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**(FOR RESEARCH USE ONLY. DO NOT USE IT IN CLINICAL DIAGNOSIS !)**

## **Zearalenone(ZEN) ELISA Kit**

Catalog No: E-TO-E002

96T

This manual must be read attentively and completely before using this product.

If you have any problems, please contact our Technical Service Center for help.

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Please kindly provide us the lot number (on the outside of the box) of the kit for more efficient service.

## Test principle

This kit uses Indirect-Competitive-ELISA as the method. It can detect Zearalenone(ZEN) in samples, such as grain, feed, edible oil, beer, sauce and other samples. This kit is composed of Micro ELISA Plate, HRP conjugate, antibody, standard and other supplementary reagents. The micro-plate provided in this kit has been pre-coated with ZEN. During the reaction, ZEN in the samples or standard competes with ZEN on the solid phase supporter for sites of ZEN antibody. Then Horseradish Peroxidase (HRP) conjugate is added to each micro plate well, and TMB substrate is for color development. There is a negative correlation between the OD value of samples and the concentration of ZEN. The concentration of ZEN in the samples can be calculated by comparing the OD of the samples to the standard curve.

## Technical indicator

**Sensitivity:** 0.03ppb(ng/mL)

**Reaction mode:** 25 °C, 30min~ 15min

**Detection limit:** Grain and formula feed---6ppb

**Cross-reactivity:** Zearalenone(C<sub>18</sub>H<sub>22</sub>O<sub>5</sub>) ---100%, (S)-Zearalanone(C<sub>18</sub>H<sub>24</sub>O<sub>5</sub>) ---13%,  
Zeranol(C<sub>18</sub>H<sub>26</sub>O<sub>5</sub>)---<1%

**Sample recovery rate:** Grain and formula feed---90% ± 15%

## Kits components

Item	Specifications
Micro ELISA Plate	96 wells
Standard Liquid(black cap)	1mL each (0ppb,0.3ppb,0.9ppb,2.7ppb,8.1ppb,24.3ppb)
HRP Conjugate(red cap)	5.5mL
Antibody Working Solution(blue cap)	5.5mL
Substrate Reagent A(white cap)	6mL
Substrate Reagent B(black cap)	6mL
Stop Solution(yellow cap)	6mL
20× Concentrated Wash Buffer(white cap)	40mL
Product Description	1 copy

## Other supplies required

**Instrument:** Micro-plate reader, Printer, Homogenizer, Oscillators, Centrifuge, Graduated pipette, Balance (sensitivity: 0.01g).

**High-precision transfer pipette:** Single channel (20-200μL, 100-1000μL), Multichannel(300μL).

**Reagents:** Methylalcohol, Deionized water.

## Experimental preparation

Bring all reagents and samples to room temperature before use.

Open the micro-plate reader in advance, preheat the instrument, and set the testing parameters.

**1. Sample pretreatment Notice:** experimental apparatus should be clean, and the pipette should be disposable.

**2. Solution preparation**

Solution 1:90% Methylalcohol (sample extracting solution).

Dissolve the Methylalcohol at the ratio of Methylalcohol (volume): Deionized water (volume)=9:1.

**3. Sample pretreatment procedure**

**3.1 Pretreatment of grain (low-fat rice, corn and millet) and formula feed:**

- (1) Weigh 2g of crushed homogenate in to 50mL EP tube, add 8mL of 90% methyl alcohol, oscillate for 5min, centrifuge at 4000r/min for 10min at room temperature;
- (2) Take 0.5mL of supernatant, add 2mL of deionized water, mix;
- (3) Take 50 $\mu$ L for detection and analysis.

**Note: Sample dilution factor: 20, minimum detection dose: 6ppb**

**3.2 Pretreatment of corn husk, wheat bran and other strong water absorption samples:**

- (1) Weigh 2 g of crushed homogenate in to 50 mL EP tube, add 16mL of 90% methyl alcohol, oscillate for 5min, centrifuge at 4000 r/min for 10 min at room temperature;
- (2) Take 0.5 mL of supernatant, add 2 mL of deionized water, mix;
- (3) Take 50  $\mu$ L for detection and analysis.

**Note: Sample dilution factor: 40, minimum detection dose: 12 ppb**

(If the concentration of ZEN in sample is very high, in step 2, can take 0.1mL of supernatant, add 0.9 mL of deionized water, and then mix with 4 mL of deionized water. The final sample dilution factor is 400, minimum detection dose is 120 ppb.)

**Note: As the toxins distribute unevenly in samples, we need make multidraw and mix fully first, then weigh 2 g of the solution to detect.**

## Assay procedure

Centrifuge the sample again after thawing before the assay. Bring all reagents to room temperature for 30 min before use. **All the reagents should be mixed thoroughly by gently swirling before pipetting. Avoid foaming.** Dilute 40mL of concentrated wash buffer into 800mL wash working buffer with deionized or distilled water before experiment.

1. **Number:** number the sample and standard in order (multiple well), and keep a record of standard wells and sample wells.
2. **Add sample:** add 50µL of Standard or Sample per well, then add 50µL of HRP conjugate to each well, then add 50µL of antibody working solution, cover the plate with sealer we provided, oscillate for 5s gently to mix thoroughly, incubate for 30min at 25°C.
3. **Wash:** uncover the sealer carefully, remove the liquid in each well. Immediately add 250µL of wash working buffer to each well and wash. Repeat wash procedure for 5 times, 30s intervals/time. Invert the plate and pat it against thick clean absorbent paper (If bubbles exist in the wells, clean tips can be used to prick them).
4. **Color Development:** add 50µL of substrate solution A to each well, and then add 50µL of substrate solution B. Gently oscillate for 5s to mix thoroughly. Incubate shading light for 15min at 25°C.
5. **Stop reaction:** add 50µL of stop solution to each well, oscillate gently to mix thoroughly.
6. **OD Measurement:** determine the optical density (OD value) of each well at 450 nm with a micro-plate reader (the 450/630 nm double wavelength is recommended). This step should be finished in 10min after stop reaction.

## Result analysis

1. **Absorbance (%) =  $A/A_0 \times 100\%$**

A: Average absorbance of standard or sample

A<sub>0</sub>: Average absorbance of Oppb Standard

2. **Drawing and calculation of standard curve:**

Create a standard curve by plotting the absorbance percentage of each standard on the y-axis against the log concentration on the x-axis to draw a semi-logarithmic plot. Add average absorbance value of sample to standard curve to get corresponding concentration. If samples have been diluted, the concentration calculated from the standard curve must be multiplied by the dilution factor.

For this kit, it is more convenient to use professional analysis software for accurate and fast analysis on a large number of samples.

## Notes

1. Overall OD value will be lower when reagents is not brought to room temperature before use or room temperature is below 25°C.
2. During the washing procedure, if the wells turn dry, it will lead to bad linear standard curve and poor repeatability, move on to the next step immediately after wash.
3. Mix thoroughly and wash the plate completely. The consistency of wash procedure can strongly affect the reproducibility of this ELISA kit.
4. Micro ELISA plate should be covered by plate sealer. Avoid the reagents to strong light.
5. Do not use expired kit and reagents of different batches.
6. TMB should be abandoned if it turns color. When OD value of standard (concentration: 0)  $< 0.5$  unit ( $A_{450\text{nm}} < 0.5$ ), it indicates reagent is deteriorated.
7. Stop solution is caustic, avoid contact with skin and eyes.

## Storage and valid period

**Storage:** Store at 2-8°C. Avoid freeze / thaw cycles.

**Valid Period:** 1 year, production date is on the packing box.