

EELQMS

A Guide to the European Engine Lubricant Quality Management System

Foreword

The latest version of this document is available on the EELQMS website www.eelqms.eu.

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To ensure that users of the European Engine Lubricant Quality Management System (EELQMS) interpret it correctly, attention is drawn to the following Table that shows the meaning of the auxiliary verbs 'shall', 'should', 'can' and 'may' used in this document:

Verb	Meaning	Example
shall	mandatory requirement, command	Users of the EELQMS shall ensure they use the latest editions
should	recommendation each of the constituent elements specifies detailed requirements that should be followed
can	capability, ability	The EELQMS is the only system that can be used to support claims against the ACEA European Oil Sequences specifications
may	permission, sanction	Although the EELQMS is a voluntary system, it may be required by third parties

The EELQMS is administered by ATIEL on behalf of the stakeholders.

Any questions relating to the EELQMS should be communicated to: info@eelqms.eu.

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EELQMS

A Guide to the European Engine Lubricant Quality Management System

1 Introduction

The European Engine Lubricant Quality Management System (EELQMS) is a voluntary quality management system for automotive engine lubricants. It has been developed jointly by ACEA (The European Automobile Manufacturers' Association), ATC (The Technical Committee of Petroleum Additive Manufacturers in Europe) and ATIEL (The Technical Association of the European Lubricants Industry).

Although the EELQMS is a voluntary system, it may be required by third parties and, in these circumstances, it may be mandatory (section 4).

ACEA, ATC and ATIEL, together with the CEC (The Coordinating European Council for the Development of Performance Tests for Fuels, Lubricants and Other Fluids), which is responsible for developing test methods, share a mutual interest in the development of improved, fit-for-purpose engine lubricants that meet the increasing technical requirements of the automotive industry.

The EELQMS arose out of this shared interest and was developed through close collaboration between these stakeholders.

The System is designed to assist lubricant marketers in assuring the quality of their lubricants and the performance claims being made for them in the marketplace. It provides a detailed process and structure for supporting documentation covering lubricant development, production and performance validation. It is available to all companies on a voluntary basis and nothing in the System forms part of a contract.

The EELQMS is the only system that can be used to support claims against the ACEA European Oil Sequences specifications, and so enables lubricant marketers to include those performance claims on their product labelling.

2 Lubricant marketers' responsibilities

The lubricant marketer is wholly responsible for the quality of the lubricant reaching the consumer, together with any performance claims being made in the marketplace. The lubricant marketer remains responsible for all aspects of product liability.

A lubricant marketer is defined¹ as the marketing organisation responsible for the integrity of the brand name and the representation of the branded product in the market place.

3 Description of the European Engine Lubricant Quality Management System

The EELQMS is an overarching quality management system that embraces various standards, test methods and procedures, along with industry Codes of Practice, and the requirements of the ACEA European Oil Sequences (see Figure 1).

The EELQMS guidelines are summarised in Section 5 of this document, but each of the constituent elements specifies detailed requirements that should be followed in the course of designing, developing, manufacturing or marketing engine lubricants. Meeting the requirements of each of the constituent elements of EELQMS is the responsibility of the lubricant marketer.

The main elements of the EELQMS are:

- **ACEA European Oil Sequences**², which set the minimum performance specifications for lubricants used in different automotive engine categories;
- **ATC Code of Practice**³, which describes processes for engine testing, compliance and audit, the reporting of test data and the use of additive specific formulation modifications. This in order to support ACEA performance claims;
- **ATIEL Code of Practice**⁴, which provides oil formulation guidelines for the development and marketing of lubricants that meet ACEA performance requirements;
- **CEC**⁶ and **ASTM**⁵ test methods, which provide the globally recognised, standardised lubricant test methods.

The ATC Code of Practice and the ATIEL Code of Practice are integral parts of the System. They encourage the adoption of common standards and best practices for engine lubricant development, and consistent and precise operation of engine and laboratory testing, coupled with a standardised system for reporting test results.

¹ *API Publication 1509 Engine Oil Licensing and Certification System*, American Petroleum Institute, 1220 L Street, N.W., Washington, D.C. 20005, USA, available at www.api.org

² *ACEA European Oil Sequences: Service Fill Oils for Gasoline Engines, Light-Duty Diesel Engines, Engines with After-Treatment Devices and Heavy-Duty Diesel Engines*, ACEA, Avenue des Nerviens 85, B-1040 Bruxelles, Belgium. Available at www.acea.be

³ *ATC Code of Practice*, ATC Sector Group, CEFIC, Avenue E van Nieuwenhuysse 4, Box 1, B-1160 Bruxelles, Belgium, available at www.atc-europe.org

⁴ *ATIEL Code of Practice*, ATIEL, Boulevard du Souverain 165, B-1160 Brussels, Belgium, available at www.atiel.eu

The two Codes are available to all companies on a voluntary basis and compliance with their terms is not a prerequisite to manufacture, market or distribute additives or lubricants unless a claim is made for which compliance with the EELQMS is required.

Engine lubricant test methods and standards specified by the EELQMS are developed and maintained by the CEC and ASTM International.

The System also incorporates other standards and codes of practice relevant to the marketing, development and production of European engine lubricants.

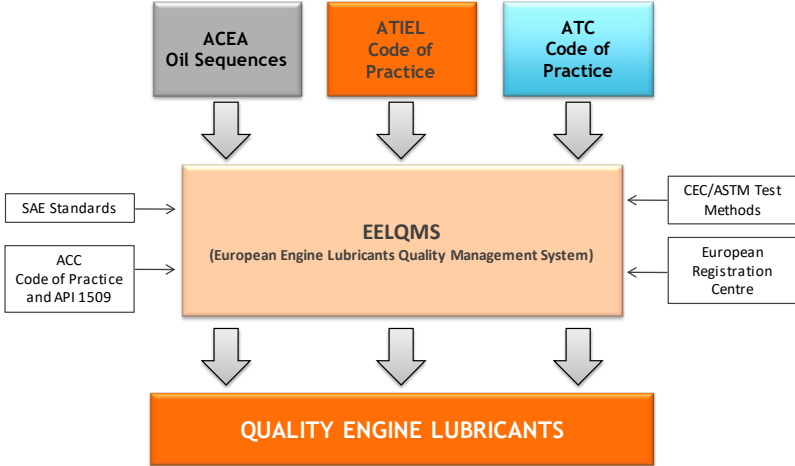


Figure 1 EELQMS

4 ACEA Oil Sequences performance claims

4.1 Requirements

The ACEA European Oil Sequences set quality and performance requirements for lubricants to satisfy changes in engine hardware technology.

The EELQMS is the only quality system that can be used to support claims against the ACEA Oil Sequences, and so enable lubricant marketers to include those claims on their product labelling.

The ACEA Oil Sequences for service-fill engine lubricants cover requirements for gasoline and light-duty diesel engines, engines with after-treatment devices and heavy-duty diesel engines; these sequences are further sub-divided into individual performance categories.

Each sequence comprises laboratory tests and engine tests, to be run in accordance with test methods developed by ASTM⁵ and CEC⁶. The ACEA Oil Sequences represent minimum standards to be met voluntarily by lubricant marketers to support claims for oil performance against the ACEA Oil Sequences. ACEA has specified the following:

'Conditions for use of performance claims against the ACEA Oil Sequences

ACEA requires that any claims for oil performance to meet these sequences must be based on credible data and controlled tests in accredited test laboratories.

ACEA requires that engine performance testing used to support a claim of compliance with these ACEA sequences should be generated according to the European Engine Lubricants Quality Management System, EELQMS (available at www.eelqms.eu), but ACEA reserves the right to define alternatives in exceptional cases.

EELQMS addresses product development testing and product performance documentation, and involves the registration of all candidate and reference oil testing and defines the compliance process. Compliance with the ATIEL Code of Practice, which forms part of the EELQMS, is mandatory for any claim to meet the requirements of this issue of the ACEA sequences. Therefore ACEA requires that claims against the ACEA oil sequences can only be made by oil companies or oil distributors who have signed the EELQMS lubricant marketers' Letter of Conformance (for details: www.atiel.org).

4.2 Validity

The ACEA Oil Sequences are under constant development. Replacement tests and other changes required by European automobile manufacturers are integrated into new issues, which are published on a regular basis.

The time permitted between the issuing of new ACEA Oil Sequences and commercial implementation is specified by ACEA. Validities of new and old editions of the ACEA Oil Sequences overlap for limited periods of time and are detailed in the Sequences.

⁵ ASTM, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA, 19428-2959 USA.
www.astm.org

⁶ CEC The Co-ordinating European Council for the development of performance tests for fuels, lubricants and other fluid 142 Avenue Jules Bordet, 110 Brussels, Belgium www.cectests.org

5 EELQMS guidelines

Participation in the EELQMS implies a commitment to market, develop and manufacture those engine lubricants for which compliance with ACEA Oil Sequences will be claimed, or to have such engine lubricants developed or blended by third parties, in accordance with its guidelines.

Companies intending to market, develop or manufacture engine lubricants for which compliance with ACEA Oil Sequences will be claimed shall apply the guidelines of the EELQMS, as detailed below:

- a) Incorporate the EELQMS guidelines, as described in this document, and/or in the constituent Codes of Practice, in a QMS such as ISO 9001⁷, or ISO TS 16949⁸. Incorporation does not require reproduction of all the EELQMS guidelines in the QMS, but it does require proper referencing to the EELQMS in the QMS to ensure that effectively the same result is achieved.
- b) Ensure an independent assessment of the marketing, development, and manufacturing processes by internal and/or external auditors, who should report their findings to the relevant company management.
- c) Conduct all engine tests at accredited laboratories in line with the requirements defined in the ATC or ACC Codes of Practice⁹, as applicable.
- d) Carry out all development in accordance with relevant Codes of Practice, in particular:
 - VGRA (Viscosity Grade Read-Across) in accordance with the ATIEL Code of Practice;
 - BOI (Base Oil Interchange) in accordance with the ATIEL Code of Practice;
 - VMI (Viscosity Modifier Interchange) in accordance with the ATC Code of Practice;
 - performance additive package modifications in accordance with the guidelines included in the ATC or ACC Codes of Practice, as applicable.
- e) Manufacture the product in plants conforming to the requirements described in the ATIEL Code of Practice, including accreditation to auditable quality management systems.
- f) Sign the Lubricant Marketers' Letter of Conformance (see Section 6) and submit it to ATIEL, the administrators of the System.

⁷ *ISO 9001 Quality management systems*, International Organization for Standardization, ISO Central Secretariat, 1, ch. de la Voie-Creuse, CP 56, CH-1211 Geneva 20, Switzerland, available at www.iso.org

⁸ *ISO/TS 16949: Quality management systems: Particular requirements for the application of ISO 9001:2008 for automotive production and relevant service part organizations*, available at www.iso.org

⁹ *ACC Product Approval Code of Practice*, American Chemistry Council, 700 Second St., NE, Washington, DC 20002, USA, available at

An example of an EELQMS development programme is shown in Figure 2.

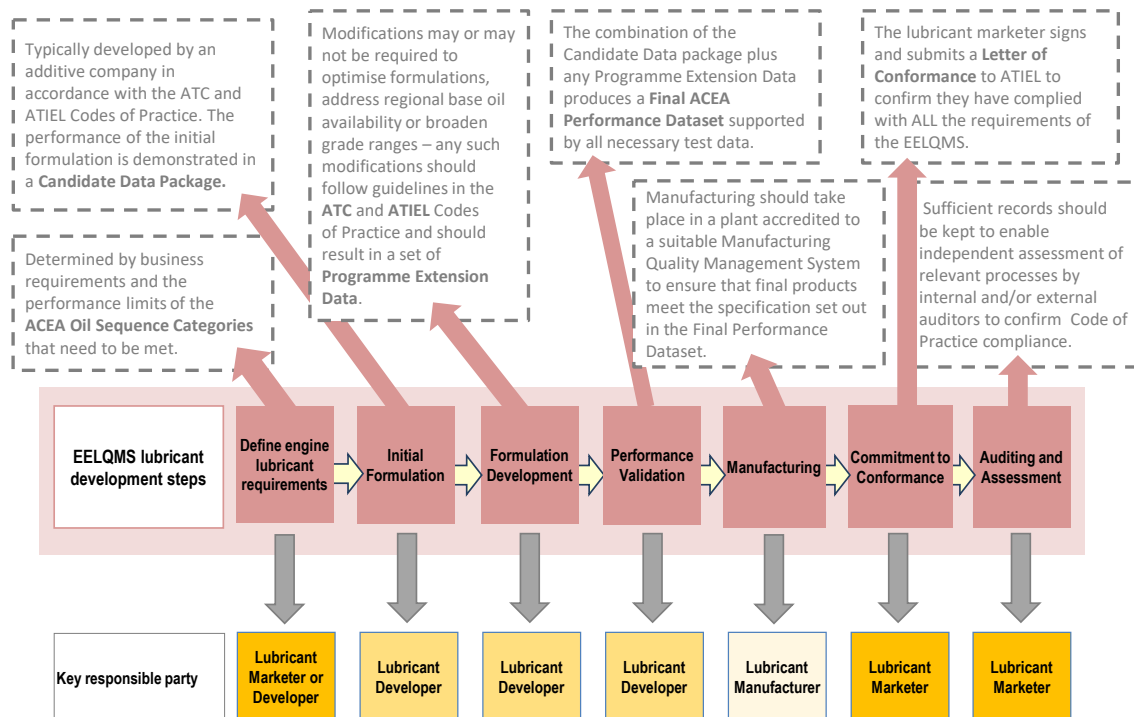


Figure 2 Example of a typical EELQMS lubricant development programme.

6 Letters of Conformance

The commitments implied by participation in the EELQMS are made in a Letter of Conformance signed and submitted by the participating entity to ATIEL.

The Lubricant Marketers' Letter of Conformance is a formal declaration of participation in the EELQMS and provides written confirmation that the participating entity has applied and complied with the EELQMS guidelines.

Details of the Letter of Conformance can be found in the ATIEL Code of Practice and on the ATIEL website (www.atiel.org). The website also displays a list of current signatories.

7 About the EELQMS stakeholders

- **ACEA**

ACEA, the European Automobile Manufacturers Association, is an Economic Interest Grouping founded in 1991, that represents the interests of European car, truck and bus manufacturers. Its membership consists of the major international automobile companies, working together in an active association to ensure effective communication and negotiation with legislative, commercial, technical, consumer, environmental and other interests.

- **ATC**

ATC, the Technical Committee of Petroleum Additive Manufacturers in Europe, provides a forum for additive companies to meet and discuss developments of a technical and/or statutory nature concerning the application of additives in fuels, lubricants and other petroleum products. Its main activity is to ensure co-ordinated communication with related international and national technical groups and organisations. It participates in work of a technical nature in conjunction with associated industry or statutory organisations or groups.

- **ATIEL**

ATIEL is a representative body for manufacturers and marketers in the European lubricants industry and acts on behalf of its members as the main point of contact for external stakeholders. ATIEL, also in cooperation with other industry stakeholders, seeks to enhance the reputation of the lubricants industry by providing expert advice to regulators, industry partners and end-consumers and promoting superior standards of technology and lubricants performance.

Also involved are:

- **CEC**

CEC, the Coordinating European Council, is an industry-based organisation which develops test methods for the performance testing of automotive engine oil, fuels and transmission fluids (using gasoline & diesel engines).

CEC maintains existing tests on an ongoing basis, concentrating on quality assurance. These tests form part of the EELQMS.

The stakeholders in CEC are ACEA, ATIEL, ATC and CONCAWE, the European Refining Environment Health & Safety organisation.

- **The European Registration Centre**

The ATC European Registration Centre (ERC) is responsible for the administration of the test registration protocols for CEC tests that are within the ACEA European Oil Sequences. ERC administers all test registration for candidate and reference testing and reports to ATC on adherence to registration and test referencing procedures.

- **ACC**

The American Chemistry Council (ACC), a trade association representing companies engaged in the chemicals industry, including additives. Within its Petroleum Additives Panel, there is a Product Approval Protocol Task Group (PAPTG) that developed, and maintains, a product approval code of practice for ASTM engine testing.

- **API**

The American Petroleum Institute (API) is the North American trade association that represents all aspects of America's oil and natural gas industry. API maintains an inventory of over 600 standards and recommended practices. Of particular relevance for engine lubricants is API 1509, which describes the API Engine Oil Licensing and Certification System.

- **ASTM**

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), develops international voluntary consensus standards, including engine tests for fuels and lubricants.

The ACEA Oil Sequences include a number of tests developed and monitored by ASTM. Where such tests are included in the ACEA Oil Sequences, all protocols concerning the quality management of these tests are under the control of ASTM and are adopted in their entirety as part of the EELQMS.

- **SAE**

SAE International, the Society of Automobile Engineers, is a global association of more than 128,000 engineers and related technical experts in the aerospace, automotive and commercial vehicle industries that develops voluntary consensus standards. Amongst the standards SAE publishes is SAE J300, which defines some rheological limits for the classification of engine lubricating oils.

8 Reference publications

The EELQMS requires use of various documents that are considered to offer best industry practice. These publications are referred to in this document but are not reproduced in detailed form. Users of the EELQMS shall ensure they use the latest editions of the following:

- The *ACEA Oil Sequences, Service Fill Oils for Gasoline Engines, Light Duty Diesel Engines, Engines with After-treatment Devices and Heavy Duty Diesel Engines*, available at www.acea.be.
- *ATC Code of Practice*, available at www.atc-europe.org;
- *ATIEL Code of Practice for developers and marketers of engine lubricants meeting the requirements of the ACEA Oil Sequences*, available at www.atiel.eu
- *ACC Petroleum Additive Product Approval Code of Practice*, available at www.americanchemistry.com.
- The SAE J300 Engine Oil Viscosity Classification Standard defines the limits for a classification of engine lubricating oils in rheological terms only. It is used by ACEA to define viscosity grades and other rheological properties of engine oils. The latest version is available from www.sae.org.
- Information about ISO quality management systems is available at www.iso.org.
- Information about ASTM and the test methods it develops are available at www.astm.org
- Information about CEC and the test methods it develops are available at www.cectests.org.
- Information about the ATC-ERC system for registration of engine oil tests for CEC tests is available at <https://atc-erc.org>.
- Information about the ACC-MA system for registration of engine oil tests for ASTM tests in the ACC Code is available at <https://acc-ma.org>.
- API publication 1509 *Engine Oil Licensing and Certification System*, available at www.api.org

