants Customers, to CITGO MarketNet®

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Twenty Twenty-Five Lubricants Programs Guide

Clearance Sale

Marketer Council Information

Automotive Lubricants Program

Webinars

Lubes Advisor

Learn About LubeAlert

New Products

LubeAssure

Product Cross Reference

Social Media Toolkit

MarketNet 2.0 Ordering Portal

Grease Toolkit

2025 Heavy-Duty Contest

Now Available: 2025 Lubricants Programs Guide

View the [2025 Lubricants Programs Guide](#) to kick-start the new year right!

Future Webinars

**2026 Schedule
Coming soon
on MarketNet**



Julio Acosta – STLE OMA-I, ICML MLA-II

- Product Specialist
- B.S. Mechanical Engineering
- 28 Years of Experience in Lubricants including:
 - Field Engineering
 - Used Oil Analysis
 - Supply Chain Management
 - Account Services
 - Sales



Matthew Gerber – STLE CLS & OMA-I

- CITGO Sr. Product Specialist
- B.S. Mathematics & Chemistry
- M.S. Mathematics
- 14 Years of Experience in Lubricants
- 10 Years of Laboratory Experience





Product Information Sheets

Product Claims

Guiding Customers & Solving Issues

Where to Find CITGO, Mystik
and Clarion PI Sheets

Agenda

Product **Information Sheets**



Product Information Sheets (PI)

- The PI sheets contain information about the specific product for which it is prepared. The formatting is standard for all 3 brands that CITGO carries and markets – CITGO®, Mystik®, and Clarion®
- These sheets aid our SAM (Senior Account Managers) and MSM (Marketer Sales Manager) in providing customers and users with the best recommended product
 - A list of industry and OEM approvals met by the product are listed
 - Specifies the type of application where the product will be most suitable and will perform best
 - Shows specific data on the product
 - Allows for informed discussions with users

Product Information Sheet (PI) - Format

Product name



PRODUCT INFORMATION SHEET

CITGO® CITGARD® 800 Synthetic Blend Heavy Duty Engine Oils

Formerly CITGO® CITGARD® CNG/LNG Engine Oils

CITGO LUBRICANTS

OVERVIEW

- Specially formulated for natural gas (CNG/LNG), diesel, and gasoline fueled engines. Available in SAE 15W-40 and 10W-30 viscosity grades.
- Use CONVERGE Engine Oil Advantage to provide multi-fuel fleet with optimum performance capability without compromising overall performance.

FEATURES & BENEFITS

- Meet Cummins CES 20092.
- Excellent for fleets wanting one oil to reduce inventory in a mixed fleet with a variety of applications.
- Additive technology delivers superior oxidation and nitration protection combined with a shear-stable VI improver to maintain viscosity, ensuring wear protection in severe applications.
- This unique formulation provides superior engine deposit control, reducing the tendency for valve guttering due to higher combustion temperatures in CNG engines and oil oxidation in the higher operating temperatures of modern diesel engines.
- Field-tested up to 50,000 miles and 1000 hours with 'headroom' results that demonstrate protection against deposits, corrosion, and liner and tappet wear.
- Maintain TAN and TBN reserve for optimum protection when longer oil service life is needed.
- CONVERGE additive technology provides excellent cold-weather pumpability, foam protection, exceptional oxidation and nitration control, overall engine cleanliness, and reduced oil consumption.
- The SAE 10W-30 grade is designed to improve fuel economy and is licensed API SN service category. Gasoline-powered pickup trucks and similar vehicles can take advantage of this technology where this grade is recommended by the OEM.

APPLICATIONS

CITGARD with CONVERGE Advantage delivers:

- C** – Clean engine and corrosion protection field-tested up to 50,000 miles and 1,000 hours.
- O** – Oxidation – 100% better than test limit extended to over 1,000 hours
- N** – Nitration – low nitration with extended 1,000 hours ODI
- V** – Viscosity shear stability
- E** – Extendable ODI to standardize diesel/CNG service
- R** – Reduce pressure drop in DPF and regeneration event frequency while also reducing engine wear and maintaining low iron wear out to 1000-hour ODI
- G** – Guaranteed results or money back
- E** – Eliminates the need for three different engine oils for a multi-fuel type fleet

CITGO Petroleum Corporation
Houston, Texas

Customer Service Line
1-800-331-4068
LubesCS@CITGO.com

Product Answer Line
1-800-248-4684
lubeshelp@CITGO.com

Online at
www.CITGOLubes.com

Manufactured in USA

C 10128

Overview

- A short description of the product.

Features and Benefits

- Relevant performance benefits.

Applications

- How to use the product
- Industry and OEM approvals
- Specific Applications where the product is recommended.

Product Information Sheet (PI) - Format

Properties

- The physical and chemical properties of the product.



CITGO LUBRICANTS CITGO CITGARD CNG/LNG Engine Oils

APPLICATIONS

Approved for:
Cummins CES 20092
Cummins CES 20086
Caterpillar ECF-3

Detroit Diesel DFS 93K222
Volvo/Mack/Renault - VDS-4.5/EOS-4.5/RLD-3
API CK-4/SN

Volvo T-13 Results Oil Oxidation

Field Test Results Cummins ISL-G 8.9L/320 HP

Oil Oxidation

Oxidation A/cm vs Oil Drain Hours

100% Better oxidation protection than specification 20% below Volvo VDS-4.5 limit

CITGARD CNG/LNG with Converge Technology. Field-tested to 700 hours with superior oxidation stability

PROPERTIES

Typical Properties for CITGO CITGARD CNG/LNG Engine Oils:

SAE Grade	10W-30	15W-40
Material Code	632019	632020
Gravity, ASTM D4052, °API at 60°F	31.5	30.0
Pounds/Gallon at 60°F	7.3	7.3
Viscosity ASTM D445		
cSt at 40°C	86	124
cSt at 100°C	12.2	15.7
Viscosity Index	137	134
CCS Viscosity, cP, @ Temperature	6550 @ -25°C	5470 @ -20°C
MRV Viscosity, cP, @ Temperature	22500 @ -30°C	20000 @ -25°C
MRV Yield Stress, Pa, @ Temperature	<35 @ -30°C	<35 @ -25°C
Pour Point, °F (°C)	-42 (-44)	-39 (-38)
Flash Point, COC, °F (°C)	207 (405)	210 (410)
Noack Volatility, ASTM D5800, % Loss	11	10
Color, ASTM D1500	L4.0	L4.0
Total Base Number, ASTM D2896	10	10
Sulfated Ash, ASTM D874, % wt	0.9	0.9

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CITGO Petroleum Corporation Houston, Texas

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Mystik® Products

PRODUCT INFORMATION SHEET

Mystik® JT-6® Hi-Temp Greases



OVERVIEW

- Extremely versatile, high-temperature lithium complex greases that combine excellent multi-purpose properties with a high dropping point for application over a wide temperature range.
- Superior protection for a wide variety of automotive, agricultural, trucking, mining, construction, and industrial equipment.

FEATURES & BENEFITS



- High Timken OK Load.
- Excellent Four-Ball Wear and extreme pressure (EP) performance.
- Outstanding shock load protection.
- Highly recommended for disc brake wheel bearings.
- Approved for use in Rockwell and Spicer universal joints.
- JT-6 Hi-Temp No. 1 developed for applications where service conditions dictate a grease of softer consistency.
- Both grades meet the highest performance categories of ASTM D4950 Automotive Grease Classification System, GC for wheel bearing service and LB for chassis service.
- Registered NSF H2 (125250).



APPLICATIONS



- Heavily loaded industrial, mining, and construction applications.
- Severe service requirements such as disc brake wheel bearings, backhoe hinge pins, and conveyor bearings.
- Mining operations, sand/gravel plants, and construction equipment where shock loads are placed on bearings.
- Refer to equipment owner's manual for proper lubricant recommendation.

Approved for:

- Dana Corporation
- Spicer Universal/Joint Division
- M-2006-J (#2)
- Registered NLGI GC-LB
- Weatherford Artificial Lift (#2)

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Petroleum Corporation
Houston, Texas

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LubesCS@CITGO.com

Product Answer Line
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lubeshelp@CITGO.com

Online at
www.mystikubes.com

Manufactured in USA
M36025

CLARION® Products

PRODUCT INFORMATION SHEET

CLARION® Food Machinery A/W Oils



OVERVIEW

- Designed specifically for use as lubricants for food processing equipment.
- Formulated with a high purity white mineral oil and additive system for food processing applications.
- Does not contain any natural products derived from animals, nuts or genetically modified organisms (GMOs).
- Suitable for use where vegetarian and nut-free food is prepared.

FEATURES & BENEFITS



- Colorless, odorless, tasteless, non-staining lubricants that provide excellent wear, rust, and oxidation protection.
- Meet the requirements of U.S. FDA regulation 21 CFR 178.3570 for incidental food contact.
- NSF H1 registered for use in food processing plants under the jurisdiction of the USDA.
- Certified under NSF/ANSI/CAN Standard 61 (ISO 32 and 68 grades only).
- Certified as Kosher (Passover) with the Union of Orthodox Jewish Congregations of America (OU) *.
- Certified as Halal with the Islamic Food and Nutrition Council of America (IFNA) **.



Certified to
NSF/ANSI/CAN
Standard 61
Clarion Food Machinery
A/W 32 and A/W 68 Oils
(ONLY)

APPLICATIONS

- General purpose lubricants for machinery that processes, packages, or transports food for human consumption.
- Recommended for medium pressure hydraulic systems and circulating systems in food processing, canning, and bottling operations. Can also be used in air line lubrication applications.
- ISO 68 and 100 grades may be used in food machinery worm gears, spur gears, and valves.

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Houston, Texas

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LubesCS@CITGO.com

Product Answer Line
1-800-248-4684
lubeshelp@CITGO.com

Online at
www.clarionlubricants.com

Manufactured in USA
CL10102

Product Claims



Product Claims

Question: Why doesn't your product information sheet list a particular performance claim, when several of your competitors do?

Answer: There are several possibilities:

- CITGO has not been made aware of the claim/requirement prior to publishing the technical information
- The specification might be obsolete and superseded by a new one
- Verification must follow an expensive testing process.
- OEM has not certified/published the product as being approved
- Product might be suitable for use, but does not comply with all the requirements for approval



Know the Difference

Formal Approval

- Approval has been given by a 3rd party certifying organization or OEM that the lubricant product meets a set of specifications and requirements.

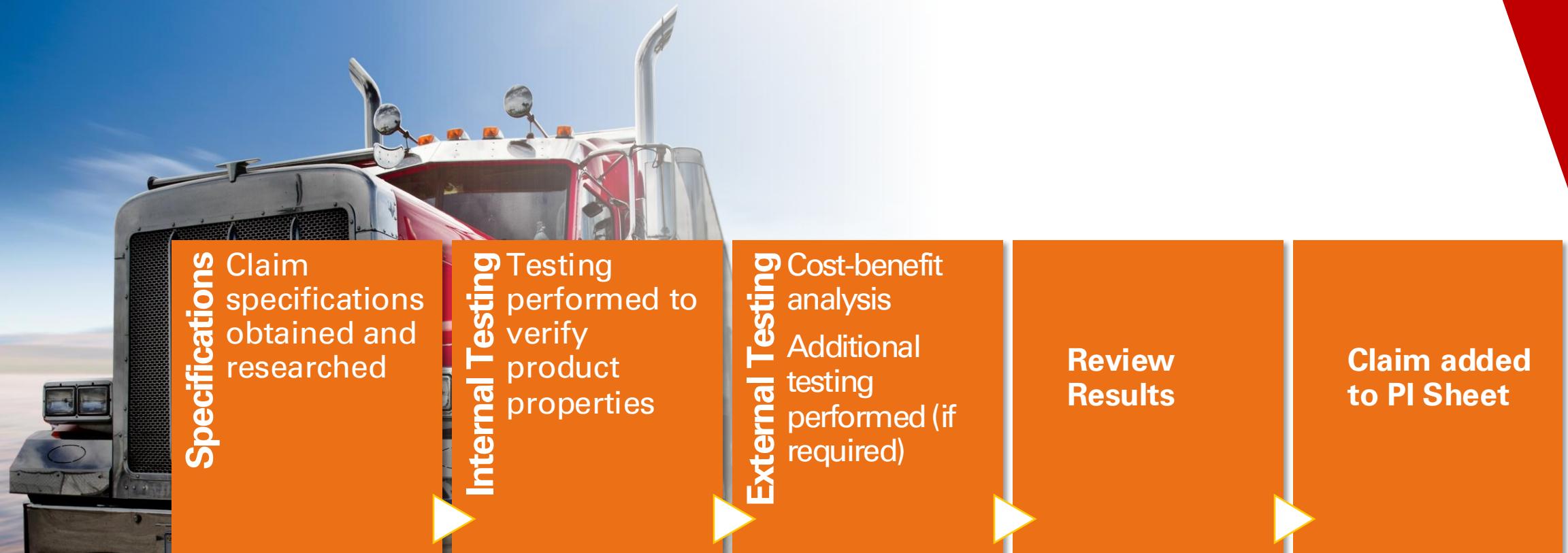
Meets or Exceeds

- The product has been tested against a specification and complies with the requirements of that specification.
- No formal approval.

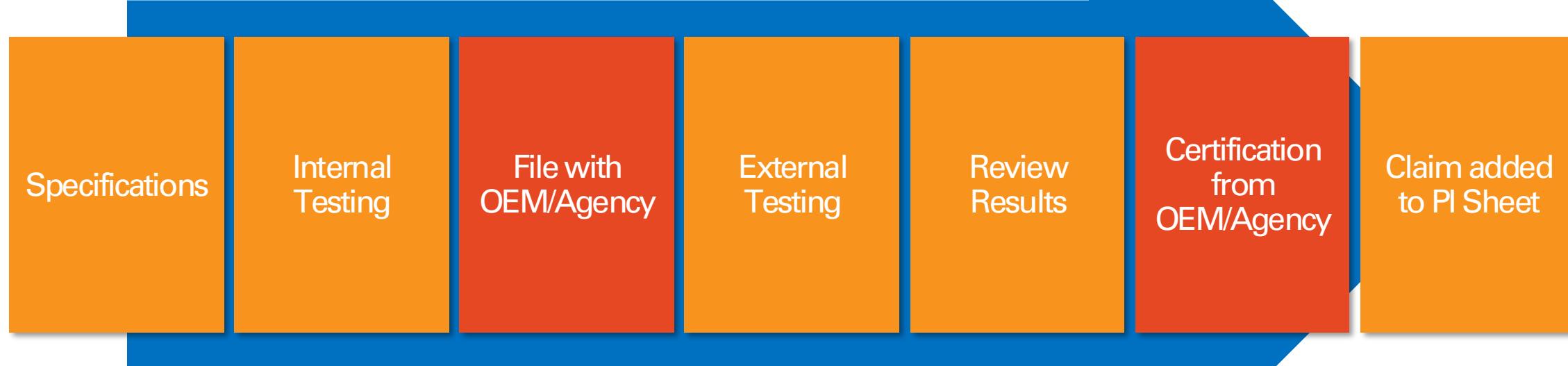
Suitable for Use

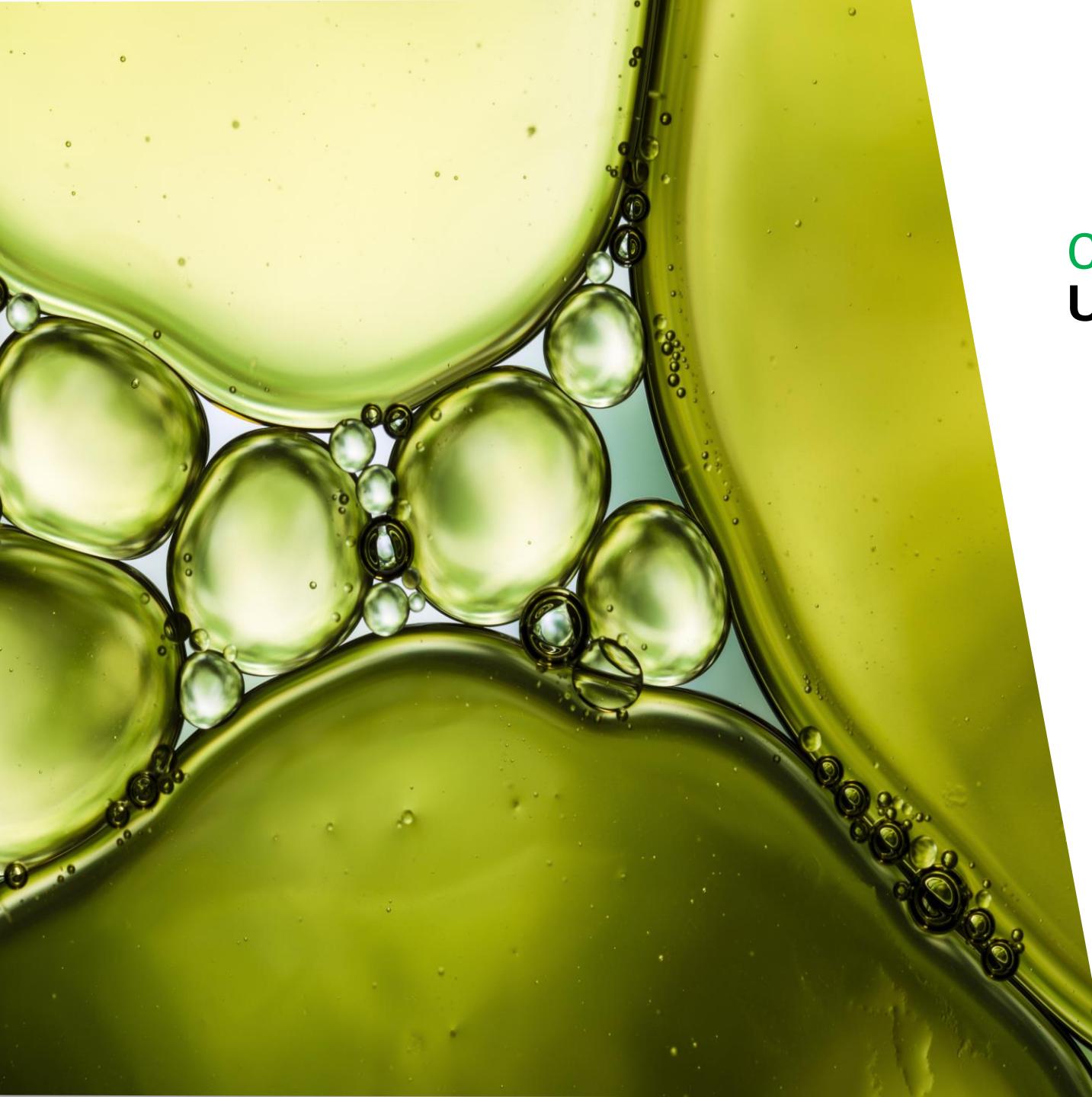
- Manufacturer deems the product as acceptable in a certain application, but does not have a formal approval.
- Good for post-warranty applications.

Self-Verifiable Claims



Externally Tested/Verified Claims

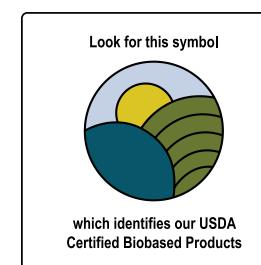


A close-up, abstract photograph of numerous green oil droplets of various sizes, some with internal air bubbles, arranged in a pattern that suggests a microscopic view of a liquid mixture.

Example of a Claim Process (USDA BioPreferred)

Clarion Green BIO fluids are now
USDA BioPreferred

- **USDA BioPreferred** is a certification of the biobased content in materials
- Allows product to be listed on the Mandatory Federal Purchasing List
- Different thresholds for different materials
 - 44% - Hydraulic Fluids
 - 58% - Gear Fluids

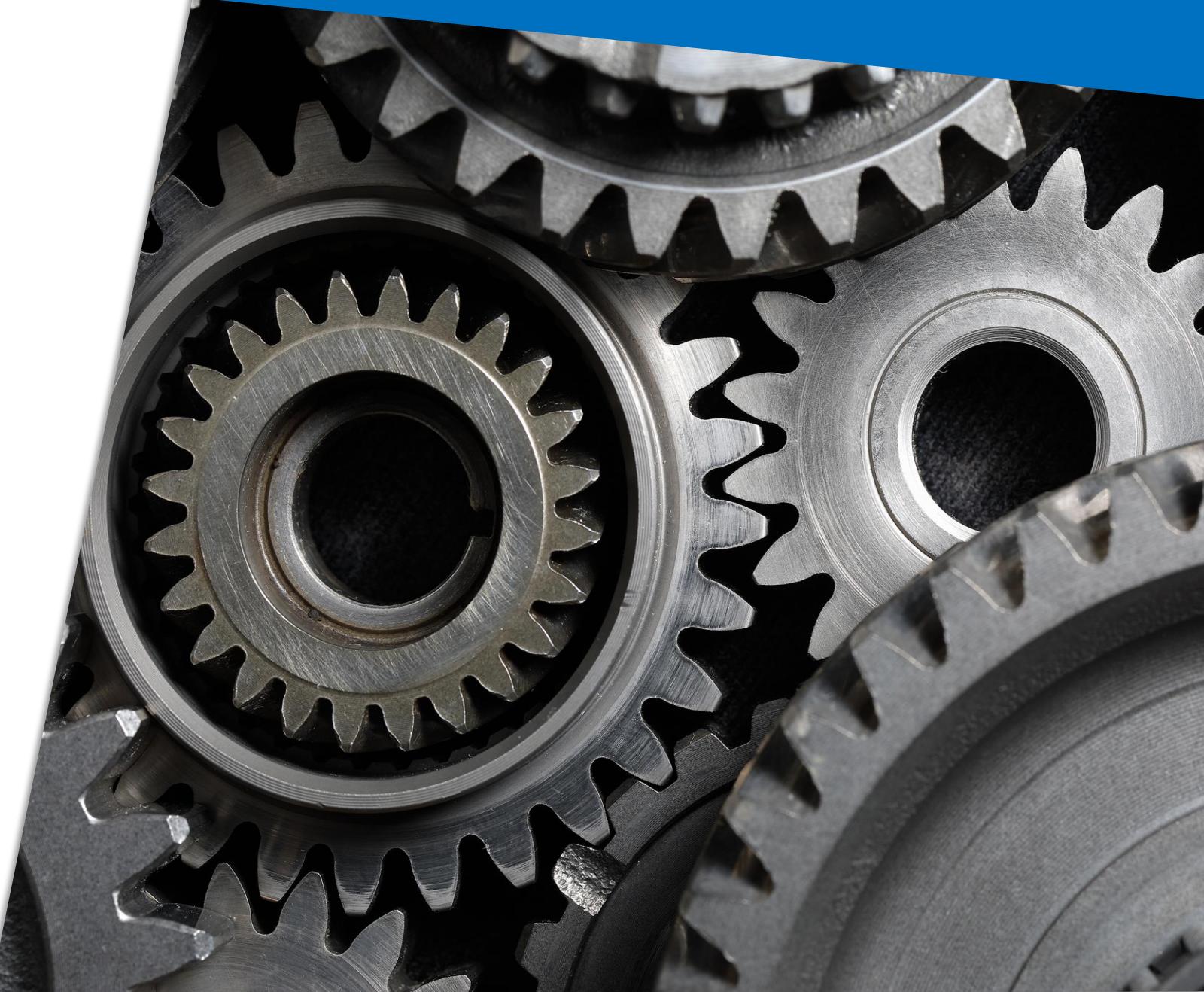


Example of a Claim Process (USDA BioPreferred)

1. Research USDA Requirements
2. Discuss with our raw material suppliers
3. Register company (CITGO/Clarion) with USDA
4. Enter product information and file application
5. Wait
6. Answer follow-up questions
7. Send samples for third-party testing
8. USDA review results
9. Certification is awarded
10. Update PI sheets, labels, website, etc.



Things To Look For



Motor Oils

Critical Characteristics to Look For

API certification

ILSAC standard (PCMO)

Climate-relevant properties

- Viscosity index
- Pour point
- Cold start performance

Other Properties

OEM-specific tests like Volvo T-13
oxidation stability (HDEO)

High-temperature high-shear (HTHS)

Total base number (TBN)

Common Manufacturer Specifications

HDEO:

- Cummins CES 20086
- Detroit Diesel DFS 93K222
- Volvo VDS/Mack
EOS/Renault RLD
- Ford WSS-M2C171-F1
- Caterpillar ECF-3

PCMO:

- Ford WSS-M2C96_
- GM dexos[®]1
- Chrysler MS 6395



HDEO Product Comparison

Property	CITGARD 700 Synthetic Blend Heavy Duty Engine Oil 15W-40	Customer's 15W-40 HDEO
API certification	CK-4	CI-4
Viscosity index	142	131
CCS vis, -20°C (cold cranking)	4,677 cP	5,600 cP
MRV vis, -25°C (cold pumping)	19,968 cP	Not listed
Pour point	-36°C	-15°C
Noack evaporative loss	11.0%	Not listed
Total base number (TBN)	10	13

Hydraulic Oils

Critical Characteristics to Look For

- ISO Viscosity
- Viscosity Index
- Zinc-free vs Zinc-containing

Other Properties

- Dielectric Strength
- Fire Resistance
- Biodegradability
- Food Grade

Common Manufacturer Specifications

- ASTM D6158
- ISO 11158
- DIN 51524
- Fives Cincinnati
- Parker Denison
- US Steel
- Bosch Rexroth
- Eaton



Gear Oils

Common Manufacturer Specifications

- AGMA 9005-F16
- DIN 51517
- ISO 12925
- US Steel / AIST
- David Brown

Critical Characteristics to Look For

- ISO Viscosity
- AGMA EP vs AGMA non-EP

Other Properties

- Base oil composition
- Operating temperature range
- Biodegradability
- Food Grade

Transmission Fluids

Common Manufacturer Specifications

- Heavy Duty:
 - Allison C-4
 - Allison TES-668, -468, -295
 - Volvo 97341
 - Caterpillar TO-4, TO-2
 - Mack GO-J
- Passenger Car:
 - DEXRON (and variations)
 - MERCON (and variations)
 - ATF+4, ATF+3
 - MS 7176
 - ZF TE-ML 11A, 11B

Critical Characteristics to Look For

- OEM requirements
- 'Approved' vs 'suitable for use'

Other Properties

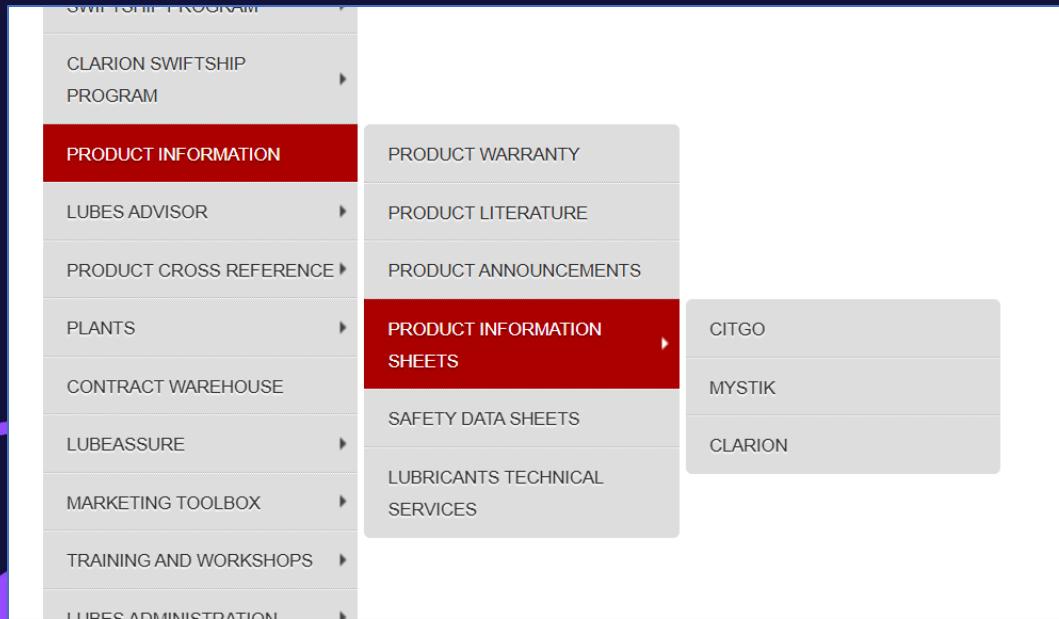
- API GL-5
- MT-1



Resources



PI sheets in MarketNet



The screenshot shows the MarketNet software interface. On the left, there is a vertical navigation bar with several menu items: CLARION SWIFSHIP PROGRAM, PRODUCT INFORMATION (which is highlighted in red), LUBES ADVISOR, PRODUCT CROSS REFERENCE, PLANTS, CONTRACT WAREHOUSE, LUBEASSURE, MARKETING TOOLBOX, TRAINING AND WORKSHOPS, and LUBES ADMINISTRATION. Below this is a large, stylized graphic of industrial equipment in various colors (purple, yellow, pink, blue, green). The main content area has a grid of buttons. The top row includes: PRODUCT WARRANTY, PRODUCT LITERATURE, and PRODUCT ANNOUNCEMENTS. The second row includes: PRODUCT INFORMATION SHEETS (which is highlighted in red), SAFETY DATA SHEETS, and LUBRICANTS TECHNICAL SERVICES. To the right of the grid is a sidebar with three buttons: CITGO, MYSTIK, and CLARION. A large yellow arrow points from the 'PRODUCT INFORMATION SHEETS' button towards the right side of the screen.

Mystik Lubricants Product Information Sheets

Get safety information on Mystik lubricant products from our Mystik

[Mystik Engine Oil](#)

[Mystik Automotive Gear Oil](#)

[Mystik Transmission Power Fluids](#)

[Mystik Greases](#)

[Mystik Hydraulic Fluids](#)

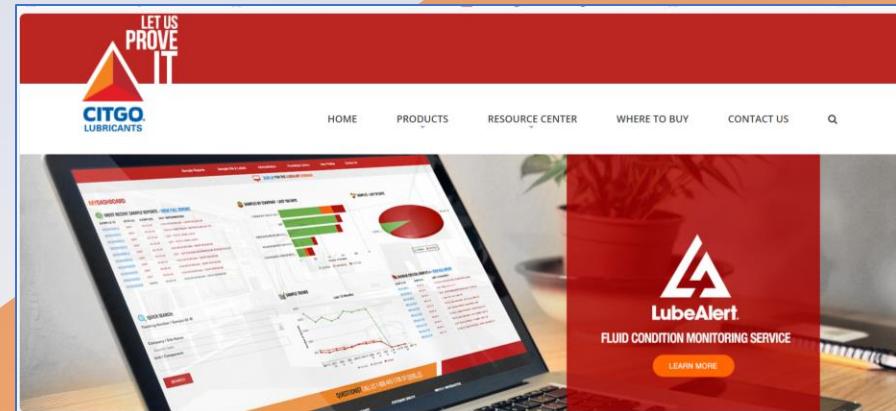
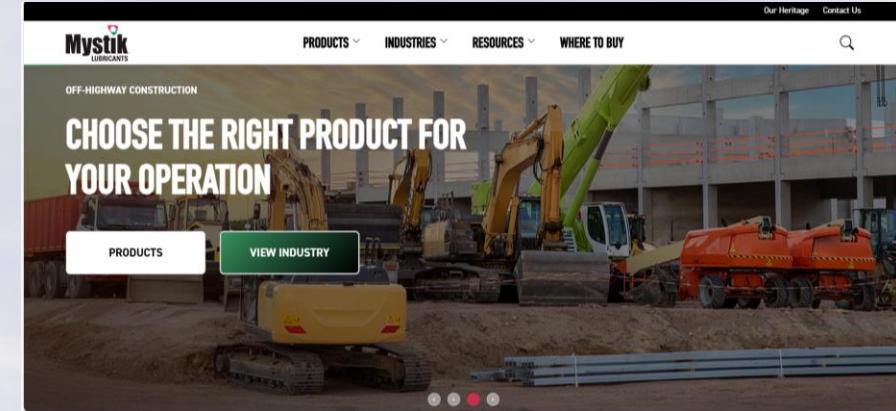
[Mystik Industrial Gas Engine Oil](#)

[Mystik Functional Products](#)

[Mystik Compressor Lubricants](#)

[Mystik Small Engine Lubricants](#)

Websites



Product guides



A scenic landscape featuring a paved road that curves through a valley. The road is flanked by lush green fields and rolling hills under a vast, blue sky with scattered white clouds. The lighting suggests a bright, possibly morning or late afternoon, sun.

On the Road?
No problem!

Product Answer Line
800-248-4684
Lubeshelp@citgo.com

CITGO Lubricants App

The CITGO Lubricants App is a mobile application designed to provide users with access to various resources and tools related to CITGO lubricants. The app features a clean, modern design with a dark background and a grid of cards for easy navigation.

Home Screen: The home screen displays four main categories: **LITERATURE** (Automotive, Commercial, and Industrial Product Guide), **VIDEOS** (DOMIN BY CITGO), **RESOURCES** (Move 462,000 Yards of dirt), and **TOOLS** (Oil Change Info calculator).

Videos: This screen lists several video thumbnails, including **Mystik Robot Grease: Autokiniton Testim...**, **100 Years of Mystik**, **Brundage-Bone**, **CITGO CITGARD 700 10W-30**, **NSF Food Grade History**, **NSF Food Industry Concerns**, **NSF Hazard Control**, **NSF Regulatory Compliance**, **NSF Risk Management**, **CITGARD 700**, **Mystik Engine Oil Overview**, **Basics of Tractor Hydraulic Fluid**, **QuestLiner Puts Mystik Grease to the Test**, **Spotlight on Mystik JT-6**, and **CITGO Industrial Grease**.

Tools: This screen displays three main calculators: **GEO CALCULATOR** (for calculating fuel savings), **HDEO CALCULATOR** (for calculating oil usage), and **CALCULATOR** (for calculating oil usage).

More Product Literature

CITGARD 700 Synthetic Blend HDEO 10W-30
Balancing Engine Protection with DPF Life

CITGO[®] CITGARD[®] 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30 is a premium API CK-4 heavy-duty engine oil that utilizes a balanced approach to protect your engine and maintain your Diesel Particulate Filter (DPF) life. In this paper, we will look at CITGARD 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30, DPF basics and how CITGARD 700 10W-30 protects the engine and maintains DPF life.

CITGO CITGARD 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30

CITGO CITGARD 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30 is an API CK-4 heavy-duty engine oil that has approvals for the major diesel engine OEMs (Cummins CES 20866, Detroit Diesel DFS 93K22, Volvo/Mack/Renault VDS-4.5/EOS-4.5/RLD-3, Ford WSS-M2C171-F1, and CAT ECF-1). It has a typical Total Base Number (TBN) value of 10 mg KOH/g (ASTM D2886), a typical sulfated Ash level of 1.0% (ASTM D874), a balanced detergent package and advanced wear protection. CITGO CITGARD 700 Synthetic Blend Heavy Duty Engine Oil SAE 10W-30 has a successful history with some of the largest fleets in the nation, including J.B. Hunt, Crete Carrier, and the City of Sacramento.

Diesel Particulate Filter (DPF) Basics

The DPF is part of a truck's pollution control equipment and is responsible for capturing particulate matter (PM) composed of soot and ash emitted from the engines.

- Soot from combustion can be oxidized through a catalytic heating process called regeneration.
- Ash derived from metallic additives in lubricants is incombustible and remains within the filter following regeneration.

Every so often the PM needs to be burned off in a process called regeneration. Regeneration can either be passive (normal exhaust temperatures are hot enough to be used), Active (the truck sends a signal to increase the temperature of the DPF while the truck is in use) or Forced/Stationary (the driver pulls over and forces the burn off manually).

Factors that can affect the RPE respiration rate

- Engine condition (new vs worn cylinders/pistons)
- Oil quality (ash-producing tendency and engine oil additive type)
- Oil consumption (new – very low, but as engines wear oil consumption **may increase**)
- Fuel quality
- Fuel consumption
- Stop and go frequency
- High engine idle time
- Engine loading
- On Road vs. On Road

Understanding CK-4/FA-4 Categorization



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

