



Toughened Safety Glass with Heat-Soak Test (TSG-HF)

Quality Assurance
RAL-GZ 525

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**Toughened Safety Glass
with Heat-Soak Test (TSG-HF)**

**Quality Assurance
RAL-GZ 525**

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The present quality and inspection regulations have been jointly completed by RAL Deutsches Institut für Gütesicherung und Kennzeichnung e. V. (German Institute for Quality Assurance and Certification) within the framework of the principles for quality marks in a recognition procedure with the involvement of the relevant groups of experts and relevant public.

Bonn, March 2019

**RAL DEUTSCHES INSTITUT
FÜR GÜTESICHERUNG
UND KENNZEICHNUNG E. V.**

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Preamble

The quality and inspection regulations form the basis for the quality assurance of the RAL-Gütegemeinschaft Flachglas e. V. (GGF) for thermally toughened soda lime silicate safety glass with heat-soak test (TSG-HF) monitored by neutral and independent monitoring institutes (testing and

inspection agencies). These regulations impose additional requirements extending beyond the product standard DIN EN 14179-2 (in particular with regard to external monitoring) on TSG-HF which ensure a constant level of safety of TSG-HF.

Quality and Inspection Regulations for Toughened Safety Glass with Heat-Soak Test (TSG-HF)

1 Applicability

These quality and inspection regulations (hereinafter referred to as Q+I) apply to quality-assured TSG with heat-soak test in accordance with DIN EN 14179-2.

1.1 Applicable standards

DIN EN 14179 Glass in building - Heat soaked thermally toughened soda lime silicate safety glass - Part 1: Definition and description

DIN EN 14179 Glass in building - Heat soaked thermally toughened soda lime silicate safety glass - Part 2: Product standard

The latest version of EN 14179-2 published in the Official Journal of the EU is applicable. The dated version of EN 14179-1 shown there shall be used.

2 Quality Regulations

2.1 Properties and composition

A thermally toughened soda lime silicate safety glass (TSG) with heat-soak test in accordance with DIN EN 14179 shall be used.

2.2 Production, packaging and transport

2.2.1 Production

It must be demonstrated that quality-assured TSG-HF panes with heat-soak test possess the properties as per DIN EN 14179-2 and meet the manufacturing conditions in accordance with DIN EN 14179-2.

The TSG panes are to be subjected to heat-soaking after cooling to ≤ 40 °C. The description of the heat soaking process (including glass temperature and soak time) can be found in DIN EN 14179-1 (corresponding to harmonised DIN EN 14179-2). The distance between the TSG panes must be at least as large as the distance maintained during calibration of the heat-soaking furnace which was carried out as part of external monitoring. A value of at least 20 mm is recommended. If the batch deviates from the specified temperature range or falls below the soak time, it may be subjected to one further heat-soaking at most.

Batches that exceed the upper temperature limit must be scrapped. The production conditions specified during calibration of the heat-soaking furnace, which was carried out as part of external monitoring, shall be complied with. The panes shall be checked for visible damage of the glass edges after heat soaking.

2.2.2 Packaging, transport, storage

The glass elements may only be transported using suitable transport aids which preclude damage to the glass edges.

3 Monitoring

3.1 Self-monitoring (factory production control FPC)

3.1.1 General

The basis for obtaining the RAL quality mark is a factory production control and regular external monitoring as well as verifiable compliance with all requirements of DIN EN 14179-2.

If the production company is already subject to external monitoring, it is exempted from the initial test within the scope of the production facilities already monitored.

An FPC in accordance with DIN EN 14179-2 must be set up and performed in every production plant that manufactures quality-assured TSG-HF panes with heat-soak test.

3.1.2 Inspections and tests to be performed when carrying out heat soaking for quality-assured TSG-HF panes with heat-soak test:

The data of every production batch, including the description of the furnace load and the glass breakage rate shall be documented in writing in consultation with the external monitoring body.

Compliance with the production conditions specified in Section 2.2.1 shall be checked continuously. If deviations are determined, the panes must not be used as quality-assured TSG-HF panes with heat-soak test.

All panes shall be checked for edge damage after heat soaking. Panes with edge damage that is more than 5% deeper than the thickness of the glass must not be used as quality-assured TSG-HF panes with heat-soak test.

Quality and Inspection Regulations

The user of the quality mark shall immediately take the necessary measures to remedy the deficiency if the test results are inadequate. TSG panes which do not satisfy the requirements of the quality and inspection regulations shall be handled so that they cannot be confused with quality-assured TSG-HF panes with heat-soak test. After remedying the deficiency, the relevant test must be repeated without delay to the extent that this is technically possible and necessary in order to demonstrate that the measure has been successful.

3.1.3 Documentation

Documentation of the factory production control (FPC) shall be carried out in accordance with DIN EN 14179-2.

The records shall be kept for at least ten years.

3.2 External monitoring of quality-assured TSG-HF panes with heat-soak test

A testing and monitoring body nominated by the GGF is in charge of and responsible for performing external monitoring. It may not delegate the performance to third parties. Calibration shall be performed for every heat-soak furnace as part of the external monitoring of quality-assured TSG-HF panes with heat-soak test. The temperature specifications in accordance with DIN EN 14179-1 (corresponding to harmonised DIN EN 14179-2) must be observed for the entire glass mass. All important furnace data (temperature-time graph of the circulating air, the position of temperature sensors required for furnace operation, etc.) and the description of the maximum and minimum loading conditions (e.g. number of panes, minimum pane distance, position of the glass racks) shall be documented in writing as specifications for subsequent operation of the heat-soak furnace.

If significant production conditions are to be changed (e.g. during modification or repair of the tested plant), the manufacturer is obliged to notify the external monitoring body immediately. The Quality Committee will decide on further measures in consultation with the management board.

Every two years, calibration shall be repeated for each furnace under typical production conditions and with a loading condition of at least 50% of the maximum load on calibration. This two-yearly test may be omitted if the manufacturer has suitable measuring equipment at its disposal and carries out its own measurements, the scope of which the external monitoring body will determine in agreement with the Quality Committee.

In this case, the external monitoring body will specify the monitoring cycle for this test. Calibration shall be repeated every three years with a maximum load.

In addition to the furnace parameters referred to above, the existence of an initial test in accordance with DIN EN 14179-2 must be verified in every production plant. In addition, documentation of the FPC shall be checked with regard to fracture structure and mechanical strength. This shall be checked at least once a year by an external monitoring body but at least twice a year in the first two years of production.

3.3 Retesting

The Gütegemeinschaft Flachglas e.V. may have the test repeated by the external monitoring body if deficiencies are found in the quality assurance during tests carried out in accordance with Section 3.2. If the deficiencies are not remedied, penalty measures may be taken in accordance with Section 5 of the implementation regulations.

3.4 Testing and monitoring costs

The applicant/quality mark user shall bear the costs of any testing or monitoring carried out.

4 Identification marking

TSG-HF panes which can be shown to comply with these quality and inspection regulations may be marked on the product as well as on documents, such as labels or delivery papers, with the following quality mark:



TSG with heat-soak test must be permanently marked in accordance with DIN EN 14179-1. The identification marking must contain the following information: Manufacturer's name or trade mark; number of the European standard: EN 14179-1.

In addition, quality-assured TSG-HF panes with heat-soak test shall also be marked with the details "TSG-HF RAL-GX 525".

The mark need not remain visible when the pane is installed. Identification marking on the glass edge is permitted.

Awarding and use of the quality mark are governed exclusively by the implementation regulations for the quality mark of TSG with heat-soak test of the Gütegemeinschaft Flachglas e.V.

5 Changes

Changes to these quality and inspection regulations, even of an editorial nature, require the prior written approval of RAL. They will come into force after a reasonable period of time when the Gütegemeinschaft Flachglas e.V. has passed a resolution and notified its quality mark users.

Implementation Regulations for Awarding and Carrying the "TSG-HF with Heat-Soak Test" Quality Mark

1 Quality basis

The quality basis for the quality mark is the quality and inspection regulations for TSG-HF with heat-soak test. They are supplemented and further developed in the interests of adaptation to technical progress.

2 Award

2.1. Gütegemeinschaft Flachglas e. V. grants manufacturers of panes made of TSG upon request the right to carry the "TSG-HF with Heat-Soak Test" quality mark. The right to carry and use the quality mark cannot be transferred to legal successors.

2.2. The application must be forwarded in writing to the office of Gütegemeinschaft Flachglas e. V. A legally binding and signed commitment note must be attached to the application (Specimen 1).

2.3. The application shall be checked by the Quality Committee. The Quality Committee or the testing and inspection agency nominated by the Quality Association shall inspect the applicant's products in accordance with the Quality and Inspection Regulations. It can visit the applicant's operational facilities, take samples of products and request and inspect the documents mentioned in the Quality and Inspection Regulations. It shall issue a certificate pertaining to the inspection result and deliver this certificate to both the applicant and the office. The Quality Committee can commission sworn experts or a stated-approved testing agency with these tasks. The party commissioned with the inspection must show proof of its authorisation before commencing its inspection tasks. The inspection costs shall be borne by the applicant.

2.4. If the inspection proves positive, the executive board shall decide at the Quality Committee's suggestion on awarding the quality mark. The award shall be certified (Specimen 2).

2.5. If the inspection proves negative, the Quality Committee shall reject the application. It must give reasons for the rejection in writing.

3 Requirements for use and duties and obligations of the quality mark user

3.1. Quality mark users may use the quality mark only for products which comply with the Quality and Inspection Regulations.

3.2. The quality mark users shall undertake to adhere to the statutes.

3.3. The Quality Association alone shall be entitled to have means of applying the quality mark (metal embossing, embossing punch, printing block, lead seals, embossed seals, rubber stamp and the like) manufactured and to define the type of use.

3.4. The executive board can impose special regulations on use of the quality mark in advertising and in cooperative advertising in order to ensure fairness in competition and to prevent misuse of the mark. Individual advertising must

not be hindered by this. The same maxims and fairness in competition shall apply to such advertising.

3.5. Quality mark users from whom the quality mark is withdrawn must return the certificate of award and all means of applying the quality mark; there shall be no entitlement to reimbursement. The same shall apply if the right to use the quality mark has expired in another way.

4 Monitoring

4.1. The Quality Association shall be entitled and obligated to monitor the use of the quality mark and compliance with the Quality and Inspection Regulations. Proof of the continuity of the monitoring must be furnished to RAL in the form of a monitoring contract with a testing and inspection agency nominated by the Quality Association.

4.2. Each quality mark user must himself ensure that he complies with the Quality and Inspection Regulations. Ongoing quality control of all quality-assured products shall be made an obligation on the user. He must meticulously record the operational in-house inspections. The Quality Committee or its representative shall be able to look at the records at any time. The quality mark user shall subject his quality-assured products to the monitoring inspections by the Quality Committee or its representatives. He shall bear the costs of inspection.

4.3. Inspectors shall be able at any time to request or take samples at the quality mark user's operational facilities. They shall also be able to take samples from stores/shops or from the buyer. Requested samples must be provided immediately. Inspectors shall be able to visit the company at any time during business hours.

4.4. If an inspection proves negative or a delivery is complained about, the Quality Committee shall be able to have the inspection repeated. The quality mark user shall likewise be able to demand a repetition.

4.5. A certificate pertaining to each inspection result must be issued. The Quality Association and the quality mark user shall each receive a copy thereof.

4.6. If deliveries are complained about without justification, the complaining party shall bear the costs of inspection; if the complaint is justified, the costs shall be borne by the quality mark user in question.

5 Penalising of violations

5.1. If the Quality Committee or the testing and inspection agency identifies deficiencies in the quality assurance or violations of the implementation regulations, the executive board shall take - on a graduate scale based on the severity of the violation - the appropriate penalty measures without delay.

These are as a rule:

- a) additional conditions as part of in-house monitoring
- b) increased external monitoring
- c) obligation to payment of a contract penalty of up to €10,000.00 which can be imposed for each individual case

Implementation Regulations

d) limited or permanent withdrawal of the quality mark if quality mark users repeatedly or seriously violate §3 or §4 or delay or prevent inspections.

5.2. The aforementioned measures can be combined with each other.

5.3. The executive board's measures shall not be hindered by the fact that a repeat or special inspection is initiated.

5.4. The party in question shall be granted a fair hearing before measures are taken.

5.5. In urgent cases, the chair of the executive board of the Quality Association shall be able to withdraw the quality mark with immediate effect. This provisional measure shall lose effect if it is not confirmed within 4 weeks by the executive board.

5.6. The aforementioned penalty measures shall take effect as soon as they legally come into force. An imposed contract penalty must then be paid within 14 days to the Quality Association.

5.7. In addition to the aforementioned measures, the Quality Association shall be able to defend its rights and tasks according to §2 of the statutes by recourse to courts of law.

6 Appeal

6.1. The affected quality mark user shall be able to lodge an appeal with the Quality Committee against the penalty notice and against the provisional measure of §5 para. 5 within 4 weeks of its delivery. The Quality Committee shall, on the basis of the appeal, be able to recommend to the executive board to rescind the notice wholly or partly, to moderate measures, or to dismiss the appeal.

6.2. If the appeal is not allowed, the appellant shall be able to have recourse to the court of arbitration within 4 weeks of delivery of the appeal decision. Specifically § 11 of the statutes of Gütegemeinschaft Flachglas e. V. shall apply here.

7 Withdrawal and expiry

7.1. The quality mark can only be withdrawn as part of a measure in accordance with § 5.

7.2. The right to use the quality mark expires if

- a) the quality mark has been withdrawn from the quality mark user with legally binding effect,
- b) the quality mark user waives this right,
- c) liquidation is concluded,
- d) the application to open insolvency proceedings for the quality mark holder's assets is rejected because of insufficient assets to cover the costs of the proceedings,
- e) insolvency proceedings are opened. The executive board shall be able on request to decide differently in an individual case after the presentation of compelling reasons.

8 Re-award

Quality mark users from whom the quality mark has been withdrawn shall be able to acquire it again at the earliest after 3 months. The procedure is determined by § 2. The executive board of the Quality Association shall however be able to impose additional conditions.

9 Changes

These implementation regulations are recognised by RAL. Changes, even those of an editorial nature, require the prior written consent of RAL in order to take effect. They shall enter into force after a period of 4 weeks from being announced by the executive board of the Quality Association.

Commitment Note

1. The signatory (individual or company) herewith applies to Gütegemeinschaft Flachglas e. V.
 - ☐ to be accepted as a member^{*)}
 - ☐ to be awarded the right to carry^{*)}
the "TSG with heat-soak test" quality mark
2. The signatory (individual or company) confirms that he/she/it has taken due note of
 - the Quality and Inspection Regulations for toughened safety glass with heat-soak test (TSG-HF),
 - the statutes of Gütegemeinschaft Flachglas e.V.,
 - the quality mark statutes for the "TSG with heat-soak test" quality mark,
 - the Implementation Regulations for Awarding and Carrying the "TSG with heat-soak test" quality mark with forms 1 and 2

Place and date

Stamp and signature of the applicant

^{*)} Please insert a cross where applicable

Certificate of Award

Gütegemeinschaft Flachglas e. V. hereby
awards, on the basis of the evaluation result
presented to the Quality Committee, to

(Production Facility/Company)

the right to use the "TSG with heat-soak test" quality mark acknowledged
by the RAL Deutsches Institut für Gütesicherung und Kennzeichnung e. V. and
registered with the German Patent and Trade Mark Office and under protection
as a collective mark, with the following label design:



The use of this quality mark presupposes that compliance with the Quality and
Inspection Regulations is monitored.

Troisdorf, _____

Gütegemeinschaft Flachglas e. V.

The Chairman

The Managin Director

*) Please insert a cross where applicable



HISTORY

The "Reichs-Ausschuss 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 standardization 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 and neutral institution as a self-governing body of 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 recognized as a non-profit organization and organized 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 organizations 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 Marks
- RAL is responsible for registrations, agreements, geographical origin marks and RAL certificates

RAL DEUTSCHES INSTITUT FÜR GÜTESICHERUNG UND KENNZEICHNUNG E.V.
(RAL GERMAN INSTITUTE FOR QUALITY ASSURANCE AND CERTIFICATION)

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