



# GMP, GHP TRAINING IN A LARGE SCALE BISCUIT MANUFACTURING INDUSTRY: AN OVERVIEW

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**ABSTRACT:** The present study examined the extent of knowledge and practices of employee on GMP, GHP in large scale biscuit and cake manufacturing unit. The working personnel engaged in a food manufacturing Industry in India suffer from lack of knowledge on GMP and GHP. The present study aims at importance of the knowledge of workers on GMP, GHP & specific training need of workers working in a large scale Biscuit and cake manufacturing unit and also understanding duration & procedure of training for optimal output. Along with conventional training short duration training with pictures, demonstration should be planned in details.

**Index terms:** HACCP, Food Safety, Quality Control, GMP, GHP, Training

## INTRODUCTION

The World Health Organization (WHO) considers unsafe food as one of the most widespread health problems and an important cause of reduced economic productivity. A large proportion of these can be attributed to contamination of food and drinking water. While most food born diseases are sporadic and often not reported, outbreaks of food borne disease may take one massive proportions. Food contaminations may assumes significant proportion in large scale food processing Industry when food is manufactured in bulk quantity. This is also important for the reputation of the brand and its overall business performance.

A preventive approach to food safety includes **GMP** and **GHP** which ensure that the manufacturers examines every stage of the process, identify the essential ways to control the food safety hazards and makes sure that the process parameters/control measures remain consistent and effective and the final food product is safe and suitable for human consumption. Each firm including biscuit and cake manufacturing unit must develop procedures to ensure that an effective food safety program has been implemented, and that adequate supervision and monitoring and training systems are in place to ensure quality of food.

## REVIEW OF LITERATURE

Food safety establishes minimum GMP for methods to be used and the facilities or controls to be used for, the manufacture, processing, packing or holding of a food to assure that the food is safe, has the appropriate identity, purity and strength, meets quality and purity characteristics[6,9]. HACCP, GMP, ISO, and Codex Alimentations are major food safety and quality systems. GMP provides a high level assurance that food items are manufactured in a way that ensures their safety, efficacy and quality and also gives marketing authority with stability .

## GMP, GHP trainee in food manufacturing Industry

All food processor, food product manufacturers workers in food Industry, (i)General Working personnel and Operators e.t.c and (ii)Key personnel like Quality Officers, packagers, labelers, and distributors,

warehouse/storage facilities keepers should strictly follow GMP and given different regulations of food safety and standards .

### Outline of GMP , GHP

1. The brief outline of the GMP structure for a company is given below .
  - i. Quality assurance—Every industry should have its quality management department.
  - ii. GMP for food, products .
  - iii. Sanitation and hygiene (GHP) –This very important and crucial part of GMP.
  - iv. Qualification and validation.
  - v. Complaints.
  - vi. Product recalls.
  - vii. Self-inspection(SI) and quality audits:(i)Items for SI (ii)SI team(iii)Repetition of SI (iv)SI report (v)Follow-up action (vi)Audit for quality assurance and (vii) Suppliers’ audits and approval.
  - viii. Personnel—In any industry there are two types of personal (i)General Worker and Operator and (ii) Key personnel
  - ix. Training.

### Design and construction of equipments to fulfill GMP regulations and guidelines

The surfaces of equipment which comes in contact with any food in-process items or material should not react with or adsorb the materials which are processed. Equipment should not adversely affect the product through leaking valves, lubricant drips and through inappropriate modifications or adaptations. Equipment should be designed in such a ways that they can be easily cleaned.

### What is GMP/GHP training

Food safety training is a professional training program for employees and supervisors to create awareness about GMP, GHP as well as food safety and hygiene standards. Companies in the food service industry need to conduct this training regularly.

All the working personnel and people involved directly in the food manufacturing and production process must be appropriately trained and given fist hand knowledge in manufacturing and production operations as per given guidelines of GMP /HACCP principles.

### Who should be trained

Training is essential to ensure that each person in this system understands their roles and responsibilities related to the requirements of the GMP regulation and their firm’s procedures to ensure compliance. Different types of training are needed for individuals with different roles and responsibilities. Managers, supervisors, quality control staff and others with overall responsibilities for developing and implementing effective procedures to meet GMP requirements should understand or be aware of all of the GMP requirements and appropriate strategies to meet them. These individuals are likely to need more comprehensive training than production or other working personnel assigned to tasks. In this training, participants are trained on food safety rules, regulations, and policies. The idea is to maintain safety standards through quality control measures.

### Benefit & Effectiveness of training

**Benefit:** Time and inadequate training are cited as reasons why food industry workers do not follow safe food handling practices. In the large scale manufacturing unit with mechanized setup, there should be no excuse for handling food in an unsafe manner. Workers need to know why food safety, Good Manufacturing Practice (GMP), Good Hygiene Practice (GHP) & total quality management is important and the only way to do that is through training. Here are several reasons why it is important to train staff in GMP, GHP practices:

1. **The workers are the ones actually handling food.** Since factory workers are the ones actually handling and involved in manufacture of food, it is important that they do so in a safe manner. This protects both employees and customers from harmful bacteria.
2. **Reduce the risk of food poisoning.** Person-to-person contact is the number 1 method for transfer of harmful bacteria. Workers who are properly trained in safe food handling practices will be less likely to be the source of bacterial contamination.

**3. Training helps with quality control.** GMP,GHP is a huge part of quality control when staffs are properly trained.

**4. Training helps with food production waste.** Less food will be wasted due to spoilage or contamination when staffs are properly trained.

**5. Behavior will change.** The best way to ingrain proper procedures into people is to change their behavior. Training and regularly applying those GMP, GHP training principles will eventually change the way staff handle and look at food to the extent that safe food handling just becomes second nature.

**6. Employees can gain a better appreciation for their jobs.** After so long, preparing food in a mechanized food processing unit can become monotonous, and employees may begin to question why they have to do things a certain way. GMP, GHP training teaches workers why safe food handling is important. Once they realize that they are directly responsible for the health and safety of the customers, their jobs may feel a little less monotonous.

**7. Build up reputation and brand value of the Company.** Well trained factory workers will uplift the quality of end product which will intern build up reputation and brand value of the company which yields in sustained profitability.

**Effectiveness:** In a study by Murlidhar Meghwal, Uday Heddurshetti and Ravikumar Biradar as published in Chapter 1002 P22 Revised by Goyal 14Jan2016 ‘Good manufacturing practices for food processing industries: purposes, principles and practical applications’ it was found that the quality of food processing trainings was found very effective by most of the trainees as 88.8% graded it in very good category. Participants felt that their level of confidence and work efficiency had enhanced during the training.

Some authors including and Bryan et al., 1992, Hwang et al., 2001, Osimani et al., 2011, Santana et al., 2009, and Youn and Sneed (2003), have reported positive association of training protocols with good hygiene practices of trainees, others including Egan et al., 2007, Kwon, 2003 and Ehiri and Morris, 1996, Soares et al., 2012 have reported otherwise. Some of the factors blamed for lack of success in hygiene training were methods used, demographics of trainees and their preparedness to learn, lack of supervision after training, absence of refresher programmes (Gilling, Taylor, Kane, & Taylor, 2001). Adolf and Azis, 2012, Feglo and Sakyi, 2012, equally highlighted the importance of hygiene training in the food industry.

Effective food safety training involve two stages. Firstly, it provides knowledge in a way that develops understanding and a positive attitude. The second stage involves the implementation of the knowledge properly when required. Practice, motivation and effective supervision, especially coaching, should result in the objective being achieved, i.e. the competency of the food handler and implementation of good practice at all times ( Sprenger, 2009).

## TRAINING NEED ASSESMENT AND TRAINING SCHEDULE

Similar survey result in India shows that only 61% of the factory workers use washed and cleaned cloths daily and 23% does not wash their apron daily. 92% personnel do not wash their hand every time before entering into the manufacturing area. 95 % of associated does not know proper hand washing technique. Thus there is a serious lack of understanding of Personal hygiene among workers. In the own admission of the workers about 62 % workers has some knowledge about GMP, GHP. Thus personal Hygiene would be of primary part of training. Further, workers should also understand basic of operations and underlying principles in biscuit and cake manufacturing as without this knowledge they would not understand underlying GMP, GHP and feel confident in their working sphere. They should also know ideal working conditions governing GMP /GHP and what are GMP, GHP requirements in a factory. The training should be of short duration of 20-30 min with practical demonstration. Refresher course must be in place. Strict vigilance must be there to change GMP, GHP habit of working personnel. Such training will make them confident and also guide them the way forward.

## CONCLUSION

As consumers can't always tell whether food products are safe just by looking at them, manufacturers have a tremendous responsibility to provide safe, quality foods to the public. Training to workers and subsequently following GMPs & GHPs rules help to promote quality, ensuring safe products for mass distribution and

subsequent consumption. This increases the likelihood of products being free of dangerous substances or contaminants that could cause harm to consumers which in turn make the food safe. This in turn benefits the company in the long run.

## REFERENCES

1. Asif N. Utilization of vocational training Sialkot region. An impact study of NRSP-Sialkot.NRSP Monitoring Assessment and Planning Section. 2000.
2. Bagchi, Debasis. *Nutraceutical and functional food regulations in the United States and around the world*. Second edition, Department of Pharmacological and Pharmaceutical Sciences, College of Pharmacy, University of Houston, Houston – USA.
3. Cuprasitru T, Srisorrachatr S. and Malai D., “Food safety knowledge, attitude and practice of food handlers and microbiological and chemical food quality assessment of for making merit for monks in Ratchathewi District”, *Asia J. of public health*, **2(1)**, 27-34 (2011).
4. Chahar, Digambar (2014). *Nutraceutical and functional food regulations in the United States and around the World*. In: A volume in Food Science and Technology. Canada. Second edition, pages 55-61.
5. FDA, (1997). *Good Manufacturing Practice (GMP): Guidelines/Inspection Checklist*. February 12, 1997; Updated April 24, 2008
6. FDA, (2010). *Guidance for Industry: Current Good Manufacturing Practice in Manufacturing, Packaging, Labeling, or Holding Operations for Dietary Supplements; Small Entity Compliance Guide*. :([http://www.fda.gov/Cosmetics/GuidanceComplianceRegulatory Information/](http://www.fda.gov/Cosmetics/GuidanceComplianceRegulatoryInformation/))
7. F.L. Bryan *et al.* Hazard and critical control points of vending operations of a railway station and a bus station in Pakistan *Journal of Food Protection* (1992)
8. FDA, (2011). *Proposed Rule Current Good Manufacturing Practice and Hazard Analysis and Risk-Based Preventive Controls for Human Food*. Report #N- 0921 by FDA.
9. Hoffmann, S. (2011). US food safety policy enters a new era. *Amber Waves*,
10. [John E. Ehiri](#) & [George P. Morris](#) Hygiene training and education of food handlers: Does it work? *Ecology of Food and Nutrition* Volume 35, 1996 - [Issue 4](#) Pages 243-251.
11. M.B. Egan *et al.* A review of food safety and food hygiene training studies in the commercial sector *Food control* (2007)
12. Murlidhar Meghwal, UdayHeddurshetti and RavikumarBiradar as published in Chapter 1002 P22 Revised by goyal 14Jan 2016 ‘Good manufacturing practices for food processing industries: purposes, principles and practical applications’.
13. Meena MS, Singh R, Meena HR, Meena BK. Impact assessment of training on food processing and preservation. *Indian Journal of Social Research*. 2012; 53(2):117-122.
14. Mukherjee, P. K., Venkatesh, M. and Kumar, V. (2007). Overview on the development in regulation and control of medicinal and aromatic plants in the Indian system of medicine. *Bol. Latinoam Caribe Plant Med. Aromat.*, 6, 129–136.
15. NHPD, (2006). *Good manufacturing practices: Guidance document*. Natural Health Products Directorate (NHPD), Health Canada.
16. Pierson, M. D. and Corlett, D. A., Eds. (1992). *Principles and guidelines for HACCP*. Van Nostrand Reinhold, New York.
17. S.J. Gilling *et al.* Successful hazard analysis and critical control point implementation in the United Kingdom: understanding the barriers through the use of a behavioral adherence model *Journal of Food Protection* (2001).
18. Sikora, T. (2015). Good manufacturing practice (GMP) in the production of dietary supplements, *Dietary Supplements, Safety, Efficacy and Quality*. In: *A volume in Woodhead Publishing Series in Food Science, Technology and Nutrition*, pages 25–36.
19. Skill Development among Youth under Food Processing Training Programmes Mamta Tiwari<sup>1\*</sup>, Gunjan Sanadya<sup>2</sup> and Khushboo Gupta<sup>21</sup> Directorate of Prioritization, Monitoring and Evaluation, Agriculture University, Kota, Rajasthan, India 2 (Home Science), KVK, Agriculture University, Kota, Rajasthan, India
20. Tiwari M, Singh DK, Tripathi NN, Singh M. *Postharvest management and food processing*. New Delhi: Himanshu Publications. 2016.

21. Ansari-Lari M., Soodbakhsh S. and Lakzadeh L., “Knowledge, attitudes and practices of workers on food hygienic practices in meat processing plants in Fars, Iran”, *Food Control*, **21**, 260-263 (2010).
22. Rennie, D.M., 1994, “Evaluation of food hygiene education”, *British Food J.*, **96(11)**, 20-25 (1994).
23. <http://fda.assam.gov.in> /--Govt of Assam, Health and family welfare. Commissionerate Of Food And Drug Administration.

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