

Aflatoxin B1 Rapid Test Kit (Colloidal Gold) for Grain, Feed and Grain Fermentation Products

Product Number: RPT0021

Shipping and Storage

1. Storage: Room temperature, cool, dry, away from light and moisture; Do not freeze.
2. Shelf life: 18 months.

Component

Component	RPT0021
Aflatoxin B1 Test Cards (with microwells)	10T/Kit
Aflatoxin B1 Reagent A	2 bottle
Aflatoxin B1 Reagent B	1 bottle
Aflatoxin B1 Diluent	2 bottle
5mL cryotubes	10
15mL centrifuge tubes	20

Description

Aflatoxin B1 (AFB1) is a group of mycotoxins with similar chemical structures, produced by the metabolism of *Aspergillus flavus*, *Aspergillus parasiticus* and other molds growing in food and feed. To date, 17 aflatoxins have been isolated and identified, mainly including aflatoxin B1, B2, G1, G2, as well as metabolites M1 and M2 derived from hydroxylation of B1 and B2 in vivo. AFB1 is the most prevalent and the most toxic among naturally contaminated foods, and has been classified as a Group 1 carcinogen by the WHO. Excessive AFB1 in edible oils originates from moldy oil crops such as peanuts and corn, which may be caused by mold growth of *Aspergillus flavus* and *Aspergillus parasiticus* under hot and humid conditions during planting, transportation and storage.

This product is based on the principle of competitive inhibition immunochromatography. AFB1 in the sample binds to colloidal gold-labeled specific antibodies, thereby inhibiting the binding of antibodies to the antigen on the Test Line (T line), resulting in a change in the color intensity of the T line. The Control Line (C line) will develop color regardless of whether the sample contains the target analyte, indicating the validity of the test. Qualitative detection of AFB1 can be achieved by observing whether the T line develops color. This method features simple operation, short detection time and direct visual result interpretation, suitable for market supervision, agricultural planting, customs, farmers' markets, third-party testing institutions, enterprises and public institutions with on-site rapid testing needs.

Application

Suitable for qualitative detection of aflatoxin B1 in grain crops (corn, rice, peanuts, wheat, flour, etc.) and feed and grain fermentation products (soy sauce, vinegar, rice wine, etc.) samples. The information of the detected substance is as follows:

Name	CAS Number	Molecular Formula	Molecular Weight
Aflatoxin B1	1162-65-8	C ₁₇ H ₁₂ O ₆	312.27

Detection Time: Single sample: 35 min; 6 samples: approx. 45 min.

Limit of Detection: Food: 5µg/kg; Feed: 10µg/kg; Soy sauce, vinegar, rice wine: 5µg/kg.

Required materials not provided

Purified water, micropipette, balance, centrifuge, homogenizer, timer, vortex mixer, nitrogen/air blower or hair dryer, etc.

Specimen collection

For Research Use Only

1. Food Crops:

- 1.1. Take ≥ 100 g representative sample, grind thoroughly. Weigh 2.0 ± 0.1 g into a 15mL centrifuge tube.
- 1.2. Add exactly 2mL purified water and 8mL Reagent A. Cap tightly, vortex vigorously for 5 min, let stand 2–3 min.
- 1.3. Transfer exactly 2mL supernatant (centrifuge at 4000 r/min for 3 min if turbid) into a 5mL cryotube. Dry with hair dryer (low heat) or nitrogen/air blower at 65°C.
- 1.4. After drying, dissolve residue with AFB1 Diluent according to desired LOD, mix well to obtain test solution.

LOD	5 μ g/kg	10 μ g/kg	20 μ g/kg
Aflatoxin B1 Diluent	0.5mL	1mL	2mL

2. Feed:

- 2.1. Take ≥ 100 g representative sample, grind thoroughly. Weigh 2.0 ± 0.1 g into a 15mL centrifuge tube.
- 2.2. Add exactly 2mL purified water and 6mL Reagent A. Cap tightly, vortex vigorously for 5 min, let stand 2–3 min.
- 2.3. Transfer exactly 1mL supernatant (centrifuge at 4000 r/min for 3 min if turbid) into a 5mL cryotube. Dry with hair dryer (low heat) or nitrogen/air blower at 65°C.
- 2.4. After drying, dissolve residue with AFB1 Diluent according to desired LOD, mix well to obtain test solution.

LOD	10 μ g/kg	15 μ g/kg	20 μ g/kg	30 μ g/kg	50 μ g/kg
Aflatoxin B1 Diluent	0.5mL	0.75mL	1mL	1.5mL	2.5mL

3. Soy Sauce:

- 3.1. Pipette exactly 2mL sample into a 15mL centrifuge tube.
- 3.2. Add exactly 3mL Reagent A, cap tightly, vortex 5 min, let stand 2–3 min for layers to separate.
- 3.3. Transfer all supernatant to a new 15 mL centrifuge tube, add 1mL Reagent B, vortex 3 min.
- 3.4. Transfer exactly 1mL supernatant into a 5mL cryotube, dry as above.
- 3.5. Dissolve residue with 300 μ L AFB1 Diluent, mix well to obtain test solution.

4. Vinegar:

- 4.1. Pipette exactly 2mL sample into a 15mL centrifuge tube.
- 4.2. Add exactly 3mL Reagent A, cap tightly, vortex 5 min, let stand 2–3 min.
- 4.3. Transfer all supernatant to a new 15mL centrifuge tube, add 2mL Reagent B, vortex 3 min.
- 4.4. Transfer exactly 1mL supernatant into a 5mL cryotube, dry as above.
- 4.5. Dissolve residue with 500 μ L AFB1 Diluent, mix well to obtain test solution.

5. Rice Wine:

- 5.1. Pipette exactly 2mL sample into a 15mL centrifuge tube.
- 5.2. Add exactly 3mL Reagent A, cap tightly, vortex 5 min, let stand 2–3 min.
- 5.3. Transfer exactly 1mL supernatant into a 5mL cryotube, dry as above.
- 5.4. Dissolve residue with 500 μ L AFB1 Diluent, mix well to obtain test solution.

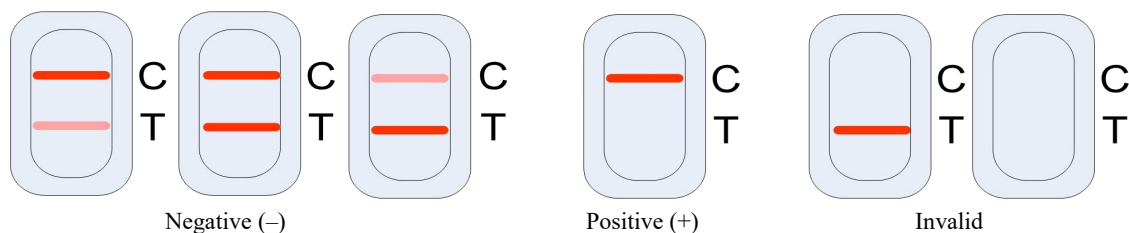
Protocol

1. Equilibrate test cards and test solutions to 20–40°C before use. Remove test card and microwell from foil pouch, place flat on bench.
2. Pipette 100 μ L test solution into microwell, pipette up and down 3–5 times to mix. Incubate 5 min, then transfer all mixture to the sample well.
3. Start timing after sample addition. Read results at 5–8 min. Results after 8 min are invalid.

Result analysis

1. Visual Interpretation:

- 1.1. Negative (–): Both T line and C line develop color → AFB1 not detected or below national limit. (Figure 1-3)
- 1.2. Positive (+): Only C line develops color, T line has no color → AFB1 concentration above national limit. (Figure 4)
- 1.3. Invalid: No C line develops color → improper operation or test card deteriorated. Retest with a new card. (Figure 5-6)

**2. Instrumental Interpretation:**

- 2.1. This kit is a qualitative elimination-line method; verify test method before instrumental reading.
- 2.2. Refer to the relevant instrument manual for detailed operation.

Limitation

1. This product is for qualitative screening only; it cannot determine the exact content of AFB1.
2. Results are preliminary; confirmatory analysis by other methods is recommended when necessary.
3. Improper operation or interfering substances in samples may cause false results.

Note

1. Inspect foil pouch before use; do not use if damaged to avoid erroneous results.
2. Use test cards within 1 h after opening the pouch; prolonged exposure to air causes failure due to moisture.
3. Test environment: 5–40 °C, humidity 30%–80%.
4. Test cards are for single use only and must be used within validity period.

Safety Statement

1. Use appropriate laboratory equipment and wear protective clothing (lab coat, gloves, mask, etc.).
2. Dispose of all laboratory materials properly after use; keep away from children.
3. Maintain laboratory cleanliness and ventilation after testing.
4. Reagents in this kit are irritating and corrosive; handle with care. Dispose of waste as toxic and hazardous liquid and chemical waste.

Specificity

No cross-reactivity with samples containing 1 mg/L deoxynivalenol (DON), zearalenone (ZEN), fumonisin (FB).