



RILEM Recommendations

Origin, Scope and Purpose

In 1992, the RILEM TC 161-GMC “Modelling the behaviour of concretes in service: a guide for the engineer” was established to support transition of RILEM TC activities into practice. This was one of the first efforts by RILEM to aid in implementation of TC outcomes. The following excerpt from an editorial to *Materials and Structures* (Vol 30, p.194, 1997) provides a good summary of the need for RILEM recommendations and their intended purpose:

“The methods and recommendations prepared by the technical committees, if they are to be useful, must find their way to the practical applications for which they are intended. This is what happens for testing methods, an area in which RILEM's success has been amply demonstrated. Countless RILEM testing methods have been taken up by ISO and by numerous national standards, thereby finding a permanent place on the work tables of engineers in quality control services. This type of document which has a codified structure can pass from hand to hand and be understood by all. We all wish that the same were true of the other types of documents produced by technical committees, such as state-of-the-art reports and recommendations. They too correspond to a definite need and should become readily available to engineers or technicians. While this is not yet the case, the above example of testing methods should convince us that at least the difficulties are not insurmountable. Perhaps in a certain number of cases, it would suffice to take a few extra steps to achieve our goal, by adapting our conclusions to a formal and consistently precise framework, so that they could serve to guide.”

Today, RILEM recommendations have become one of the most important outputs of TC activities. RILEM Recommendations are developed and approved by technical committees (TC). These are usually the product of collaborative effort undertaken by the TCs during their lifetime. The scopes of RILEM recommendations are closely tied to the activities and goals of RILEM TCs that develop them. The purpose of RILEM recommendations is to fill knowledge gaps with respect to practices for analysis, design and evaluation construction materials, systems and structures. RILEM recommendations are expected to serve as a basis for adoption and/or development of routine practice specifications and norms by specifying entities.

RILEM TCs have an established life-time, meaning that once a RILEM recommendation is generated and disseminated, there is usually not a mechanism in place to continually update it based on advancements in material technologies, testing capabilities or shortcomings that may be identified. This differs from the regular update cycle that is in place in most standardization organizations; RILEM recommendations are intended to be used within the standardization process, rather than acting as standards in their own right. RILEM recommendations that provide a test procedure that may not have always undergone ruggedness, repeatability, and reproducibility evaluations.

Recommendations and Requirements for Organization of RILEM Recommendations

The RILEM TAC has agreed upon the following guidance to TCs with respect to RILEM Recommendation development, supplementing the basic information given in the RILEM document TAC-N109.

It is recommended that RILEM recommendations include, at a minimum, the required sections listed below. Significant deviations from this template should be justified at the time of submission of recommendation to *Materials and Structures* in a cover letter to the editor. Please note that this document only provides information on the required and optional sections, and specific guidelines on formatting of submissions to *Materials and Structures* are provided here:

<https://www.springer.com/journal/11527/submission-guidelines?IFA>

Recommendations should include sections titled: Background, Definitions, Procedure, Sources of Uncertainty, Next Steps and References. A description of the required sections is as follows:

- a. Background: This section should briefly discuss the rationale behind the recommendation. This should include a concise review of the relevant literature. If possible, TC activities should be highlighted by reference to other TC outcomes (e.g., STAR, TC generated papers, and RILEM conference proceedings). It is important that the need for standardization is identified in this section by making connections to the current landscape of standards in the topic area.
- b. Definitions: Pertinent definitions for symbols and scientific terms used in the recommendation should be provided. Focus should be given to terms that are not commonly defined in other common glossaries (e.g. RILEM, ACI, ASTM).
- c. Procedure: This section should describe, at the necessary level of detail, the procedure for sample preparation, data measurement/collection, data processing, analysis and reporting associated with the recommendations. If the recommendation is providing a threshold

value, then allowable deviations from the threshold as well as consequences associated with failing to meet thresholds should be provided. Justifications may be necessary to ensure that nuances associated with procedures are fully considered in the write-up. Procedures should be written with a comparable level of detail and style as one expects to see in a standard; however, it is important that they are written as recommendations and not presented as a standard. For example, standards often use mandatory language, such as, “the load cell used in the measurement of force shall have resolution of 0.1 N and measurement accuracy of 0.5 N”, whereas RILEM recommendations should be written with recommendation-appropriate language such as “the load cell used in the measurement of force is recommended to have resolution of 0.1 N and measurement accuracy of 0.5 N”.

- d. Sources of Uncertainty: This section should essentially make the reader aware of the limitations associated with the recommendation. The ranges of materials and conditions evaluated to develop the procedure should be clearly laid out, including citations to relevant past publications if appropriate. If known, potential sources of uncertainty should be listed, along with the anticipated level of impact on recommended outcomes. If the recommendation is focused on conducting interlaboratory or round robin studies, then quantification of data repeatability and reproducibility should be presented.
- e. Next Steps: Future extensions and needs to further develop or implement the recommendation are discussed in this section.
- f. Referenced Documents: TCs are encouraged to review existing RILEM recommendations and include relevant references to them (if applicable).

Additionally, the following optional sections may be considered (if applicable):

- a. Sample Results: Use of this section allows TCs to demonstrate the application of RILEM recommendation by including sample results. This is not a place to reproduce the full data set used to develop the recommendation; the intention here is to provide one or more sample data sets showing the processes of data analysis and calculation of derived parameters, and recommended form of presentation of outputs.
- b. Details of Revision of Existing RILEM Recommendation: If the developed recommendation updates or supersedes existing RILEM recommendation, then this section should be used to briefly justify why and how the older recommendation is updated or superseded.