



EZ Gluten™



**A Fast Sensitive and Simple Test for
the Detection of Gluten in Food Samples**

**INSTRUCTIONS FOR USE
Cat. No. 510EZG**

INTRODUCTION

Gluten is the common name for a combination of water-insoluble proteins (gliadins and glutenins) found in the seeds of wheat, rye and barley. Sensitivity to gluten affects nearly 1% of the populations of Europe and North America¹. Persons with gluten sensitivity have a heightened immunologic response to ingested gliadin and glutenin², resulting in a range of symptoms including anemia, arthralgia, fatigue, infertility, dermatitis, neurological disorders and celiac disease.

For persons with gluten sensitivity the only treatment for these conditions is the adoption of a gluten-free diet, avoiding foods containing wheat, rye, barley and other related cereal grains. Due to the prevalence of these grains in the food supply, even products that do not contain wheat, rye or barley as ingredients may still contain trace amounts that are significant enough to produce symptoms in gluten-sensitive individuals.

PURPOSE OF THE *EZ Gluten™* TEST

The *EZ Gluten™* Test is an easy to use home test that will quickly detect the presence of gluten in foods. It is sensitive enough to detect levels of gluten as low as 10 parts per million (ppm). This simple test is also small and portable enough for use at restaurants or when traveling. It can be used to test individual ingredients in foods, or to test finished and cooked products.

HOW THE *EZ Gluten™* TEST WORKS

The *EZ Gluten™* Test uses the anti-omega gliadin antibody developed by Skerritt and Hill³ for detection. This antibody, which detects both gliadins and glutenins, is the basis of the AOAC Official Method for gluten detection at the 200 ppm level⁴. The *EZ Gluten™* Test has been optimized so that this same antibody can detect gluten at levels as low as 10 ppm.

In the *EZ Gluten™* Test, a food sample is ground to a fine consistency, added to the gluten extraction solution, and then mixed. A few drops of the sample extract are placed into a test tube. The *EZ Gluten™* test strip is placed into the test tube and allowed to absorb the sample extract. At 10 minutes, the test strip can be read visually for the presence of gluten in the sample.

MATERIALS PROVIDED FOR THE *EZ Gluten™* TEST

Each individual *EZ Gluten™* Test comes with all of the materials that are required to run one test. The materials provided are:



1 - *EZ Gluten™* Test Strip in a silver foil pouch



1 - vial of extraction solution (with cap)



1 - test tube



1 - transfer pipette



1 - measuring spoon

Materials which may be used, but are not provided, include:

- A food processor or other means of grinding samples (not needed for flours, smooth pastes or liquids).
- A scale for measuring exactly 0.5g

PRECAUTIONS

- ☒ For food testing only.
- ☒ Do not reuse the test stick.
- ☒ Do not use any part of the test beyond the expiration date.
- ☒ Do not open the foil pouch until just before use.
- ☒ Always store the kits between 36° and 77°F (2° to 25°C); avoid freezing.
- ☒ The test works only when the instructions are precisely followed.
- ☒ In case of contact of any reagent with eyes or skin; rinse immediately with plenty of water.

DETAILED TEST INSTRUCTIONS

Sample Preparation

- ☒ Prior to testing, the person using the kit should wash their hands and make sure that the surface they are working on is clean and clear of any clutter.
- ☒ For samples such as flours, baking mixes, smooth pastes and liquids, no sample preparation is required.
- ☒ Samples such as crackers, cookies, etc. may be crumbled by hand to a fine consistency.
- ☒ Make sure that a multi-ingredient product, such as a baking mix, is thoroughly mixed prior to sampling. A food processor or other method of grinding may be required for harder samples.
- ☒ It is important to take a sample that is representative of the total product that is in question. For instance, if it is a filled or frosted baked good, take a sample that includes all of the components in the ratio that they exist in the final product. Alternatively, the separate components of a product may be tested individually.
- ☒ The goal of sample preparation is to obtain a sample with a fine consistency that is representative of the product as a whole.
- ☒ Some samples may absorb a majority of the extraction solution. If there is not sufficient liquid present to run the assay, then the amount of sample added to the extraction solution may need to be reduced. This will affect the detection limit of the assay.

Sample Testing

1. Measure out 1 level spoonful of the sample using the spoon provided, or weigh out 0.5 grams of the sample on a scale.



2. Add the spoonful (0.5g) of sample to the vial containing the extraction solution.
3. Replace the cap on the extraction solution and mix for 2 minutes.

4. Set the vial down upright and let the contents settle for 5 minutes.

5. Using the transfer pipette provided, transfer 10 drops of the extraction solution (taken from the top clear layer of the extraction vial) into the test tube. Hold the pipette vertically when transferring the liquid. The cap from the vial of extraction solution may be turned upside-down and used to hold the test tube.



6. Remove the test strip from the silver foil pouch and insert it into the test tube, with the arrows pointing down.

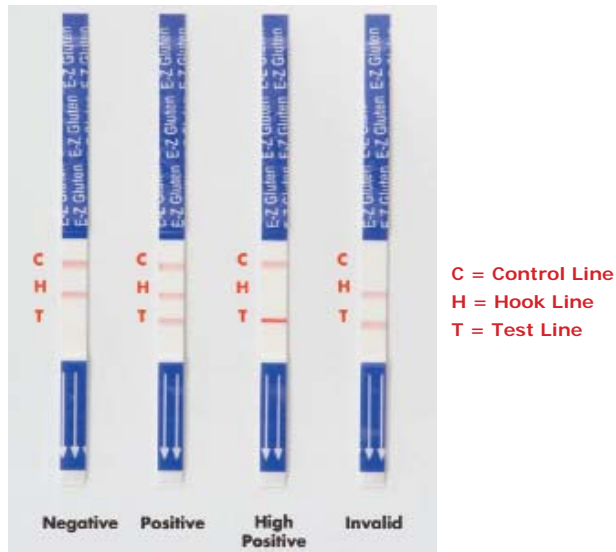


7. Leave the test strip undisturbed in the test tube for 10 minutes.



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8. Remove the strip from the test tube and hold it alongside the picture to read your result. There can be four possible results:
- Negative (Gluten not detected): The red control (C) and red hook (H) lines are present, but there is no red test (T) line.
 - Positive (Gluten detected): The red control, hook and test lines are all present.
 - High Positive (High level of gluten): Red control (C) and test (T) lines are present but there is no red hook (H) line.
 - Test Failure: There is no red control (C) line present, regardless of the presence of other red lines. In this case, the test must be repeated.



TEST LIMITATIONS

A negative result does not necessarily indicate a complete absence of gluten in the product being test. It is always possible that gluten is present in a portion of the product that was not sampled, or that the level of gluten in the product is below the limit of detection for the test. Ketchup and mustard may cause a false positive result.

KIT VALIDATION

The *EZ Gluten™* Test has been validated in a large number of cooked, raw and frozen food matrices including meat, poultry, fish, fruits, vegetables, dairy, baked goods, pet foods, pastas, egg products, flours, spice mixes, dressings, cereals, rice, and beer.

The *EZ Gluten™* test detects the presence of wheat, rye and barley at 10 ppm.

REFERENCES

¹Fasano, A., Berti, I., Gerarduzzi, T., Not, T., Colletti, R.B., Drago, S., Elitsur, Y., Green, P.H.R., Guandalini, S., Hill, I.D., Pietzak, M., Ventura, A., Thorpe, M., Kryszak, D., Fornaroli, F., Wasserman, S.S., Murray, J.A. & Horvath, K. (2003) *Arch. Intern. Med.* **163**, 286-292.

²van de Wal Y, Kooy YM, van Veelen P, Vader W, August SA, Drijfhout JW, Pena SA, Koning F. (1999) *Eur. J. Immunol*, 29(10):3133-9.

³Skerritt, J.H. & Hill, A.S. (1991) *JAOAC* **74**, 257-264

⁴ *Official Methods of Analysis* (2006) 18th Ed., AOAC INTERNATIONAL, Gaithersburg, MD, Method 991.19

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EZ GLUTEN™ QUICK INSTRUCTIONS

1. Make sure sample is of fine consistency and that it is representative of the product as a whole.
2. Add 0.5g or 1 level spoonful of the sample to the vial containing the extraction solution.
3. Mix the vial for 2 minutes.
4. Set the vial down and let the contents settle for 5 minutes.
5. Using the transfer pipette, transfer 10 drops of the upper, clear portion of the extract into the test tube.
6. Insert the *EZ Gluten™* Test strip into the test tube, arrows pointing down.
7. Leave the test strip undisturbed in the test tube for 10 minutes.
8. Remove the test strip from the test tube and compare it to the pictures on page 6 of this booklet for results.

510EZG-02 EZ Gluten™ 2 test kit
510EZG-05 EZ Gluten™ 5 test kit
510EZG-10 EZ Gluten™ 10 test kit

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