What are Good Manufacturing Practices in Food Industry?

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Process Manufacturing Software

Introduction

Food industry is one of the largest industries not just in India, but also around the world. The sheer enormity of its market size and investments suggest how vast its scope is, covering the agricultural produce, food processors, manufacturers, restaurants & food businesses, and food storage facilities. It is quite natural for an industry of this magnitude to have challenges aplenty. Talking specifically about the food manufacturers, they have plenty to worry about these days. The competition is on an all-time high, the food safety rules have never been more stringent, the retailers are increasingly getting powerful and dictating their terms, the end-consumer has become extremely demanding owing to the newly-found health consciousness, and much more.

These developments have had a massive impact on the food industry and the way food manufacturers operate these days. The manufacturers, being wary of these challenges, are looking to adopt Good Manufacturing Practices (GMP) at their work place in general, and shop floor in particular. These practices are helping them ensure that the products they offer are absolutely safe and adhere to all the safety & quality standards — something an extremely-aware consumer demands these days. In fact, the food processing & packaging units too are being compelled to adopt GMP in order to sustain the competitive advantage as well as meet regulatory compliance, failure to which results in situations like recall seizure, penalty & prosecution.

In this white paper, we will understand what Good Manufacturing Practices are prevailing in the food industry, how & why are they so important to the industry, how an Enterprise Resource Planning (ERP) software and GMP go together, how GMP can be effectively documented & their inspection.

What GMP means?

The Wikipedia page of Good Manufacturing Practices defines them (in Food Industry's perspective) as “practices required in order to conform to the guidelines recommended by agencies that control authorization and licensing for manufacture and sale of food. These guidelines provide minimum requirements that a food product manufacturer must meet to assure that the products are of high quality and do not pose any risk to the consumer or public. The Good manufacturing practices, along with good agricultural practices and good laboratory practices are overseen by regulatory agencies in the United Kingdom, United States, Canada, Europe, China, and other countries.”

In layman's language, GMP are a standard set of principles, preventive measures and hygiene practices which ensure that the food products are consistently produced, handled and controlled in accordance to the quality and safety standards. They are designed to minimize the risks involved in food manufacturing. The GMP guidelines provide guidance for manufacturing, testing, and quality assurance in order to ensure that the food products are safe for human consumption.

Why GMP is important for food manufacturers?

It is pretty simple. GMP are important for food manufacturers in order to produce safe food products. It is the legal and moral responsibility of a food manufacturer to produce food products that are not hazardous for the consumers. Not implementing the GMP can in fact prove costly to the food businesses, as they may have to pay huge penalties for failing to meet the safety standards in absence of GMP.

GMP in food industry

Mentioned below are the GMP that are currently prevalent in the food industry:

1) **Personnel:** People are at the core of several manufacturing tasks at the shop floor. They are involved in the manufacturing process, processing & packaging and hence it is essential to let them know about the GMP at the work place. Some common GMP for the personnel include:
    - Any staff member must not be allowed to work if suffering from any health disorder
    - Every worker should wear clean clothes, gloves, glasses. caps etc. or any other gear which his job requires, and should take care of other necessary precautions
    - The staff involved in the processes should have the basic level of education and should be properly trained to do their job
    - A competent supervisor/manager should be employed to ensure everyone involved in the manufacturing or operations process are following the norms

2) **Production & process control:** There are GMP in place for the production process as well. Check them below:
    - Manufacturing processes should be clearly defined and controlled
    - The raw materials used in production should be thoroughly inspected & segregated before being used in the manufacturing process
    - It should be verified that the raw material should not contain levels of microorganisms
    - A minimum temperature (pre-defined) for frozen food products and hot food products should be maintained to avoid spreading of undesirable microorganisms
    - Filling, assembling, packaging and other operations should be performed in such a manner that the final food product is free from any contamination

3) **Premises:** The GMP guidelines pertaining to plant & premises are as follows:
    - Plant should be located at such a place where external pollutants could be avoided
    - Instructions and procedures should be written in clear and unambiguous language at the work place
    - There has to be sufficient space for the equipment & storage of materials
    - Adequate lighting in the entire facility; including, hand washing area, dressing, locker, rooms, toilet etc.
    - There should also be proper ventilation & waste disposal areas in the premise

4) **Equipment:** GMP for equipment include:
    - All equipment & utensils should be made of good materials and they should be designed in such a manner to be held/carried properly while in operations and could be cleaned easily
    - If not in use then they should be stored in a clean and dry place
    - The use of suitable chemicals within and around the food premises including cleaning chemicals, pest control chemicals and machine lubricants

5) Hygiene conditions & controls: There are proper GMP in place for sanitary conditions at the plant.

They can be as follows:

- The plant and its other physical facilities have to be maintained in a sanitary condition
- The cleaning compounds and the sanitizing agents used in the cleaning and sanitizing procedures should be free from the undesirable microorganisms, or else the food could get contaminated
- The use of pesticides should not be permitted during food manufacturing and they shall only be allowed to be used in the plant under precautions and restrictions so that the food does not get contaminated
- All food contact surfaces like; utensils, equipment should be cleaned frequently (dry & sanitary condition) to protect against the contamination of food
- There has to be proper water supply from an adequate source of the required water quality
- The sewage disposal shall be made into an adequate sewerage system or disposal through other adequate means
- There has to be a facility of toilet with proper water supply for the employees and hand washing space with running water in compliance to the regulations

6) Transportation, receiving & storage: The GMP for transportation, receiving & storage are:

- A proper storage space and the conditions to maintain a particular temperature & humidity level should be well taken care of to avoid any contamination & adulteration
- There should be pre-defined instructions in place for the food carriers & approved suppliers
- There should be monitoring procedures in place for every shipment
- The manufacturing shall be conducted under such conditions and controls as are necessary to minimize the growth of microorganisms

7) Complaints & recall handling: The GMP related to complaints & recall handling can be as follows:

- There shall be a well-designed GMP complaint handling system and recall system that can be readily implemented to tackle complaints, and if necessary, recall the entire batch of that product from the market
- A well-defined complaints log SOP has to be in place
- A recall template & recall notice is a must
- There should be an allergen alert notice

8) Machinery maintenance: Daily/weekly cleaning and sanitizing of labeling machine and other equipment should be done to reduce microbial contaminants in the packaging room and keep machine in good working condition. This should be done under supervision of a trained personnel.

9) Packaging & labeling: Some common GMP related to packaging & labeling are:

- Visual examination of the supplier's invoice, guarantee, or certification, and each immediate container or grouping of immediate containers, in a shipment
- Quality control personnel must review and approve the results of any tests or examinations conducted on the packaging and labels
- Each unique lot within each unique shipment of packaging and labels should be identified in a manner that allows tracing the lot to the supplier, the date received, the name of the packaging and label, the status of the packaging and label (e.g., quarantined, approved, or rejected), and to the dietary supplement that is being distributed
- Packaging and labels should be held under conditions that will protect against contamination and deterioration, and avoid mix-ups

GMP benefits

GMP have been a win-win for all! Their benefits to the manufacturers, processors and packaging units are:

- Help in avoiding contamination
- Help in avoiding mix-ups & errors
- Help with record maintenance
- Ensure sanitation, personal qualification, cleanliness, equipment verification, process validation, complaint handling etc.
- Ensure consumer satisfaction
- Ensure compliance with the food-safety guidelines

They also have benefits to the end consumers, as the GMP safeguard them from poor quality & hazardous products.

Documenting GMP

For effective implementation of GMP within the various food businesses, it is recommended to document all the procedures on how the food businesses are going to implement relevant GMP. Also it is equally important to maintain all the necessary records to support any GMP that have been implemented.

GMP inspection

The regulatory agencies are authorized to conduct unannounced inspections. These inspections have to be conducted as per the relevant laws prevailing in respective countries at a "reasonable time". However, to ensure the effective implementation of the GMP, it is advisable for the food businesses to undertake their own internal GMP inspections. This generally can involve comprehensive review of the plant visually to see if it is complying with customer expectations and regulatory requirements. The records of any such GMP inspection undertaken should be kept as evidence in a third-party certification audit. Any issues identified during such inspection should be quickly rectified and requisite arrangements should be made to avoid its reoccurrence in the future.

How ERP and GMP go together?

An ERP solution can have a significant impact on ensuring compliance with GMP are met easily, paving way for quality products being delivered to customers. An ERP solution can effectively handle the following:

- **Material movement as per cGMP:** An ERP can provide Bin Management and lot statuses to govern movement of materials along the supply chain as per cGMP norms. Supplier management and cGMP material purchase from item specific vendors only
- **Batch tickets:** A perfect ERP solution can provide individual batch tickets, including QC tests for each phase of production ensuring the strictest QC. It also provides archived batch tickets, which come in handy in cases of audit, as they provide a properly documented trail of process control
- **Formula management:** ERP allows tracking revisions to formulas and provides an audit trail throughout the revisions. It can also scale those formulas to meet current demand levels, optimizing ingredient usage, tracking all ingredient costs and ensuring compliance
- **Quality Control (QC) testing:** The best-fit ERP solution sets up QC tests per cGMP norms like quarantine, release and reject. Captures batch manufacturing activities and electronic execution of SOPs with date and time stamping for data integrity. It prevents failed items from entering the manufacturing process
- **Document management and regulatory reporting:** An ERP solution allows managing documents from archiving Standard Operating Procedures (SOPs) to providing proper shipping documentation by batch, customer or product

Thus, the right ERP system provides the necessary process control to ensure quality and GMP compliance. BatchMaster ERP is one such ERP, which comes loaded with all the above mentioned functionalities. A specialist in offering micro-verticalized solutions, BatchMaster caters to the complex needs of the process manufacturers. To know more about its ERP products, visit the website www.batchmaster.co.in or write to us at sales@batchmaster.co.in.

Who We Are:

BatchMaster Software is one of the market leaders in offering enterprise software solutions for the process manufacturing industries. With an in-depth industry analysis, we clearly understand the unique industry challenges and help them address those challenges through our industry-specific ERP solution.

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