
UNIT 2 FOOD SAFETY AND QUALITY REQUIREMENTS

Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Global Considerations
- 2.3 Food Safety and Quality Requirements
- 2.4 Voluntary Requirements
- 2.5 Legal Requirements
- 2.6 Some of the Major Mandatory Provisions Prescribed in Prevention of Food Adulteration (PFA) Act, 1954 and Rules, 1955
- 2.7 Mandatory Labelling Provisions
- 2.8 Ministries/Departments Responsible for Ensuring Food Safety and Quality in India
- 2.9 Let Us Sum Up
- 2.10 Key Words
- 2.11 Answers to Check Your Progress Exercises
- 2.12 Suggested Reading

2.0 OBJECTIVES

After reading this unit, we shall be able to understand the Food Safety and Quality requirements in relation to:

- 1 protecting public health by reducing the risk of foodborne illness;
- 1 protecting consumers from unsanitary, unwholesome, mislabelled or adulterated food; and
- 1 contributing to economic development by maintaining consumer confidence in the food system and providing a sound regulatory foundation for domestic and international trade in food.

2.1 INTRODUCTION

The terms 'food safety' and 'food quality' can sometimes be confusing. Food safety refers to the steps taken to prevent or prohibit all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer. It is not negotiable. Quality includes all attributes that influence a product's value to the consumer. This includes negative attributes such as spoilage, contamination with filth, discoloration, off-odours and positive attributes such as the colour, flavour and texture of the food. This distinction between safety and quality has implications for public policy and influences the nature and content of the food control system most suited to meet predetermined national objectives.

Food control is defined as a mandatory regulatory activity of enforcement a certain provisions by national or local authorities to provide protection to the consumer and ensure that all food during production, handling, storage, processing, and distribution are safe, wholesome and fit for human consumption; conform to safety and quality requirements; and are honestly and accurately labelled as prescribed by law.

The foremost responsibility of food control authority is to enforce the food law(s) protecting the consumer against unsafe, impure and fraudulently presented food by prohibiting the sale of food not of the nature, substance or quality demanded by the purchaser. Confidence in the safety requirements of the food supply is an important requirement for consumers. Foodborne disease outbreaks involving agents such as *Escherichia coli*, *Salmonella* and chemical contaminants highlight problems with food safety and increases public anxiety and concern that modern farming systems, food processing and marketing do not provide adequate safeguards for public health. Factors which contribute to potential hazards in food include improper agricultural practices; poor hygiene at all stages of the food chain; lack of preventive controls in food processing and preparation operations; misuse of chemicals; contaminated raw materials, ingredients and water; inadequate or improper storage, etc.

Specific concerns about food hazards have usually focused on:

- 1 Microbiological hazards;
- 1 Pesticide residues, antibiotic residues and heavy metal;
- 1 Misuse of food additives;
- 1 Chemical contaminants, including biological toxins; and
- 1 Adulteration.

The list has been further extended to cover genetically modified organisms, allergens, and growth promoting hormones used in the production of animal products. Consumers expect protection from hazards occurring along the entire food chain, from primary producer through consumer (often described as the *farm-to-table* continuum). Protection will only occur if all the stages in the food chain operate in an integrated way, and food control systems address all stages of this chain. As no mandatory activity of this nature can achieve its objectives fully without the cooperation and active participation of all stakeholders *e.g.* farmers, industry, and consumers, the term *Food Control System* is used to describe the integration of a mandatory regulatory approach with preventive and educational strategies that protect the whole food chain. Thus an ideal food control system should include effective enforcement of mandatory requirements, along with training and education, community outreach programmes and promotion of voluntary compliance. The introduction of preventive approaches such as the Hazard Analysis Critical Control Point System (HACCP), have resulted in industry taking greater responsibility for and control of food safety risks. Such an integrated approach facilitates improved consumer protection, effectively stimulates agriculture and the food processing industry, and promotes domestic and international food trade.

2.2 GLOBAL CONSIDERATIONS

a) International Trade

With an expanding world economy, liberalization of food trade, growing consumer demand, development in food science and technology, and improvement in transport and communication, international trade in fresh and processed food will continue to increase. Access to countries towards food export markets will continue to depend on their capacity to meet the regulatory requirements of importing countries. The Creation and sustainment of demand for their food products in world markets depend on building the trust and confidence of importers and consumers in the integrity of their food systems. With the agricultural production being the focal point of the economies of most developing countries, the above discussed food protection measures have become increasingly essential.

b) Codex Alimentarius Commission

The Codex Alimentarius Commission (CAC) is an intergovernmental body that coordinates food standards at the international level. Its main objectives inter-alia, are to protect the health of consumers and ensure fair practices in food trade. The CAC has proved to be most successful in achieving international harmonization in food quality and safety requirements. It has formulated international standards for a wide range of food products and specific requirements covering pesticide residues, food additives, veterinary drug residues, hygiene, food contaminants, labelling etc. These Codex recommendations are used by respective governments to determine and refine policies and programmes under their national food control system. More recently, Codex has embarked on a series of activities based on risk assessment to address microbiological hazards in foods, an area previously unattended. Codex work has created worldwide awareness of food safety, quality and consumer protection issues, and has achieved international consensus on how to deal with them scientifically, through a risk-based approach. As a result, there has been a continuous appraisal of the principles of food safety and quality at the international level. There is increasing pressure for the adoption of these principles at the national level.

c) SPS and TBT Agreements

The conclusion of the Uruguay Round of Multilateral Trade Negotiations in Marrakech led to the establishment of the WTO on 1 January 1995, and to the coming into force of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT). Both these Agreements are relevant in understanding the requirements for food protection measures at the national level, and the rules under which food is traded internationally. The SPS Agreement confirms the right of WTO member countries to apply measures to protect human, animal and plant life and health. The Agreement covers all relevant laws, decrees, regulations; testing, inspection, certification and approval procedures; and packaging and labelling requirements directly related to food safety. Member States are asked to apply only those measures for protection that are based on scientific principles, only to the extent necessary, and not in a manner which may constitute a disguised restriction on international trade. The Agreement encourages use of international standards, guidelines or recommendations where they exist, and identifies those from Codex

(relating to food additives, veterinary drugs and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practices), to be consistent with provisions of SPS. Thus, the Codex standards serve as a benchmark for comparison of national sanitary and phyto-sanitary measures. While it is not compulsory for member states to apply Codex standards, it is in their best interests to harmonize their national food standards with those elaborated by Codex.

The TBT Agreement requires that technical regulations on traditional quality factors, fraudulent practices, packaging, labelling etc. imposed by countries will not be more restrictive on imported products than they are on products produced domestically. It also encourages use of international standards.

2.3 FOOD SAFETY AND QUALITY REQUIREMENTS

In the food industry several quality assurance systems (QA System) and norms have been developed, which can be used as guidelines for development of a quality system to assure the established quality requirements. Common QA- systems in the food are the Good Practices (e.g.), Good Manufacturing Practices (GMP), Good Hygienic Practice (GHP) etc.) HACCP (Hazard Analysis Critical Control Points), ISO (International Organisation for Standardization) and combined systems such as BRC (British Retail Consortium). The QA-system differ in their quality focus (e.g. food safety, supply guarantee, total quality) and their approach.

With respect to the approach, GMP and HACCP mainly focus on assurance by technological requirements, whereas ISO is more focused on management requirements.

2.4 VOLUNTARY REQUIREMENTS

(a) Good Practices (GP)

Good practices (GP) involves guidelines that are aimed at assuring minimum acceptable standards and conditions for processing and storage of products. The GP's have no legal status but are often advised as basic condition for other systems. There are several types of GP's that are globally described in the next section.

- 1 Means, which includes prescriptions on building equipments and Utilities.
- 1 Materials, which refers to requirements for raw materials and supporting materials.
- 1 Methods, which includes standard operating procedures (SOP) and work instructions.
- 1 People, which refers to knowledge and experience of employees (e.g. job description, training programmes).

GP codes, have no legal status but are rules of self-discipline. However, often elements of GP codes have been enacted in national regulations on food hygiene.

Moreover, when the GP code is a branch-code, it can be enforced (formal or informal) by the branch to implement GMP codes for animal feed production. However, various quality programs and codes for production of meat, milk and eggs, stipulate that suppliers of animal feed must produce according to GMP. GP codes must be applied in view of current national regulations, which means that legislative norms and requirements must be taken into account.

(b) Good Manufacturing Practices codes

There is no acknowledged univocal guidelines for the structure of GMP codes. However, some topics, commonly included in general GMP codes for food, are personnel, building, equipment and utensils, manufacturing process, storage and distribution. Depending on the comprehensiveness of the GMP's additional topics are included like, recovery of materials, documentation, complaint and recall procedures, labelling, and /or infestations control. The following aspects are usually included in the general GMP codes:

- 1 Appropriate qualified personnel.
- 1 Adequate premises and space.
- 1 Correct and adequately maintained equipment.
- 1 Specified raw materials, packaging materials and (operational) procedure.
- 1 Cleaning schedules.
- 1 Adequate technical, administrative and maintenance support.
- 1 Suitable storage and transport facilities.
- 1 Hygienic aspects of food production, which includes personnel hygiene, clean ability of equipments, utensils, and buildings use of sanitizing agents, equipments design, pest control and all kinds of protection measures against microbial, physical and/or chemical contamination. For example, with respect to hygiene of personnel, measures must be taken for disease control and cleanliness (e.g. wearing special clothing, gloves and caps, washing hands, removing objects like rings, watches, no drinking and eating on the production floor etc.) Moreover, personnel shall be educated and trained on all hygiene aspects.
- 1 Requirements for raw materials, ingredients, intermediate products and finished products like compliance to specifications, process and storage conditions (e.g. temperature, separate (storage) locations) and identification (by e.g. labelling).
- 1 Control and inspections with established procedures for sampling and analyses, use of accurate and checked measuring equipment with experienced staff.
- 1 Keeping of records and documentation for control and traceability aims. Management topics and often mentioned, like assessment of authorities and responsibilities for specific task.

(c) ISO- Series

The International Organisation for Standardisation (ISO) is a world-wide federation

of international standards bodies, which was founded in 1947. The major objectives of ISO is the promotion of Standardisation and related activities throughout the world to prevent technical barriers to trade. The preparation of the International Standards is carried out through ISO Technical Committees (ISO/TC). ISO standards are voluntary, unless a business sector makes them a market requirements, or unless a government issues regulations making their use obligatory. The main part of the adopted standards is concerned with health, safety or environmental aspects.

International Organization for Standardization (ISO) has published ISO 22000:2005 - Food Safety Management Systems – Requirements for any Organization in the Food Chain, with a view to provide framework for internationally harmonized requirements for systematically managing safety in food supply chains. Consequent to publication of ISO 22000 on BIS has adopted this International Standard as IS/ISO 22000:2005. This standard integrates the principles of Hazard Analysis and Critical Control Point (HACCP) system developed by Codex Alimentarius Commission and combines the HACCP plan with Prerequisite Programmes (PRPs) and is *fully compatible with Quality Management Systems (QMS) as per ISO 9001: 2000*.

(d) Hazard Analysis Critical Control Points (HACCP)

Hazard Analysis Critical Control Point (HACCP) is a systematic approach to the identification, evaluation and control of those steps in food manufacturing that are critical to product safety. It is an analytical tool that enables management to introduce and maintain a cost-effective, ongoing food safety programme. The basic objective of the HACCP concept is assuring production of safe food products by prevention instead of by quality inspection.

The basis for the HACCP system originated from the need for safe food supply for manned space flights by the NASA (National Aeronautics and Space Administration) in 1959. They required food with a quality level as close to 100% assurance as possible, because any illness or injury in space might end in an aborted or catastrophic mission. The quality control at that time could not give that high level of assurance. Therefore, a system was developed in collaboration with Pillsbury company that participated in the space program. A system that controlled raw materials, the process, the environment, storage and distribution, beginning as early in the system as possible. This way of control combined with records keeping had to ensure that the final packaged product did not require any other testing for monitoring purposes.

There are different ways for companies to comply with the legislation on food safety, i.e. application of branch hygiene codes or development of one's own HACCP plan. Branch organizations are allowed to develop hygiene-codes based on the HACCP principles. Companies, which have processes similar to the ones described in the branch hygiene-code can confine to application of the rules described in that code. If companies, processes deviate from branch hygiene-code then the additional processes must be evaluated according to the HACCP principles. Branch organizations can also develop framework-codes, which are more global than the hygiene-codes. The framework-codes can be helpful in the development of a one's own HACCP plan.

(e) Eurep – GAP

Due to several problems and crisis in the agri food production chain (like SBE, dioxin but also use of genetic crops) new initiatives have been taken to assure quality of primary products. In 1998 retailers started with the initiative Eurep-GAP, i.e. European Retailers Working Group- Good Agricultural Practice. Eurep-GAP puts demands on the safe production of vegetable produce. The following aspects are described in this system:

- 1 A minimum demand is the assurance of safe production;
- 1 Growers are stimulated to reduce use of pesticides;
- 1 Growers must use an Integrated Crop Management (ICM), whereby land use and production must be balanced while considering environmental impact;
- 1 Growers must take care of natural resources, environment, employees and human health; and
- 1 A tracing system must be implemented which enables distribution channels to trace back origin of vegetable products and fruit [Fresh Produce Traceability Project (FPTP)].

To obtain a Eurep-GAP certificate a grower must comply with 150 control points and 100 other action points on the list. The certificate must be continued yearly. The ultimate objective of Eurep-GAP is to grow to a world-wide acknowledged standards, therefore it will comply as much as possible with other initiatives like the Global Food Safety Initiative (GFSI). In addition, the system will be extended for animal produce as well.

(f) British Retail Consortium (BRC)

The British Retail Consortium (BRC) or the International Technical Standards for Food Suppliers (ITS Food) is in principle a technical standards for companies supplying private labelled food products. In the nineties, the BRC was founded as a reaction to the increased number of discount retailers (using private labels) in combination with poor economic respective, in the UK. Since, profit margins were reduced there was less money for quality management activities. Therefore, the BRC:

- 1 Developed clear criteria for the assessment of private label suppliers;
- 1 Contracted out auditing of these suppliers to a third party inspection; and
- 1 So aimed to cost reduction for retailers as well as suppliers.

A major advantage of the BRC guidelines is that there is more clarity for suppliers of private labels, there is only one inspection standards and a supplier can use that standards for all retailers and so reduce auditing cost.

(g) Global Food Safety Initiative (GFSI)

Last but not the least, we would like to mention the Global Food Safety Initiative (GFSI). The task force has been initiated as a reaction to the loss of consumers trust in food production. The task force consists of 38 quality managers from corresponding retailers, whereby all continents are presented. They have defined four priorities including:

- 1) Criteria to evaluate available and new standards, i.e. the key elements;
- 2) Development of an international Early Warning System;
- 3) Communication to all involved parties including consumers; and
- 4) Development of partnerships between government and food industry.

Check Your Progress Exercise 1



Note: a) Use the space given below for your answers.

b) Check your answers with those given at the end of the unit.

- 1) What is food control?

.....
.....
.....
.....

- 2) What are the main objectives of CAC?

.....
.....
.....
.....

- 3) Give full forms of SPS and TBT?

.....
.....
.....
.....

2.5 LEGAL REQUIREMENTS

There are a number of food laws being implemented by various Ministries/ Departments in the country, which laid down mandatory requirements for ensuring food safety and quality. These are primarily meant for two purposes namely (1) Regulation of Specifications of Food and (2) Regulation of Hygiene Condition of Processing/Manufacturing. The details of various food laws in operation in India which prescribe various food quality and safety requirements are as under:

a) Prevention of Food Adulteration Act, 1954 and Rules 1955

This Act was enacted in the year 1954 with a view to make provisions for prevention of adulteration of the food. The administration of this Act is the responsibility of the Directorate General of Health Services, Ministry of Health & Family Welfare. The provisions of this Act are mandatory and contravention of the Act and Rules made there under can lead to fine and imprisonment. This Act is discussed at length in a separate unit.

b) Agriculture Produce (Grading & Marking) Act, 1937

This Act is commonly known as AGMARK and is voluntary in nature. The Act lays down the specifications for various agricultural commodities including some processed foods. The Directorate of Marketing and Inspection (DMI) under Ministry of Agriculture is administering this Act.

c) Bureau of Indian Standards (BIS) Act, 1986

This Act is administered by Department of Consumers Affairs, Ministry of Food, Consumer Affairs and Public Distribution. BIS laid down Standards for various items including raw and processed food items. These standards are voluntary in nature. Manufacturers complying with these standards can obtain “ISI” mark that can be exhibited on product packages. BIS certification has been made mandatory through provisions of Prevention of Food Adulteration Act 1954 and Rules for certain food items like food colors, additives, mineral water, packaged drinking water etc. A list of Food Products under mandatory certification by BIS is given below:

S. No.	Parent Act, Rules, Regulations	Title of the QC Order	QC Order/ Notification	Implementing Authority
I	Prevention of Food Adulteration Act, 1954	<i>Prevention of Food Adulteration (amendment) Rules, 1984</i>	<i>Ministry of Health and Family Welfare, Dept. of Health, Notification G.S.R. No. 550(E) dt. 4 July 1995</i>	<i>Food (Health) Authority of the State</i>
1.	IS 1165	Milk powder		
2.	IS 1166	Condensed milk, partly skimmed and skimmed condensed milk		
II	Prevention of Food Adulteration Act, 1954	<i>Prevention of Food Adulteration (fifth amendment) Rules, 1991</i>	<i>Ministry of Health and Family Welfare, Dept. of Health, Notification G.S.R. No. 257(E) dt 3 May 1991</i>	<i>Food (Health) Authority of the State</i>
3.	IS 1656	Milk-cereal based weaning foods		
III	Prevention of Food Adulteration Act, 1954	<i>Prevention of Food Adulteration Rules</i>	<i>Ministry of Health and Family Welfare, Dept. of Health, Notification G.S.R. No. 257(E) dt 3 May 1991 and G.S.R. No. 147(E) dt 14 March 1997</i>	<i>Food (Health) Authority of the State</i>
4.	IS 11536	Processed cereal based complementary foods for infants		
IV	Prevention of Food Adulteration Act, 1954	<i>Prevention of Food Adulteration Rules</i>	<i>Ministry of Health and Family Welfare, Dept. of Health, Notification G.S.R. No. 41(E) dt 29 01 1997</i>	<i>Food (Health) Authority of the State</i>
5.	12176	Sweetened ultra high temperature treated condensed milk		
6.	13334(Part 1)	Skimmed milk powder, standard grade		
7.	13334(Part 2)	Skimmed milk powder, extra grade		
8.	14542	Partly skimmed milk powder		

V	Prevention of Food Adulteration Act, 1954	<i>Prevention of Food Adulteration Rules</i>	<i>Ministry of Health and Family Welfare, Dept of Health, Notification G.S.R. No. 147(E) dt 14 03 1997</i>	<i>Food (Health) Authority of the State</i>
9.	14433 (Part 1)	Infant milk substitute, milk protein based		
VI	Prevention of Food Adulteration Act, 1954 (37 of 1954) Sec 23	<i>Prevention of Food Adulteration (6th amendment) Rules 2000</i>	<i>Ministry of Health & Family Welfare, GSR No. 759(E) Dt. 29 September 2000</i>	<i>Food (Health) Authority of the State</i>
10.	IS 13428	Packaged Natural Mineral Water		
VII	Prevention of Food Adulteration Act, 1954 (37 of 1954) Sec 23	<i>Prevention of Food Adulteration (7th amendment) Rules 2000</i>	<i>Ministry of Health & Family Welfare, GSR No. 760(E) Dt. 29 September 2000</i>	<i>Food (Health) Authority of the State</i>
11.	IS 14543	Packaged Drinking Water (Other than Packaged Natural Mineral Water)		
VIII	Essential Commodities Act, 1955	<i>Solvent Extracted Oil, De-oiled Meals and Edible Flour (Control) Order, 1967</i>	<i>Dept. of Civil Supplies, Directorate of Vanaspati</i>	<i>Vegetable Oil Products Controller of India</i>
12.	IS 3470	Hexane, Food grade		
IX	The Infant Milk Substitutes, Feeding Bottles and Infant Foods (regulation of production, supply and distribution), Act 1992	The Infant Milk Substitutes, Feeding Bottles and Infant Foods (regulation of production, supply and distribution), Rules 1993	<i>Department of Women and Child Development, Ministry of Human Resource Development, GSR No. 527(E) Dt. 31 July 1993</i>	<i>Food (Health) Authority of the State</i>
13.	IS 14625	Plastic Feeding Bottles		

d) The Standards of Weights and Measures Act 1976 -(Packaged Commodities Rules , 1977)

This Act is administered by Department of Consumer Affairs, Ministry of Food, Consumer Affairs and Public Distribution. This Act establishes standards of Weights and Measures, to regulate the packaged commodities that are sold or distributed by Weight, Measure or number. This Act is mandatory in nature.

e) Environment Protection Act 1986 and Rules 1989

This Act is administered by Ministry of Environment and Forests. Provisions of Act are mandatory in nature. As per the rules framed in 1989, food stuffs, ingredients in food stuffs and additives, including processing aids containing or consisting of genetically modified organisms or cells shall not be produced, sold, imported, exported, stored, transported except with the prior approval of the Genetically Engineering Approval Committee (GEAC).

f) Export (Quality Control and Inspection) Act, 1963

Export Inspection Council under Ministry of Commerce implements this Act. The Act has given power to the Government of India to notify the commodities that shall be brought under compulsory enforcement of quality control and inspection or both, prior to exporting the notified commodity.

g) Other Acts and Orders

Several other Acts and Orders such as Tea Act, 1953, Coffee Act, 1942, Spices Act, 1986 etc. have been enacted to control quality of food items.

h) Essential Commodities Act, 1955

A number of quality control orders have been issued under Essential Commodities Act, 1955 such as Fruit Products Order 1955, Milk and Milk Products Order 1992, Meat Food Product Order 1973 and Vegetable Oils Control Order etc. These orders are mandatory and primarily meant for regulating the hygiene conditions. (Please refer Unit 4, Course 3, Block 1 for details)

i) Fruit Products Order, 1955

Fruit Products Order, 1955 promulgated under section 3 of the Essential Commodities Act, 1955 aims at regulating sanitary and hygienic conditions in the manufacturing of fruit and vegetable products. This is administered by the Ministry of Food Processing Industries through the Directorate of Fruit & Vegetable preservation at New Delhi. The Order is mandatory in nature and all Fruit & Vegetable processing units are required to obtain FPO (Fruit Product Order) licences under this Order.

ii) Meat Food Product Order, 1973

This is administered by the Ministry of Food Processing Industries. This Order controls production, quality, and distribution of raw and processed meat products. The provisions of this order are mandatory.

iii) Solvent Extracted Oil, De-oiled Meal, and Edible Flour (Control) Order, 1967- Directorate of Vanaspati, Ministry of Food, Consumer Affairs & Public Distribution

This order is also implemented by Department of Food and Public Distribution through Directorate of Vanaspati, Vegetable Oils and Fats. This Order was also promulgated to regulate production, sale and stock of solvent extracted oil, de-oiled meal and edible flour manufactured from de-oiled meal.

iv) Milk And Milk Products Order (MMPO), 1992

This order is mandatory in nature and administered & implemented by Department of Animal Husbandry and Dairying, Ministry of Agriculture. This Order regulates production, supply, distribution of milk and milk products throughout the country.

v) The Vegetable Oil Products (Regulation) Order, 1998

This order is regulated by the Directorate of Vanaspati, Vegetable Oils and fats, Ministry of Food, Consumer Affairs & Public Distribution.

This order is implemented by Department of Food and Public Distribution through Directorate of Vanaspati, Vegetable Oils and fats. “Vegetable Oil Products” include refined edible oils, vanaspati, margarine, bakery shortening, fat spread including blended edible oils with refined edible oils as one of the components.

vi) Edible Oils Packaging (Regulation) Order, 1998

This order is also implemented by the Department of Food and Public Distribution through Directorate of Vanaspati, Vegetable Oils and fats to ensure availability of safe and quality edible oils in packed form.

2.6 SOME OF THE MAJOR MANDATORY PROVISIONS PRESCRIBED IN PREVENTION OF FOOD ADULTERATION (PFA) ACT, 1954 AND RULES, 1955

The Act does not just specify general standards for each category of products, rather, it lays down individual standards for most of the common food products being manufactured in India and also specify the use of various ingredients and additives individually for each product. Some of the requirements has been illustrated below:

1. Use of Colours

- 1 Natural colours can be used wherever permitted;
- 1 Very few synthetic colors or their mixtures are allowed to be used and those also in specified quantities in limited food items like ice cream, milk lollies, frozen desert, flavored milk yogurt, ice cream mix powder, biscuits including biscuits wafer, pastries, cakes, confectionery certain canned fruits and canned fruit products including jellies, jam, marmalade, candied crystallized or glazed fruits, non-alcoholic carbonated and non-carbonated ready-to-serve synthetic beverage etc;
- 1 Addition of all inorganic matters and pigments is prohibited in this Rule except titanium dioxide in chewing Gum.

2. Use of Flavors

- 1 Use of natural flavoring substances and artificial flavoring substances and nature identical substances are defined and listed, which can be used in different food products;

- 1 The flavoring agents may contain permitted anti-oxidants, emulsifying and stabilizing agents and food preservatives; and
- 1 Monosodium glutamate may be added to any article of food under proper label declaration and total glutamate contents should not be more than one per cent.

3. Use of Artificial Sweeteners

- 1 Use of Artificial sweetening agents saccharin sodium, Aspartame, and Acesulfame is permitted only in a few food products like, carbonated water, soft drink concentrates, supari (scented betel nut) masala (a type of mouth freshener also used as an ingredient in Betal leaves).

4. Use of Preservatives

- 1 Class I Preservatives i.e. natural preservatives and like can be added without any restriction;
- 1 Only a few class II preservatives are allowed and can be used according to individual standards;
- 1 Use of combinations of more than one Class II preservatives is prohibited; and
- 1 The preservatives and the food items in which they can be added and the prescribed limit for each in each product.

5. Anti-oxidants, Anti-caking Agents, Emulsifying and Stabilizing Agents, Anti-foaming agents, Sequestering and Buffering Agents.

- 1 Specific additives under each category are prescribed for specific food items and can be used only in those specific groups, in concentration prescribed for each such group.

6. Poisonous Metals, Crop Contaminants and naturally Occurring Substances

- 1 Specification on maximum limits of poisonous metals in each type of food products are provided.
- 1 The MRLs have been provided for aflatoxins and other natural occurring toxic substances.

7. Special declarations are also required to be made for some other specific products such as mixed spices, ice cream, etc. containing starch, fortified salt surface treated hard cheese, fluid milk etc.

8. Prohibitions on certain food items:

There are prohibitions on the sale of the certain items like:

- 1 Cream, which has not been prepared from milk or contains less than 25% milk fat.
- 1 Skimmed milk as milk.

- 1 Turmeric containing any other substance.
- 1 Curd not prepared from milk.
- 1 Mixtures of two or more edible oils.
- 1 Coffee with any substance other than chicory.
- 1 Coating food articles with mineral oil etc.

THE REGULATIONS GOVERNING IMPORT OF FOOD PRODUCTS

Apart from complying with all the domestic requirements, the importers of food products also need to compulsorily register with the Weights and measures Authority.

EXIM policy prohibits the import of beef in any form and import of products containing beef in any form. All consignments of processed food products including edible oils, imported in bulk, shall carry a declaration from the concerned exporter on the shipping documents that the consignment does not contain beef in any form. All consignments of edible products, imported in consumer packs shall carry a declaration on the label of the package that the product does not contain beef in any form.

Check Your Progress Exercise 2

Note: a) Use the space given below for your answers.

b) Check your answers with those given at the end of the unit.

1) What are Mandatory and Voluntary requirements?

.....
.....
.....
.....

2) Differentiate between Standards and Provisions?

.....
.....
.....
.....

2.7 MANDATORY LABELLING PROVISIONS

There are various labelling requirements under different laws with different objectives.

a. Weights and Measures (Packaged Commodities) Rules 1977:

As per the provisions of this rule, the following details must be provided in the label of the packaged commodities:

- 1 Name and address of the manufacturer and packer/importer.
- 1 Generic or common name of the commodity packed.
- 1 Net quantity in terms of standards unit of weights and measures. If the equivalent in terms of standards unit shall be declared by the importer.
- 1 Maximum retail sale price at which the commodity in packaged form may be sold to the ultimate consumer. This price shall include all taxes, local or otherwise, freight transport charges, commission payable to dealers, and all charges towards advertising, delivery, packaging, forwarding and the like, as the case may be.
- 1 The size of the principal display panel is specified.

b. Environment Protection Act 1986 implementing Rules for the manufacture, use / import and storage of Hazardous Microorganisms, Generically Engineered Organisms or Cells.

- 1 As per this Rule, the prior approval of the Genetic Engineering approval Committee is required for imports, export, transport, manufacture, process, use or sale of any hazardous microorganisms or processes, in which genetically engineered organisms, or cells are generated or used, the above activities cannot be carried out without the prior approval of the committee.
- 1 All food stuffs, ingredients in food stuffs and additives, including genetically modified organisms or cells shall not be produced, sold, imported or used except with the prior approval of the Genetic Engineering Approval Committee.

c. Prevention of Food Adulteration Act 1954

The General provision for all products:

- 1 The labels of the packaged commodity should not contain false statements.
- 1 All packaged food should bear name and complete address of the manufacturer, packer, vendor and importer.
- 1 Any food article manufactured outside India but packed or bottled in India, the package containing such food article shall also bear on the label, the name and complete address of the importer and premises of the packing/bottling in India.
- 1 Name of the ingredients in descending order of composition.
- 1 Net weight or volume.
- 1 Distinctive batch number or lot number.
- 1 Month and year of packing.
- 1 The symbol of irradiation and licence number (irradiation is allowed only in few select commodities).
- 1 At least one of the languages used for declarations on the label should be English or Hindi.

- 1 Food claimed to be enriched with the nutrients like minerals, proteins, vitamins should give the quantities of such additions.
- 1 Packaged labels and advertisements of Edible oils and fats should not use any exaggerated expressions like “super Refined’ Extra Refined’ Micro Refines, Double Refined’ anti cholesterol saturated Fat free etc.
- 1 All retail food packages should carry a declaration on the label of the package indicating the month and year in capital letters up to which the product is the best for consumption.
- 1 For packages of all types of milk, bread Indian ethnic snacks which have short shelf life like dhaokla, bhelpuri, khoa, paneer etc. pizza, doughnuts and uncanned packages of fruits, vegetables, meat, fish, it is mandatory to print the best before date along with month and year. (Refer Unit 1 Course 3, Block 1 for details)

d. Specific Requirements

Use of Color

Any food items using extraneous coloring matter whether natural or synthetic should declare on the label: CONTAINS PERMITTED NATURAL/AND SYNTHETIC COLORS”. Very few coloring materials are allowed and that, too in limited items.

Use of Flavor

When an extraneous flavoring agent (only those allowed under Rule 63) is added in any food products it has to be declared on the label as “ CONTAINS ADDED FLAVOR”

Use of MSG

Every advertisement and packages containing added MSG, shall carry a declaration on ‘NOT RECOMMENDED FOR INFANTS BELOW 12 MONTHS” in the prescribed format.

Additional Label Requirements for Various Specific Food Articles have been mentioned in this Rule.

A few additional label requirements have been mentioned in the PFA Rules for specific food articles.

Infant Milk Substitute and Infant foods

- 1 Mandatory labelling, like declaration, “Mother’s milk is best”, “to be sold only under the advice of a health worker” etc.
- 1 The containers of infant milk substitute meant for low birth weight infant (less than 2500gm) or labels affixed thereto shall indicate the following additional information:
 1. “For LOW BIRTH WEIGHT (LESS THAN 2.5KG)” in capital letters along with the product name in central panel.

2. “TO BE TAKEN UNDER MEDICAL ADVICE” in capital letters along with the product name in central panel.
3. “The Low Birth Weight Infant Milk Substitute shall be withdrawn under medical advice as soon as the mother’s milk is sufficiently available”,
4. The container of infant milk substitute for lactose-intolerant infants or label affixed thereto shall indicate conspicuously “ LOCTOSE FREE” in capital letters and statement” TO BE TAKEN UNDER MEDICAL ADVICE”.

Natural Mineral water

It is mandatory for the manufacturers to print “ Natural Mineral Water” on the packages of the bottles of water sourced from natural or drilled sources and bottled without any treatment other than filtration, under the certification of bureau of India Standards.

Packaged Drinking Water

Packaged drinking water is also required to print “ Packaged Drinking Water” on the packages of the bottles of all other drinking water packages other than Natural Mineral Water, under the certification of Bureau of India Standards.

Fruit Syrup, Fruit Juice, Fruit Squash, Fruit Beverage, Cordial or Crush

- 1 Restriction on use of these names on synthetic products. All the products should contain the prescribed amount of fruit juice.
- 1 Synthetic products, which do not contain fruit juice, should not use as any of the “synthetic product”.
- 1 Fruit squash containing additional sodium/potassium salt should be specifically declared.

Coffee, Coffee Chicory mix

Every package containing a mix of coffee and chicory should have a label declaration on the percentage of each in the final product in the prescribed format.

Condensed/Dried Milk

Every package of condensed/desiccated (dried) milk should declare the equivalent quantity of liquid milk that the contents of the tin would produce.

Flavored Tea

Only those manufacturer who are registered with Tea Board shall sell flavored tea. Flavors of non-vegetarian source cannot be used.

Dry Fruits and Nuts

Dry fruits and nuts should not contain more than 5 % of insect damaged fruits or nuts by count.

Honey

The word honey or any words, marks, illustrations or devices that suggest honey should not be used on the label or package or advertisement of any food that resembles honey but does not contain real honey.

Products containing artificial sweeteners

All packages and advertisements of foods containing artificial sweeteners should declare the name of the artificial sweetener and also “Not Recommended for Children”. Packages and advertisements of Aspartame and products containing Aspartame should also declare “Not for Phenylketoneurics”.

2.8 MINISTRIES/DEPARTMENTS RESPONSIBLE FOR ENSURING FOOD SAFETY AND QUALITY IN INDIA

- a. Ministry of Health & Family Welfare
 - 1 Prevention of Food Adulteration Act, 1954 and Rules
- b. Ministry of Commerce
 - 1 Export (Quality Control & Inspection) Act, 1963
 - 1 Foreign (Trade & Development) Regulation Act, 1992
- c. Ministry of Food & Consumer Affairs
 - 1 Standards of Weights & Measures Act, 1976 (Packaged Commodities Rules, 1977)
 - 1 Solvent Extracted Oil (Control) Order, 1967
 - 1 Vegetable Oil Products (Control) Order, 1947
 - 1 Edible Oils Packaging (Regulation) Order, 1998
 - 1 Bureau of Indian Standards Act, 1986 and Rules
- d. Ministry of Agriculture
 - 1 Milk & Milk Products Order, 1992
 - 1 Agricultural Produce (Grading & Marking) Act, 1937
- e. Ministry of Environment
 - 1 Environment Protection Act, 1986 and Rules
- f. Ministry of Food Processing Industries
 - 1 Fruit Products Order, 1955
 - 1 Meat Food Products Order, 1973

- g. Ministry of HRD
 - ¹ The Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act, 1992 (41 of 1992).
- h. Ministry of Finance
 - ¹ The Customs Act, 1962
- i. Other Acts / Orders promulgated by Union States / UT's



2.9 LET US SUM UP

Both Food Safety and Quality are important from Consumers point of view. Food control is a mandatory regulatory activity of enforcement of certain provisions by national or international agencies to provide protection to consumers and ensure that all foods are safe during production, handling, storage, processing and distribution. In food control specific concern has been focused on microbial hazards, pesticide, residues, misuse of food additives and chemical contaminants including biological toxins, adulterants, GMO, allergens, antibiotic residues, growth promoting hormones. Access of nations to food export market will depend on their capacity to meet regulatory requirements of importing countries. Codex Alimentarius Commission and Agreement on the enforcement of SPS and TBT are very important in achieving international harmonization in food quality and safety requirements. Both the requirements voluntary (such as G.P., GMP, ISO, HACCP, GFSI etc.) and mandatory PFA Standards of weight and measure Act, EC Act, FPO, MFPO, MMPO, VOP, EOPO etc.) are helpful in building the confidence of the consumers. In our country different ministries such as ministry of health and family welfare, ministry of commerce, ministry of food and consumers affairs, ministry of agriculture, ministry of environment, ministry of food processing industries and ministry of finance are responsible for ensuring food safety and quality.

2.10 KEY WORDS

- Adulterant** : Means any material which is or could be employed for making the food unsafe or sub-standard, mis-branded or containing extraneous matter.
- Consumer** : Means any person and families purchasing and receiving food in order to meet their personal needs.
- Contaminant** : Means any substance, whether or not added to food, but which is present in such food as a result of the production (including operations carried out in crop husbandry, animal husbandry or veterinary medicine), manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food or as a result of environmental contamination and does not include insect fragments, rodent hairs and other extraneous matter.

- Extraneous Matter** : Means any matter contained in an article of food which may be carried from the raw materials, packaging materials or process systems used for its manufacture or which is added to it, but such matter does not render such article of food unsafe.
- Food Additive** : Means any substance not normally consumed as a food by itself or used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such food but does not include “contaminants” or substances added to food for maintaining or improving nutritional qualities.
- Food Business** : Means any undertaking, whether for profit or not and whether public or private, carrying out any of the activities related to any stage of manufacture, processing, storage, transportation and distribution of food and includes food services, sale of food or food ingredients.
- Food Safety** : Means assurance that food is acceptable for human consumption according to its intended use.
- Food Safety Audit** : Means a systematic and functionally independent examination of food safety measures adopted by manufacturing units to determine whether such measures and related results meet with objectives of food safety and the claims made in that behalf.
- Food Safety Management System** : Means the adoption of Good Manufacturing Practices, Good Hygienic Practices, Hazard Analysis and Critical Control Point and such other practices as may be specified by regulation, for the food business.
- Hazard** : Means a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.
- Ingredient** : Means any substance, including a food additive used in the manufacture or preparation of food and present in the final product, possibly in a modified form.

Label	: Means any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, embossed, graphic, perforated, stamped or impressed on or attached to container, cover, lid or crown of any food package and includes a product insert.
Package	: Means a box, bottle, casket, tin, barrel, case, pouch, receptacle, sack, bag, wrapper or other thing in pre-packed condition, in which an article of food is packed.
Risk	: In relation to any article of food, means the probability of an adverse effect on the health of consumers of such food and the severity of that effect, consequential to a food hazard.
Risk Analysis	: In relation to any article of food, means a process consisting of three components, i.e. risk assessment, risk management and risk communication.
Risk Assessment	: Means a scientifically based process consisting of the following steps: (i) hazard identification, (ii) hazard characterization, (iii) exposure assessment, and (iv) risk characterization.
Risk Communication	: Means the interactive exchange of information and opinions throughout the risk analysis process concerning risks, risk-related factors and risk perceptions, among risk assessors, risk managers, consumers, industry, the academic community and other interested parties, including the explanation of risk assessment findings and the basis of risk management decisions.
Risk Management	: Means the process, distinct from risk assessment, of evaluating policy alternatives, in consultation with all interested parties considering risk assessment and other factors relevant for the protection of health of consumers and for the promotion of fair trade practices, and, if needed, selecting appropriate prevention and control options.
Codex Alimentarius Commission	: The Codex Alimentarius Commission is a subsidiary body of the Food and Agriculture Organization of the United Nations and the World Health Organization. The Commission is entrusted with the elaboration of international standards of food to protect the health of consumers and to ensure fair practices in the food trade.
Codex Committees	: The subsidiary bodies of the Codex Alimentarius Commission include nine general subject

committees, fifteen specific commodity committees, six regional coordinating committees and time-limited ad-hoc Intergovernmental Task Forces on specific subjects.

- Food Control** : A mandatory regulatory activity of enforcement by national or local authorities to provide consumer protection and ensure that all foods during production, handling, storage, processing and distribution are safe, wholesome and fit for human consumption; conform to quality and safety requirements; and are honestly and accurately labelled as prescribed by law.
- Food Hygiene** : All conditions and measures necessary to ensure the safety and suitability of food at all stages of the food chain.
- Food Inspection** : The examination, by an agency empowered to perform regulatory and/or enforcement functions, of food products or systems for the control of raw materials, processing, and distribution. This includes in-process and finished product testing to verify that they conform to regulatory requirements.
- Food Surveillance** : The continuous monitoring of the food supply to ensure consumers are not exposed to components in foods, such as chemical contaminants or biological hazards, which pose a risk to health.
- Good Agricultural Practices (GAP)** : Practices of primary food producers (such as farmers and fishermen) that are necessary to produce safe and wholesome agricultural food products conforming to food laws and regulations.
- Good Manufacturing Practices (GMP)** : Conformity with codes of practice, industry standards, regulations and laws concerning production, processing, handling, labelling and sale of foods declared by industry, local, state, national and international bodies with the intention of protecting the public from illness, product adulteration and fraud.
- HACCP Plan** : A document prepared in accordance with the principles of HACCP to ensure control of hazards which are significant for food safety in the segment of the food chain under consideration. The Hazard Analysis Critical Control Point System (HACCP) is a scientific and systematic way of enhancing the safety of foods from primary production to final consumption through the identification and evaluation of specific hazards and measures for their control to ensure the safety of food. HACCP

is a tool to assess hazards and establish control systems that focus on prevention rather than relying mainly on end-product testing.

- Hazard Analysis** : The process of collecting and interpreting information on hazards and conditions leading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan.
- SPS** : Sanitary and Phyto-sanitary Agreement of the World Trade Organization (WTO). Technical Barriers to Trade (TBT) Agreement of the World Trade Organization (WTO).
- WTO** : The World Trade Organization (WTO) is the international organization that establishes the rules of trade between nations. WTO agreements, are negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments. The goal is to help producers of goods and services, exporters, and importers conduct their business.

2.11 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Your answer should include following points:

Check Your Progress Exercise 1

- 1) Enforcement of certain Mandatory provision by an agency to provide consumer protection and ensure that all the foods are safe, wholesome and fit for human consumption.
- 2) To protect consumers health and ensure fair practices in food trade.
- 3) Sanitary and phyto-sanitary measures and technical barriers to trade.

Check Your Progress Exercise 2

- 1) Mandatory requirements are those for which there is a legal binding to meet for example the requirements under PFA acts are mandatory. On other hand requirements under AGMARK or BIS are voluntary i.e. if you are going for AGMARK or BIS only then you have to meet these requirements.
- 2) The difference between standards and provision is that the standard puts certain limit for different aspects for example in milk as per PFA, the minimum fat must not be less than 6% while snf not less than 9% whereas under provisions certain requirements have to be must for example in case of milk it should be mentioned on the label whether in it is cow milk or buffalo milk, that is provision.

2.12 SUGGESTED READING

Prevention of Food Adulteration Act,1954 and Rules made there under and other food laws of India.

www.whoindia.org

www.codexalimentarius.net

<http://fcamin.nic.in>

<http://mohfw.nic.in>

<http://commerce.nic.in>

<http://agricoop.nic.in>

www.apeda.com

<http://mofp.i.nic.in>

