



ACEA Engine Oil Sequences (simplified)

(www.synforce.com.au/tech-note_downloads/)

About ACEA

The European Automobile Manufacturers' Association (or *Association des Constructeurs Européens d'Automobiles* in French, hence the ACEA abbreviation) is an organization that represents the 15 most important European motor vehicle manufacturers. It's the successor of CCMC (Comité des Constructeurs du Marché Commun). According to their statement, ACEA is an advocate for the automobile industry in Europe, representing manufacturers of passenger cars, vans, trucks and buses with production sites in the EU.

Among many other activities ACEA defines specifications for engine oils so called ACEA Oil Sequences. The sequences are usually updated every few years to include the latest developments in engine and lubricant technology. ACEA itself does not approve the oils, they set the standards and oil manufacturer's may make performance claims for their products if those satisfy the relevant requirements.

The first ACEA oil sequences were introduced in 1996 when they replaced the former CCMC specifications. New ACEA oil specifications were issued in 1998, 1999, 2002, 2004, 2007, 2008, 2010, 2012 and 2016. Each version of the ACEA oils sequences has or had a life cycle:

- the 'First allowable use' defines the earliest date when claims against this specification can be made
- the 'Mandatory for new claims' defines the date from which onward claims for new products can only be made against the new specification
- 'Oils with this claim may be marketed until' means that from that date an oil can only claim to meet an ACEA sequence if it meets the following sequence version since meeting the earlier version does not qualify any more

The following table defines the relevant dates for the ACEA sequences that were introduced so far:

| Issue year | First allowable use | Mandatory for new claims | Oils with this claim may be marketed until |
|------------|---------------------|--------------------------|--|
| 1996 | March 1, 1996 | March 1, 1999 | March 1, 2000 |
| 1998 | March 1, 1998 | March 1, 2000 | March 1, 2002 |
| 1999 | September 1, 1999 | February 1, 2003 | February 1, 2004 |
| 2002 | February 1, 2002 | November 1, 2005 | November 1, 2006 |
| 2004 | November 1, 2004 | November 1, 2005 | December 31, 2009 |
| 2007 | February 1, 2007 | February 1, 2008 | December 23, 2010 |
| 2008 | December 22, 2008 | December 22, 2009 | December 22, 2012 |
| 2010 | December 22, 2010 | December 22, 2011 | December 22, 2014 |
| 2012 | December 14, 2012 | December 14, 2013 | December 1, 2016 |
| 2016 | December 1, 2016 | December 1, 2017 | ... |

Every ACEA specification is made of a letter or letters that indicate the class (e.g. E stands for the heavy duty class) and a number that defines the category (e.g. the 9 in E9). There are separate categories for oils

with different purposes or for different applications within the same class. If the ACEA sequence's implementation year is specified then it follows the spec's name after a dash (like ACEA E9-12).

There are ACEA specifications for passenger car motor oils (the A/B class) for catalyst compatible motor oils (the C class) and for heavy duty diesel engine oils (the E class). The classes are further divided into categories to meet the requirements of different engines. The A/B class's A5/B5 oils have lower HTHS viscosities, which means that they provide better fuel economy but they may not provide adequate protection in engines that are not designed for them. ACEA A3/B3 and A3/B4 on the other hand require oils with higher HTHS viscosities that may not provide as good fuel economy as an A5/B5 oil but may offer better engine protection in certain engine designs. The categories within the C class are divided along SAPS limits and along HTHS viscosities. C1 and C4 are low-SAPS oils, while C2 and C3 are mid-SAPS oils. On the other hand C1 and C2 oils have lower HTHS viscosities, while C3 and C4 oils have higher HTHS viscosities. The C5 category that has been newly introduced in the ACEA 2016 sequences has even lower limit for HTHS viscosity. In order for an oil to meet this specification it must be a mid-SAPS oil and its HTHS viscosity has to be between 2.6 and 2.9 mPa*s. In case of the E class the SAPS content and the drain interval make the difference. E4 and E6 oils offer longer drain intervals where the engine manufacturer allows it while E7 and E9 are designed for medium drain applications. E6 and E9 have limited SAPS content so they can be used in engines that require this including Euro VI engines.

Below we are presenting the ACEA categories in "Consumer Language".

A/B: gasoline and diesel engine oils

ACEA A1/B1 Category is removed with the ACEA 2016 Oil Sequences. From ACEA 2012: Stable, stay-in-grade oil intended for use at extended drain intervals in gasoline engines and car & light van diesel engines specifically designed to be capable of using low friction low viscosity oils with a high temperature / high shear rate viscosity of 2.6 mPa*s for xW/20 and 2.9 to 3.5 mPa.s for all other viscosity grades. These oils are unsuitable for use in some engines. Consult owner manual or handbook if in doubt.

ACEA A3/B3 Stable, stay-in-grade Engine Oil intended for use in Passenger Car & Light Duty Van Gasoline & Diesel Engines and/or for extended drain intervals where specified by the engine manufacturer, and/or for year-round use of Low Viscosity Oils, and/or for severe operating conditions as defined by the Engine Manufacturer.

ACEA A3/B4 Stable, stay-in-grade Engine Oil intended for use in Passenger Car & Light Duty Van Gasoline & DI Diesel Engines, but also suitable for applications described under A3/B3.

ACEA A5/B5 Stable, stay-in-grade Engine Oil intended for use at extended Drain Intervals in Passenger Car & Light Duty Van Gasoline & Diesel Engines designed to be capable of using Low Viscosity Oils with HTHS Viscosity of 2.9 to 3.5 mPa*s. These Oils are unsuitable for use in certain Engines - consult vehicle-OEM's owner's manual/handbook in case of doubt.

C: Catalyst compatibility oils

Note: These Oils will increase the DPF/GPF and TWC life and maintain the Vehicle's Fuel Economy.

Warning: Some of these Categories may be unsuitable for use in certain Engine Types – consult the vehicle- OEM's owner's manual/handbook in case of doubt.

ACEA C1 Stable, stay-in-grade Engine Oil with Lowest SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Low Viscosity Oils with a minimum HTHS Viscosity of 2.9 mPa*s.

ACEA C2 Stable, stay-in-grade Engine Oil with Mid SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Low Viscosity Oils with a minimum HTHS Viscosity of 2.9 mPa*s.

ACEA C3 Stable, stay-in-grade Engine Oil with Mid SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Oils with a minimum HTHS Viscosity of 3.5 mPa*s.

ACEA C4 Stable, stay-in-grade Engine Oil with Low SAPS-Level, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable of using Oils with a minimum HTHS Viscosity of 3.5 mPa*s.

ACEA C5 Stable, stay-in-grade Engine Oil with Mid SAPS-Level, for further improved Fuel Economy, intended for use as catalyst compatible Oil at extended Drain Intervals in Vehicles with all Types of modern Aftertreatment Systems and High Performance Passenger Car & Light Duty Van Gasoline & DI Diesel Engines that are designed to be capable and OEM-approved for use of Low Viscosity Oils with a minimum HTHS Viscosity of 2.6 mPa*s.

E: Heavy Duty Diesel engine oils

ACEA E4 Stable, stay-in-grade oil providing excellent control of piston cleanliness, wear, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under very severe conditions, e.g. significantly extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines without particulate filters, and for some EGR engines and some engines fitted with SCR NOx reduction systems. However, recommendations may differ between engine manufacturers so Driver Manuals and/or Dealers shall be consulted if in doubt.

ACEA E6 Stable, stay-in-grade oil providing excellent control of piston cleanliness, wear, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV, Euro V and Euro VI emission requirements and running under very severe conditions, e.g. significantly extended oil drain intervals according to the manufacturer's recommendations. It is suitable for EGR engines, with or without particulate filters, and for engines fitted with SCR NOx reduction systems. E6 quality is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low sulphur diesel fuel. However, recommendations may differ between engine manufacturers so Driver Manuals and/or Dealers shall be consulted if in doubt.

ACEA E7 Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV and Euro V emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines without particulate filters, and for most EGR engines and most engines fitted with SCR NOx reduction systems. However, recommendations may differ between engine manufacturers so Driver Manuals and/or Dealers shall be consulted if in doubt.

ACEA E9 Stable, stay-in-grade oil providing effective control with respect to piston cleanliness and bore polishing. It further provides excellent wear control, soot handling and lubricant stability. It is recommended for highly rated diesel engines meeting Euro I, Euro II, Euro III, Euro IV, Euro V and Euro VI emission requirements and running under severe conditions, e.g. extended oil drain intervals according to the manufacturer's recommendations. It is suitable for engines with or without particulate filters, and for most EGR engines and for most engines fitted with SCR NOx reduction systems. E9 is strongly recommended for engines fitted with particulate filters and is designed for use in combination with low sulphur diesel fuel. However, recommendations may differ between engine manufacturers so Drivers Manuals and/or Dealers should be consulted if in doubt.

You can find more information about ACEA and the ACEA Engine Oil Sequences on [ACEA's website](#).