Glossary

Additive:
Chemical agent which is deposited on the engine's metallic surfaces and performs special functions (corrosion protection, friction coefficient optimisation, wear resistance).

Alkaline reserve/base number:
This value describes how much acid entering an engine oil as a result of the combustion processcan be neutralised by the oil. A good TBN (Total Base Number) indicates a high level of corrosion protection. The higher the TBN, the more acid can be neutralised by the oil, thus protecting the engine's components against corrosion.

Functions to be performed by an engine oil:
lubrication
cooling
protection (against corrosion)
sealing (for example at piston rings, radial shaft seals)
keeping the engine clean (absorbing debris, contaminants, any carbon deposits)
transferring forces (e.g. hydraulic tappets)

Detergents:
These additives affect the cleaning performance of the engine oil.

Dispersants:
These additives affect the engine oil's capacity to bind dirt particles and suspend them. The ultimate aim is to transport these particles of dirt in the oil circuit to the oil filter.

Seal compatibility:
Modern, high-additive engine oils based on fully synthetic base oils can corrode old sealing materials and make them brittle. There is also a risk that the deposits which have built up in the engine over decades may be dissolved. Both of these processes can result in leaks and, in the worst-case scenario, engine damage.

Porsche Classic's engine oils are designed to be compatible with materials previously used in Porsche engines, such as leaded bearing shells or cork seals. Both oils have a neutral effect on all such sealing materials. They vastly exceed the performance of simple mineral oils and provide optimum protection for your engine.

Hydrocracked oil:
Hydrocracked oils are manufactured from naturally occurring crude oil, purified in refineries in further processing steps. Hydrocracked oils are notable for their high natural viscosity index (cf. "Viscosity“), a very low sulphur content and a high level of saturation resulting in optimum ageing and oxidation stability. Their performance matches that of fully synthetic base oils, but without the associated disadvantages such as poor seal compatibility and poor additive dissolution capacity.

Lateral piston force:
The force with which the piston supports itself against the cylinder wall.

Multi-grade oil:
The condition of an oil depends to a large extent on temperature. As a rule of thumb, the hotter the less viscous, and the colder the more viscous. Single-grade oils used to be popular, i.e. one oil for winter and one oil for summer.
Modern oils are less dependent on the temperature thanks to the use of additives (cf. "Additives“). Multi-grade oils are suitable for both summer and winter use.

Mineral oil:
Oil manufactured by distilling natural crude oil. The process involves the extraction of hydrocarbon molecules in a refinery. The cheap but inexact manufacturing process results in a relatively broad mix of various long-chain hydrocarbons. This has the disadvantage that any unwanted short- or long-chain hydrocarbons have an adverse impact on the behaviour of the oil during operation.

Oil ageing:
Engine oil ages during use and storage. Reactions with oxygen (formation of peroxides, hydrocarbon radicals), heat, light and catalytic influences from metals and other contaminants accelerate ageing. Substances which protect against and delay ageing are known as antioxidants.

Connecting rod-stroke ratio:
The connecting rods transfer the piston stroke to the crankshaft. The shorter the connecting rod in relation to the length of the piston stroke, the greater the lateral displacement of the connecting rod. A short connecting rod results in a large displacement and thus high lateral piston forces. At the same time, it reduces the length of the cylinder and hence the engine's weight and space requirement.

Friction states in the engine:
Liquid friction: present when the friction pair surfaces, e.g. the camshaft or bearing shell, are separated by a continuous oil film.
Mixed friction: the metallic friction pair surfaces touch each other at individual roughness peaks of the metallic surface.
Dry friction: the metallic friction pair surfaces touch each other completely, for example when the engine starts (there is no hydrostatic lubricating film in a stationary engine) or when the oil film collapses due to excessively low oil viscosity.

Shear stability:
In order to improve viscosity/temperature behaviour, viscosity index improvers (oil-soluble polymers) are added to an engine oil. A high shear stability means a stable and wear-resistant polymer structure. This prevents the polymers breaking up as a result of shear forces, such as those which act on the oil between the cylinder and the piston wall. With low shear stability, a 20W-50 oil quickly turns into a 20W-30 oil as a result of wear, with greatly reduced high-temperature properties.

Special additives:
These change the performance spectrum of high-quality engine oils and are therefore not to be recommended. The behaviour of a special additive in engine oil is comparable to that of existing additives (cf. "Additives“), and may change the additive composition in an unknown way, which means that the effect of the additives already present in the engine oil may be restricted under certain circumstances.

Semisynthetic engine oil:
A mixture of fully synthetic base oils and mineral and/or HC oils. The proportion of synthetic base oils is not specified, which makes it impossible to draw any conclusions regarding the quality of the oil in question.

Dry-sump lubrication:
The deep oil pan used in conventional engines for wet-sump lubrication is replaced by a separate oil tank. The main oil pump draws the engine oil from here and feeds it to the lubricating points under pressure A second oil pump pumps the dripping oil back into the tank.
This ensures that the supply of oil is not interrupted due to high centrifugal forces, for example during rapid cornering.

Viscosity:
A measure of the inner friction of a liquid. It is highly temperature-dependent and is classified for engine oils by the SAE (Society of Automotive Engineers) with a combination of figures and letters (in line with SAE J300), for example 20W-50.
The ordinal number before the "W"(20W = winter) describes the oil's behaviour at low temperatures, whereas the ordinal number after the "W" (in this case 50) is an indicator of the flow behaviour at high temperatures (100 °C). As a general rule: low number = low viscosity, high number = high viscosity.
The engine service life depends substantially on the base oil used and its viscosity.

CCS viscosity (Cold Cranking Simulator):
CCS viscosity is used as a basis for assigning an oil to the relevant low-temperature SAE class (e.g. SAE 10W). The low-temperature behaviour of engine oils at low shear is tested using the cold cranking simulator. Here, the turning of an engine at starter speed is simulated at very low temperatures.

HTHS viscosity (High Temperature, High Shear Viscosity):
The HTHS viscosity describes the behaviour of an oil in the lubricating gap at high temperatures (150 °C) and with a high shear rate (engine speeds). Whereas the second viscosity figure ("60" in 10W-60, cf. "Viscosity") describes the behaviour of the oil at 100 degrees Celsius, the oil temperature in an air-cooled engine can reach 150 degrees or more depending on the operating condition.

Fully synthetic engine oil:
Synthetic base oils (mainly polyalphaolefins (PAO), synthetic esters and polyisobutenes (PIB)) are artificially manufactured from the smallest chemical base materials. Synthetic base oils are used as a basis for particularly efficient engine oils. Fully synthetic engine oils offer optimum wear resistance and excellent cold start properties, specially tailored to modern engines. The light-running properties also reduce fuel consumption and keep the engine clean.