Quality and Testing Regulations of the Gütegemeinschaft Mineralwolle e.V. (hereinafter referred to as the Quality Association) for products made of mineral wool

1. Scope of application of the Quality and Testing Regulations

These quality and test specifications apply to the manufacture of products made of mineral wool. They do not apply to other handling of mineral wool products.

Mineral wool in the sense of this quality assurance is glass, stone or slag wool made of artificially produced non-directional vitreous (silicate) fibres with a content of alkali and alkaline earth metal oxides (Na_2O + K_2O + CaO + MgO + BaO) of more than 18 percent by weight.

2. Applicable laws, regulations, directives and standards

2.1 For the use of mineral wool products in Germany, the REGULATION (EC) No 1272/2008, Hazardous Substances Ordinance (GefStoffV) and Chemicals Prohibition Ordinance (ChemVerbotsV) as well as the requirements of the respective state building regulations together with their respective administrative regulations must be complied with. The applicable technical rules of the Model Administrative Regulation Technical Building Regulations can be viewed and downloaded in their current version on the website of Deutsches Institut für Bautechnik (www.dibt.de).

2.2 For the use of products made of mineral wool as unregulated building products in Germany, the requirements of the respective approvals must be complied with.

2.2.1 For the use of mineral wool products for "technical insulation" in Germany, the requirements of DIN 4140 in the currently valid version, the applicable standards and guidelines and the quality requirements of any approvals must be complied with.

2.2.2 For the use of mineral wool products as thermal insulation materials for buildings, the requirements of DIN EN 13162 in the currently valid version shall be complied with.

2.2.3 For the use of products made of mineral wool as thermal insulation materials for buildings, which are manufactured at the point of use, the requirements of DIN EN 14064-1 and DIN EN 14064-2 in the currently valid versions shall be complied with.

2.2.4 For the use of products made of mineral wool as thermal insulation materials for technical building equipment and for operational equipment in industry, the requirements of DIN EN 14303 in the currently valid version shall be complied with.

2.2.5 For the use of mineral wool products in "shipbuilding", the requirements of the relevant directives of the European Union or the International Maritime Organisation (IMO) in the currently valid versions must be complied with.

2.2.6 For the use of products made of mineral wool outside Germany, the respective country-specific requirements and labelling must be observed.

2.2.7 If a manufacturer of the construction products referred to in section 2.1 subjects these products to requirements which are more stringent than those referred to in section 2.1 and indicates this on the label in the packaging, these more stringent requirements must be complied with insofar as they are the subject of monitoring in conformity with the standard. This provision applies accordingly to sections 2.2.1 to 2.2.7.

2.3 The Quality Association does not itself check compliance (conformity) with the above guidelines and standards. Rather, compliance with them must be demonstrated in a suitable form by the applicant / quality mark user as the basis for the award and use of the quality mark.

3. Quality and test specifications

In order to obtain the RAL quality mark, the additional requirements specified in sections 3.1 and 3.2 are set and tested as part of the quality assurance process.

3.1 Proof of exemption

The exemption of a mineral wool fibre type may be demonstrated by cumulatively passing both the test procedure referred to in section 3.1.2 (intratracheal test) and one of the three test procedures referred to in sections 3.1.3 to 3.1.5 (intratracheal test, short-term inhalation test, long-term inhalation test). The exemption certificate may instead be obtained by passing the test procedure referred to in section 3.1.1 (intraperitoneal test).

Test reports from appropriately accredited test laboratories or test laboratories certified in accordance with GLP (Good Laboratory Practice) and independent of the manufacturer are recognised. All documents of the relevant test are to be submitted with the application.

In the case of a certificate of exemption, requirements of note Q of REGULATION (EC) No 1272/2008 for Index No. 650-016-00-2 are deemed to be fulfilled and the following prohibitions do not apply to products made of mineral wool:

- Prohibition of manufacture and use according to Annex II No. 5 GefStoffV,
  Prohibition of placing on the market according to Annex 1 to § 3 ChemVerbotsV Entry 4.

3.1.1 Intraperitoneal test (I.p. test)

An appropriate intraperitoneal test did not reveal any signs of excessive carcinogenicity.

3.1.2 Intratracheal test (half-life of WHO fibres)

The half-life after intratracheal instillation of 2 mg of a fibre suspension of fibres greater than 5 µm in length, less than 3 µm in diameter and with a length to diameter ratio greater than 3:1 (WHO fibres) is less than or equal to 40 days.

3.1.3 Intratracheal test (half-life of fibres longer than 20 µm)

A short-term intratracheal biopersistence test demonstrated that the weighted half-life of fibrer longer than 20 µm was less than 40 days.

3.1.4 Short-term inhalation test

A short-term inhalation biopersistence test demonstrated that the weighted half-life of fibres longer than 20 µm was less than 10 days.

3.1.5 Long-term inhalation test

An appropriate long-term inhalation test revealed the absence of relevant pathogenicity or neoplastic changes.

3.1.6 A test report and a confirmation are to be issued by the commissioned testing institute for each test result in accordance with 3.1.1 to 3.1.5. The Quality Control Committee and the quality mark user each receive one copy.

3.1.7 The confirmation must contain:

- Indication of the manufacturer,
- Name of the fibre under investigation (e. g. trade name, if available),
- Testing institute,
- Indication of the test method,
- Date or period of the test,
- Test result (tumour incidence in the intraperitoneal test, half-life in the intratracheal test, half-life in the short-term inhalation test, information on relevant pathogenicity or neoplastic changes).

3.1.8 In addition to the information listed in 3.1.7, the test report shall contain the information specified in the relevant EU protocols:

- Intraperitoneal test: ECB/TM/18(97) rev. 1,
- Intratracheal test: ECB/TM/27 rev. 7,
- Short-term inhalation test: ECB/TM/26 rev. 7,
- Long-term inhalation test: ECB/TM/17 (97) rev. 2.

3.1.9 If new procedures for verification are published by the competent authorities, section 3.1 of the Quality and Inspection Specifications shall be reworded accordingly.

3.1.10 In the case of submission of application documents in accordance with 3.1.1 to 3.1.8 by a third party, the third party must provide proof of authorisation to use.

3.2 Conformity assessment

3.2.1 Each user of the quality mark must undertake to comply with the Quality and Testing Regulations by means of a written declaration before commencing use of the quality mark. This written declaration of commitment is deposited with the Quality Association.

3.2.2 The conformity assessment (proof of fulfilment of the requirements of the Quality and Testing Regulations) is carried out within the framework of the initial test, the internal and external monitoring and, if necessary, the repeat test.

4. Monitoring

The monitoring of conformity according to section 3.2 of these Quality and Testing Regulations is divided into

- Initial test (admission monitoring),
- Self-monitoring (factory production control),
- Third-party monitoring/(control testing),
- Repeat test.

The individual monitoring tests should be carried out together with the monitoring required by the building regulations. All costs of the monitoring are borne by the quality mark user or applicant.

4.1 Initial test

4.1.1 Passing the initial test is a prerequisite for the award and use of the quality mark of the Quality Association. Every plant with every melting unit for which the manufacturer has applied to the Quality Association for the award of the quality mark must undergo the initial test.

4.1.2 The initial test shall be carried out for quality mark applicants in accordance with 3.1.1 of the Association Statutes of the Gütegemeinschaft Mineralwolle e.V., in the case of the intraperitoneal test or the intratracheal test, by checking the conformity of the chemical composition of the marketed fibre with the

chemical composition of the fibre of the certificate of compliance. Conformity requires that the chemical composition of the marketed fibre and that of the tested fibre do not exceed the tolerances set out in the Annex to these Quality and Testing Regulations.

The marketed fibres, plants and melting units with lines have to be named in a manufacturer's declaration.

4.1.3 A test report is to be issued by the commissioned analysis institute. The Quality Control Committee and the quality mark user each receive a copy of this.

The test report must contain:

- Indication of the manufacturer,
- Sample description (sample number),
- Sampling institute,
- Time or period of the test,
- Chemical composition of the material under investigation,
- As annex: sampling protocol (time, place, sampling point, sampler).

4.1.4 The initial test also serves to ensure that the applicant has the personnel and operational prerequisites for the quality-assured manufacture of products made of mineral wool in accordance with these quality and test regulations. The applicant shall provide evidence that he is able to carry out the self-monitoring according to section 3.

4.1.5 The Quality Association concludes framework contracts with qualified sampling and analysis institutes to carry out the initial test. A requirements profile is to be defined for the suitability.

4.1.6 The obligation to provide evidence of initial testing is simplified for quality mark users in accordance with 3.1.2 of the Association Statutes of the Gütegemeinschaft Mineralwolle e.V..
In a manufacturer's declaration, the applicant confirms that he can prove through continuous records (e.g. incoming goods inspections) that only mineral wool primary products with the RAL quality mark "Products made of mineral wool" have been used. The mineral wool used in the finished mineral wool products has to be traceable to the manufacturer of the pre-product at all times. The proof has to be provided by the applicant during the entire period between the delivery of the mineral wool primary product and the placing on the market of the mineral wool end product. The applicant's production plants and lines and the manufacturers of the mineral wool pre-products have to be named.

4.1.7 After a successful examination of the initial test documents by the Quality Control Committee, the chairman confirms in writing to the Board of the Quality Association that the award criteria for the quality mark have been fulfilled.
The structure of end products consisting of several mineral wool components must be described and a test plan for external monitoring by the Quality Control Committee must be defined.
In an on-site visit, the authorised sampling institute checks the records in accordance with the manufacturer's declaration.

4.2 Self-monitoring / factory production control

4.2.1 Every user of the quality mark in accordance with section 3.1.2 of the Association Statutes of the Gütegemeinschaft Mineralwolle e.V. must carry out continuous self-monitoring on the basis of section 3 (at least at seven-day intervals) to ensure compliance with the Quality and Testing Regulations. For this purpose, the quality mark user must regularly make records on data carriers or in written form, which he must then present to the inspector during external monitoring. The records must be kept for at least five years.

4.2.2 For users of the quality mark in accordance with section 3.1.2 of the Association Statutes of the Gütegemeinschaft Mineralwolle e.V. self-monitoring in the form of a chemical analysis is not required and is replaced by continuous records (e.g. incoming goods inspections), which prove that only mineral wool pre-products with the RAL quality mark "Products made of mineral wool" have been used. The mineral wool used in the finished mineral wool products has to be traceable to the manufacturer of the pre-product at all times. The proof has to be provided by the quality mark user throughout the entire period between the delivery of the mineral wool pre-product and the placing on the market of the mineral wool end product.

4.3 External monitoring / standard testing

4.3.1 External monitoring for users of the quality mark in accordance with sections 3.1.1 and 3.1.2 of the Association Statutes of the Gütegemeinschaft Mineralwolle e.V. is carried out once per calendar half-year, whereby a period of at least four months must lie between the successive sampling. The Quality Association concludes framework contracts with qualified sampling and analysis institutes to carry out the external monitoring. A requirements profile is to be defined for the suitability.

The performance of the external surveillance shall be confirmed by a sampling protocol to be issued by the appointed sampling institute. The valid sampling protocol must be used.
This is provided by the Quality Association and is available at:
https://www.ral-mineralwolle.de/quality-control-committee-rules-of-procedure/sampling-protocol.html

4.3.2 In the case of external monitoring, the quality mark user must submit the records of the internal monitoring to the inspector in written form.

The continuous performance of the self-monitoring shall be confirmed in the sampling protocol.

4.3.3 The external inspection to be carried out for each plant shall, in the case of the intraperitoneal test or the intratracheal test, be carried out by testing the conformity of the chemical composition of the fibre marketed with the chemical composition of the fibre of the certificate of release for free circulation. Conformity requires that the chemical composition of the marketed fibre and that of the fibre tested do not exceed the tolerances specified in the Annex to these Quality and Testing Regulations.

Sampling as part of external monitoring is required for each plant. In the case of plants with several production lines to be operated independently, samples must be taken from each individual line.

If users of the quality mark in accordance with section 3.1.2 of the Association Statutes of the Gütegemeinschaft Mineralwolle e.V. use mineral wool pre-products from different plants or members in a finished product, all mineral wool components must be monitored in accordance with the agreed test plan.

4.3.4 A test report in German or English is to be issued by the commissioned analysis institute. The Quality Control Committee and the quality mark user each receive a copy of this.

The test report must contain:

- Indication of the manufacturer,
- Sample description (sample number),
- Sampling institute
- Time or period of the test,
- Chemical composition of the material under investigation,
- As annex: sampling protocol (time, place, sampling point, sampler).

4.4 Repeat test

If non-conformities are detected during the external monitoring, the Quality Control Committee of the Quality Association can demand a repeat test. The content, scope and time of the repeat test is determined by the Quality Control Committee.

If the repeat test is again not passed, the external surveillance is deemed to have been failed altogether. The further procedure is then governed by the implementation regulations for the award and use of the mineral wool quality mark.

5. Marking

Products made of mineral wool, which demonstrably fulfil the requirements according to section 3 of the Quality and Testing Regulations and have been tested accordingly, can additionally be marked with the quality mark shown below, if the manufacturer has been awarded the quality mark shown below by the Gütegemeinschaft Mineralwolle e.V.

The application of the quality mark is governed exclusively by the Implementing Regulations for the award and use of the quality mark of the Quality Association.

6. Changes

Amendments to these Quality and Testing Regulations require the prior written consent of RAL. They come into force on the day on which the Board of the Quality Association notifies all quality mark users and association members in writing of these amendments, including RAL's consent. The date of dispatch of the written notification is decisive.

Annex to Sections 4.1.2 and 4.3.3 of the Quality and Testing Regulations

The acceptable range of chemical composition of a fibre when detected by the intraperitoneal test or the intratracheal test is defined as follows:

19 % X≤ permissible tolerance ±2.0 %

2 % ≤X < 19 % permitted tolerance ±1.5 %

X < 2 % permissible tolerance ±1.0 %

Notes:

1. X is the non-rounded mass content (% by weight) of the oxide in question of the glass composition.

   The oxides of the elements concerned must be indicated as follows: SiO_2, B_2O_3, Na_2O, K_2O, MgO, CaO, Al_2O_3, Fe_2O_3, TiO_2, SO_3, BaO, SrO, MnO, P_2O_5, Cr_2O_3, PbO, ZnO, ZrO_2.

2. In the chemical analysis, the standard deviation for each oxide shall be reported.

3. When testing the tolerance range, the oxides of calcium and magnesium and of sodium and potassium are treated as the sum Σ, Σ (CaO + MgO) and Σ (Na_2O + KO_2) respectively; the other oxides are tested individually.

4. The sum Σ of the oxides determined analytically individually must be 100 %; a tolerance of 98.0 % ≤ Σ ≤ 101.0 % is permitted.

5. The loss on ignition (at 550°C for 30 minutes) shall be determined.