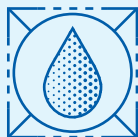


CITGO® CITGARD® 800 Synthetic Blend Heavy Duty Engine Oils

Formerly CITGO® CITGARD® CNG/LNG Engine Oils



OVERVIEW



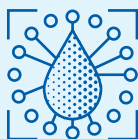
- Specially formulated for natural gas (CNG/LNG), diesel, and gasoline fueled engines. Available in SAE 15W-40 and 10W-30 viscosity grades.
- Use CONVERGE Engine Oil Advantage to provide multi-fuel fleet with optimum performance capability without compromising overall performance.

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.

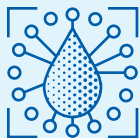
APPLICATIONS



CITGARD with CONVERGE Advantage delivers:

- C** – Clean engine and corrosion protection field-tested up to 50,000 miles and 1,000 hours.
ODI - extra TBN/TAN reserve to neutralize acids
- 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

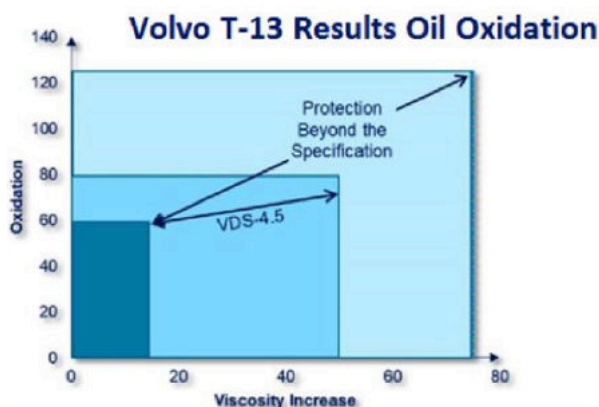
APPLICATIONS



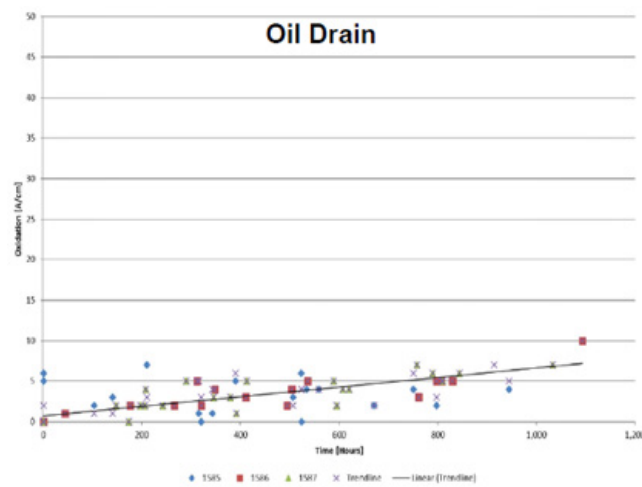
Approved for:

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

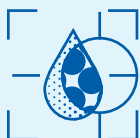


100% Better oxidation protection than
specification 20% below Volvo VDS-4.5 limit



CITGARD 800 with Converge Technology.
Field-tested to 1,000 hours with superior
oxidation stability

PROPERTIES



Typical Properties for CITGO CITGARD 800 Synthetic Blend Heavy Duty 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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