



# TECHNICAL BULLETIN

## Hybrid Taxis Oils

Issue: February 2015



### What is Hybrid

A "Hybrid" drive system is a power train that utilises a non-combustion engine i.e. Electric Motors to perform part or all of a vehicles system drive. More and more Hybrid cars grace our roads these days and as they are so fuel efficient, it only makes sense that they have become part of many Taxi fleets around the world.



Although these new breed of taxis are highly fuel efficient in their own right, they are using some of the very latest designs in both engine, transmission, braking and power steering technology to lower fuel consumption further. Hence their engines are designed to run on very low viscosity oils due to the exceptionally tight tolerances engineered into these components.

The lower the viscosity of the oil, the less the drag internally on the engine with the result being greater efficiency. Items such as oil pumps don't work as hard as they do with heavier viscosity oil – again more efficiency. Many of these vehicles are designed to turn on and off at traffic lights to conserve their petrol and battery power. Engines stopping and then starting benefit from having a very fast flowing engine oil, so it quickly circulates, lubricates and cools the engine. Again –This is where low viscosity oils are beneficial.

### Many people will ask – Do these oils provide adequate long term protection for engines?

Oils like cars have come a long way in the last decade. The latest specification engine oils eg API "SN", outperform the previous best grade: "SM" by quite a margin. It produces 40% less wear, 40% less sludge and 30% less piston deposits. API SM was this much better again than API SL grade oils which date back to 2002. Not only do the late specification grades such as API SN protect better, they are designed to meet long drain intervals of today's cars. In the last 15 years, many vehicles service intervals have risen by as much as 50%. This means that the oil has to maintain performance for longer periods than ever before. Apart from these examples, base oils have become more refined, additive packs have improved, availability of synthetic and semi synthetic base oils have become easier and cheaper to attain and low SAPS (Sulphated Ash, Phosphorus and Sulphur) oils have become common with the introduction of tighter emission laws and less pollutants and poisons being released into the atmosphere.

### So how does this affect a taxi's economy?

So with the above in mind, many manufacturers are recommending late specification low viscosity engine oils for their vehicles. Taxis are also included. The latest low viscosity oils can achieve combined fuel economy gains >2% compared to reference oil in a Sequence VID test.

The Sequence VID is an engine dynamometer test that measures a lubricant's ability to improve the fuel economy of passenger cars and light-duty trucks.

The VID method compares the performance of a test lubricant to the performance of a baseline lubricant over six different stages of operation. The Sequence VID test incorporates a flush and run type procedure. Each test consists of two 6-stage fuel economy measurements on baseline oil (BL), one at the beginning of the test and one at the end. The test oil is evaluated in between the two baseline runs. Following this final ageing (84 Hours), the test oil once again goes through a 6-stage fuel economy measurement. The two fuel economy measurements are taken on the baseline oil (BL) and a final value for Fuel Economy Improvement is calculated for the test oil.

So a >2% saving on fuel just from oil is a significant saving over the life of the vehicle.

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### What about alternative fuels such as E85 and even LPG?

The newer specifications of oils are designed to run on most fuels. The latest generation of oils that meet ILSAC GF-5 such as Penrite Enviro+ 0W-20, are the most suitable oils for vehicles running all the time on E85. This oil specification is also quite suitable for LPG (Liquid Petroleum Gas). The latest generation low viscosities such as **0W-16** and recently added **0W-12** and **0W-8** are recognised by the Society of Automotive Engineers (SAE) but are not yet recognised as an ILSAC Grade.

### So are oils that are suitable for Hybrids suitable for taxis?

The answer is yes they are. Modern, synthetic, semi synthetic & mineral oils provide a level of protection that was unattainable 20 years ago. Modern engine design is tilted towards economy, efficiency and emissions and are made to exacting standards with tighter tolerances than was previously achievable. Metals, plastics, ceramics, alloys etc. used in the manufacturing of modern engines are more advanced and provide greater longevity with less problems. Modern engines should run on modern oils that they were designed to be used with. Therefore the Low Viscosity oils are perfectly suited for use in hybrid taxis.

### Recommended Hybrid Engine Oils

#### Synthetic

- ENVIRO + HYBRID 0W-16
- ENVIRO+ 0W-20
- ENVIRO PLUS GF-5
- ENVIRO PLUS 5W-20
- HPR 0 0W-30
- PRO 5 5W-30

#### Semi Synthetic

- VANTAGE SEMI 5W-30
- VANTAGE SEMI 10W-30
- PRO 10 10W-30

#### Mineral

- VANTAGE 5W-30
- VANTAGE 10W-30
- PREMIUM MINERAL 5W-30
- PREMIUM MINERAL 10W-30

Penrite recommend "The Right Oil for the Right Application"

[Click Here](#) to visit the Penrite Recommendation Guide, which will ensure you receive the correct oil for your application



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