

Information circulating on the Internet has raised questions about something called transglutaminase or TG, which has come to bear the unfortunate nickname "meat glue." Below are questions and answers aimed at clarifying why TG is used, how it is labeled and why it is safe.

Q: What is transglutaminase?

A: Transglutaminase (TG) is an enzyme that occurs naturally in plants, animals and in the human body. In this case, TG is used to bind proteins together. Another example of how enzymes are used is papain from papaya, which is a valued meat tenderizer.

Q: How is TG used in food production?

A: TG is used to improve the texture of certain foods, to shape and form protein foods together to make novel new foods or to aid in portion control. TG can thicken egg yolks, strengthen dough mixtures, thicken dairy products and improve yield in tofu production.

Q: How is TG used in meat production?

A: TG can be used in a variety of ways. For example, TG might be used in making a bacon wrapped filet because it will cause the bacon to bind to the outside of the filet. Another example of TG's value is in making uniform beef tenderloins. Tenderloins by their nature are shaped like a cone with a pointier end and thicker end. By laying tenderloins on top of one another going in opposite directions and using TG, two tenderloins can be made into a larger, cut of meat with a uniform diameter.

Q: Why do you need to use TG or "meat glue"?

A: TG helps add value to smaller cuts of meat that on their own might have less value. When smaller cuts can be formed into a larger cut, value is added. By using products like TG, meat companies prevent waste and maintain value, which helps control costs and ultimately ensures the affordability of the meat supply for consumers.

Q: Is TG labeled?

A: Yes. When a product contains TG, "transglutaminase" must be listed in the ingredient statement. A product that uses TG also will say "formed" or "shaped" on the label.

Q: How is it regulated?

A: TG is "generally recognized as safe" or GRAS by the Food and Drug Administration (FDA). The United States Department of Agriculture (USDA) has determined that TG is safe and suitable for use in meat products. TG may be added to meat products to improve texture or to bind meat cuts together, but may not be used at levels exceeding 65 parts per million (ppm) of the total product weight -- a miniscule amount.

Q: Is it safe?

A: Yes. The fact that TG has FDA's GRAS status shows that it has a long history of safe use. It is also approved by the USDA for use in meat products.

Q: Do products that contain TG need to be cooked or handled differently?

A: A product that uses TG to bind multiple cuts together will say formed or shaped and the consumer need only follow the manufacturer's directions. If a consumer were to encounter a fresh, uncooked product that is chopped or formed by using TG, the product should be handled like any non-intact product like a hamburger and should be cooked thoroughly to 160 degrees F. or higher. Because most products that use TG are provided to foodservice operators, the consumer is unlikely to encounter cuts with TG in their retail grocery stores.

Q: Is TG used by chefs?

A: In some cases, chefs may use it to create unique products. Restaurant patrons with questions should inquire with restaurant staff.

Q: Is TG an allergen?

A: No. Transglutaminase is not classified as an allergen in the U.S. or in Europe.

Q: What do the experts say?

A: In a recent interview at the American Meat Science Association's 2011 annual meeting, Dana Hanson, Ph.D., associate professor and meat extension specialist in North Carolina State University's Food Science Department who has looked closely at the issue, said, "It is certainly an ingredient that is safe for consumers to consume and it certainly doesn't merit the concern that some on-line videos have generated. ... I would have no concerns about feeding these formed products to my family."

Helpful Links

<http://www.cookingissues.com/primers/transglutaminase-aka-meat-glue/>

<http://www.transglutaminase.com/>