

European
Automobile
Manufacturers
Association

The Importance of CEC Tests to the ACEA Oil Sequences and a look ahead for the next 10 years

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Topics

- 1. The ACEA Oil Sequences**
- 2. Development Process of the ACEA Oil Sequences**
- 3. ACEA's view of the CEC system**
- 4. Future Requirements from ACEA**
- 5. Resumee**



1. The ACEA Oil Sequences

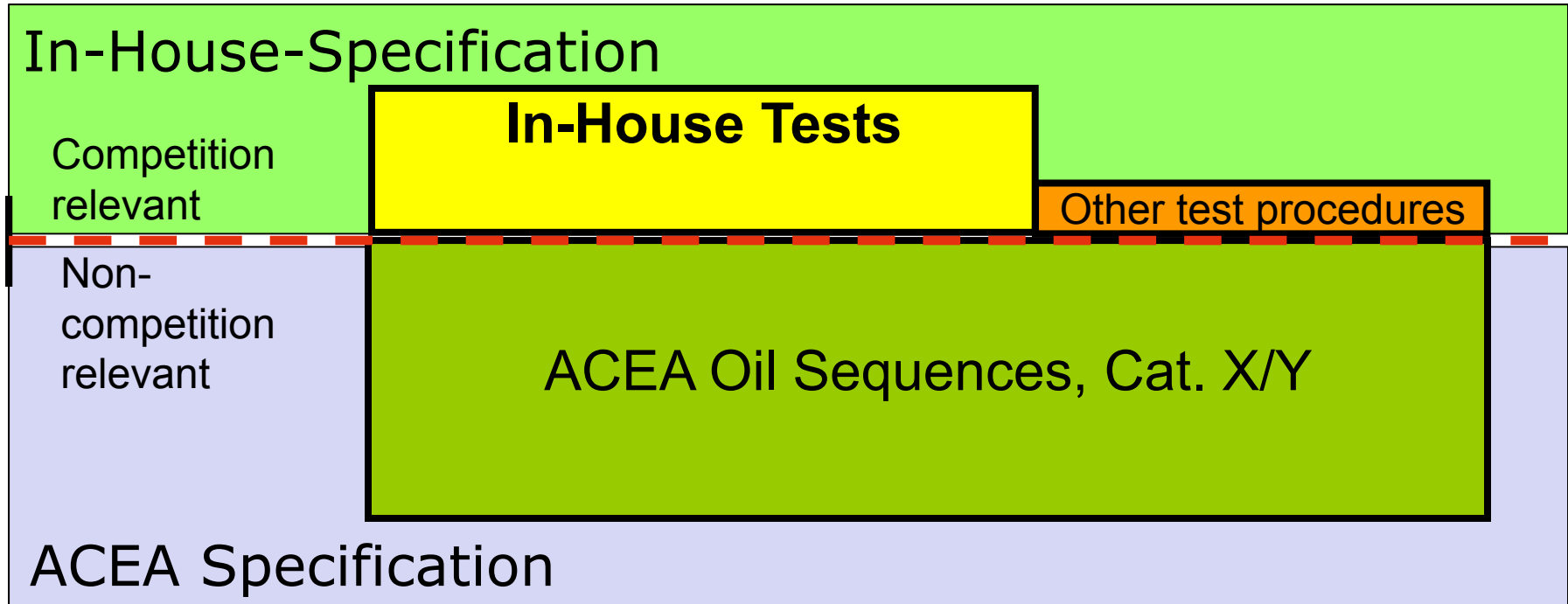
▪ *Structure and Contents*

A/B 4 Quality Levels e.g. ACEA A3/B4	C 4 Quality Levels e.g. ACEA C3	E 4 Quality Levels e.g. ACEA E5	General Information
LD Gasoline & Diesel	LD Gasoline & Diesel with DPF MidSAPS, LowSAPS	HD Diesel	Validity Application Rules
<div style="border: 1px solid black; padding: 5px;"> Engines Tests: LD-Engines Engine Cleanliness, Ring Sticking, Sludge Protection, Anti-Wear, Fuel Economy </div>	<div style="border: 1px solid black; padding: 5px;"> Engine Tests: LD & HD Engines Criteria similar to LD categories, partly different tests </div>	Conditions of Certification ...	
<div style="border: 1px solid black; padding: 5px; text-align: center;"> Lab- and Components Tests Evaporation, Elastomer Compatibility, Aeration </div>			



1. The ACEA Oil Sequences

- ***Why common European engine oil specifications?***



The ACEA Sequences only contain requirements considered to be non-competition relevant. Individual and competition relevant requirements can be used in combination with the ACEA Sequences (or part of that) as OEM own in-house specifications.



2. Development Process of the ACEA Oil Sequences

■ **Structure of Working Groups**

ACEA WG/FL – Working Group / Fuels & Lubricants

Subgroups: Light Duty Engine Oils

Heavy Duty Engine Oils

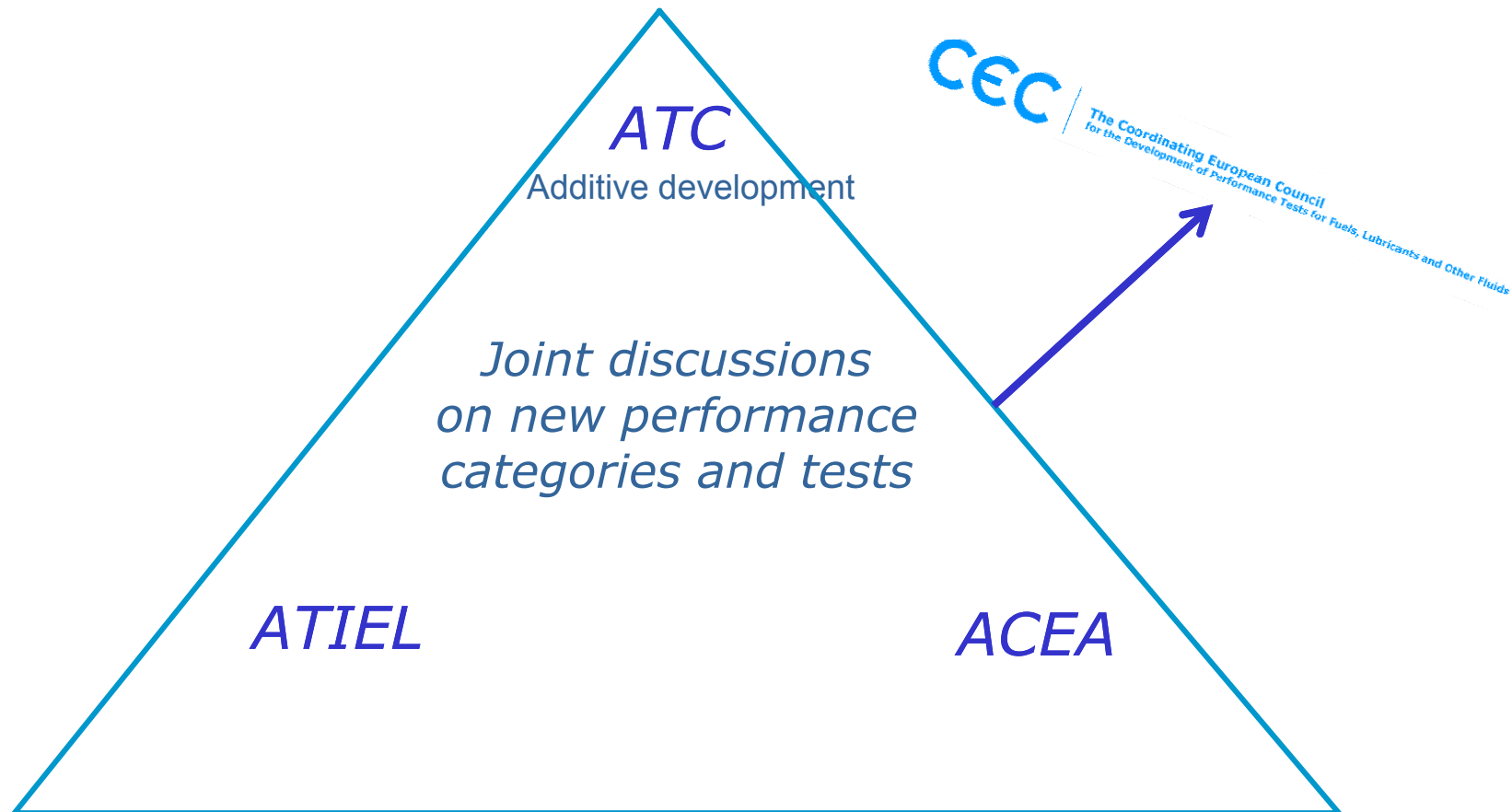


ACEA EUROPEAN OIL SEQUENCES



2. Development Process of the ACEA Oil Sequences

- **"Triple A" (ACEA, ATC, ATIEL)**





3. ACEA's view of the CEC system

- ***Strong Points of the CEC System***
 - **Extremely well organized, very effective management structure**
 - Usually quick decision process on board level
 - Only one decision making level
 - Easy to use webside – excellent work of the secretariat
 - **Excellent quality control**
 - **Expertise of all industry forces (oil-, additive & auto industry)**
 - **(long term) availability of reference fluids**
 - **Continuous test monitoring by Surveillance Groups**



3. ACEA's view of the CEC system

▪ ***Weak Points of the CEC System***

- **Difficult to find acceptance for requirements as preventative measures / ACEA don't want to wait for field failures**
- **Development process in some cases too slow**
- **Many participants in TDGs: decisions therefore often difficult**
- **More initiative of leading lab needed**
- **Only little flexibility once ToRs are defined**
- **Acceptance and differentiation of additional test parameters
i.e. for OM646 wear test - control parameter, killer limits, ..**
- **Quality control (QI) in some labs**
- **No groups for pre-development of test procedures**



Difficult process, but resulting tests are of very high & reliable standard



3. ACEA's view of the CEC system

- ***Future Difficulties to overcome***
 - **Engine availability**
 - **Shorter hardware lifetime**
 - **Shortages of hardware parts and fluids**
 - **Higher number of different tests needed**
 - **More diverging needs from different OEMs**
 - **Increasing impact of (bio)fuels and fuel dilution**



4. Future Requirements from ACEA *Common Trends for Lubricant Requirements*

■ ***New Fuels***



- Two Tests already under development
 - Biodiesel Compatibility towards Piston Cleanliness & Sludge
 - Low Temperature Pumpability
- Materials Compatibility:
 - Fuel + Combustion Products
 - Corrosion
 - Bearing Materials
- Severe Oxidation Test for Biodiesel contaminated engine oils



4. Future Requirements from ACEA *Common Trends for Lubricant Requirements*

▪ ***Increased Fuel Economy – Decrease of CO₂-Emissions***



- New test procedure(s)
 - Latest engine hardware
 - Dynamic driving cycles
- More severe requirements



- Increased FE benefits not only due to viscosity reductions
- For fresh & used engine oil



4. Future Requirements from ACEA *Common Trends for Lubricant Requirements*

▪ ***Start/Stop & Hybrids***

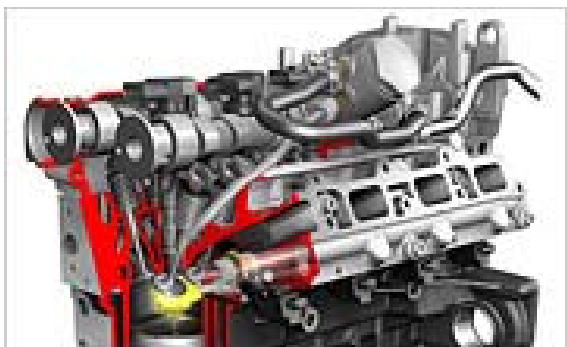


- New engine tests needed for
 - a) frequent starts/short running time
 - b) cold start with immediate medium to high load operation
- Performance of engine oils at low and medium temperature
- Lubricating performance during and shortly after the engine start



4. Future Requirements from ACEA *Common Trends for Lubricant Requirements*

▪ ***Increased Engine Performance***



- Continued Increase of specific Engine Performance
- Higher Stress on Engine Oils
 - Increased max. Piston Temperatures/general Temperatures
 - More Thermal Oxidation
 - Higher Contamination
 - Quicker Degradation of Additives





4. Future Requirements from ACEA *Common Trends for Lubricant Requirements*

- ***Engine Oils for low Quality Fuel Markets..***
 - Low/mid SAPS oils proved to have disadvantages in some markets
 - Quicker oil degradation due to e.g. high sulfur fuels and other critical fuel components
 - Therefore a different type of engine oil quality might be needed
 - Stronger alkaline reserve
 - Adjusted detergency & dispersancy
 - More antioxidancy
 - Standard Ash



..must be specific & high Quality



4. Future Requirements from ACEA

▪ ***Wider availability of ACEA oils***

European Auto Manufacturers face the following situation in developing markets:

...on the engine technology side

- Latest engine technology requested by nearly every market
- Modern Diesel engines needed in developing markets
- Latest emission control system requested in several developing markets
- Many Markets ask for longer drain intervals



4. Future Requirements from ACEA

▪ ***Wider availability of ACEA oils***

European Auto Manufacturers face the following situation in developing markets:

...on the engine oil side

- today these engine oil markets dominated by very basic and/or obsolete oil qualities
- engine oils with light duty Diesel performance are missing
- low fuel qualities
- no/nearly no ACEA oils available



4. Future Requirements from ACEA

▪ ***Wider availability of ACEA oils***

European Auto Manufacturers need better engine oil qualities in non-European and developing markets:

- Engine oil qualities no longer suitable for modern engines should disappear
- Engine oils according to ACEA specifications needed
 - high market penetration
 - recent ACEA categories, not obsolete categories



Resumee

- ***The CEC system is highly valued by ACEA***
- The development of the „new CEC“ has resulted in a much more effective system
- Due to the many strengths of CEC ACEA stays committed to CEC
- CEC test procedures remain ACEA`s first choice for the engine oil sequences
- OEMs continue to use CEC tests for their inhouse specifications
- ACEA already plans to develop many new tests with CEC to meet future requirements