



Project proposal:
Revision of R 139:2018
*Compressed gaseous
fuel measuring systems
for vehicles*

AGENDA ITEM 10.2
TC 8/SC 7



Project Proposal

Proposal for a new project

	Proposal for a new project				
	Within:	TC	8	SC	7
	Date:	2026-08-19			
Proposer(s) (Add line if required):					
Names: Wim Volmer and Matthijs van der Wiel	Country: Netherlands		Organisation: RDI Ministry of Economic Affairs and Climate Policy		
Proposed convenor(s)*:					
Name: Wim Volmer	Country: Netherlands		Organisation: RDI Ministry of Economic Affairs and Climate Policy		
Name: Matthijs van der Wiel	Country: Netherlands		Organisation: RDI Ministry of Economic Affairs and Climate		
Type of proposed publication: ☐ New ☒ Revised					
☒ Recommendation ☐ Document ☐ Basic ☐ Vocabulary ☐ Guide					
Title of proposed publication:					
Revision of R 139:2018 (reconfirmed in 2022) <i>Compressed gaseous fuel measuring systems for vehicles</i> Part 1: Technical and metrological requirements Part 2: Test procedures Part 3: Test Report Format Part 4: Type Evaluation Report Format					
Terms of reference of the project, including detailed time frame in accordance with the provisions specified in B 6-1, 6.2:					
As the current project to revise R 140 -under the same subcommittee (TC 8/SC 7) is in full swing, and the revision of R 137 is scheduled to follow, this poses some practical challenges. The TC 8/SC 7 secretariat strongly believes that all three projects would suffer from being run in parallel and therefore recommends to defer the start of the project to revise R 139 until the projects to revise R 140 -and R 137 have reached the Preliminary Online Ballot (POB) phase. Once the project to revise R 139 starts, it is planned to follow the schedule detailed in B 6-1:2023.					
Why should the OIML develop this publication?					
A periodic review of R 139:2018 was conducted in accordance with OIML B 6-1:2023, 7.12 and resulted in a proposal from TC 8/SC 7 members to revise R 139. This proposal was supported by the OIML-CS Management Committee Working Group for periodic reviews, and was approved by the OIML-CS Management Committee (14 Yes, 0 No, 0 Abstain). The nature of the arguments made in favour of revision include, among others, technological advances in this field, update to the latest D11 and D31, and updates to the Test Procedures for Initial Verification. Information regarding the periodic review, including comments from members of TC 8/SC 7 and the proposal from the OIML-CS Management Committee Working Group for periodic reviews, is provided in Annex A. Note: Not directly related to the R139 Revision itself, but instead intended more as an observation on the review process, the secretariat feels that the participants in the OIML Technical Work are not fully aware of the differences between Revision and Update. With that in mind, we would support initiatives to further clarify both these topics to all					

stakeholders, including to those active in project groups. In the results below, it can be seen that some countries proposed an Update, but the comments clearly refer to a Revision.

Countries/Economies known to, or intending to apply this publication, if applicable:

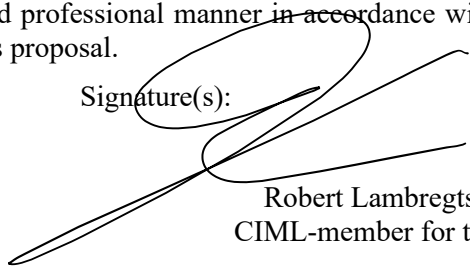
Member countries/economies of TC 8 / SC 7.

Relevant associated OIML publications:

List of appropriate liaisons and their work related to this proposed project (include supporting documentation as necessary and reference it here):

* As the CIML Member(s) of the Country(ies) holding the convenorship of this project, I/we recognise the importance of TC/SC/PG secretariat/convenership work and will make available the resources to ensure the work on the publication is completed in a timely and professional manner in accordance with the provisions in OIML B 6-1 and the detailed time frame as part of this proposal.

Signature(s):



Robert Lambregts MA, LL.M
CIML-member for the Netherlands



Annex A

Country code	Re-confirm	Revise	Update	Withdraw	Comments
DE			x		
PL		X	X		In OIML R 139-1:2018, inconsistencies between different sections have been identified. For example, 4.1.1 requires that a measuring system include a meter, while according to the note to the definition of “meter” in 3.2.2, a calculator is a mandatory part of the meter. However, in 4.1.2, the calculator is listed as an optional component of the measuring system and appears among ancillary and additional devices, which is not consistent with the definitions in 3.2.6 and 3.2.7. At the same time, in the definitions (3.2.4, 3.2.4.1 and 3.2.4.2), the calculator appears only as a mandatory (“metering calculator”) or optional (“operational calculator”) part of the meter. In our view, the Recommendation would benefit from a review aimed at improving its internal consistency. Furthermore, considering ongoing technological developments, including compressed gas refuelling systems, it would be appropriate to review and, where necessary, update the Recommendation to reflect the current state of the technology.
AT		X			
AU		X	X		OIML R 139 was last technically revised in 2018 to incorporate compressed gaseous hydrogen refuelling systems alongside CNG, updating the scope, metrological requirements, and test procedures across all three parts of the Recommendation. It was reconfirmed in 2022 without amendment; however, this did not address emerging implementation experience. As of 2026, the technical content of R 139 therefore reflects assumptions and operational experience that are approximately eight years old. Since 2018 there have been significant developments in commercial hydrogen refuelling deployment, metering technologies and system architectures, and practical experience with high-pressure (e.g. 70 MPa) refuelling under real-world conditions. We consider that at a revision or at least a targeted update to R 139 would be appropriate to keep pace with the emerging hydrogen industry.
CA		X			• The current edition does not adequately address dynamic (transient) measurement conditions, hydrogen-specific operating regimes (high-pressure, fast-fill, pre-cooled gas), and associated temperature and thermodynamic effects, which materially impact measurement accuracy. • Addressing these gaps will require revised test procedures, enhanced temperature and gas property handling, and explicit requirements for software-based correction algorithms. Recommendation: Revise OIML R 139
JP		X			Since around 2018, in the filling of heavy-duty commercial vehicles, the adoption of FCVs has come to be regarded as important. Consequently, in addition to the establishment of new filling protocols, both maximum flow rates and filling amount have increased, therefore, OIML R139 should be revised to accommodate a wider range of technologies.
KR		X			As the number of commercial vehicles grows and hydrogen mobility options diversify, it is necessary to revise the current standards to reflect various conditions for MMQ (Minimum Measured Quantity) and testing methodologies.
NL		X			Start the R 139 revision process only after the revisions of R 140 and R 137 have been (close to) completed. We do acknowledge there are multiple technical reasons for revision, for example the minimum measured quantity and the test procedures for Initial Verification. Please note that the CIML has already decided to put the revision of R 137 on hold, until the revision of R 140 is (close to) complete, in order to avoid overloading the Technical Committee.
RU	X				
SI			X		Update should take into account new version of Measurement instrument directive

CH		X			Since the last revision from 2018, significant developments in metering and testing technologies have taken place. The section on testing and verification of hydrogen dispensers must be completely revised to take into account recent and future developments.
UK		X	X		We recommend a targeted update or revision to OIML R 139:2018 to take into account developments in hydrogen refuelling metering technologies and high pressure refuelling which is currently not covered in the 2018 revision.
US	X				The US largely defers to the needs of other OIML-associated countries. A revision is not within our prioritized activities at this time.
FR			X		R139-1 §7 Markings : Compulsory markings are the same for measuring system and sub-assembly (§7.1). Proposal is to reduce compulsory marking for sub-assembly with a specific paragraph in addition to §7.1 (similar to R117 §2.19.2). Each component or sub-system for which type approval has been granted shall bear the following information: • serial number; and • type approval number.
FR			X		R139-1 §7 Markings : Regarding French notified body for type approval experience, proposal is to add a requirement related to sub-assembly not granted by type approval. Each component or sub-system for which type approval has not been granted shall bear the following information: • manufacturer's identification mark, trademark or name; • designation selected by the manufacturer, if appropriate; • year of manufacture; • serial number;
FR		X			R139-2 §4.6.6 Initial verification / Alternative procedure Recommendation defines a theoretical maximum flow rate available in the particular refueling station and requires to reach 80% of this flow rate during verification. Experience shows that : - Conditions for verification are sometimes not relevant to reach 80% - Theoretical flowrate on site is difficult to define - Flowrate to be reached depends on the size of the test bank Proposal is to review conditions for performing verification tests taking into consideration experience for years in CNG and hydrogen. Definition of a specific informative annex in R139-2 to perform tests (like for R117) would be appreciated. It shall include requirements to take into account different fulling protocols to validate instrument accuracy up to 80% Qmax.
FR		X			R139-2 §2.5.2.1 Table 3 has been probably established for CNG but is not relevant for hydrogen testing (range of flowrate) and should therefore be updated. Note also that distinction should be made between Qmax for the meter and Qmax for the measuring system. The requirements of points 1 and 2 must be respected, for uncertainties of measurement. The volume Vd, depending of the storage of the station, is not adapted. A definition of the fulling protocols will be more comprehensive, to include the variation of pressure.

FR		X		R139-1&2 Recommendation distinguishes 2 configurations with and without sequential control. Regarding experience with CNG this distinction which leads to distinguish type and verification tests should be redicussed since : - there is no evidence of critical impact, - imposing sequential control makes controls more complicated to organize This discussion could be based on several years' experience to confirm whether this distinction sequential/non-sequential is relevant.
FR			X	R139-2 Table 9 If H2 dispensers don't use multibanking, test 0 in table 4 should not be performed for H2 applications.
FR			X	R139-2 Table 4 Change title with 'Tests with sequential control '
FR		X		R139-2 §4.6 Verification process for CNG and hydrogen station can take time (up to 1,5 day for H2) which is not compliant with owner expectations. - Today use of 4.6.6 procedure can be considered as not applicable for H2 verification whereas it would be appreciated to use it (as an alternative to 4.6.7). Writing of this part of the recommendation could be improved and take into account experience on the field. - Performance of repeatability tests should be erased regarding performance of Coriolis technology and the fact that repeatability with 2 test points is not relevant. Note: Work is running in 2026 within WELMEC Group 10 to optimize the verification process.
FR			x	R139-2 §4.6.6 Reference to 5.2.3 is wrong. It has not been updated after 2018 revision and should now refer to §5.2.1.
FR		X		R139-1 §5.3.2.1 Fixed MMQ 1 kg for H2 CGF looks very low for future uses with trucks and bus. Definition of the MMQ value should be updated in the same way as R117. Note that MID amendment is extending MMQ to $1 \times 10n$, $2 \times 10n$, or $5 \times 10n$
FR			X	R139-1 §4.1.2 Integrate the notion of « satellite » (additional dispenser)
FR			X	R139-1 § 6.10.3.2
FR			X	R139-1 §6.12.3.1.1 Printing of the customer's receipt is mandatory. But in fact, agreement between two parts (BtoB) do not require a printing (record of the measurement seems to be enough).
FR			X	R139-2 §4.5 Future dispensers (especially for BtoB) will use less printings and paper. Control of « printing device and type of paper » should be optional
FR			X	R139-2 §4.6.7 This test don't detail flowrate that have to be reached during the test (contrary to 4.6.5 and 4.6.6). Proposal is to define more precisely the conditions of the tests (especially regarding maximum and/or mean flowrates)

FR		x			Analysis of the impact of MID amendment on Essential Requirement and review the recommendation if necessary, in particular for the items below : - Modification of “direct sales” definition - Protection of indication result - Using a remote display or consumer display for the indication of the result
FR		x			Analysis of the impact of MID amendment Annex VII bis and review the recommendation if necessary.
FR		X			R139-1 §3.2.2 Modify « Meter » definition to fit with MID amendment instrument intended to measure continuously and display the total value of the quantity of gas passing the sensor at metering conditions becomes An instrument designed to measure continuously and to ensure the memorisation and display of the quantity of gas, at metering conditions, flowing through the measurement transducer in a closed, fully charged conduit.
FR		X			R139-1 §3.2.4 and 3.2.5 Regarding MID amendment, definition of calculator in R139 does not include display. Proposal is to complete R139 definition. 3.2.4 Calculator association of metering calculator and operational calculator It receives the output signals from the measurement transducers, and possibly from associated measuring instruments, and displays the measurement results. Or 3.2.5 indicating device part of the measuring instrument (meter) and the calculator which displays the measurement results, either continuously or on demand But for indicating device, note that MID amendment authorizes also remote display and consumer device.
FR			X		MID amendment authorizes metering compressed gas with units of energy, which is possible in OIML R139:2018 (§6.2.1) but not detailed. For hydrogen, conversion from mass to energy could be easy, with a fixed calorific value defined in the calculator. This functionality could be detailed in R139.

FR		x			R139 applies for Compressed gaseous fuel measuring systems for vehicles. Measuring systems are being developed for uses in the supply chain of fuel stations and extension of the scope of R139 to this type of instruments would be worth being considered.
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OIML-CS Management Committee

Periodic Reviews Working Group

OIML publication:	R 139:2018 <i>Compressed gaseous fuel measuring systems for vehicles</i> (Reconfirmed in 2022)
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Name	Preferred option	Comments
Member 1	Reconfirm ☐ Revise ☒ Update ☐ Withdraw ☐	I support the majority view of the survey of the TC/SC. Substantial number of issues are presented that should be considered by a PG under a revision project.
Member 2	Reconfirm ☐ Revise ☒ Update ☐ Withdraw ☐	It is proposed to revise the Recommendation R 139 to reflect the current state of the technology and keep pace with the emerging hydrogen industry but only start the process after the revisions of R 140 and R 137 have been completed to avoid overloading the Technical Committee.
Member 3	Reconfirm ☐ Revise ☒ Update ☐ Withdraw ☐	The last revision was in 2018. Since 2018, significant progress has been made in measurement and detection technology, such as hydrogen refueling machines. We will consider revising the relevant chapters on the detection and verification of hydrogen refueling machines.
Member 4	Reconfirm ☐ Revise ☒ Update ☐ Withdraw ☐	Technically the document is 8 years old, in 2022 only reconfirmed. And at the time of origin it was a completely new technology = a revision is necessary, also to take into account the nature of comments.
Member 5	Reconfirm ☐ Revise ☐ Update ☒ Withdraw ☐	A targeted update is recommended to incorporate recent developments in hydrogen refuelling technologies, testing methodologies and alignment with evolving international regulatory requirements.
Member 6	Reconfirm ☐ Revise ☐ Update ☒ Withdraw ☐	While we support the notion of a revision in view of the many comments that were returned upon consultation, we note the NL comments on the sequencing of this revision to follow that of R140 and R137. To allow for this, our view is that an update may be warranted in the interim, and that initiation of a full revision be delayed either until a subsequent consultation or other later date.

Four members are in favour of *Revise*, with two in favour of *Update*.

The proposal to the Management Committee is to **REVISE** OIML R 139.

Note 1: REVISE is recommended by the TC 8/SC 7 Secretariat following the consultation with the TC 8/SC 7 members.

Note 2: The result of the consultation and the feedback from TC 8/SC 7 members is shown in Annex A.

Note 3: A draft project proposal has been developed by the TC 8/SC 7 Secretariat (Annex B).