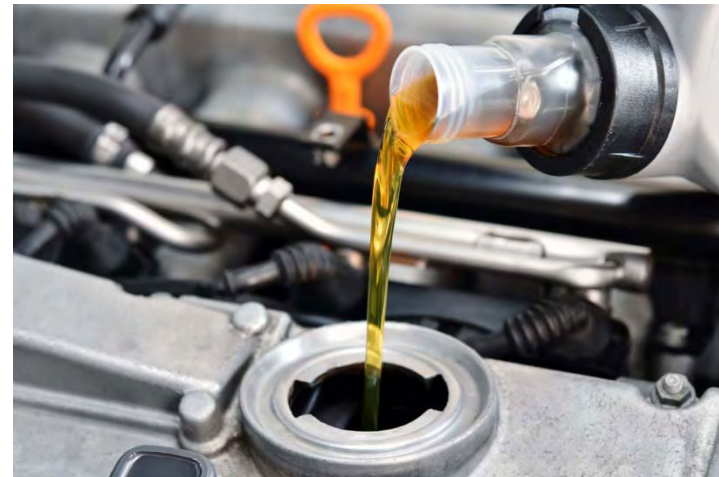


ATIEL TRAINING WEBINAR: **WHAT'S NEW IN 2017?**

Thursday 30 March 2017
(17.30 CET)

Duration: max 1 hour

WELCOME...




Presenter introduction



Adri van de Ven

- Kuwait Petroleum - Product Development Manager
- Member ATIEL Executive Committee
- 32-year career in the oil industry

ATIEL Anti-competition Guidelines


ATIEL Anti-competition Guidelines for all activities

DO'S

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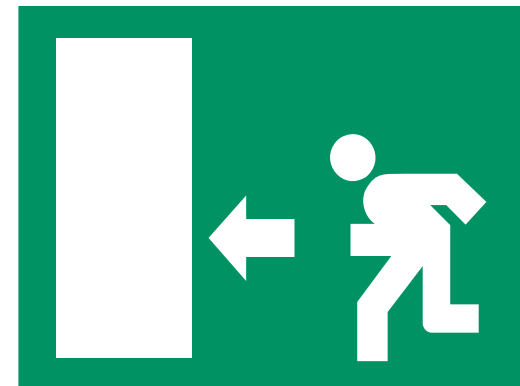
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Webinar house rules

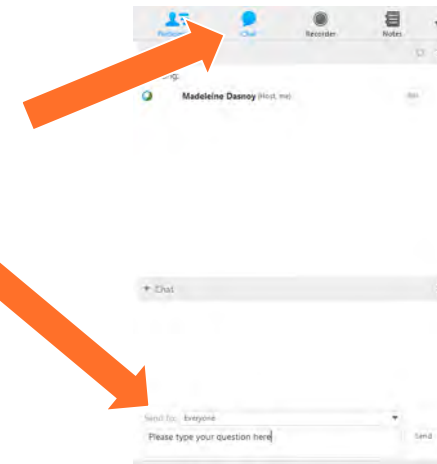
- Please turn your phone/mic to mute.



- We will take questions at the end of the webinar.



- You can use the chat option if you have any questions or remarks during the seminar



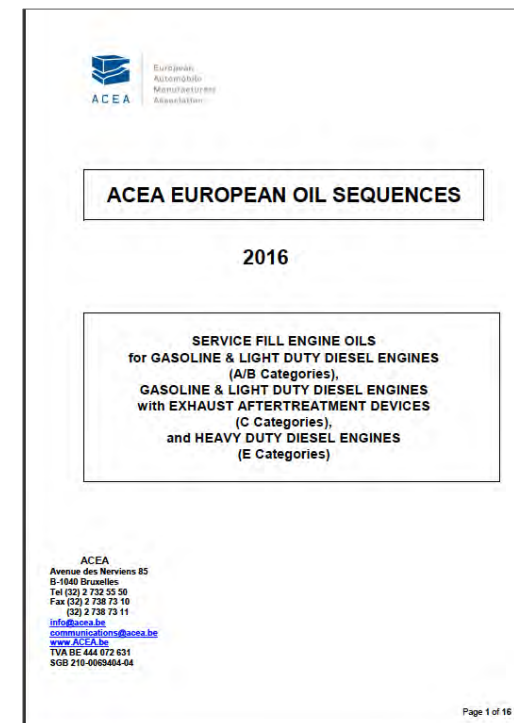
Today's session - what we will cover

- **RELEASE OF ACEA 2016 OIL SEQUENCES**
Impact of changes to specifications, tests and categories
- **PUBLICATION OF ATIEL CODE OF PRACTICE ISSUE 20**
Technical updates and structural changes
- **RELAUNCH OF THE EELQMS**
Establishment of the EELQMS as the standalone overarching quality system



ACEA 2016 Oil Sequences

- Introduced 1 December 2016.
- Substantial increase in performance requirements from ACEA 2012.
- Delay in launch due to longer list of performance parameters that needed to be addressed by ACEA members.
- Mandatory for new formulation claims made from 1 December 2017.



ACEA 2016 drivers

- Increasing use of direct injection engines
 - Higher temperatures, more fuel dilution
- Increasing use of bio fuels
 - Oxidation and engine cleanliness issues
- Push for fuel efficiency/fuel economy
 - New C5 engine category with higher M111 FE test targets
 - Allowance for 0W-20/5W-20 viscosity grades with C5
- New seal materials
 - Updated elastomer materials to address REACH issues



ACEA 2016 - changes to categories

- **A1/B1 PC category removed**
 - Older PC category - no new requirements that can't be covered by other categories.
 - Marketers can't make new claims but can continue to make claims based on the most recent valid sequences (ACEA 2012) with no changes to formulation allowed.
- **New C5 PC category introduced**
 - Based on C2 but with added focus on fuel economy.
 - Lower HTHS (high temperature, high shear) category compared to C2.
 - More stringent requirements for the existing M111 FE test to identify oils that make passenger vehicles more fuel efficient.
 - Likely to require formulation of 0W-20/5W-20 lubricants.

ACEA 2016 - changes to engine tests

- Two new engine tests for engine cleanliness:
 - CEC L-107 (conducted using an M271 Evo engine) - not yet available, still use M271
 - CEC L-111 (run on an EP6CDT)

- Two additional Engine tests:
 - CEC L-104 (OM646 Bio)
 - CEC L-106 (DV6C) Medium Temperature Dispersivity test

- Engine Tests removed:
 - CEC L-038 (TU3M)
 - CEC L-093 (DV4TD)
 - CEC L 88 (TU5)



ACEA 2016 - changes to lab tests

- CEC L-109 oxidation test in the presence of biodiesel
 - Designed to cope with Europe's growing use of alternative fuels, specifically the fact that biofuels tend to accumulate in engine oil sumps where they can accelerate oil oxidation and thickening and formation of deposits.

- CEC L-112 test for seal compatibility
 - Takes into account new EU chemicals regulations that restrict use of materials that were formerly popular in seals and gaskets and forced industry to replace them with new materials.



Validity of ACEA Sequences?

Sequence issue	First allowable use	Mandatory for new formulation claims	Oils with this claim may be marketed until
2004	1 st Nov 2004	1 st Nov 2005	31 st Dec 2009
2007	1 st Feb 2007	1 st Feb 2008	23 rd Dec 2010
2008	22 nd Dec 2008	22 nd Dec 2009	22 nd Dec 2012
2010	22 nd Dec 2010	22 nd Dec 2011	22 nd Dec 2014
2012	14 th Dec 2012	14 th Dec 2013	1 st Dec 2018
2016	1 st Dec 2016	1 st Dec 2017	

What could this all mean?

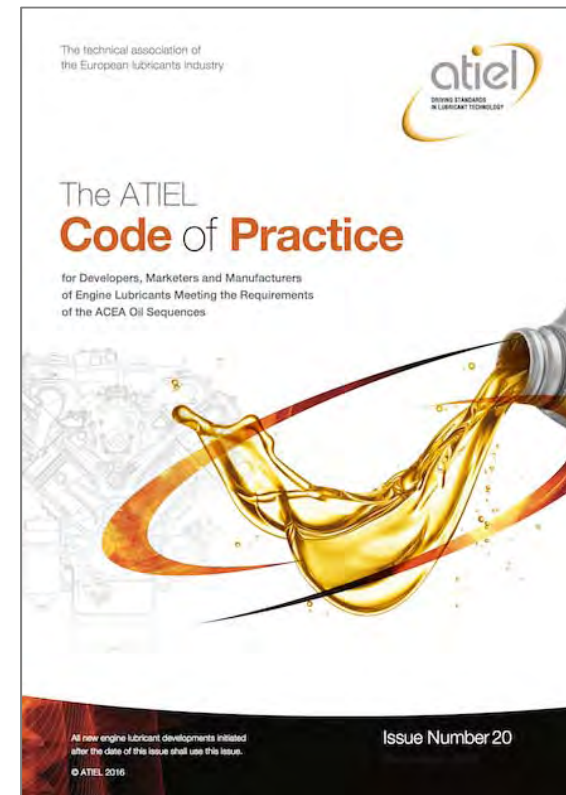
- Reformulation likely required to meet ACEA 2016.
- All products for all categories that make a claim to meet ACEA 2016 will require some new engine testing.
- Additive companies and/or lubricant developers are likely to have already started testing against new tests.
- There will be pressure on testing capacity/availability in 2017/2018.
- Can everyone be ready on time?



ATIEL Code of Practice Issue 20

What's new or different?

- **New technical content:**
 - Revised and updated to bring into line with ACEA 2016 Oil Sequences
- **New structure and format:**
 - More user-friendly format
 - Removal of EELQMS
 - Closer alignment with ATC Code of Practice
 - Clearer auditing requirements



New technical content

ATIEL CoP Issue 20 is aligned and updated with the latest evolution of specifications and performance limits in ACEA 2016:

- Accommodates new engine tests in read-across tables
- Reflects new and obsolete engine categories
- Adjusted the removal of 'grandfathering' principle for some tests (*Seal test*)

VGRA table DV6C/M271Evo

Test run on	Can be read-across to															
	0W-20	0W-30	0W-40	5W-20	5W-30	5W-40	5W-50	10W-30	10W-40	10W-50	10W-60	15W-40	15W-50	20W-40	20W-50	
0W-20		no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
0W-30	yes if ⁽¹⁾		no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
0W-40	yes if ⁽¹⁾	yes if ⁽¹⁾		yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
5W-20	no	no	no		no	no	no	yes if ⁽¹⁾	no	no	no	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾	
5W-30	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾	no	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
5W-40	yes if ⁽¹⁾	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾		no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
5W-50	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾		yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
10W-30	no	no	no	yes if ⁽¹⁾	no	no	no		no	no	no	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾	
10W-40	no	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾		no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
10W-50	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾		no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
10W-60	yes if ⁽¹⁾	yes if ⁽¹⁾	no	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾		yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	yes if ⁽¹⁾	
15W-40	no	no	no	yes if ⁽¹⁾	no	no	no	yes if ⁽¹⁾	no	no	no		no	yes if ⁽¹⁾	yes if ⁽¹⁾	
15W-50	no	no	no	yes if ⁽¹⁾	no	no	no	yes if ⁽¹⁾	yes if ⁽¹⁾	no	no	yes if ⁽¹⁾		yes if ⁽¹⁾	yes if ⁽¹⁾	
20W-40	no	no	no	no	no	no	no	no	no	no	no	no	no		no	
20W-50	no	no	no	no	no	no	no	no	no	no	no	yes if ⁽¹⁾	no	yes if ⁽¹⁾		

Issue 20 - new structure & format

- More logical, user-friendly format.
- Sections now align better with a typical lubricant development programme.
- Better definition of roles and responsibilities - bringing clarity to expectations on Lubricant marketers, developers and manufacturers.
- Closer alignment with ATC.
- Extraction of the EELQMS section from the ATIEL CoP - to reposition EELQMS as the overarching quality system.

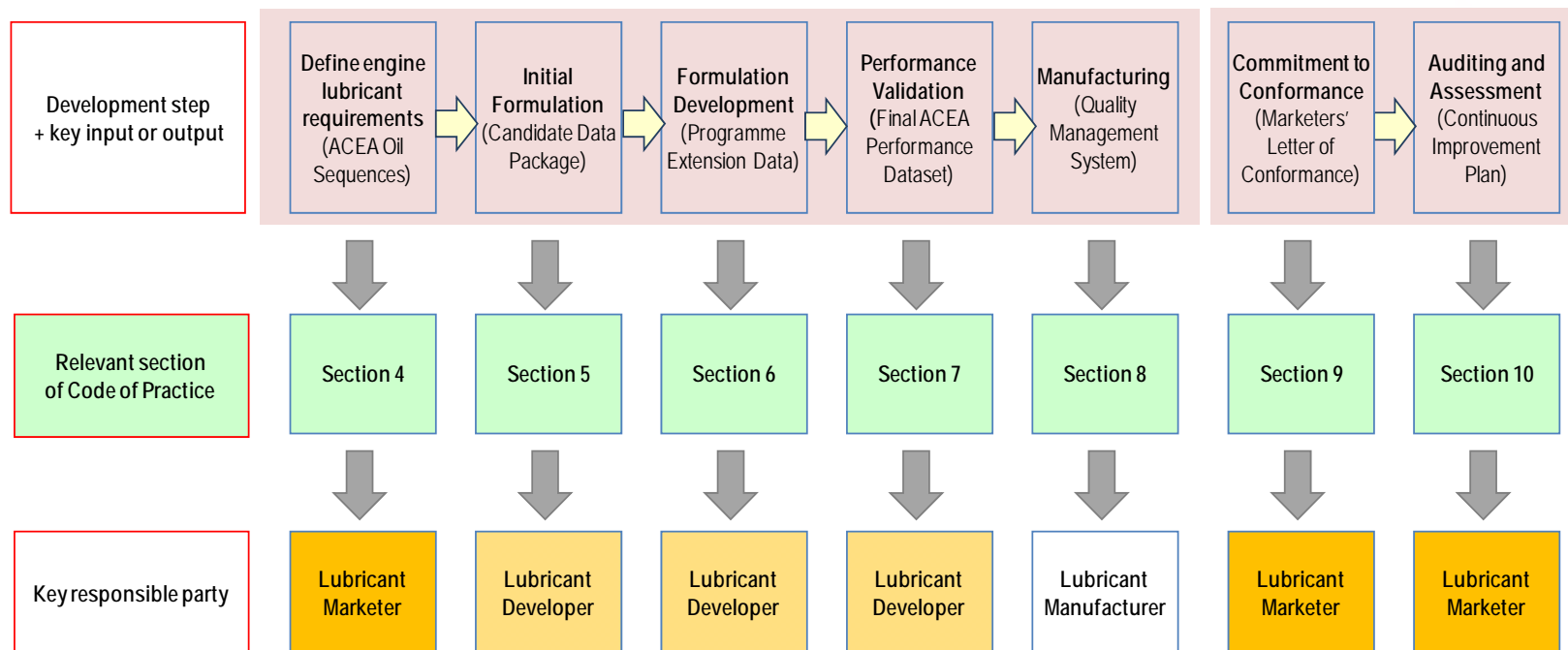


More logical sections & ordering

Issue 20 content is better aligned with the development process

Issue 19	Issue 20
1. Introduction	1. Introduction
2. ATIEL Code of Practice	2. Responsibilities
3. Description of EELQMS	3. Framework
4. Blending plant requirements	4. Engine Lubricant Requirements
5. Reference Publications	5. Additive formulation requirements/Candidate Data Package
	6. Lubricant Formulation development/ Programme Extension
	7. Performance validation/Final ACEA Performance data set
	8. Manufacturing
	9. Commitment to conformance
	10. Auditing and assessment
	11. Reference publications and definitions

Clear stakeholder responsibilities



New structure - Appendices

Issue 19		Issue 20	
Appendix	Topic	Appendix	Topic
A	Guidelines for VGRA	A	VGRA and BOI Guidelines
B	Guidelines for base stock quality assurance and interchange	B	Guidelines for base stock manufacturers quality assurance
C	Guidelines for viscosity modifier interchange	C	Performance data set requirements and auditors check lists
D	Data set requirements and auditors' check list for base stock quality assurance	D	Templates for Letters of Conformance (*)
E	Templates for Letters of conformance		

Full list of all LoC signatories can be found on ATIELwebsite:

<http://atiel.org/code-of-practice/letters-of-conformance-marketers-signatories>

Alignment with ATC

- **Replacement of “more severe base stock” by “BO batches”**

Section 6.2 (Page 10): “The lubricant developer shall ensure that the testing is carried out on base stock batches representative of typical production within the corresponding base stock slate. Testing shall not be carried out on base stock batches at extreme ends of production or specification where these are known to deliver improved performance compared with typical production material.”

- **Agreement on the wording for intraslate interchange**

ATC deleted table 1 in h7.1 of ATC CoP.

- **Reduce misalignment by restricting the application of the 10% rule**

See Example 4 in Appendix A.

- **Provision from ATC taken in ATIEL to avoid cumulative interchanges**

Page 11: “ Where base stocks from more than one base stock group are interchanged simultaneously, cumulative base stock substitutions shall not exceed 10% or 30% by mass, as given in the BOI tables in Appendix A. Every permitted interchange shall be done with reference to an effective engine test measurement with the initial base stock slate and not to a previous BOI read-across data (see Example BOI 5 in Appendix A).



Alignment with ATC

- Responsibility for VMI transferred to ATC Code of Practice
VMI section removed from ATIEL CoP
- Definition modified to clarify that Group V cannot be in slates
Definition "slate", point c: "is in same ATIEL Base Stock Group (I to IV)"
- Agreement on the names of engine tests in CoP
- Withdrawal of all references in tables to "level 2 support"
- Notes in ATC table to align with ATIEL BOI tables for DV6C and M111

Auditing guidelines

- New consolidated guidelines for auditing lubricant development programme provided in Chapter 10.
- Requirements easier to follow as a result of restructuring of Code of Practice.
- Recommendations from external auditing specialists (Lloyds Register Quality Assurance) adopted as far as possible.



European Engine Lubricants Quality Management System (EELQMS)

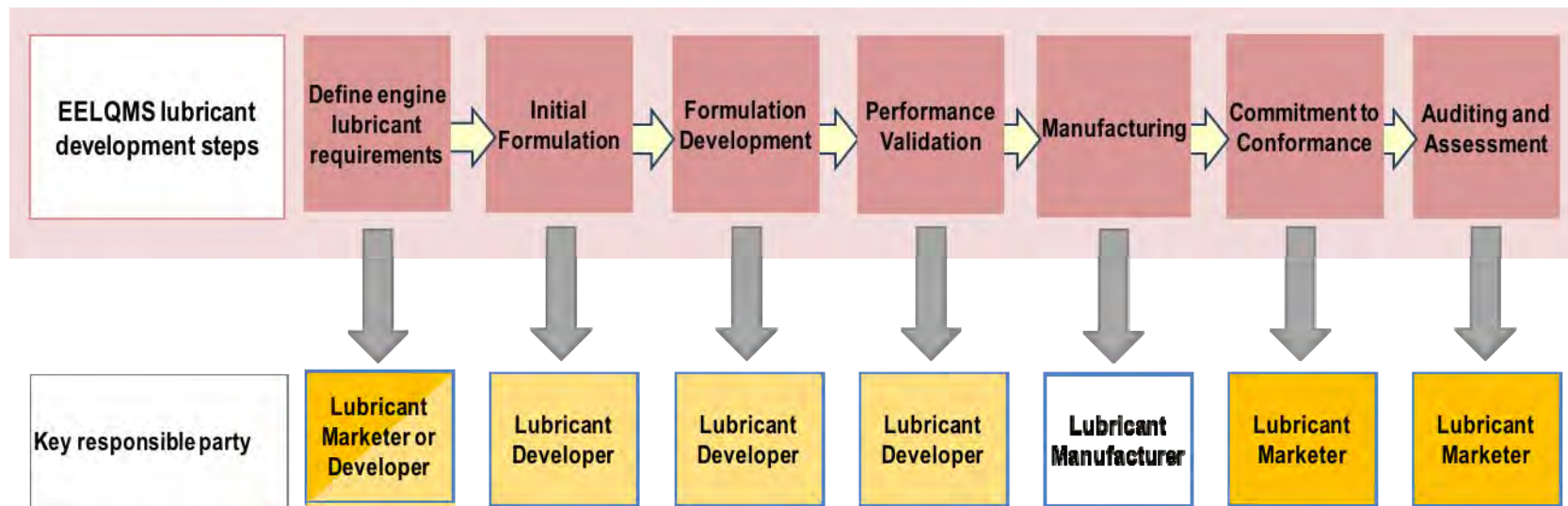
- EELQMS separated out from ATIEL Code of Practice.
- Now positioned as the overarching quality system.
- Still the only system that can be used to qualify engine lubricants against the ACEA Oil Sequences.
- Administered by ATIEL on behalf of the other key stakeholders (ACEA & ATC).



EELQMS stakeholders and inputs



Description of EELQMS programme



Promoting standalone EELQMS

- New standalone identity with logo and branding.
- New separate document clearly setting out the guidelines for compliance.
- New dedicated website going live in April 2017:
www.eelqms.eu



Any questions?





Thank you!

For more information visit:

www.atiel.org

www.eelqms.eu



Back-up slides

Voluntary system versus Licensing?



EUROPE:

- Different organisations representing OEMs, Oil and Additives industries
- ACEA owns Oil Sequences but chooses not to license
- Not legally possible to license/police against the ACEA Oil Sequences
- Compliance with voluntary quality system (EELQMS), with signed Letter of Conformance, required by ACEA to make performance claims



N. AMERICA:

- One organisation (API) representing OEMs, Oil and Additives industries
- API develops and owns lubricant classifications
- Enabled development of licensing system
- Logo and policing system
- Fee-based licensing
- Licensing ('Donut') still voluntary

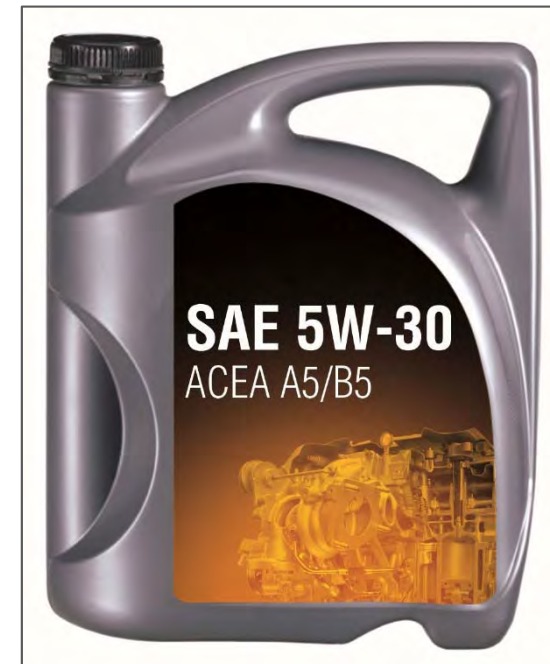
ACEA European Oil Sequences

- ACEA European Oil Sequences are quality standards for engine lubricants used in light duty passenger cars & heavy duty trucks.
- ACEA Oil Sequences are updated regularly (typically every two years) to address:
 - Changes in legislation
 - Changes in engine design & technology
 - Changes in fuel composition (eg biofuels)
- ACEA Oil Sequences are available to download from the [ACEA website](#).



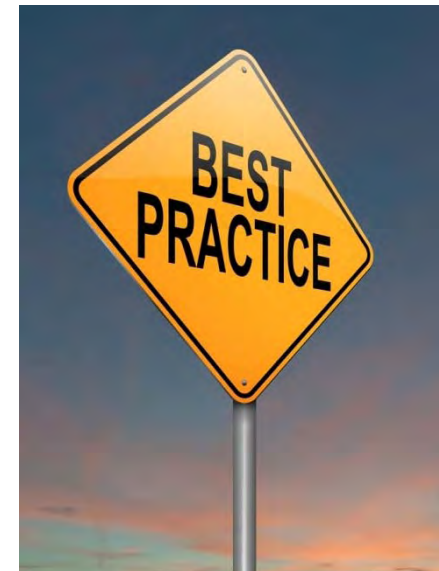
ACEA performance claims

- Lubricant marketers claiming ACEA performance can include claims for specific engine categories on their product labelling.
- For these claims to be valid ACEA requires these engine lubricants to be developed in accordance with the European Engine Lubricant Quality Management System (EELQMS).



ATIEL Code of Practice

- Following its guidelines enables lubricant companies to comply with the requirements of ACEA Oil Sequences.
- Provides formulation guidelines that present accepted industry best practices - updated in line with evolution of the ACEA Oil Sequences.
- Provides a common approach and standards for the whole industry to follow.
- Provides reassurance to OEMs and end-users of the quality and consistency of lubricants making ACEA performance claims.
- Has evolved in line with ACEA Oil Sequences and is currently on Issue 19.

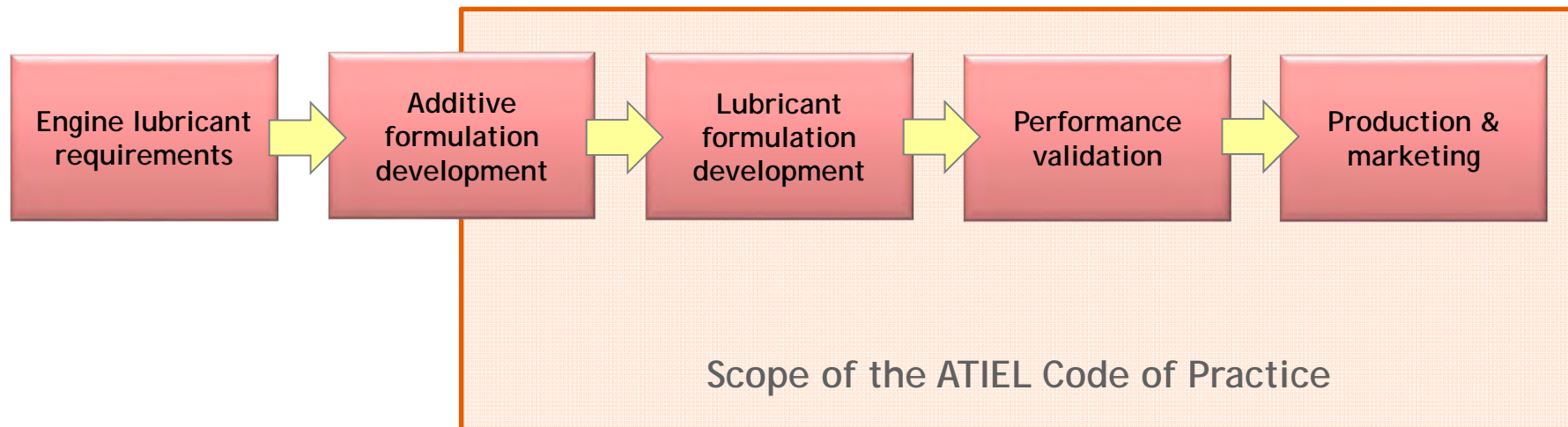




Code of Practice - how does it help?

- Facilitates efficient lubricant development by:
 - providing a documented, structured approach
 - eliminating unnecessary or duplicate testing
 - reducing product development time
 - making more effective use of resources
- Provides standard guidelines and auditable quality management systems to ensure consistent quality of lubricants.
- Ensures availability of appropriate lubricants worldwide (different base stocks, viscosity grades) through controlled formulation flexibility.

How does the ATIEL Code of Practice apply to the lubricant development process?



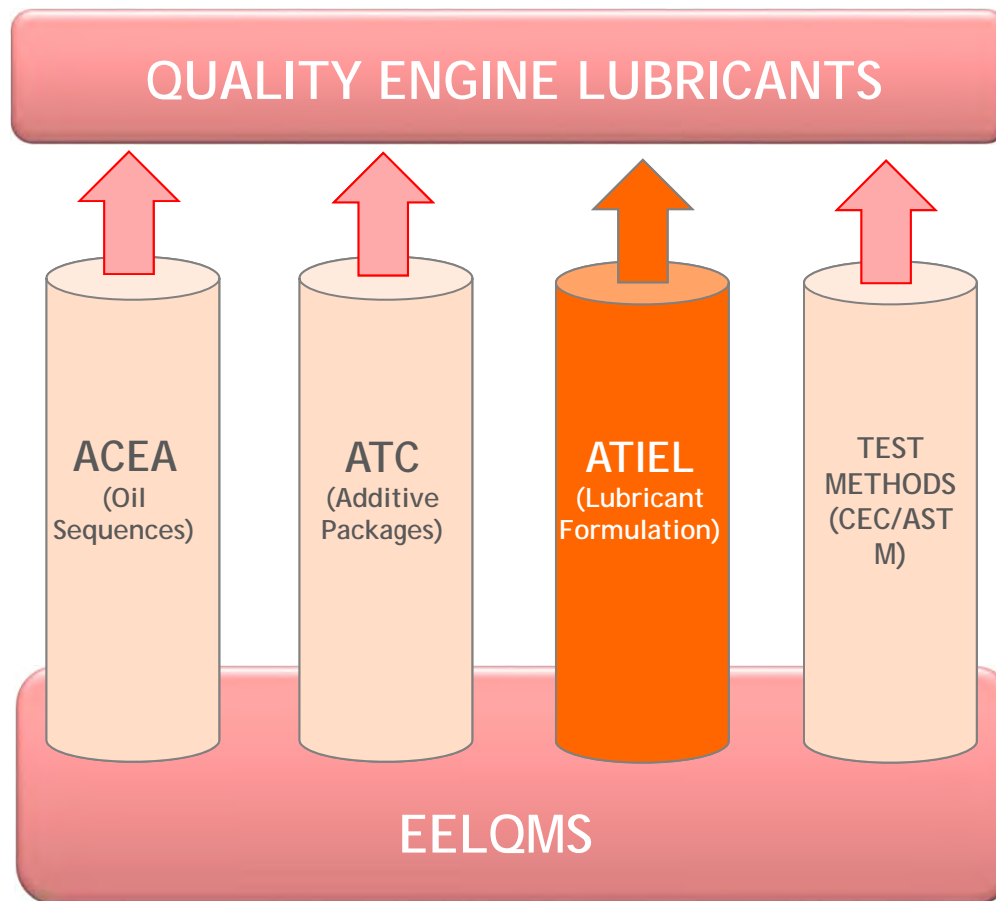
- The primary role of the Code of Practice is to generate an ACEA Performance Data Set to support the technical integrity of a lubricant relative to the ACEA performance requirements.

Summary of EELQMS

- Lubricant marketers developing engine lubricants in compliance with ACEA Oil Sequences shall carry out formulation development, blending and marketing in accordance with the guidelines in the ATIEL Code of Practice and ATC Code of Practice:
 - incorporating EELQMS guidelines in a quality management system (eg ISO 9001, or ISO TS 16949).
 - ensuring an independent audit of the lubricant development process.
 - having Code of Practice checklists signed off by an authorised company representative.
 - blending products according to requirements of ATIEL Code of Practice, including accreditation to an auditable QMS.
 - signing a Marketers' Letter of Conformance and registering it with ATIEL.



A core pillar of EELQMS



- The ATIEL Code of Practice is a core pillar of EELQMS.
- EELQMS is currently described in Section 3 of the ATIEL Code of Practice Issue 19.

Value of EELQMS

- A voluntary system but the only system that can be used to qualify engine lubricants against the ACEA Oil Sequences.
- Existence of EELQMS and the ATIEL/ATC Codes of Practice has contributed to higher quality lubricants in the market.
- Stakeholders interact/align through joint working groups (ATIEL/ATC alignment group) and AAA (ACEA, ATIEL and ATC) meetings.

