



**PETRO 1**

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Commercial vehicles  
, Heavy-Duty, Construction  
& Agricultural Machines  
Lubricants



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**PETRO1**® group has more than 20 years' experience in manufacturing finished lubricants Formulated with unique base oils with exclusive **Biesnate**™ technology.

From motor oil for the family car to lubricants for heavy industrial equipment, customers across five continents trust **PETRO1**® Lubricants to deliver excellent, reliable performance in a wide range of operating conditions.

**PETRO1**® engine oil & industrial lubricants are produced by the **PETRO1**® Group plant site which is a modern high-tech manufacturing complex with a yearly capacity of approximately **30000 tons** of high-tech lubricants.

Our complete line of lubricants and coolants is sold worldwide under our **PETRO1**® brand.

These premium products help improve fuel economy, lower emissions and extend the period between oil changes.

Base oil is the oil used in lubricant formulas before additives are introduced. Premium base oil is manufactured using a process called **Biesnate**™ , which **PETRO1**® commercialized in 2018.

In this technology, biodegradable raw materials and Nano compounds have been used to produce a new generation of engine and industrial oils, which has significantly increased the quality and efficiency of the above products compared to the products of other competitors.

**PETRO1**® has been innovating and reinventing superior quality solutions to cater to the ever-changing needs across industries. Its extensive R&D set-up in factory comprises of a fully equipped laboratory where it upgrades its existing solutions and develops new products.







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# Commercial Vehicles Lubricants



## Description & Applications:

**PACCARDO** is a premium heavy duty engine oil engineered to deliver outstanding wear protection and performance in modern heavy duty diesel engines. Formulated with premium, **BIESNATE**™ base oils and carefully balanced additive technology, this advanced engine oil delivers outstanding long-term performance for on and off-highway heavy duty engine applications operating under high-load, high-stress conditions in all climates. **PACCARDO** contains field proven additive technology which delivers maximum control on engine wear, outstanding engine cleanliness, and high TBN and viscosity retention for outstanding lubricant life and maximum engine durability. Metal anti-wear protection exceeds **API CK-4** standards and tough OEM specifications. **PACCARDO** is designed specifically to meet the stringent requirements of API Service Category **CK-4** for heavy duty diesel engines running on Ultra Low Sulfur Diesel (ULSD) and equipped with advanced after treatment devices. Exceeds all soot control and particulate requirements of current emission control systems such as Exhaust Gas Recirculation (EGR), Diesel Particulate Filter (DPF), or Selective Catalytic Reduction (SCR).

### Some typical applications include:

- \* Current on-highway low emission diesel engines running on ultra-low sulfur diesel fuel.
- \* Current off-highway engines including those adapted for future emissions standards in construction, agriculture, marine, and mining applications.
- \* Mixed fleets where product consolidation is desired for performance and economics

### Benefits & Advantages:

1. Exclusive **BIESNATE**™ base oil – excellent all-season performance characteristics.
2. Engine efficiency – advanced additive technology keeps internal engine components clean, reduces oil consumption for long service life.
3. Outstanding anti-wear – wear protection exceeds **API CK-4** and tough OEM specifications even in severe service applications for maximum engine durability.
4. Emission compliant – fully compliant with all current emission control equipment. Promotes extended DPF life helping to minimize maintenance costs.
5. Extended service life – outstanding TBN and high viscosity retention supports extended lubricant life when used with regular oil testing.



### Performance Levels :

ACEA – European Service Categories E9, E7, E4, E2 , API Service Categories – CK-4, CJ-4, CI-4 PLUS, CI-4 (and previous) , API Service Categories – SN, SM, SL (and previous) , Caterpillar® – ECF-3, ECF-2, ECF-1a , Cummins®– CES 20086, 20081, 20078, 20077, 20076 , Daimler – MB 228.31, 228.3 , Detroit Diesel® – 93K222, 93K218, 93K215, 93K214 , Deutz – DQC III-IOLA , FCA – MS-10902, FORD – WSS-M2C171-F1, WSS-M2C171-E , Global – DHD-1, JASO – DH-2 , Mack® – EOS-4.5, EO-O Premium Plus, EO-N Premium Plus, EO-M , MAN – 3275, 3575, MTU – Type 2.1, Type I, Type II , Renault® – VI RLD-4, RLD-3 , Volvo® – VDS-4.5, VDS-4, VDS-3, VDS-2 • CID A-A-52306 / MIL-PRF-2104G Other suitable uses include (but not limited to): • Caterpillar – TO-2 • Allison® – C-4 • ZF – TE-ML 04C

Quality Level	P1 Standard	D005
International Standard	API	CK-4
Viscosity Grade	SAE J 300	15W-40
Density @ 15 <sup>0c</sup>	ASTM D1298	869 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	112 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	15.6mm <sup>2</sup> /s
HTHS Viscosity @ 150 <sup>0c</sup>	ASTM D4741	3.9 mPa.s
Sulfated Ash	ASTM D874	0.97 wt%
Phosphorous	ASTM D4951	0.112
Viscosity Index	ASTM D2270	143
Flash Point	ASTM D92	226 <sup>0c</sup>
Pour Point	ASTM D97	-57 <sup>0c</sup>
Total Base Number	ASTM D2896	10.2mg KOH/g
MRV @ -25 <sup>0c</sup>	ASTM D4684	20200 cP
CCS Viscosity @ -20 <sup>0c</sup>	ASTM D5293	4700 cP
NOACK Volatility	ASTM D5800	8.5 %weight loss (g/100g)



## Description & Applications:

**AMANDO** is a premium performance, “low-SAPS” heavy-duty diesel engine oil specifically designed to lubricate a wide range of high speed diesel engines requiring API CJ-4, CI-4 PLUS / SM, or ACEA E9 performance lubricants operating under the most severe service conditions.

Specifically designed for the latest low emission diesel engines fitted with diesel particulate filters, but also those fitted with EGR and/or SCR systems. Formulated with **BIESNATE™** base oils and the latest low-ash additive technology to provide exceptional soot dispersancy, deposit control and wear protection.

## Benefits & Advantages:

1. Exclusive **BIESNATE™** base oil formulation
2. Low volatility – reduced oil consumption
3. Compatible with after treatment systems such as DPFs
4. Outstanding soot handling properties
5. Excellent low temperature pump ability
6. Ideal for the latest Euro emission engines
7. Backwards compatible to older models
8. Offers product rationalization solutions





## Performance Levels :

API CJ-4 , CI-4+, CI-4, SM ; ACEA E9; MB 228.31; MAN M3575; MTU Cat. 2.1; Mack EO-O Premium Plus; Renault Trucks RLD-3 ; Volvo VDS-4 ; Caterpillar ECF-3, ECF-2, ECF-1a; Cummins CES 20081; Detroit Diesel DDC 93K218; Deutz DQC III-10 LA; Global DHD-1; JASO DH-2 (level)

Quality Level	P1 Standard	D004	D004
International Standard	API	CJ-4	CJ-4
Viscosity Grade	SAE J 300	10W-40	15W-40
Density @ 15 <sup>0c</sup>	ASTM D1298	861 kg/m <sup>3</sup>	869 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	91 mm <sup>2</sup> /s	113 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	13.6 mm <sup>2</sup> /s	15.9 mm <sup>2</sup> /s
HTHS Viscosity @ 150 <sup>0c</sup>	ASTM D4741	3.9 mPa.s	3.9 mPa.s
Sulfated Ash	ASTM D874	0.97 wt%	0.98 wt%
Phosphorous	ASTM D4951	0.113	0.120
Viscosity Index	ASTM D2270	153	163
Flash Point	ASTM D92	232 <sup>0c</sup>	228 <sup>0c</sup>
Pour Point	ASTM D97	-47 <sup>0c</sup>	-57 <sup>0c</sup>
Total Base Number	ASTM D2896	12.2mg KOH/g	12.2mg KOH/g
MRV @ -25 <sup>0c</sup>	ASTM D4684	22200 cP	20300 cP
CCS Viscosity @ -20 <sup>0c</sup>	ASTM D5293	6200 cP	4900 cP
NOACK Volatility	ASTM D5800	6.5 %weight loss (g/100g)	8.5 %weight loss (g/100g)



## Description & Applications:

**Persido** is , low SAPS, ultra-high performance diesel (UHPD) engine oil. It is recommended for the latest low emission, Euro IV, V & VI heavy duty engines fitted with exhaust after treatment devices (incl. DPF). Formulated with **BIESNATE™** Technology using premium quality base stocks in combination with high-performance additive technology designed to deliver reliable cold temperature performance, robust deposit control and long drain performance. It provides the highest levels of protection for the engine, the turbocharger and the exhaust after treatment system. It exceeds the requirements of all major European manufacturers while it can also be used for older Euro II, III engines or engines running on natural gas (CNG) (such as Mercedes Benz, MAN and Volvo).

## Benefits & Advantages:

1. Provide excellent engine cleanliness in all service conditions.
2. Excellent oxidation stability to prolong engine oil life.
3. Excellent high shear high temperature stability.
4. Excellent protection against wear at start up.
5. High temperature deposit control, including single and two-piece pistons, and ring/liner wear protection.
6. Higher TBN level and TBN retention for long-life performance, while meeting all chemical limits.





## Performance Levels :

API CI-4, ACEA E6, E9, E7; MAN 3477, M3271-1; MB 228.51; Volvo VDS-4 (approved); Renault Trucks RGD, RXD, RLD-2; Mack EON ; MTU Cat. 3.1; Deutz DQC IV-10 LA; Cummins CES 20076, 20077; JASO DH-2

Quality Level	P1 Standard	D003	D003
International Standard	API	CI-4	CI-4
Viscosity Grade	SAE J 300	10W-40	15W-40
Density @ 15 <sup>0c</sup>	ASTM D1298	861 kg/m <sup>3</sup>	869 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	92 mm <sup>2</sup> /s	113 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	13.9 mm <sup>2</sup> /s	15.9 mm <sup>2</sup> /s
HTHS Viscosity @ 150 <sup>0c</sup>	ASTM D4741	3.9 mPa.s	3.9 mPa.s
Sulfated Ash	ASTM D874	0.97 wt%	0.98 wt%
Phosphorous	ASTM D4951	0.113	0.120
Viscosity Index	ASTM D2270	173	177
Flash Point	ASTM D92	232 <sup>0c</sup>	228 <sup>0c</sup>
Pour Point	ASTM D97	-47 <sup>0c</sup>	-57 <sup>0c</sup>
Total Base Number	ASTM D2896	12.5mg KOH/g	12.8mg KOH/g
MRV @ -25 <sup>0c</sup>	ASTM D4684	22300 cP	20900 cP
CCS Viscosity @ -20 <sup>0c</sup>	ASTM D5293	6300 cP	4800 cP
NOACK Volatility	ASTM D5800	6.5 %weight loss (g/100g)	8.5 %weight loss (g/100g)





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# Heavy-Duty , Construction & Agricultural Machines Lubricants





## Description & Applications:

**TURBODO STOU** Tractor Oil is a Super Tractor Oil Universal formulated with **BIESNATE™** base oils and a multifunctional additive system to meet the requirements of a wide range of agricultural equipment manufacturers. **TURBODO STOU** is a top-quality universal oil that meets the requirements for the lubrication of diesel engines with and without turbocharging, gearboxes, transmissions, differentials and gears, hydraulic systems, and tractors with wet brake systems. **TURBODO STOU** lubricant can be used as an engine oil for transportation vehicles and other equipment and implements such as power take-offs, combines, earthmoving machines, and forklifts. In that way, it fulfills its multifunctional properties.

## Benefits & Advantages:

1. This multifunctional oil, suitable for many agricultural and forestry applications, avoids the problems of accidental misapplication, which could cause equipment failure, and also saves on oil inventory costs.
2. Low pour point and high viscosity index ensure excellent low-temperature fluidity and good start-up and hydraulic performance, even under cold conditions, preventing start-up wear and ensuring smooth hydraulic operation.
3. Good antiwear performance protects moving parts from wear and metal fatigue, extending equipment life; excellent protection against gear scuffing, pitting and wear in applications where an API GL-4 product is required.
4. Excellent thermal and oxidation stability minimize the formation of deposits that could lead to component wear, and also ensure longer oil life.
5. Excellent protection against rusting and corrosion, extends the life of system components.
6. Good antifoaming properties ensure optimum oil film thickness is maintained and reduce oil leakage from the system.
7. Good compatibility with most common seals and elastomer materials used in agricultural equipment prolongs seal life and reduces leakage.
8. Excellent shear stability ensures good viscosity retention even in conditions of high temperature and heavy load, and prolongs the service life of hydraulic transmission systems.





## Performance Levels :

ACEA E3 , API Service Classification CG-4 and earlier HDDEO specifications , GL-4 , Allison C-4 (agricultural applications only) New Holland 82009201/2/3 , Caterpillar TO-2 , Ford M2C 159B/C , John Deere JDM J27 , Massey Ferguson CMS M1145, CMS M1144, CMS M1139 , ZF TE-ML-06A/B/C, TE-ML-07B

Viscosity Grade	SAE J 300	10W-30	15W-40
Density @ 15 <sup>0c</sup>	ASTM D1298	865 kg/m <sup>3</sup>	869 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	69.2 mm <sup>2</sup> /s	90 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	10.3 mm <sup>2</sup> /s	12.9 mm <sup>2</sup> /s
Sulfated Ash	ASTM D874	1.4 wt%	1.4 wt%
Viscosity Index	ASTM D2270	141	140
Flash Point	ASTM D92	232 <sup>0c</sup>	238 <sup>0c</sup>
Pour Point	ASTM D97	-41 <sup>0c</sup>	-40 <sup>0c</sup>
Total Base Number	ASTM D2896	12.5 mg KOH/g	12 mg KOH/g
CCS Viscosity @ -20 <sup>0c</sup>	ASTM D5293	6100 cP	4000 cP



## Description & Applications:

**TURBODO UTTO** is a modern Universal Tractor Transmission Oil for transmissions, hydraulics, final drives and wet brake systems. The very latest agricultural machinery in the modern intensive farming environment needs the protection of a high quality lubricant. Multi-purpose oils are a good compromise but many manufacturers have realised the benefits of using lubricants specifically designed for a given application. **TURBODO UTTO** is blended **BIESNATE™** base oils and the very latest in additive technology to produce a specialized lubricant to meet the latest and most severe transmission requirements. It meets the demands of most agricultural transmission specifications and greatly reduces wet brake noise and chatter. It offers outstanding anti-wear performance under the most severe conditions. **TURBODO UTTO** is suitable for most modern tractor transmissions, hydraulics, final drives and wet brake systems.

## Benefits & Advantages:

1. Outstanding anti-wear protection.
2. Meets the very latest OEM requirements.
3. Helps reduce wet brake noise and chatter.
4. Excellent low temperature properties.
5. Good rust resistance and compatibility with joint materials.





## Performance Levels :

API GL-4 , John Deere J20C, J20A , Massey Ferguson M1145, M1143, M1141, M1135 , Case MAT 3525, MS 1206, MS 1210 , New Holland NH 420A, NH 410B , Volvo WB101, 97303 , Ford ESN-M2C134-D, ESN-M2C86-B , ZF TE-ML 03E, 05F, 06K, 17E, 21F , Kubota UDT, Allison C-4, Caterpillar TO-2, Valtra G2-08

Viscosity Grade	SAE J 300	10W-30	15W-40	20W-40
Density @ 15 <sup>0c</sup>	ASTM D1298	865 kg/m <sup>3</sup>	869 kg/m <sup>3</sup>	888 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	69.2 mm <sup>2</sup> /s	90 mm <sup>2</sup> /s	101 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	10.3 mm <sup>2</sup> /s	12.9 mm <sup>2</sup> /s	14.1 mm <sup>2</sup> /s
Sulfated Ash	ASTM D874	1.4 wt%	1.4 wt%	1.4 wt%
Viscosity Index	ASTM D2270	141	140	138
Flash Point	ASTM D92	232 <sup>0c</sup>	238 <sup>0c</sup>	234 <sup>0c</sup>
Pour Point	ASTM D97	-41 <sup>0c</sup>	-40 <sup>0c</sup>	-37 <sup>0c</sup>
Total Base Number	ASTM D2896	12.5 mg KOH/g	12 mg KOH/g	12 mg KOH/g
CCS Viscosity @ -20 <sup>0c</sup>	ASTM D5293	5300 cP	4800 cP	5600 cP





## Description & Applications:

**TURBODO UTTO** is formulated for use in Cat equipment friction devices— power shift transmissions, clutches, and brakes—and in other equipment drive train components like final drives, bevel gears, and differentials. It provides a balance between static and dynamic friction characteristics with both metallic and nonmetallic materials, ensuring increased load carrying capacity and component durability. **TURBODO UTTO** utilizes an additive technology developed exclusively to provides optimum balance between clutch friction characteristics and gear wear requirements. This unique additive significantly improves transmission gear wear performance over TO-2 oils.

## Benefits & Advantages:

1. Fully qualifies for use in hydraulic and hydrostatic systems.
2. Increases machine break-out force in some types of applications
3. Controls brake chatter.
4. Provides greater machine rim pull.
5. Increases clutch disc life up to 45%.
6. Eliminates transmission slippage caused by many CD/TO-2 commercial engine oils.



**Performance Levels :**

ALLISON C4 , API GL-4 , API CF , CATERPILLAR TO-4 , CATERPILLAR TO-2 , EATON VICKERS M-2950-S , EATON VICKERS I-280-S , ISO 220 , KOMATSU KES 07.868.1

Viscosity Grade	SAE J 300	10W	30	50
Density @ 15 <sup>0c</sup>	ASTM D1298	883 kg/m <sup>3</sup>	891 kg/m <sup>3</sup>	902 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	39.2 mm <sup>2</sup> /s	100 mm <sup>2</sup> /s	197 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	6.3 mm <sup>2</sup> /s	11.3 mm <sup>2</sup> /s	17.4 mm <sup>2</sup> /s
Sulfated Ash	ASTM D874	1.2 wt%	1.4 wt%	1.4 wt%
Viscosity Index	ASTM D2270	110	107	105
Flash Point	ASTM D92	222 <sup>0c</sup>	238 <sup>0c</sup>	244 <sup>0c</sup>
Pour Point	ASTM D97	-41 <sup>0c</sup>	-33 <sup>0c</sup>	-27 <sup>0c</sup>
Total Base Number	ASTM D2896	8.8 mg KOH/g	8.8 mg KOH/g	8.8 mg KOH/g





## Description & Applications:

**PILLARDO** is a multi-purpose transmission oil containing extreme pressure additives and friction modifiers. It displays excellent lubrication and low noise performance in transmissions, hydraulic systems, oil immersed wet brakes and power transmissions of agriculture and off-highway equipments.

## Benefits & Advantages:

1. Superior lubrication performance at hot and cold climates. Displays high resistance to heat and ensures efficient power transmission at cold temperatures.
2. Contains detergent/dispersant additives to prevent deposit formation and ensure the lubricated components clean.
3. High viscosity index value ensures the oil film permanent at wide range of operating temperatures and minimize wear during cold start-up and warm-up conditions.





## Performance Levels :

API CD/SE; API GL-4 , Massey Ferguson M 1135 ,Massey Ferguson M 1139 , ZF TE-ML 06A , FORD M2C159B, C

Viscosity Grade	SAE J 300	10	30	50	20W-50
Density @ 15 <sup>0c</sup>	ASTM D1298	881 kg/m <sup>3</sup>	896 kg/m <sup>3</sup>	901 kg/m <sup>3</sup>	898 kg/m <sup>3</sup>
Viscosity @ 40 <sup>0c</sup> cSt	ASTM D445	38.2 mm <sup>2</sup> /s	102 mm <sup>2</sup> /s	195 mm <sup>2</sup> /s	158.5 mm <sup>2</sup> /s
Viscosity @ 100 <sup>0c</sup> cSt	ASTM D445	6.3 mm <sup>2</sup> /s	12.3 mm <sup>2</sup> /s	19.4 mm <sup>2</sup> /s	19.1 mm <sup>2</sup> /s
Sulfated Ash	ASTM D874	1.2 wt%	1.4 wt%	1.4 wt%	1.4 wt%
Viscosity Index	ASTM D2270	114	110	105	127
Flash Point	ASTM D92	222 <sup>0c</sup>	238 <sup>0c</sup>	244 <sup>0c</sup>	222 <sup>0c</sup>
Pour Point	ASTM D97	-37 <sup>0c</sup>	-27 <sup>0c</sup>	-27 <sup>0c</sup>	-27 <sup>0c</sup>
Total Base Number	ASTM D2896	12.2mg KOH/g	12.2mg KOH/g	12.2mg KOH/g	12.2mg KOH/g





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