Multi-Pane Insulating Glass

Quality Assurance
RAL-GZ 520

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Multi-Pane Insulating Glass

Quality Assurance Regulations
RAL-GZ 520

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The present quality and testing standards have been established in accordance with the principles governing quality labels by RAL German Institute For Quality Assurance And Certification in a formal approval procedure involving the relevant experts and public as well as the competent authorities. The quality assurance was editorially revised in June 2008 and is now available in the December 2008 edition.

Sankt Augustin, December 2008

RAL GERMAN INSTITUTE
FOR QUALITY ASSURANCE
AND CERTIFICATION
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QUALITY AND TESTING STANDARDS
FOR MULTI-PANE INSULATING GLASS

Preamble

The quality and testing standards (Güte- und Prüfbestimmungen, hereinafter referred to as "G+P") form the basis for the quality assurance performed by the Multi-Pane Insulating Glass Quality Association (Gütegemeinschaft Mehrscheiben-Isolierglas, hereinafter referred to as "GMI") that is controlled by impartial and independent testing institutions (hereinafter referred to as "M-institutions"). These standards set forth additional requirements exceeding those of the production standard DIN EN 1279 to be met by the multi-pane insulating glass product and regarding the quality and properties of the raw products used to ensure the usability and longevity of the multi-pane insulating glass product. Furthermore, low tolerances regarding solar characteristics, thermal transmittance and gas filling level provide dependable function values that are additionally monitored and thus assured by an M-institution. Another aspect is that quality assured insulating glass must meet strict requirements regarding visual quality standards.

1 Scope of application

These G+P shall apply to quality assured multi-pane insulating glass products pursuant to DIN EN 1279.

2 Quality standards

2.1 General standards

The G+P establish the requirements to be met by multi-pane insulating glass products, raw products and production.

The G+P are based on the technical standard DIN EN 1279, parts 1 through 6, and the dated and undated references made in this standard. In addition to the system description pursuant to DIN EN 1279, the manufacturer shall lay down a type list including the performance data (see annex 1.1).

The base glass products must fulfil the minimum requirements set forth in the respective harmonised product standard and display the CE label. For a period of coexistence of raw products, national certificates shall also be admissible.

2.2 Glass products

To achieve the nominal values set forth in the type list, the right glass products must be used. The manufacturer shall warrant that it is possible to track the base glass back to the supplier and type. The cut glass must be dimensioned to comply with the tolerances for the insulating glass given in the system description.

Where coated glass products manufactured by an externally monitored coating company are used, a certification 2.2 pursuant to DIN EN 10204 documenting the solar characteristics pursuant to DIN EN 410 and thermal transmission pursuant to DIN EN 673 shall be submitted. The coating company's external monitoring must be based on a certification programme acknowledged by GMI.

Where coated glass products of a company without external monitoring system are used, the testing of the degree of radiation transmission pursuant to DIN EN 410 and the emissivity pursuant to DIN EN 673 shall take place within the framework of the external monitoring of the insulating glass manufacturer.

The nominal value shall be given in accordance with DIN EN 1096-4, table 3, as follows:

\[ \varepsilon_m \leq \varepsilon_d + 0.01 \]

The tolerance for the g-value is ± 0.02.

2.3 Spacers and components

The spacer must be suitable for the intended use and comply with the system description. The sealant's adhesion to the spacer must be certified in accordance with DIN EN 1279-6. For components that do not penetrate or stress the edge seal (such as Gregorian bars) no additional certification beyond the standard is required. In any case, the fogging properties of the material pursuant to DIN EN 1279-6 must be documented in a current certificate.

Systems with components that penetrate the edge seal and possibly lead to changes of the function values are also admissible. They are deemed to be new systems.

Components installed in the space between the panels (Scheibenzwischenraum, hereinafter referred to as "SZR") must not damage the coating in the space between the panels or adversely affect the usability of the insulating glass product.

2.4 Desiccant
The desiccant must comply with the system description. A suitable procedure must be established as a part of internal factory production control for determining the activity and the preload. The preload of the desiccant batch has to be documented by a certification 2.2 pursuant to DIN EN 10204 provided by the supplier. The suitability of the desiccant for the intended use must be certified.

2.5 Sealants

The sealants must comply with the system description. They must be processed free of bubbles and provide sufficient adhesion to the glass, the spacer and, where applicable, to the corner connector. Multi-component sealants must be striation-free. The mixing ratio must be within the tolerances determined by the sealant producer, and this must be verified during internal factory production control.

All materials used for the production of the multi-pane insulating glass unit must be compatible and any adverse effects of materials on each other must be excluded. The compatibility has to be proven. If any critical components, products or materials are used that insufficiently assure the multi-pane insulating glass units usability, the Quality Committee may restrict or forbid their use for RAL quality assured multi-pane insulating glass. Such measures may be repealed at the request of the manufacturer after a test by the Quality Committee, if the manufacturer is able to prove with adequate certainty that compatibility problems do not exist.

The sealant producer shall provide the multi-pane insulating glass manufacturer with a declaration of conformity stating that the sealant formula is still identical to the sealant formula used for the initial test pursuant to DIN EN 1279-2, DIN EN 1279-3 and DIN EN 11279-4. The declaration shall be valid for two years, provided no changes are made. The sealant producer shall inform the insulating glass manufacturer in good time of any changes in the sealant formula and, where applicable, of changes in the sealant processing by providing an updated product description. The same information shall be provided to GMI. GMI may, for good cause, take samples of sealants on the market and test their properties. In case of a negative result, the Quality Committee shall decide on the admissibility of the sealant for use in quality assured multi-pane insulating glass products. The producer may appeal the decision and submit a suitable and current certification issued by an independent institution proving the sealant’s suitability and compatibility within 6 weeks.

2.6 Gas filling

The gas types, the nominal value of the gas filling level and the filling gas mixing ratio must be documented in the system description. Gas filling levels are values determined by the manufacturer in the system description that may vary within a range of +10 and –5 percentage points during production. Gas filling levels of more than 90% are always considered minimum levels that must be achieved during production. To verify this, the producer has to take and document quality assurance measures in the scope of the internal factory production control.

For gas mixtures, the composition and the volume fractions must be suitably proven (e.g. production certificate issued by the supplier).

The manufacturer may mix the gases on site during the production, provided it has suitable production equipment with proven process reliability. However, the manufacturer is obliged to take special quality assurance measures in the scope of the internal factory production control to verify the gas mix quality.

Gas mixtures containing krypton and xenon must comply with the requirements of DIN EN 1279-3 Annex A.

For edge seals with a marginal gas leakage rate, special framework conditions have to be determined and complied with. They have to be adapted to and proven for every production line.

2.7 Visual quality standards for multi-pane insulating glass

The insulating glass must comply with the "Guideline for assessment of the visual quality of glass in construction" (Richtlinie zur Beurteilung der visuellen Qualität von Glas im Bauwesen).

2.8 Dimensional tolerances

The admissible dimensional tolerances must be given in the system description.

3 System description and system test

3.1 System description

The system description and a type list (see Annexes) of all insulating glass products produced according to this system description are the basis for the external monitoring of quality assured multi-pane insulating glass. The system description pursuant to DIN EN 1279-1 must fulfil the minimum requirements of the sample system description provided by GMI. Any changes in the system description must be submitted to the M-institution including the required certificates, where applicable,
without undue delay. The updated system description must be approved by the M-institution before production is started.

As a rule, components and materials may be exchanged within the framework of these G+P. This must comply with DIN EN 1279-1, Annex B. The system description must specify all exchangeable components and materials and make reference to the respective certification.

The certification of the function values must be provided in accordance with the standards referred to in DIN EN 1279-5 or complementary standards or regulations. The certificates must be acknowledged by the M-institution.

The system description and the type list must be verified and approved by the M-institution. For any new edge seal systems or new multi-pane insulating glass units with additional functional elements not approved by GMI so far, approval must be obtained from GMI. To this end, the manufacturer must submit a proposal for the required certification and production conditions agreed with an M-Institution acknowledged by GMI. The Quality Committee shall decide on the approval.

3.2. System test

A system test conducted pursuant to DIN EN 1279-2, 3 and 4 shall be the basis for the CE-labelling and the award of the RAL quality label to the manufacturer. An M-institution acknowledged by GMI shall test the conformity of the sample product with the system description.

In addition, the following rules shall apply: If a manufacturer starts producing insulating glass at a new production site, a new system test shall be conducted. The rules regarding "multiple production lines" pursuant to DIN EN 1279-5 part 5.5.2 shall equally apply.

A transfer of systems according to Guidance Paper M (shared ITT) shall be admissible.

The manufacturer shall record the taking of samples in a sampling report and declare in a producer's declaration the conformity of the samples submitted for the system test with the respective system description. The samples must be of the usual production quality. For good cause, the Quality Committee may decide that the sample must be taken in the presence of the M-institution acknowledged by GMI.

4 Testing standards

For every insulating glass system, a test plan based on DIN EN 1279-6 shall be established as an annex to the system description. It shall determine, with regard to the different production steps:

- the characteristics required to be tested,
- the scope of the testing,
- the testing intervals,
- the testing methods,
- the testing institution,
- the measures to be taken in case of differing results.

Additionally, the test plan shall establish the use of the recorded test data, the test basis they are founded on, and the test equipment used to determine them.

5 Monitoring

5.1 Internal factory production control

The internal factory production control shall be established in accordance with these G+P and DIN EN 1279-6.

The entire production must be monitored by the manufacturer at regular intervals. The compliance with the G+P must be proven by taking samples. The results of these tests shall be recorded in writing and controlled by the external monitoring institution.

The manufacturer shall inform the acknowledged M-institution of the staff in charge of the internal factory production control.

5.2 External monitoring

5.2.1 General standards

An M-institution acknowledged by GMI shall be competent and responsible for the external monitoring.

5.2.2 Ordinary test

Ordinary tests shall be conducted twice a year at each production site. Accompanying one of them, a short test shall be conducted pursuant to DIN EN 1279-6. Each test shall be recorded in a test report. The test interval may be reduced to once a year at the request of the manufacturer to the M-institution, provided multiple positive test results were previously obtained.

5.2.3 Extra-ordinary test

An extra-ordinary test shall be conducted:
• if an ordinary test was failed,
• if production was interrupted for a period of more than 6 months,
• at the founded request of the M-institution or GMI.

The kind and scope of the extra-ordinary test shall be agreed upon in each case by the M-institution and GMI. If an ordinary test was failed, the extra-ordinary test shall be conducted within 8 weeks. Any defects found must be remedied by the manufacturer immediately. In the case of a breach of the G+P, measures pursuant to article 5 of the Implementation Regulations may be taken.

5.2.4 Test and monitoring reports

Any test or monitoring activity conducted by the commissioned M-institution shall be recorded in a test report, a true copy of which shall be provided to both the quality label user and the GMI.

6 Labelling

Quality label users may display the following label on all panels complying with these G+P:

![Quality label image]

as well as indicate the product, the manufacturer's name or the monitoring number. The same shall be admissible on commercial documents of all kinds.

As a minimum requirement, the following information must be indicated in the window bar area of every quality assured insulating glass: Manufacturer, date, order code or similar (reference to the product), reference to RAL/GMI.

The award of the quality label is governed exclusively by the GMI's Implementation Regulations.

7 Amendments

Any amendments to these quality and testing standards including editorial changes shall be subject to the previous written approval of RAL. Any amendments made shall become valid within an appropriate period after the GMI's Board of Directors has given notice thereof.
ANNEX

System description for multi-pane insulating glass pursuant to DIN EN 1279-1

Manufacturer:

Production site:

Date: edition/version

Date

Approval of document by
Management representative

Name of document writer
Quality and testing standards

System description for multi-pane insulating glass pursuant to DIN EN 1279-1

This sample system description was laid down for multi-pane insulating glass (DIN EN 1279-5) and shall apply to multi-pane insulating glass pursuant to DIN EN 1279-6, parts A.2 and A.3, "air-filled multi-pane insulating glass with organic edge seal and hollow spacer" and "gas-filled multi-pane insulating glass". The sample system description is based on the use of metal spacers (aluminium, galvanised steel).

A Normative part of the system description

Contents:

1 Description of components, materials and edge seal system
   1.1 Base glass products
   1.2 Spacer profiles
   1.3 Desiccant
   1.4 Primary sealant, inner seal
   1.5 Secondary sealant, outer seal
   1.6 Connectors (straight connectors, corner connectors)
   1.7 Components between the panels (optional)
   1.8 Multi-pane insulating glass edge seal system
      1.8.1 Edge seal system geometry
      1.8.2 Edge seal system quality criteria
   1.9 Component numbering

2 Description of edge seal production process
   2.1.1 Dimensions and tolerances of multi-pane insulating glass units
   2.1.2 Coated glass for thermal insulation and solar protection pursuant to EN 1096-4
   2.1.3 Desiccant
   2.1.4 Primary sealant
   2.1.5 Secondary sealant
   2.1.6 Gas filling

B Informative part of the system description

1 Test reports and certificates
2 Information on exchangeable components
3 Representative samples for the system description
4 Product information
Quality and testing standards

A Normative part of the system description

1 Description of components, materials and edge seal system

1.1 Base glass products

<table>
<thead>
<tr>
<th>Product/component</th>
<th>Standard</th>
<th>No.*</th>
<th>Manufacturer/supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncoated base glass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Float glass</td>
<td>DIN EN 572</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Ornamental glass</td>
<td>DIN EN 572</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Single-pane safety glass (ESH)</td>
<td>DIN EN 12150</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Heat soaked safety glass (ESG-H)</td>
<td>DIN EN 14179</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Laminated safety glass (VSG)</td>
<td>DIN EN ISO 14449 / DN EN ISO 12543</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Coated base glass

<table>
<thead>
<tr>
<th>Type/name</th>
<th>Standard</th>
<th>Class pursuant to DIN EN 1096</th>
<th>No.*</th>
<th>Manufacturer/supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal insulation/name</td>
<td>DIN EN 1096</td>
<td>e. g. class C</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Solar protection/name</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

* No. refers to the component in the drawing in part 1.9

1.2 Spacer profiles (no. 2)*
- Type/trade name
- Producer/supplier
- Producer/supplier address
- Material description
- Section drawing including dimensions and tolerances
- Diffusion openings to space between panels
- Profile width (space between panels), minimum to maximum in mm

1.3 Desiccant (no. 1)*
- Type/trade name
- Producer/supplier
- Producer/supplier address
- Material description (e. g. molecular sieve 3 angstrom)
- Processing guidelines/product description.

1.4 Primary sealant, inner seal (no. 5)*
- Type/trade name
- Producer/supplier
- Material
- Producer/supplier address

1.5 Secondary sealant, outer seal (no. 6)*
- Type/trade name
- Producer/supplier
- Material
- Producer/supplier address

1.6 Connectors (straight/corner connectors)
- Type/trade name
- Producer/supplier
- Producer/supplier address
- Material
1.7 Components between panels
- Product (e.g. Gregorian bar, solar protection)/ trade name
- Function
- Producer/supplier
- Producer/supplier address
- Material
- Section drawing including dimensions and tolerances
- Fogging test, volatile contents (DIN EN 1279 T 6 Annex C)

1.8 Multi-pane insulating glass edge seal system
1.8.1. Edge seal system geometry
- Drawing including dimensions and tolerances of each numbered component
- Diffusion section drawing (material section drawing of primary and secondary seal between spacer profile and glass panel)
- Unit width of multi-pane insulating glass unit
- Section drawing of used corner and/or straight connectors including dimensions and tolerances

Please note:
The system description requires detailed drawings of the entire edge seal system, including drawings of the edge seal area, the connector area and the corner design. The edge seal geometry must be comparable to the tested edge seal pursuant to DIN EN 1279-2 and -3 (see informative part of system description, 1.0 Test reports and certificates, no. 1 and 2).

1.8.2. Edge seal system quality criteria
- Air bubbles between primary and secondary seal (average value, action value, lower absolute tolerance limit) – Note: Recommended value max. 0.5 mm
- Gap in primary seal (average value, action limit, lower absolute tolerance limit). Reference: Edge seal sample for certification pursuant to DIN 1279-2 and -3 = action value.

1.9 Component numbering
Pursuant to EN 1279-1, a scaled section drawing of the edge seal with designation (numbering) of the components must be provided.

Please note: The example.

```
1. Desiccant
2. Spacer
3. Perforation
4. Glass, coated or uncoated
5. Primary sealant
6. Secondary sealant
```

These numbers refer to the multi-pane insulating glass components listed under number 1 in this section.

2 Description of edge seal production process
2.1.1 Dimensions and tolerances for multi-pane insulating glass units
- Tolerances and dimensions of width (B) and height (H) as well as +t and –t

Note: Designation pursuant to EN 1279-1

Extract from EN 1279-1, informative, not part of the system description:
Quality and testing standards

2.1.2 Coated glass for thermal insulation and solar protection pursuant to EN 1096-4

- Necessary edge deletion, where applicable, in mm (e.g. class C coating) including tolerances
- Edge deletion process
- Description of materials to be used for edge deletion (e.g. grinding wheel) depending on the coating used
- Position of coating in multi-pane insulating glass unit

Note: Please indicate separately for each coating type.

2.1.3 Desiccant

- Preload (≤ 3%)
- Desiccant filling quantity per meter (average value, action value, lower absolute tolerance limit) – Note: Reference value from test pursuant to 1279-2
- Number of filled sides of spacer (possibly depending on corner connectors, panel size and space between panels)

A suitable process to determine the preload must be established jointly with the desiccant producer. The process and the limit values (action value, absolute tolerance limits) must be given in the system description.

2.1.4 Primary sealant

- Butyl quantity per meter of spacer profile, including tolerances
- Form of application of butyl cord

2.1.5 Secondary sealant

- Shore A hardness (average value, action value, lower absolute tolerance limit)
- Setting time (average value, action value, lower absolute tolerance limit)
- Temperature and relative humidity (average value, action value, lower absolute tolerance limit)
- Mixing ratios (average value, action value, lower absolute tolerance limit)

Note: The values must be determined jointly with the sealant producer.

2.1.6 Gas filling

- Used gases or gas mixtures
- Gas filling level; the requirements set forth in the basic test report must be met (average value, action value, lower absolute tolerance limit)
- Method for closing the filling holes including materials used
- Location and size of holes
- Gas filling process (e.g. manual filling, press machine)
- Manufacturer, type, year of manufacture, serial number
- Technical documentation
- Maintenance and service instructions
B Informative part of the system description

1 Test reports and certificates

1. Long-term test method and requirements for moisture penetration, test report pursuant to DIN EN 1279-2 (June 2003)
2. Long-term test method and requirements for gas leakage rate and for gas concentration limits, test report pursuant to DIN EN 1279-3 (May 2003)
3. Test methods for the physical attributes of edge seals, test report pursuant to DIN EN 1279-4 (October 2002)
4. Determination of luminous and solar characteristics in glazing, test report DIN EN 410 (December 1998)
5. Determination of thermal transmittance (U-value), test report pursuant to DIN EN 673 (January 2001) and/or guarded hot plate method pursuant to DIN EN 674 (January 2001)
6. Evidences and test certificates provided by suppliers
7. Certificate issued by testing institution to prove the conformity of the multi-pane insulating glass system with the RAL quality and testing standards
8. Test certificates and results of short-term climate test conducted simultaneously with long-term test for moisture penetration pursuant to DIN EN 1279-2

2 Information on exchangeability of components

- Indication of materials and components
- Verification procedure use
- Test reports issued by independent testing institutions, test report number, date, test laboratory

Table 1 shows the exchangeability of components with regard to the multi-pane insulating system 1 for component 6 (secondary sealant, hereinafter referred to as "SD").

<table>
<thead>
<tr>
<th>Component</th>
<th>Test certificate</th>
<th>Test report no.</th>
<th>Laboratory</th>
<th>Date</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 SD so far</td>
<td>DIN EN 1279-2</td>
<td>601 23000</td>
<td>ift</td>
<td>01/01/2006</td>
<td>Test secondary sealant</td>
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<tr>
<td>6.2* SD new</td>
<td>DIN EN 1279-3</td>
<td>601 24000</td>
<td>ift</td>
<td>01/01/2006</td>
<td>Test secondary sealant</td>
</tr>
<tr>
<td>6.2 SD new</td>
<td>DIN EN 1279-4</td>
<td>601 24000</td>
<td>ift</td>
<td>01/01/2006</td>
<td>Test MVTR (moisture penetration index)</td>
</tr>
<tr>
<td>6.2 SD new</td>
<td>DIN EN 1279-4</td>
<td>601 24000</td>
<td>ift</td>
<td>01/01/2006</td>
<td>Test tensile adhesion properties</td>
</tr>
<tr>
<td>DIN EN 1279-4</td>
<td></td>
<td></td>
<td>ift</td>
<td>01/01/2006</td>
<td>Gas permeability for SD new</td>
</tr>
</tbody>
</table>

* The edge seal system must be comparable to 6.1 "second seal so far" with regard to the other components.

3 Representative samples for system description

- Samples must be representative of the system description
- Acceptable deviations from a faultless condition must be taken into account in the samples, provided they are included in the system description

4 Product information

1. Data sheets for components used
2. Processing guidelines
3. Product information
4. Safety instructions
Quality and testing standards

Type list with performance characteristics for CE labelling of multi-pane insulating glass products in accordance with DIN EN 1279

<table>
<thead>
<tr>
<th>No.</th>
<th>Product/trade name</th>
<th>Coating type</th>
<th>Opposite Panel</th>
<th>Distance a (space between panels)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Name</td>
<td>Position</td>
<td>εₘ</td>
<td>In mm</td>
</tr>
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<td>1</td>
<td></td>
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Implementation Regulations for the award and use of the multi-pane insulating glass quality label

Article 1 – Basis for quality

The quality and testing standards for multi-pane insulating glass (Güte- und Prüfbestimmungen für Mehrscheiben-Isolierglas) shall form the legal basis of the quality label. They shall be amended and developed further with regard to technological progress.

Article 2 – Award

2.1. Upon application, the Multi-Pane Insulating Glass Quality Association (Gütegemeinschaft Mehrscheiben-Isolierglas e.V.) shall award the right to use the quality label to manufacturers of multi-pane insulating glass. The right to use and display the quality label may not be transferred to legal successors.

2.2. The application shall be submitted in writing to the Multi-Pane Insulating Glass Quality Association's administrative office located at Mühlheimer Str. 1, 53840 Troisdorf, Germany. The application shall include a Certificate of Obligation (annex 1) signed by a duly authorised representative.

2.3. The application shall be evaluated by the Quality Committee. The Quality Committee and/or the commissioned external monitoring institution shall test the applicant's products in accordance with the quality and testing standards without prior notice to the applicant. It may inspect the applicant's production site and take samples of the products as well as demand that the documents mentioned in the quality monitoring and testing standards are submitted to it and it may consider these documents. The evaluation result shall be documented in a certificate to be delivered to both the applicant and the Association's administrative office. The Quality Association may commission sworn experts or a state-approved testing institution with these tasks. The person or institution so commissioned shall prove his or its qualification before starting with the commissioned evaluation. The costs incurred for the evaluation shall be borne by the applicant.

2.4. If the evaluation result is positive, the Board of Directors shall decide on the award of the quality label at the recommendation of the Quality Committee. The award shall be recorded in a formal instrument (annex 2).

2.5. If the evaluation result is negative, the Quality Committee shall postpone the application. It shall give the reasons for the postponement in writing.

Article 3 – Conditions of use and obligations of quality label users

3.1. The users of the quality label may use the label only on products that comply with the quality and testing standards.

3.2. The users of the quality label shall be obliged to adhere to these Formal Regulations.

3.3. The Quality Association shall have the exclusive right to commission products for the application of the label to products (such as metal embossings, embossed stamps, printing blocks, metal or paper seals, rubber stamps etc.) and to determine their further use.

3.4. The Board of Directors may set forth special regulations for the use of the quality label in advertising and joint advertising in order to prevent unfair competition or misuse of the quality label. Such regulations may not impair single-item advertising, although the principles of fair competition shall equally apply thereto.

3.5. Users of the quality label the authorisation of which to use the label has been withdrawn shall return the award certificate and all products for the application of the quality label. Any claim for reimbursement of expenses shall be excluded. The same shall apply where the right to use the quality label has lapsed for other reasons.
Article 4 – Monitoring

4.1. The Quality Association shall have the right and the obligation to monitor the use of the quality label and compliance with the quality and testing standards. Continuous monitoring must be proved to RAL by maintaining a monitoring contract with a testing institution authorised by the Quality Association.

4.2. Each user of the quality label shall itself be responsible for compliance with the quality monitoring and testing standards. It shall be obliged to establish and/or maintain continuous quality inspections of all quality-assured products. The internal quality inspections shall be thoroughly recorded. The Quality Committee or its authorised agents may look through these records at any time. The quality label user shall subject its quality-assured products to quality testing by the Quality Committee or its authorised agents. It shall bear the costs of the testing.

4.3. Inspectors shall have the right to demand or take samples at the quality label user’s production site at any time. They may also take samples on the market or from purchasers. Samples demanded must be provided without undue delay. Inspectors shall have the right to inspect the production site at any time during operating hours.

4.4. Where a test shows a negative result or a product delivered is considered defective, the Quality Committee may repeat the test. The quality label user may also demand a repeat test.

4.5. Every test result shall be recorded in a certificate, a true copy of which shall be provided both to the quality label user and the Quality Association.

4.6. Should the complaint be unjustified, the costs of the tests shall be borne by the complaining party. Should the complaint prove to be justified, the costs of the test shall be borne by the quality label user affected.

Article 5 – Corrective measures in case of breaches

5.1. If the Quality Committee and/or the monitoring institution finds defects in the quality assurance or breaches of the Implementation Regulations, the Board of Directors shall immediately take such measures as are appropriate with regard to the severity of the breach. As a rule, these may be:

a) Additional requirements for the internal quality monitoring.
b) An increase in external quality monitoring.
c) An obligation to pay an adequate sum in punitive damages, that may also be demanded in each case of a consecutive breach.
d) Withdrawal of the right to use the quality label for a limited or for an unlimited period of time, if quality label users repeatedly or severely breach their obligations arising from Articles 3 or 4 hereunder or if they delay or impede testing.

5.2. The above-mentioned measures may be combined with one another.

5.3. The measures taken by the Board of Directors shall not be postponed by the fact that a test is being repeated or that an extraordinary test is being conducted.

5.4. Before taking any measures, the Board of Directors shall hear the quality label user affected.

5.5. In urgent cases, the Chairman of the Board of Directors may withdraw the right to use the quality label with immediate effect, as an interim measure. Such interim measure shall lapse unless it is approved by the Quality Association's Board of Directors within four weeks.

5.6. The above-mentioned corrective measures shall become effective on the date they become incontestable. Punitive damages demanded shall be paid to the Quality Association within 14 days.

5.7. Apart from the above-mentioned measures, the Quality Association may guard its rights and fulfil its tasks by instigating proceedings before the ordinary courts.
Article 6 – Appeal

6.1. The quality label user affected may submit an appeal to the Quality Committee against the decision imposing corrective measures and against the interim measure pursuant to article 5 paragraph 5 within 4 weeks of receipt of the notice thereof. The Quality Committee may then advise the Board of Directors to revoke the decision fully or partially, moderate the measures or reject the appeal.

6.2. If the appeal is rejected, the appellant may instigate proceedings before the arbitral tribunal within four weeks of receipt of the decision on the appeal. This shall be subject to the provisions set forth in article 11 of the Articles of Associations of the Multi-Pane Insulating Glass Quality Association.

Article 7 – Withdrawal and lapse

7.1. The right to use the quality label may only be withdrawn by a measure taken in accordance with Article 5 hereunder.

7.2. The right to use the quality label may lapse if

   a) The right to use the quality label has been withdrawn and this decision is legally binding.
   b) The quality label user renounces it.
   c) Liquidation of the user is completed.
   d) The initiation of insolvency proceedings concerning the quality label user's assets has been rejected owing to insufficiency of assets.
   e) Insolvency proceedings are initiated. Upon request, the Board of Directors may decide otherwise if important reasons are given in a particular case.

Article 8 – Renewed award

A quality label user the right of which to use the quality label has been withdrawn may not be awarded the quality label again before three months have passed. The procedure shall be governed by Article 2 hereunder. However, the Quality Association's Board of Directors may demand that additional requirements are met.

Article 9 – Amendments

These Implementation Regulations have been approved by RAL. Any amendments including editorial changes shall not be valid unless previous written approval was obtained from RAL. Such amendments shall take effect four weeks after the Quality Association's Board of Directors has given notice thereof.
CERTIFICATE OF OBLIGATION

1. The undersigning company hereby applies to the Multi-Pane Insulating Glass Association (Gütegemeinschaft Mehrscheiben-Isolierglas e.V.) for
   O Membership*
   O The award of the right to use* the RAL quality label for multi-pane insulating glass.

2. The undersigned party hereby affirms that
   • The Articles of Association of the Multi-Pane Insulating Glass Quality Association (Gütegemeinschaft Mehrscheiben-Isolierglas e.V.), and
   • The Quality Label Regulations, and
   • The quality and testing standards for multi-pane insulating glass, and
   • The Implementation Regulations for the award and the use of the quality label for multi-pane insulating glass

   Are known to it and are hereby accepted as binding without any reservations.

3. The undersigned company hereby undertakes to inform the Quality Association without undue delay of any changes in the system description(s).

__________________________________________    ______________________________________
(Place, date) (Company stamp, signature of duly authorised representative)

* Please check appropriate box.
The Multi-Pane Insulating Glass Quality Association (Gütegemeinschaft Mehrscheiben-Isolierglas e.V.) hereby awards, on the basis of the evaluation result presented to the Quality Committee, to

XXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXXXXX

the right to use the quality label acknowledged by the RAL German Institute for Quality Assurance and Certification (RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V.), Sankt Augustin, Germany, registered with the German Patent and Trade Mark Office and under protection as a collective mark, with the following label design:

Quality Label
Multi-Pane Insulating Glass
Number RAL-RG 520 – XXX

31/12/2009

for one year ending on 31 December 2009.

Troisdorf, November 2008
Multi-Pane Insulating Glass Association
History

The "Reichsausschuss für Lieferbedingungen" (RAL) - Committee of the German Reich for Terms and Conditions of Sale - was founded in 1925 as a combined initiative of the German private sector and the German government of that time. The joint aim was the standardisation and clear definition of precise technical terms of delivery. For this purpose, fixed quality standards and their control were needed - the system of quality assurance was born. Its implementation required the creation of an independent institution in the form of a self-governing body representing all parties active in the market. That was the moment of birth for RAL and ever since that time it has been the competent authority for the creation of quality labels.

RAL Today

RAL acts as an independent service provider in its fields of activity. It is recognised as a non-profit organisation and organised in the legal form of a registered association. Its organs are Executive Committee, Board of Trustees, General Assembly of Members and the Management.

RAL’s independent and neutral position finds expression in the fact that the principles of its activities are established by the Board of Trustees which is composed of representatives from the leading organisations representing industry, consumers, agriculture, the federal ministries and other federal bodies. They have a permanent seat and vote on that body. In addition to them, the General Assembly of Members elects four quality assurance associations on the Board of Trustees as representatives of the RAL members.

RAL’s Areas of Competence

- RAL creates quality labels
- RAL is responsible for registrations, agreements and RAL certificates