

PRODUCT INTRODUCTION

2020

DYADE DELIVERS

E-HYBRID

New to the Dyade family



Maintain the things we value!

WWW.DYADEGLOBAL.COM

DYADE
LUBRICANTS

LETS TAKE **HYBRID** TO THE VERY NEXT LEVEL!



Never before have so many Original Equipment Manufacturers (OEMs) increased their portfolio of vehicles with Hybrid and Electrical versions. We, as Lubricant Specialists, are pioneers in this field. We do this to ensure that the future fleet of vehicles will be maintained as well! In this article we briefly explain this “new” market segment and how it changes the world of lubricants.

THE E-MOBILITY SECTOR

A NEW SECTOR WITH NEW CHALLENGES

With the current changes in the the Automotive market, a new sector was born: Electric Mobility (E-Mobility). The German government and the National Development Plan for Electric Mobility (NEP), define E-mobility as follows: E-mobility comprises of all street vehicles that are powered by an electric motor and primarily get their energy from the power grid – in other words: can be recharged externally. This includes purely electric vehicles, vehicles with a combination of electric motor and a small combustion engine (range extended electric vehicles – REEV) and hybrid vehicles that can be recharged via the power grid (plug-in hybrid electric vehicles – PHEV).

Even though the first electrical vehicle was developed by William Morrison of Des Moines in 1891, this market had difficulties scaling up, partly due to the lack of infrastructure at that time. However, since a few years, this E-Mobility market has gained ground especially in Europe and parts of Asia. Many OEMs are testing new technologies in order to ensure that this sector becomes viable and durable. As lubricant and grease pioneers, it is our job to ensure that we develop a portfolio of products that is able to maintain these new technologies. We do this to make sure that we can keep on moving forward.



“A hybrid vehicle is a vehicle that runs both on fuel (gasoline/diesel), as well as electricity.”

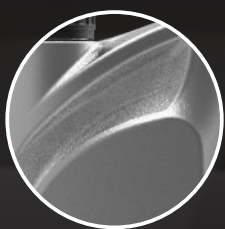
E-MOBILITY - HYBRID VEHICLES

COMBINING BEST OF BOTH WORLDS

A large part of the E-Mobility sector will consist of hybrid vehicles. A hybrid vehicle is a vehicle that runs both on a fuel as well as electricity. However, the role of the internal combustion engine in hybrid electric vehicles (HEVs) is quite different from the role in conventional vehicles. The engine does not have to be designed, just to fulfill the performance (maximum speed, acceleration and climb) required for the vehicle. The engine can be downsized, thus reducing fuel consumption and greenhouse emissions. Moreover, with the support of an electric motor, the internal combustion engine can be better managed in terms of avoiding low-efficiency and high-emission operations like idling, vehicle stops and strong accelerations. It is well known that the fuel economy of traditional internal combustion engines is lower than that of modern vehicles. Especially, when working at low temperatures. This is particularly important in hybrid electric vehicles since they allow the engine to be turned off for long periods during which the engine temperature decreases.

The basic principle with hybrid vehicles is that the different motors work better at different speeds. The electric motor is more efficient at producing torque or turning power, and the combustion engine is better for maintaining high speed (better than a typical electric motor). Electric motors are mainly used to support the combustion engine when the work load is very high, for example when starting the car or accelerating.

Hybrid Electrical Vehicles (HEVs) have the distinguishing ability to turn off the conventional engine when the power available from the electrical system exceeds that required to propel the vehicle. The engine-off feature saves fuel and engine hours, but it also results in cooler operating temperatures of the internal combustion engine. Without an electric motor, this increases engine stress through the more frequent starts of the engine.



WHAT IS A HYBRID VEHICLE?

A hybrid vehicle runs on both fuel gasoline/diesel, and electricity. A hybrid vehicle uses two or more distinct types of power, usually an internal combustion engine to drive an electric generator that powers an electric motor.



OILS & HYBRIDS

HOW DOES IT WORK?

As the traditional combustion engines (ICE) are getting smaller, and switching between the combustion engine and electrical engine increases, different engine oils are needed. With the current technology this results in creating lubricants that have high speed bearing protection, excellent sludge control and compatibility with polymeric materials. Also, some OEM's are changing technologies in the field of transmission systems for Hybrid vehicles, this will in time also result in changes in other lubricant product portfolio's like gear and automatic transmission fluids.

Care would be needed to make sure that the lubricant can provide protection to engine components for more frequent stop/start events compared to a conventional ICE. Depending on drive cycle, the ICE may operate at a lower temperature for a short time duration. This may result in water condensation leading to emulsion formation in the fluid. Hybrid engines tend to operate at load/speed conditions related to high efficiency points to maximize fuel efficiency. Also, the engine does not operate all the time due to the introduction of start/stop technology, fuel shut off during deceleration, etc. Thus, engine oil tends to run cooler than a normal engine. This offers the opportunity to use lower viscosity grade engine oil, which can further improve fuel economy while maintaining comparable minimum oil film thickness. Many high-volume engines today use SAE 0W-20 oils, but one can now go to SAE 0W-16 or even lower.

DIFFERENT HYBRID VEHICLES

THERE IS MORE THAN ONE.

In addition to the traditional internal combustion engine, we can identify three different categories of Hybrid Vehicles.

MHEV

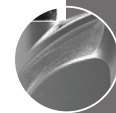
Mild Hybrid Electric Vehicles (MHEV) are generally internal combustion engines equipped with an electric machine. Mild hybrids may employ regenerative braking and some level of power assist to the internal combustion engine (ICE). Mild hybrids do not have an exclusive electric-only mode of propulsion.

FHEV

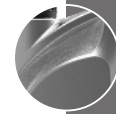
Full Hybrid Electrical Vehicles (FHEV) however do have the possibility to either run only on a combustion engine, only on an electric motor, or a combination of both.

PHEV

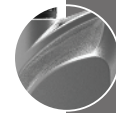
Plug In Electrical Vehicles (PHEV) are a hybrid electric vehicle whose battery can be recharged by plugging it into an external source of electric power, as well as by its on-board engine and generator. Most PHEVs are passenger cars, but there are also PHEV versions of commercial vehicles and vans, utility trucks, buses, trains, motorcycles, scooters, and military vehicles.



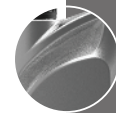
ICE:
Internal Combustion Engine



MHEV:
Mild Hybrid Electric Vehicle

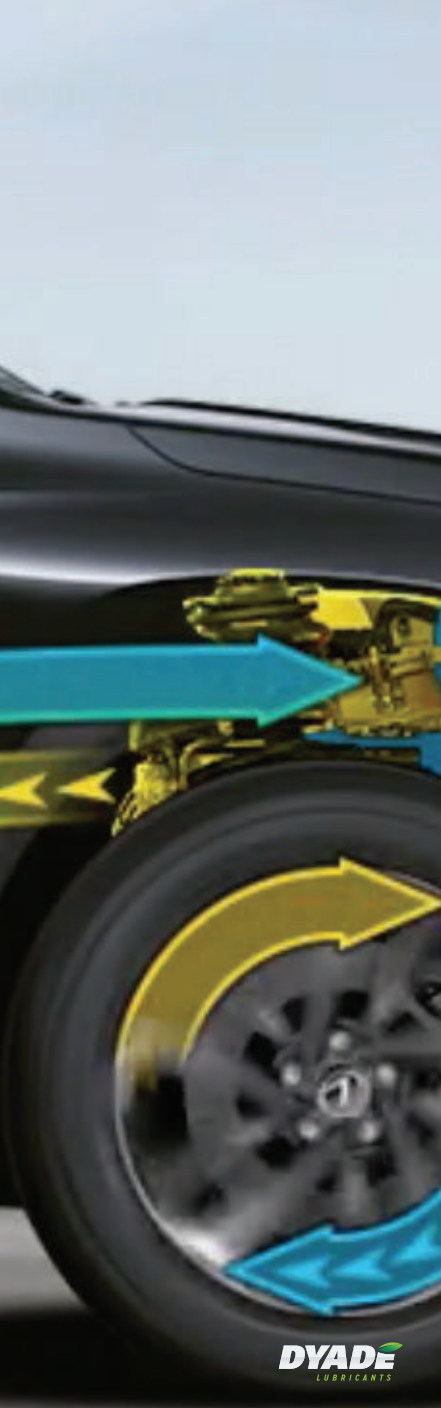


FHEV:
Full Hybrid Electric Vehicle



PHEV:
Plug In Electric Vehicle

HYBRID TECHNOLOGY

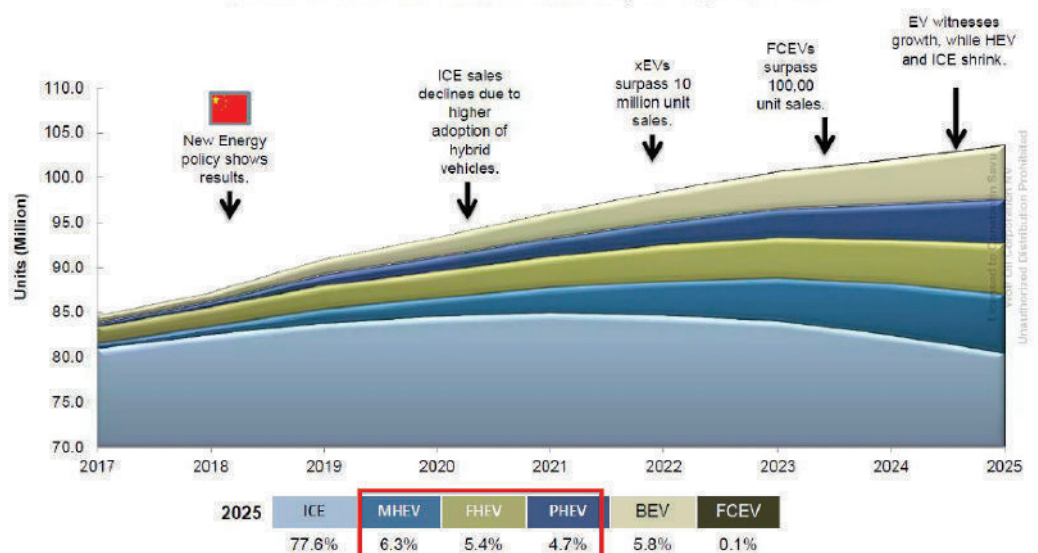


DYADE
LUBRICANTS

Future Figures of the Hybrid Vehicle Market

The Hybrid and Electrical vehicle usage until 2025 is expected to grow. Internal Combustion Engines (ICE) will still obtain a large proportion of the vehicle production, however by 2025 MHEV - FHEV and PHEV Hybrid vehicles will account for an estimate 16.4% of the global vehicle consumption.

Electric Vehicle Outlook: xEV Estimates, Global, 2017–2025



NEW TO THE DYADE FAMILY

E-MOBILITY HYBRID ENGINE OILS


As a result of the new Hybrid vehicles in the market, we developed a range of Hybrid Engine oils. These oils are able to maintain the new hybrid segments perfectly. These oils are specifically designed to deliver the best performance once the electrical engine switches to the combustions engine. Our hybrid additive packages ensure that the engine runs smooth, emissions are limited to a minimum, and power is maintained.

E-HYBRID SN-PLUS SAE 0W/16

FULL SYNTHETIC ENGINE OIL HYBRID VEHICLES



API SN PLUS



*"You can easily recognize the
Dyade E-hybrid oils by their unique
BLUE canisters"*

This product was specifically developed to meet the challenging requirements for hybrid cars, where fuel economy (FE) and CO₂ reduction are important. It provides the performance needed for the most recent requirements for gasoline-fueled US and Asian (i.e. Honda, Lexus, Mitsubishi, Nissan, Toyota) passenger cars. The API SN Plus specification shows the lubricant's capability to prevent LSPI (Low-speed pre-ignition) from damaging the engine components.

E-HYBRID GF-5 SAE 0W/20

FULL SYNTHETIC ENGINE OIL HYBRID VEHICLES

E-HYBRID C5 MB 229.71 SAE 0W/20

FULL SYNTHETIC ENGINE OIL HYBRID VEHICLES

E-HYBRID C5 0V SAE 0W/20

FULL SYNTHETIC ENGINE OIL HYBRID VEHICLES



API: SN Plus
API: SN/RC
CHRYSLER: MS 6395
FIAT: 9.55535-CR1
FIAT: 9.55535-GSX

FORD: WSS-M2C945-A
FORD: WSS-M2C946-A
FORD: WSS-M2C947-A
GM: dexos1™ Gen 2
ILSAC: GF-5

MB: 229.71
ACEA: C5-16
API: SN/RC

ACEA: C5-16
API: SN Plus
API: SN/RC
BMW: LONGLIFE-17FE+
GM: DexosD™

ILSAC: GF-5
STJLR.51.5122
MB: 229.71
OPEL: OV0401547
VOLVO: VCC RBS0-2AE

This product was specifically developed to meet the challenging requirements for hybrid cars, where fuel economy and CO2 reduction is important. It provides the performance needed for the most recent requirements for gasoline-fueled US and Asian (i.e. Honda, Toyota, Mitsubishi) passenger cars.

The MB 229.71 specification means that this product is capable of serving some of the latest Mercedes-Benz E-Class engines, including the 2017 E 220 d 4MATIC All-Terrain 213.217 and the 2017 E 220 d 4MATIC Coupé 238.315.

This engine oil offers complete protection to a range of modern passenger car and light truck diesel and gasoline engines, equipped with or without emission aftertreatment system. Furthermore, it can be used in combination with the latest fuel types, such as biofuels and ethanol-based fuels. The API SN Plus specification shows the lubricant's compatibility with highly fuel-efficient GDI engines, in which this oil prevents LSPI (Low-speed pre-ignition) from damaging the engine components. This engine oil enables some of the most advanced engine designs to reach their targeted fuel-economy levels.



ITEM CODE	PRODUCT CODE	PRODUCT NAME + GRADE	PACK-AGING	NO. CP9 PALLET	CATEGORY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	HS CODE GN CODE
565882	320106201	E-HYBRID SN PLUS SAE 0W/16	12X1 L	60	PASSENGER CAR ENGINE OILS	11.37	10.16	34039900
565899	320106201	E-HYBRID SN PLUS SAE 0W/16	5X4 L	30	PASSENGER CAR ENGINE OILS	18.48	16.94	34039900
565905	320106201	E-HYBRID SN PLUS SAE 0W/16	4X5 L	30	PASSENGER CAR ENGINE OILS	18.34	16.94	34039900
565912	320106201	E-HYBRID SN PLUS SAE 0W/16	20 L	45	PASSENGER CAR ENGINE OILS	18.16	16.94	34039900
565929	320106201	E-HYBRID SN PLUS SAE 0W/16	60 L	9	PASSENGER CAR ENGINE OILS	55.82	50.82	34039900
565936	320106201	E-HYBRID SN PLUS SAE 0W/16	205 L	4	PASSENGER CAR ENGINE OILS	188.64	173.64	34039900
565943	320106201	E-HYBRID SN PLUS SAE 0W/16	1000 L	1	PASSENGER CAR ENGINE OILS	900.50	847.00	34039900
565950	320106301	E-HYBRID GF-5 SAE 0W/20	12X1 L	60	PASSENGER CAR ENGINE OILS	11.39	10.19	34039900
565967	320106301	E-HYBRID GF-5 SAE 0W/20	5X4 L	30	PASSENGER CAR ENGINE OILS	18.52	16.98	34039900
565974	320106301	E-HYBRID GF-5 SAE 0W/20	4X5 L	30	PASSENGER CAR ENGINE OILS	18.38	16.98	34039900
565981	320106301	E-HYBRID GF-5 SAE 0W/20	20 L	45	PASSENGER CAR ENGINE OILS	18.20	16.98	34039900
565998	320106301	E-HYBRID GF-5 SAE 0W/20	60 L	9	PASSENGER CAR ENGINE OILS	55.94	50.94	34039900
566001	320106301	E-HYBRID GF-5 SAE 0W/20	205 L	4	PASSENGER CAR ENGINE OILS	189.05	174.05	34039900
566018	320106301	E-HYBRID GF-5 SAE 0W/20	1000 L	1	PASSENGER CAR ENGINE OILS	902.50	849.00	34039900
566025	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	12X1 L	60	PASSENGER CAR ENGINE OILS	11.31	10.10	34039900
566032	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	5X4 L	30	PASSENGER CAR ENGINE OILS	18.38	16.84	34039900
566049	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	4X5 L	30	PASSENGER CAR ENGINE OILS	18.24	16.84	34039900
566056	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	20 L	45	PASSENGER CAR ENGINE OILS	18.06	16.84	34039900
566063	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	60 L	9	PASSENGER CAR ENGINE OILS	55.52	50.52	34039900
566070	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	205 L	4	PASSENGER CAR ENGINE OILS	187.61	172.61	34039900
566087	320106401	E-HYBRID C5 MB 229.71 SAE 0W/20	1000 L	1	PASSENGER CAR ENGINE OILS	895.50	842.00	34039900
566094	320106501	E-HYBRID C5 OV SAE 0W/20	12X1 L	60	PASSENGER CAR ENGINE OILS	11.34	10.14	34039900
566100	320106501	E-HYBRID C5 OV SAE 0W/20	5X4 L	30	PASSENGER CAR ENGINE OILS	18.44	16.90	34039900
566117	320106501	E-HYBRID C5 OV SAE 0W/20	4X5 L	30	PASSENGER CAR ENGINE OILS	18.30	16.90	34039900
566124	320106501	E-HYBRID C5 OV SAE 0W/20	20 L	45	PASSENGER CAR ENGINE OILS	18.12	16.90	34039900
566131	320106501	E-HYBRID C5 OV SAE 0W/20	60 L	9	PASSENGER CAR ENGINE OILS	55.70	50.70	34039900
566148	320106501	E-HYBRID C5 OV SAE 0W/20	205 L	4	PASSENGER CAR ENGINE OILS	188.23	173.23	34039900
566155	320106501	E-HYBRID C5 OV SAE 0W/20	1000 L	1	PASSENGER CAR ENGINE OILS	898.50	845.00	34039900