

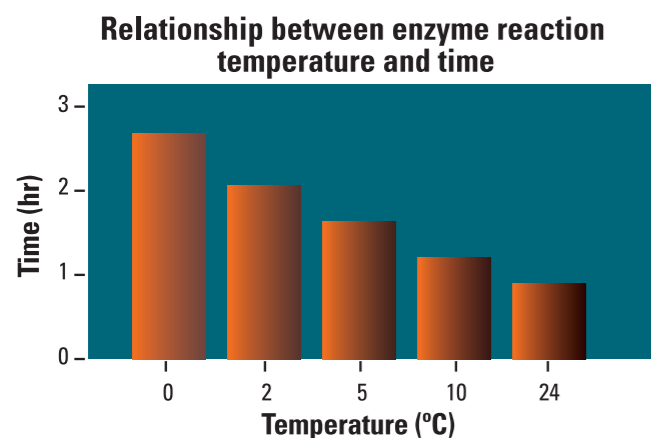
GENERAL INFORMATION ABOUT TG

PRODUCT INFORMATION SUMMARY

Basic Characteristic of Transglutaminase

1) The reaction is controlled by time and temperature.

The progress of the enzyme reaction is determined by the temperature and total reaction time. A higher reaction temperature requires less time, whereas reactions at a lower temperature require longer reaction time. The food type and desired physical properties determine the relationship of time and temperature in the reaction.



Reaction time required to obtain sufficient binding strength in meat at each reaction temperature. The enzyme reaction does not progress in frozen state. This data is based on our laboratory trial. The time required for binding is different from each condition; type of meat, increment of water, seasoning etc.

3) Transglutaminase is rendered inactive when heated to certain temperatures for a period of time.

A major advantage of TG is that it becomes inactive when the core temperature is 75°C or more in normal foods. However, since the temperature and time required for inactivation vary depending on food type, care must be taken.

Typical procedure for inactivation

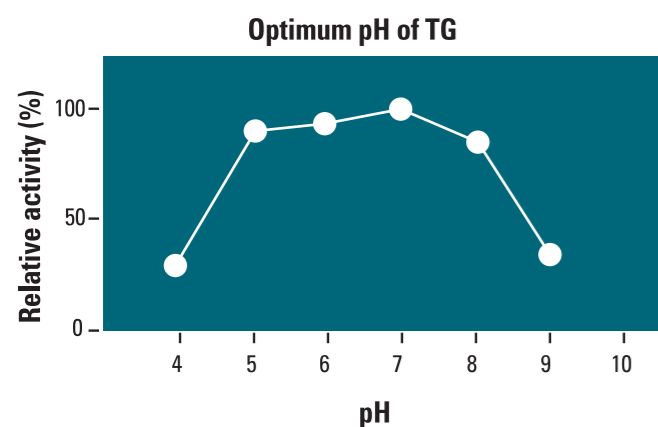
Time required for inactivation by heating a sausage (3cm diameter). Each sausage was rapidly cooled in ice water after reaching designated temperature.

Core temperature	Time required for inactivation
65°C	2 hours or more
70°C	within 15 minutes
75°C	within 5 minutes
80°C	within 1 minute

The time required for inactivation depended on the core temperature. The higher the core temperature, the faster the inactivation occurred.

2) Transglutaminase catalyzes a reaction over a wide pH range.

Because of this flexibility, effective applications can be achieved in various food processes, across many food types.



4) Transglutaminase is produced by a fermentation method.

Using starch and other raw materials for fermentation, **AJINOMOTO** cultivates transglutaminase-producing microorganisms and then purifies the product from the culture medium. The microorganisms are completely removed after fermentation.

Product Summary

Product	 ACTIVA™TG-BP-MH	 ACTIVA™TG-BW-MH
Ingredients	Milk Protein, Lactose, Dextrin, Sodium Tripolyphosphate, Tetrasodium Pyrophosphate, Silicon Dioxide and Transglutaminase.	Sodium Caseinate, Maltodextrin, Transglutaminase and Sodium Chloride.
Shelf Life	18 MONTHS WHEN STORED IN COOL, DRY PLACE IN THE ORIGINAL PACKAGING	
Packaging Size	1kg X 10pkts / Carton Box	

Product Specification

ACTIVA™TG Preparation	ACTIVA™TG-BP-MH	ACTIVA™TG-BW-MH
No. Analysis Items		
1. Total Plate Count	Max. 5.0 x 10 ³ c/g	Max. 5.0 x 10 ³ c/g
2. Heat Resistance Bacteria	Max. 3.0 x 10 ² c/g	Max. 3.0 x 10 ² c/g
3. E. Coli	Negative	Negative
4. Loss on Drying	Max. 6.0%	Max. 10.0%

Remark: The formulations were produced by laboratory scale only. The studies on the conditions of processing and preservation were not conducted. Manufacturers should determine applicability and suitability for their own purposes. This information is tentatively given for reference only and is subjected to changes.