

1-STD Aflatoxin M1 (AFM1) ELISA Kit

NEM219 – 96 wells

Standard Range: 0 – 405 ppt

Sample Types: Milk, Milk Powder, Fermented Milk, Milk Beverage, Cheese, etc

Cross-Reactivity: Aflatoxin M1: 100%

General Description

Aflatoxin is one kind of toxic metabolite of aspergillus flavus and aspergillus parasiticus. Aflatoxin M1 is a metabolite of aflatoxin B1. Aflatoxin M1 is usually found in the milk of cows fed a diet contaminated with aflatoxin B1. Since aflatoxin M1 is fairly stable and cannot be decomposed by pasteurization, aflatoxin M1 testing should not only be adopted in feed materials, but also in the final product. The one of analytical methods of aflatoxin M1 which this ELISA Kit is a fast and accuracy choice that applicable for the milk, yogurt, cheese and milk powder matrices.

Test Principle

1-STD Aflatoxin M1 (AFM1) ELISA Kit uses the indirect competitive enzyme-linked immunoassay (ELISA) method to detect Aflatoxin M1 (AFM1) in samples such as grains and feed. The kit consists of an antigen-coated plate, HRP conjugate, antibodies, 1 standard (zero), and other supporting reagents. During detection, when standards or samples are added, AFM1 in the samples will compete with the paired antigens to bind to anti-AFM1 antibodies. After the addition of the HRP conjugate, staining is performed with TMB substrates. The absorbance value of the samples has a negative correlation with the AFM1 content. Finally the AFM1 toxin content in the sample can be calculated with using Nepenthe analysis software.

Kit Contents and Storage

The shelf life of the kit is 12 months. Store the kit at 2-8 °C and avoid freezing.

Components	Quantity
ELISA Plate	8 wells x 12 strips
Standards (0 ppt)	1 mL
Antibody Solution	6 mL
Enzyme Labelled Conjugate	12 mL
Substrate Solution	12 mL
Stop Solution	6 mL
10X Concentrated Sample Diluent Solution	40 mL
10X Concentrated Wash Buffer	60 mL
Adhesive Membrane	1 pcs
Manual	1 pcs

Materials Required but Not Supplied

- Microplate reader,
- Vortex mixer (for shake and mix),
- Centrifuge or filter paper,
- Balance with a division value of 0.01 g,
- Micropipettes (single-channel and multi-channel),

Precautions

- Prior to beginning the assay procedure, bring all reagents to room temperature (20 – 25°C).
- Mix all reagents gently by inverting them before use. Do not foam.
- Complete all steps in the study uninterrupted and within the recommended time limits.
- Please mix the contents in the wells evenly and wash the plate thoroughly. Reproducibility largely depends on the consistency of the washing step.
- After washing, ensure the wells are sufficiently dry before proceeding to the next step quickly.
- Cover the microplates with an adhesive membrane during incubation.
- Close all reagent caps immediately after use and do not replace bottle caps.
- Use a separate disposable tip for each sample and solution to prevent cross-contamination.
- Since the OD values of the standard curve may vary depending on real-time test performance conditions (e.g., operator, pipetting technique, washing technique, or temperature effects), the user should create a standard curve for each test.
- Do not use reagents that have expired.
- Do not mix reagents from different lots.
- If the absorbance value of 0 ppb is below 0.5 ($A_{450nm} < 0.5$), it means the reagent may be metamorphic.
- The substrate solution should be colorless; otherwise, discard it.
- Check both the sensitivity and accuracy of the laboratory equipment used during the procedure (micropipets, ELISA reader, etc.).
- Do not smoke, eat, drink, or perform pipetting by mouth in the laboratory.
- Always wear disposable gloves during the procedure.
- Avoid contact of substrate and stop solution with skin and mucous membranes (possible risk of irritation, burns, or toxicity). In case of contact, wash the affected area with plenty of water.
- The usage and disposal of chemical products should be carried out in accordance with good laboratory practices (GLP).

Preparation

Please remember that all laboratory equipments must be clean. Use disposable pipette tips to prevent contamination of results.

Reagent Preparation:

Reagent 1: 1X Sample Diluent Solution

Dilute the 10X Concentrated Sample Diluent Solution with distilled water at a volume ratio 1 : 9
(1 unit 10X Wash Buffer : 9 unit Distilled Water).

Reagent 2: 1X Wash Buffer

Dilute the 10X Concentrated Wash Buffer with distilled water at a volume ratio 1 : 9
(1 unit 10X Wash Buffer : 9 unit Distilled Water).

Sample Preparation:

Milk:

1. Take fresh milk or processed milk samples place at 25°C for about 1 hour.
2. Take out 50 µL for test.

Dilution times of the sample:1 – Detection limits: 5 ppt

Milk Powder:

1. Suspend 1.0 g of powder in 7 mL of distilled water, vortex or shake extraction for 1 min.
2. Take out 50 µL for test.

Dilution times of the sample:7 – Detection limits: 35 ppt

Fermented milk, Milk beverage:

1. Suspend 1.0 g of sample in 4 mL of 1X sample diluent solution, shake extraction for 2 min.
2. Take out 50 µL for test.

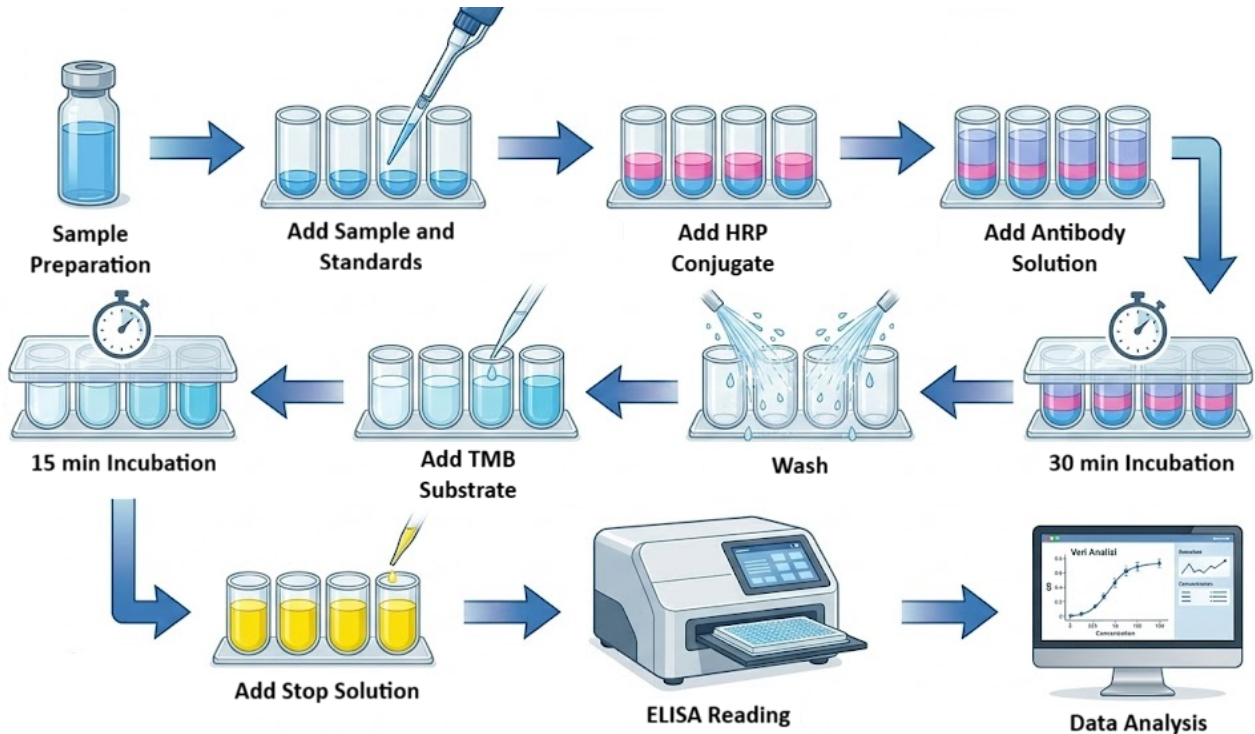
Dilution times of the sample:5 – Detection limits: 25 ppt

Cheese:

1. Suspend 1.0 g of sample in 8 mL of 1X sample diluent solution, shake extraction for 5 min.
2. Centrifuge at 4000 r/min for 5 min.
3. Transfer the filtrate (or supernatant) 500 µL to a new centrifuge tube, add 500 µL of distilled water and mix well.
4. Take out 50 µL for test.

Dilution times of the sample:8 – Detection limits: 40 ppt

ELISA Protocol Template



ELISA Protocol

Place all reagents and samples to room temperature (adjust to around 25°C) for 30min. Gently shake the reagent bottles before use.

Take out the frame of the microplate along with the required number of wells. Then place the unused microplate wells into the sealed bag with the desiccant provided. Store the remaining kit in the refrigerator at 2-8°C.

- 1. Number:** Number the standards and samples sequentially into the corresponding microwells; repeating with 2 wells for each sample and standard is recommended.
- 2. Incubation:** Add 50 µL of standard to standard well and 50 µL of sample to each sample well, then add 50 µL of antibody solution to all wells. Finally, add 100 µL of enzyme labelled conjugate to each well. Cover the microplate with an adhesive membrane and incubate at room temperature for 30 minutes.
- 3. Wash:** Carefully open the adhesive membrane and invert the wells to pour out the liquid. Pipette 300 µL of 1X Wash Buffer into each well and invert to pour out, repeat this process for 5 times. Invert the plate and tap it onto a paper towel to drain any remaining liquid. (Ensure no bubbles remain).
- 4. Substrat:** Add 100 µL of Substrate Reagent to each well. Allow to react in the dark at room temperature for 15 minutes. (If the blue color is very faint, the reaction can be extended in a controlled manner.)
- 5. Stop:** Add 50 µL of Stop Solution to each well.
- 6. Reading:** Determine the Optical Density (OD value; absorbance value) by reading at 450 nm (Reference wavelength 595 or 630 nm) with a microplate reader. (The reading should be completed within 10 minutes of adding the stop solution.)

Interpretation of the Result

To analyze the 1-STD ELISA Kit, please get the free Nepenthe Analysis Software by emailing support@nepenthe.com.tr. Manually enter the LOT number written on the kit box into the BATCH NO field in the software. The B/Bo (%) values will be automatically loaded. Then, manually enter or paste your measurement data into the Sample OD Value field; the results will be provided automatically.