RIDA®QUICK Gliadin

Immunchromatographischer Test
zum Nachweis von Gliadin

Immunochromatographic test
for the detection of Gliadin

Test inmunocromatográfico para
la detection de Gliadina

Art. No.: R7003

In vitro Test
Lagerung bei 2 - 8 °C
Storage at 2 - 8 °C

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**Brief information**

RIDA®QUICK Gliadin (Art. No. R7003) is an immunochromatographic test for the qualitative detection of gliadin / gluten contamination.

- on surfaces (swab test for the hygiene control in production and in laboratories)
- in gluten-free raw material after an ethanol extraction.

Further applications are available on request:

- Sample preparation for processed food with the Cocktail (patented) (Art. No. R7006 / R7016)
- Sample preparation for processed food with the RIDA® Extraction Solution (colorless) (Art. No. R7098)

All reagents required for the swab test are contained in the test kit. The test kit contains 25 test strips (in a tube) for 1 determination each. Results are evaluated visually.

**Time requirement:**
- sampling for swab test................................. approx. 1 min
- sample preparation for 10 raw materials... approx. 15 min (homogenization, extraction, centrifugation)
- test implementation (incubation time) .................. 5 min

**Detection limit:**
- on surfaces approx. 0.5 µg gliadin / 100 cm²
  (approx.1 µg gluten / 100 cm²)
- in raw material approx. 2.5 mg/kg gliadin
  (approx. 5 mg/kg gluten)

**Specificity:**
The monoclonal antibody R5 reacts with the gliadin-fraction from wheat and corresponding prolamins from rye and barley.
No cross-reaction with soy, oats, corn, rice, millet, teff, buckwheat, quinoa and amaranth.

**Related products:**
RIDASCREEN® Gliadin (Art. No. R7001)
RIDASCREEN®FAST Gliadin (Art. No. R7002)
RIDASCREEN® Gliadin competitive (Art. No. R7021)
RIDA®QUICK Gliadin (single packaged) (Art. No. R7004)
Cocktail (patented) (Art. No. R7006 / R7016)
1. Intended use

RIDA®QUICK Gliadin can be used as a swab test for the gluten determination on surfaces in the hygiene control and for the qualitative detection of gliadin / gluten in raw material. The test has been developed for the detection of low amounts of gluten (contamination). No hook-effect is observed at high concentrations.

2. General

The use of wheat flour and gluten in foodstuff is extremely common because of their useful effects on e.g. texture, moisture retention and flavour. Gluten is a mixture of prolamin and glutelin proteins present in wheat, rye and barley.

Coeliac disease is a permanent intolerance to gluten that results in damage to the small intestine and is reversible when gluten is avoided by diet.

The Codex Alimentarius Commission has stipulated in the „Codex Standard for Foods for Special Dietary Use for Persons Intolerant to Gluten“ (CODEX STAN 118-1979) the limit value for gluten-free food at 20 mg/kg gluten.

The official type I method for gluten determination according to the Codex Alimentarius is an ELISA which uses the R5 antibody (Mendez). This requirement is fulfilled by the sandwich ELISA RIDASCREEN® Gliadin (Art. Nr. R7001). The test strips of RIDA®QUICK Gliadin show a good correlation with the official method, the R5-ELISA RIDASCREEN® Gliadin.

3. Test principle

The basis of the immunochromatographic test is the monoclonal R5-antibody which is specific for the detection of gliadin from wheat and prolamins from rye and barley. Results are read visually. Generally, the higher the analyte level in the sample, the stronger the red color of the test band will be.
4. Reagents provided

Each kit contains sufficient reagent for 25 determinations. Each test kit contains:
25 x dip sticks (one for each determination) in a tube
30 x test tubes
25 x disposable pipettes
1 x sample diluent (60 ml), ready-to-use
1 x evaluation card

5. Materials required but not provided

5.1. Equipment:

For swab tests
– pipettes

For analysis of raw material
– scales
– laboratory mincer / grinder, pestle and mortar, Ultra-Turrax or homogenisator
– shaker
– centrifugal glass vials + centrifuge or paper filter
– graduated pipettes

5.2. Reagents:

For swab tests
– distilled or deionized water

For analysis of raw material
– distilled or deionized water
– ethanol solution (60 %), for the extraction of the samples (add 150 ml ethanol p.a. to 100 ml distilled water and shake well)
– for soy containing food: add 1 g skim milk powder (food quality) to 1 g sample
6. Warnings and precautions for users

Airborne cereal dust and dirty laboratory equipment lead to gliadin contamination of the assay. In order to avoid cross-contamination by cereal dust, please note the following points:

− wear gloves before starting and during the assay
− clean surfaces, glass vials, mincers and other equipment with 40 % ethanol or 2-propanol
− for the analysis of raw material, the extraction and the test procedure should be carried out in separate rooms

The dip sticks are very sensitive to humidity that could turn the test useless. For this reason keep the strips away from humidity!

7. Storage instructions

Store the unopened kit at 2 - 8 °C (36 - 46 °F). Do not freeze the kit.

Once the test strip container has been opened, store the container at room temperature (20 - 25 °C / 68 - 77 °F).

No quality guarantee is accepted after the expiry date on the kit label.

8. Test implementation

8.1. Swab test: sampling and test implementation

1. Take as many test tubes as samples to be analysed.
2. Place 500 µl of sample diluent in the test tube (e.g. using the disposable pipette provided).
3. Swab the lower end (reaction zone) of a dry dip stick thoroughly over a sampling area of 10 x 10 cm (wear gloves).
4. Place the dip stick vertically into the tube with the arrow pointing down. Do not immerse the strip beyond the maximum line.
5. Take out the strip after exactly 5 min and read the result using the evaluation card.
8.2. Sample preparation raw material (non-processed food)

8.2.1. Fluid and soft raw material

- **fluid raw material**: mix 1 ml of the sample with 9 ml 60 % ethanol solution
  - for soy milk add additionally 1 g of skim milk powder
- **soft raw material**: weigh 1 g of a representative sample and add 10 ml 60 % ethanol solution
  - for soy milk products add additionally 1 g of skim milk powder
  - shake well for at least 30 sec. (vortex)
  - centrifuge: 10 min / at least 2500 g / room temperature (20 - 25 °C / 68 - 77 °F)
  - alternative: let the sample settle down and / or filtrate

8.2.2. Solid and hard raw material

- weigh 5 g sample and grind it to powder
- use 1 g of this powder and add 10 ml 60 % ethanol solution (for soy containing samples add 1 g of skim milk powder)
  - shake well for at least 30 sec. (vortex)
  - centrifuge: 10 min / at least 2500 g / room temperature (20 - 25 °C / 68 - 77 °F)
  - alternative: let the sample settle down and / or filtrate

8.2.3. Samples with inhomogeneous gliadin content (e.g. meat and sausages)

In these matrices gliadin may not be distributed evenly. Therefore, use more of the sample and the corresponding amount of 60 % ethanol.

- e.g. 20 g of a homogeneous sample and add 200 ml of 60 % ethanol solution
  - shake well for at least 30 sec. (vortex)
  - centrifuge: 10 min / at least 2500 g / room temperature (20 - 25 °C / 68 - 77 °F)
  - alternative: let the sample settle down and / or filtrate
Remark:

All supernatants / filtrates obtained after centrifugation or filtration can be stored in a tightly closed vial in the dark at room temperature (20 - 25 °C / 68 - 77 °C) up to four weeks.

8.3. Test implementation for raw material

1. Take as many test tubes as samples to be analysed.
2. Place 500 µl of sample diluent in the test tube (e.g. using the disposable pipette provided).
3. Pipette 50 µl of the sample supernatant / filtrate or place 3 drops with the provided disposable pipette, vertically dropped in the test tube and shake slightly.
4. Place the dip stick vertically into the tube with the arrow pointing down. Do not immerse the strip beyond the maximum line.
5. Take out the strip after exactly 5 min and read the result using the evaluation card.

C = control band (blue)
T = test band (red)
9. Results and Sensitivity

Positive result: two colored bands

The sample is positive if two colored bands (the blue control band and the red test band) are visible within the result window.

Swab test: concentration > 0.5 µg gliadin / 100 cm² (approx. 1 µg gluten / 100 cm²)

Raw material: concentration > 2.5 mg/kg gliadin (approx. 5 mg/kg gluten)

Negative result: only the blue control band

The sample is negative if no red test band is visible within the result window.

Swab test: concentration < 0.5 µg gliadin / 100 cm² (approx. 1 µg gluten / 100 cm²)

Raw material: concentration < 2.5 mg/kg gliadin (approx. 5 mg/kg gluten)

Invalid result: no colored band

If no band is visible within the result window after performing the test, the test is considered invalid.

Limitations of the method:

− The test strip has been developed for the detection of gluten contamination.
− The limit of detection is dependent on sample type and extraction efficiency.
− The sample extraction with ethanol should only be used for raw material that were surely not heated and not processed.
− A negative result does not necessarily indicate the absence of gluten as the gluten may be not homogenously distributed or the level of gluten in the product is below the limit of detection.

Recommendations:

− For documentation, the upper part of the dip stick marked with “Gluten” together with the test bands must be cut off.
− The use of assay test controls (R7010, for ethanol extraction or R7012, for cocktail extraction) or of spiked samples is recommended for quality control.
− If the negative assay control sample is evaluated as positive then a contamination of the laboratory or laboratory equipment is likely.
− The Cocktail (patented) or the RIDA® Extraction Solution (colorless) has to be used for processed foods in order to detect also the heat-altered prolams.
− It is recommended comparing the extraction efficiency of ethanol with the Cocktail (patented) (R7006) and the RIDA® Extraction Solution (colorless) (R7098).
− The RIDASCREEN® Gliadin (Art. No. R7001) should be used for quantification. This test kit is also AOAC-RI and AOAC-OMA (Official Method of Analysis, first action status) validated.

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