VERSION N3
CAT.NUMBER: S5124/S5148

SYMMETRIC ZON ES

LATERAL FLOW TEST KIT

for the quantitative detection of Zearalenone in grains, cereals and animal feed

ProGnosis Biotech S.A. is ISO 9001:2015 certified by TÜV Hellas (TÜV NORD).

Use only the current version of Product Data Sheet enclosed with the kit.

Symmetric ZON ES, S5124/S5148, is a Lateral Flow Test kit for the quantitative determination of Zearalenone in grains, cereals and animal feed.

This kit contains all reagents required for 24 or 48 reactions.

Matrices:

Type I: Corn, Corn Flour, Barley, Oats, Soy beans, Soy flour, Malt, Millet, Malted rye, Brown Rice, White Rice, Wheat, Wheat Flour, Triticale, Buckwheat, Rye, Spelt, DDGS, Animal feed

Type II: Corn Gluten Meal

- Sample preparation: extraction
- Test time (reaction time after samples and reagents preparation): 10min
- Range: **Type I:** 0 - 500ppb **Type II:** 0 - 600ppb
- Shelf life: 12 months
- Storage: 2-8^{o}C
- Testing Temperature: 18-30^{o}C

This is an electronic version, please verify always the last one included in the kit.

Specifications

- The LOD of the method is: 13.5ppb (Type I), 40 (Type II).
- The LOQ of the method is: 20ppb (Type I), 60 (Type II).
- Cross-reactivity: The cross-reaction of the anti-ZON antibody with Zearalenone, α-zearalenol, β-zearalenol, Zearalanone, α-zearalanol and β-zearalanol is 100, 85, 47, 72, 60 and 62% respectively.

1. Description

Symmetric ZON ES is an innovative Lateral Flow test, utilizing state-of-the-art features for the quantitative detection of Zearalenone in grains and cereals.

2. General Information

Zearalenone (ZON) is a member of the trichothecene mycotoxins produced by fungi of the Fusarium genus (*F. graminearum*). Grains including barley, wheat, oats, corn, rice and maize are frequently infected by this fungus. It is frequently implicated in reproductive disorders of farm animals and occasionally in hyperoestrogenic syndromes in humans. There is evidence that ZON and its metabolites possess oestrogenic activity in pigs, cattle and sheep. Moreover, ZON has also been shown to be hepatotoxic, haematotoxic, immunotoxic and genotoxic. Most controlling government agencies worldwide have regulations regarding the amount of ZON allowable in human and animal foodstuffs. Accurate and rapid determination of ZON presence in commodities is of paramount importance.

3. Principle of the Method

The quantitative lateral flow test is based on the immunochromatography assay principles. The wells of the microtiter strips contain ZON specific antibodies conjugated to colloidal gold. Diluted extract is added into the well. A dipstick with two capture lines, test and control, is dipped into the well. The suspended mixture starts flowing vertically on the dipstick and passes through the two lines. While running, ZON (if it is present) binds to the antibodies. A valid test should always have the upper control line red. If the sample is free of ZON, a color development occurs at the test line, indicating the absence of ZON in the sample. On the contrary, the presence of ZON in the sample will cause a reduced colored signal at the test line. The test line color intensity is indirectly proportionate to the concentration of ZON present in the samples. By utilizing S-Flow software and the symmetric quantification technology, ZON is accurately quantified.

4. Reagents Provided

Symmetric ZON ES kit contains sufficient reagents and materials for 24/48 reactions.

Reagents (Store at 2-8ºC)	Quantity for 24 reactions	Quantity for 48 reactions
Pots each with 1 strip of 8 reagent microwells and 8 dipsticks	3	6
Sample Diluent Tubes	24	48
High Range Solution	1	1

5. Materials required but not provided

- A grinder sufficient to render sample to particle size of fine instant coffee
- Balance with 0 - 50g measuring capability and Graduated cylinder - 50ml
- Ethanol (9.75ml reagent grade per sample) and Deionized water
- Mini centrifuge (spin) and plastic tubes 1,5 or 2ml
- Tube roller or Vortex mixer
- 100-300μl adjustable micropipettes (single or multi channel) with disposable tips
- **S-Flow** software along with matching scanner device

6. Storage Instructions

Store kit components between 2 - 8°C. Do not freeze any components provided. Reseal the unused strips in the storing tube together with the desiccant bag provided. The expiry date of the kit and reagents is stated on their labels and no quality guarantee is accepted after the expiration date. The expiry of the kit components can only be guaranteed if the components are stored properly and the reagent is not contaminated due to prior handling. Do not interchange individual components between kits of different lot numbers.

7. Safety and Precautions for use

Let the reagents warm to room temperature (21 - 25°C) before the analysis (at least half an hour) and cover them when not in use. Use a clean disposable plastic pipette tip for each reagent, to avoid cross contamination.

8. Preparation of the Extraction Solvent

Prepare the Extraction Solution (65% Ethanol) by adding 35ml of distilled or deionized water to 65ml of ethanol (reagent grade) and transfer it into a glass bottle.

The quantity of extraction solvent (100ml of 65% ethanol) is sufficient for 6 samples (5gr each). A user may prepare smaller or larger amounts of the extraction solvent maintaining the ratio of 6.5 parts ethanol to 3.5 parts distilled or deionized water by volume. Prepare a new extraction solvent prior to use.

9. Sample preparation

1. The sample must be collected according to established sampling techniques. Grind a representative sample to the particle size of fine instant coffee (85-95% passes through a 20 mesh screen).
2. Weigh out a 5g ground portion of the sample and add 15ml of the **65% ethanol** for each sample to be tested. Mix using a tube roller for 5 minutes (or vortex for 2min). **The ratio of sample to Extraction Solution is 1:3 (w/v). To achieve good homogenization, ensuring that any portion of the sample will be representative of the whole, weight at least 20gr of the sample.**
3. Allow the particulate matter to settle. Filter the extract through a Whatman #1 filter paper (or equivalent) and collect the filtrate. Alternatively, centrifuge 1ml of the extract for 2min using a mini centrifuge (spin).
4. Add **100μl** of filtrate (or supernatant) into the Sample Diluent Tube provided and mix well. Use the diluted filtrate within 30 minutes.

NOTE: If a higher range is required, mix the diluted sample with **High Range Solution**. Then, use **ONLY** the **5X Dilution** Matrix Type.

Example

- **100-2000ppb** 1:5 (five times dilution) 1V diluted sample+4V High Range Solution
- **200-4000ppb** 1:10 (ten times dilution) 1V diluted sample+9V High Range Solution

Choose **5X Dilution Type** and set the suitable dilution factor type to multiply the results by 5 or 10 etc.

5x Dilution Matrix Type	
Dilution Factor 5 (Quantify from 100 up to 2000ppb)	100μl of the diluted sample +400μl of High Range Solution
Dilution Factor 10 (Quantify from 200 up to 4000ppb)	100μl of the diluted sample +900μl of High Range Solution

10. Method Procedure

1. Before opening the reagents, take the kit out of the fridge and wait until the temperature of the reagents reaches the ambient temperature.
2. Download and/or set the kit's **lot number**, as provided in the Quality Assurance Certificate and then set the suitable **Type** and **Dilution Factor**.
3. Open one plastic pot and take out as many test strips and microwells as samples to be tested.
4. The pot with dipsticks should **always be well closed** after reagents have been taken out.
5. Dispense **100μl of diluted extract** into the microwell and pipette **up and down 4 times** to completely mix the lyophilized gold particles in the sample, while avoiding bubbles. The sample should turn into a **uniform pink color**. In case of more than 2 samples, an 8 channel multipipette should be used.
6. Place the appropriate number of sticks into microwells **immediately** and set timer for 10 minutes.
7. When the 10 minutes are over, take the dipsticks out of the microwells and remove the white cotton sample-pad of the stick **immediately**. Touch the stick with your hand from the colorful pad and remove the white pad with your hands. Do not use a paper towel or any other material.
8. Place the stick inside the plastic holder in order to be scanned. In case of EPSON scanner, the **sticks must be facing down (inverted)** and the colored side must be facing the orange sticker. **NOTE:** The sticks should be scanned within 2 minutes after the sample-pads removal.
9. The software will use a Lot specific curve to calculate the results (ppb). A simple visual interpretation of the stick is NOT possible.

11. Performance Evaluation

11.1 Reference Materials

Several reference materials are being used for the evaluation of each product of ProGnosis Biotech S.A. in the context of Quality Control performed by Quality Control Department. Please request a validation report, including the results, at exports@prognosis-biotech.com.

11.2 Proficiency Tests

All products participate frequently in Proficiency Tests. For more information, visit the individual product page in our website: **www.prognosis-biotech.com.**

12. Method Summary

Total method time: 10 minutes

Extract the samples

⇩

Add 100µl of extract (supernatant) into the Sample diluent tube provided

⇩

Dispense 100µl of each sample into the microwells and mix 5 times the sample with the lyophilized gold particles

⇩

Place the appropriate number of sticks into microwells immediately.

⇩

(Wait 10 mins)
Take the stick out and remove the white sample-pad immediately

⇩

Place the stick in the appropriate device to be scanned

⇩

Quantify through s-flow software

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