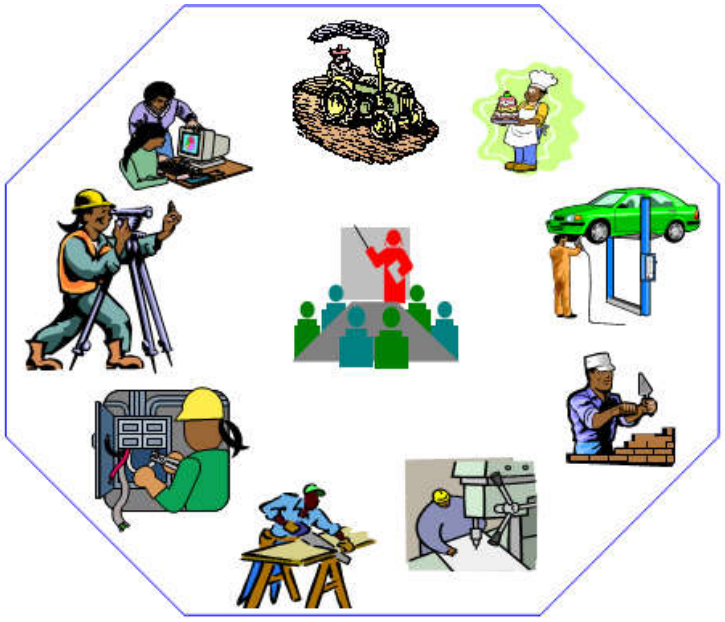
Edible Oil and Fats Processing

Level III

Based on October 2019, Version 2 OS and March 2021, V1 Curriculum



Module Title: - Applying Quality Control

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LG #17	LO #1- Implement quality standards

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Acquiring and confirming agreed quality standard and procedures
- Introducing standard procedures
- Providing quality standard and procedures documents to employees
- Revising / updating standard procedures when necessary

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Acquire and confirm agreed quality standard and procedures
- Introduce standard procedures
- Provide quality standard and procedures documents to employees
- Revise / update standard procedures when necessary

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 1- Acquiring and confirming agreed quality standard and procedures

1.1. Definition of quality:-

It is relative term which have no inversely definition. It is characteristics property that defines the apparent individual nature of something. It is the degree of goodness or badness.

1.2. Quality requirements

Quality requirements are typically much more important than functional requirements because it used to determine the success or failure of mission critical systems. Whatever it takes to satisfy a customer; characteristics of a good or service that determine whether it meets the express and implied requirements of its customers. Quality requirements been elicited from an appropriate sample of all legitimate stakeholders.

1.3. Quality control

Procedures used to maintain quality are typically termed quality control (QC) which has the formal definition as follows: “procedures that are intended to maintain the quality of a bridge inspection and load rating at or above a specified level.” Procedures that evaluate the effectiveness of QC and measure the quality in a program are “Quality Assurance,” that has the formal definition the use of sampling and other measures to assure the adequacy of quality control procedures in order to verify or measure the quality level of the entire bridge inspection and load rating program.

The distinction between QC and QA can sometimes be difficult to determine, because similar actions may be undertaken for either purpose. For example, reviewing an inspection report to evaluate the quality of the report, that is, consistency with the established procedures and requirements, may be conducted for the purpose of correcting errors or inconsistencies. In that case, the review is a QC function, with the

goal of assuring that the inspection report is of adequate quality. However, the same review may be conducted for determining if the QC activities have been effective, and to measure the quality level that has resulted. In the latter case, the review is a QA function that is evaluating the QC function and measuring the quality of the inspection report. In practical terms, quality control is conducted within a specific work group for the purpose of correcting or deterring errors, inconsistency or omission from specific bridge inspection or load rating outcomes. Quality assurance is conducted from outside the work group for the purpose of evaluating the quality level of the program overall, the effectiveness of QC in assuring that quality, and identifying deficiencies that can be corrected by changes to the program (changes to requirements, procedures, training, or guidelines, etc.).

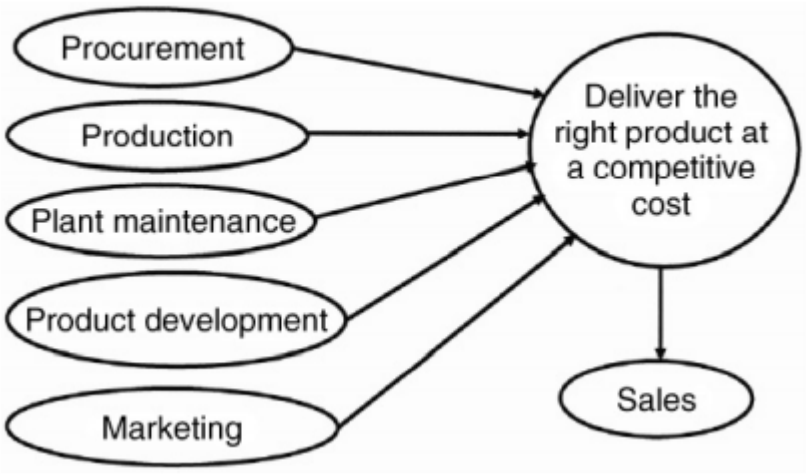

Figure 1. Alignment of various functions in a company to produce and deliver right quality product.

1.3.1. Control oil quality

In today's business environment, where the use of shelf-stable product is increasing in every country, whether it is a developed or a developing country, managing oil quality has become a bigger challenge than ever before. High quality oils are in increasing demand because of the following reasons:

- High-quality oil produces high-quality finished product.
- High-quality oil leads to longer shelf life for the packaged products. This allows the food manufacturer the advantage in extending code date, production scheduling, warehousing, product distribution, and achieving lower cost.
- Most food manufacturers have started using on-time delivery policy for receiving their raw materials. This means the oil quality must be satisfactory at all times as it arrives at the end user's plant, otherwise the food plant may have to be shut down for lack of oil supply.

1.4. Standard

A standard is a result of a particular standardization effect, approved by the recognized authority in edible oil and fat processing sector. It may take the form of a document containing a set of conditions to be fulfilled, a fundamental unit or physical constituent or an object for physical comparison.

1.4.1. ISO 9001 Requirements

International Organization for Standardization (ISO) providing general information on quality programs as applied in other industries. The essential characteristics of an ISO 9000 compliant quality program include such items as defining a quality system, defining management responsibility, maintaining a database for all documents, and maintaining the necessary resources to support quality systems. The ISO 9000 requirements also include a process and documentation requirements for internal and external audits, and a process for continual improvement as a part of the quality system. Many of these requirements can be mapped to elements of bridge inspection QC/QA, though this process can at times be difficult.

There are different levels of standards, which may be listed as:

- An individual standard
- A company standard
- An association standard
- A national standard

- An international standard

The level is determined by the specific interests involved in creating and using the standard in day-to-day operations in edible oil processing. There are various benefits to standardization. To mention a few briefly; the following are listed:

1. To the producer; rationalization of edible oil and fat processes, improved control of processes, high rate of production, reduction of inventories ultimate increase in sales and profits.
2. To the consumer; assurance of quality of products and services purchased, better value for money spent.
3. To the trade; minimization of delays, workable basis for acceptance or rejection of goods, opening of larger markets, reduction in cost of handling transactions.
4. To the technologist; increased knowledge of properties, possibilities of application of materials, accepted methods of tests and procedures, guidance for formulation of R & D programs.

Defining work and standard is not our ultimately a common task rather our aim is how do you assess complete work against work place standard. So based on aspect of standard and procedures you can check our complete work.

Standardization is the process of formulating and applying the rules for an orderly approach to a specific activity - for the benefit of all - with the co-operation of all concerned and in particular for the promotion of optimum overall economy, taking due account of functional conditions and safety requirements.

Standardization is based on the consolidated results of science, technology and experience. It determines not only the basis for the present but also for future development and it should keep pace with advances.

1.4.2. Developing quality standard procedures

Procedure is a set of written instructions that identifies the health and safety issues that may happen from the jobs and tasks that make up a system of work. The development of sustainable management systems in edible oil processing is a high priority globally as

social and environmental aspects of edible oil and fat processing become increasingly important to both consumers and producers. A safe and hygienic working environment must be provided, and occupational health and safety practices which prevent accidents and injury must be promoted. This includes protection from fire, accidents and toxic substances. Lighting, heating and ventilation systems must be adequate. Employees must have access at all expectations of consumers are met.

Figure 2. The figure below provides an overview of the quality standards development process.

1.4.3. Setting quality standards

In the process of setting quality standards services developed a standards for quality with the following aim;

- To stimulate and support the development of high quality social services – in the public, private and voluntary sectors –
- In order to ensure a range of choice to consumers'. The standards set out key expectations of services. They should be:

- ✓ Effective and efficient and based on the needs of users;
- ✓ Flexible, sensitive and responsive to the changing needs of users;
- ✓ Reliable and consistent, with continuity of delivery;
- ✓ Based on clear aims;
- ✓ Consistent with our own agreed standards;
- ✓ Continuously improved and developed by monitoring, evaluation and inspection;
- ✓ Provided by people with a high standard of professional knowledge and
- ✓ Practical skills;
- ✓ Encouraging, enabling and maintaining of the link with the family and friends of the service users;
- ✓ Supportive of users in making full use of activities and resources within local communities;
- ✓ Valuing user rights to confidentiality;
- ✓ Open to user participation, encouraging users to become involved in decisions affecting the care and support they receive;
- ✓ Respectful of users' rights to personal independence and responsibility.

Figure 3 Principle of quality standards

Self-check 1	Written test

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short Answer Questions

1. Define quality? (2 points)
2. Define standard? (2pts)
3. Define quality procedure? (2points)

Note: **Satisfactory rating - 6 points** **Unsatisfactory - below 6 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Information Sheet 2- Introducing standard procedures

2.1. Standard procedures

Standard procedures contain step-by-step written instructions for each procedure performed in edible oil and fat processing. These instructions are essential to ensure that all procedures are performed consistently by everyone in oil processing. Standard procedure is a document which describes the regularly recurring operations relevant to the quality of the investigation during edible oil processing. The purpose of a standard procedures is to carry out the operations correctly and always in the same manner. An important aspect of a quality system is to work according to unambiguous standard procedures (SPs). In fact the whole process from sampling to the filing of the analytical result should be described by a continuous series of SPs. In practice we have few standards expressed as numbers or other quantities, because we intend above all that standards should be focused on outcomes for users, usually expressed at the individual level. Standards have certain qualities. They must be:

- As explicit and precise as possible;
- Justifiable and logically sound;
- Acceptable (to the stakeholders);
- Validated; practicable; and
- Written in plain language (including the 'plain language' required by people who do not read printed English easily for whatever reason).

Standards show the agreed requirements for a service and help build in quality by enabling us to:

- Provide a clear direction for services
- Know whom to do business with
- Promote a shared vision and common understanding
- Form a baseline for local service specifications
- Provide a basis for monitoring, inspection, evaluation and future planning.

The following are common procedures for checking the quality of completed work of oil processing against work place standards;

- Select work product to be evaluated based on documented work place standards. Note; work products can include services produced by a process whether the recipient of the service is internal or external to the organization.
- Establish and maintain clearly stated criteria for the evaluation of selected work products.

The intent of the above procedure is to provide criteria, based on business needs, such as the following;

- What will be evaluated during the evaluation of a work product
- When or how often a work product will be evaluated
- How the evaluation will be conducted
- Who must be involved in the evaluation

Evaluation procedures

- Use the stated criteria during the evaluations of selected work products
- Evaluate selected work products before they are delivered to the customer
- Evaluate work products at selected time intervals
- Identify each cases of noncompliance found during the evaluations
  - ✓ After setting (establishing) quality standards for organization or company, the new established quality standards should be introducing to organization staff and also if it is necessary, the new standard procedures should be updating.

To establish that the quality (management) system is achieving the expected results and meeting the company's requirements, continuing to conform to the standard, continuing to satisfy the customer' needs and expectations, and functioning in accordance with the established operating procedures. The important of establishing quality standards;

- To expose irregularities or defects in the system, identify weaknesses and evaluate possible improvements.
- To review the effectiveness of corrective actions, and to review the adequacy and suitability of the management system of the company.

- To review any complaints received, identify the cause and recommend corrective action if required.
- To review the finding of internal/ external audits and identify any areas of recurring problems or potential improvements.
- To review the reports of nonconforming items and trend information to identify possible improvements.

Internal audits of the quality system are undertaken at least once per annum to confirm that the function concerned is adhering to the company's procedures. A comprehensive audit program is compiled at least a year in advance however, should particular needs be identified, and the frequency of audit may be increased at the discretion of the quality manager.

Audits are undertaken by auditors who are trained in auditing and not directly responsible for the functions being audited within that company. Non-conformance observed is brought to the attention of the person responsible, and is recorded, documented and subject to timely corrective action to ensure full rectification. Demonstrating how the work activities are completed identifying final products or faulty pieces and isolating them.

2.2. Standard Operating Procedures (SOPs). These explain how to do a particular task/process and will include all of the quality assurance rules that you want to apply (e.g. control measures, monitoring and verifications tasks). If these rules are integrated into every day practices, the more likely they are to become the norm rather than the exception. Creating an SOP manual from scratch can be quite discouraging as most owner/operators start with the information in their heads. Each business will have its own way of doing things, partly because of the infrastructure and partly because of the management. Many quality assurance programs will provide you with SOPs but no existing system will fit all circumstances. The essential skill is to refine the SOPs that you are provided with to specifically suit your processing system and business, whilst still achieving compliance for the whole quality assurance program.

Self-Check – 2	Written test

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short Answer Questions

1. List the purpose of standard procedures? (3 point)
2. Define standard operating procedures (SOPs)? (3 points)

Note: **Satisfactory rating - 6 points** **Unsatisfactory - below 6 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Information Sheet 3- Providing quality standard and procedures documents to employees

3.1. Providing quality standards

Providing quality standards to employees is important to understand and practice quality during edible oil and fat processing with respect to specifications, guidelines and characteristics that products, services and processes should consistently meet in order to ensure the minimum quality requirements. Quality standards establish a framework for how a process manages its key activities. They identify an agreed way of doing something, either making a product, managing a process or delivering a service. Quality standards are designed to ensure companies meet the minimum requirements to become an integral part of almost every industry from products. The followings are elements of quality standards;

- Their quality matches expectations.
- They are fit for purpose.
- They meet the needs of their users.

3.2. Customer service training

Every employee needs a basic level of customer service training, irrespective of their working space. Although the depth of knowledge and training that they need varies depending on the role of each employee, there are 3 basic types of skills you need to include in your training plan.

I. Product knowledge

It is essential that all employees have a deep working knowledge of the organization's offerings. Today's customers can look up basic information about products and services on their own. Employees need to not only know the details of the products but how they specifically fulfill different customers' needs. As customers are getting intelligent with every passing minute, product knowledge has become a critical element of the corporate training spectrum. Businesses have understood that they need to educate team

members with full-proof product knowledge in order to create lasting customer experiences.

II. Soft Skills

Soft skills will help your employees better communicate with customers. For any customer service team, it is imperative to indulge in programs that only strengthen their technical skills, but also enhances their soft skills, especially communication. The better teams are able to communicate with the customer, the more satisfied is the client at the end of the process. Incorporating soft skills building programs in the training curriculum shows that the organization is not just focused on making sales but is willing to invest in giving great customer service.

III. Company mission and values

Every employee should have a deep understanding of the company's mission and values. It is important to educate their employees on what it aims to achieve in the coming time. Not only does this give a direction to the mission, but it also makes the workforce feel valued, encouraging them to propel in the given direction with much passion. No different is the case with customer service teams. As they form the first level of interaction with customers, they need to embody the company’s mission and vision into their conversation so that the same information can be projected to your customers.

Self-Check – 3	Written test

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short Answer Questions

1. What is quality standards? (5point)
2. What is the purpose of establish Quality standards? (5 points)
3. Main elements Quality standards? (5 points)

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Information Sheet 4- Revising / updating standard procedures when necessary

4.1. The importance of revising or updating standard procedures

Revising or updating standards procedures is the key pillars needed for a quality development process and product. They are intended for use by managers and practitioners. The Standards are not mandatory, but provide a guide to good processing practice. Updating standard procedures is crucial in more than one respect. First of all, it is a guarantee that the know-how and knowledge created and acquired by the company will not be lost. To achieve the goals set by the company, it pursues a knowledge management policy by ensuring the identification, analysis, organization, memorization and sharing of knowledge. The systematic updating of standard procedures, therefore, makes it possible to capitalize on this know-how and transmit it to employees, whether they are newcomers to the company or existing employees who are responsible for replacing others in the event of unavailability (hence greater versatility). New recruits and internal replacements can thus refer to valid documents, effectively guiding them in the performance of their tasks and reducing the risk of error. In addition, updating standards procedures ensures that improvement actions are always in the right direction, that they are not affected by any flaws and that they do not force us to go back. Changes to standards procedures follow a specific method that established by a company's quality and regulatory affairs and start standards procedures updating requested changes as soon as relevant personnel consider the revision.

Then, consider the following points when revising or updating standards procedures the standard procedures.

- Identify in writing the need for a change to the standards procedures.
- Forward this document to the supervisor of the department that the change affects and to the document control department.
- Complete a change request form.
- Decide whether the change requested is administrative or clerical.
- Administrative changes seek to revise a process the company follows.

- Clerical changes seek to revise the existing standards procedures spelling, grammar, format and clarity.
- Prepare an explanation of the requested change.
- If possible, copy the existing standards procedures and make red line revisions showing the requested changes.
- Sign and date the change request form.
- Submit it to the document control department.
- Forward a copy of the change request form to the human resources department. Explain whether the department must train employees because of the requested change and which employees the change affects.
- Require human resources to document the training by date, employees, trainer and subject matter.
- Submit the training completion data to the document control department. Request that they add it to the original change request form.
- Distribute the approved change request form to all employees of the company. Identify the form by its control authorization number.
- Tell employees how to access the form.

Standards procedures should be reviewed by all staff, department supervisors and the director at least once each year, and suggestions from staff should always be considered for changes of process. The consequences of not having standards procedures in good working order are far more serious than the inconvenience of keeping them updated. Organizations need to develop a comprehensive system to ensure that all policies, procedures and training programs are continually reviewed and updated, in practice as well as in writing. Making such a review part of supervisor job descriptions, and making time for it on the calendar help ensure that your organization keeps the information current and functional.

Self-Check – 4	Written test

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short Answer Questions

1. List the poin consider during revising or updating standards procedures? (5 points)

Note: **Satisfactory rating – 5 points** **Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

LG #18	LO #2- Assess quality of service delivered

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Checking quality of service delivered against quality standards and specifications
- Evaluating service delivered using evaluation quality parameters
- Identifying cause of any identified faults and taking corrective actions

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Quality check of service delivered against quality standards and specifications
- Evaluate service delivered using evaluation quality parameters
- Identify cause of any identified faults and taking corrective actions

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
6. Do the “LAP test”

Information Sheet 1- Checking quality of service delivered against quality standards and specifications

1.1. Checking the quality of services delivered against quality standards

Edible vegetable oils are prone to quality deterioration through oxidation and microbial degradation resulting in nutritional loss and off-flavors. Quality deterioration may contribute in the formation of oxidation products that are reactive and toxic, which ultimately pose health risks including cancer and inflammation.

- In quality control, several parameters such as;
- Iodine value (degree of unsaturation),
- Peroxide value (formation of primary oxidation products),
- Moisture content, specific gravity (purity), and
- Acid value (free fatty acids formation because of rancidity)

Are key parameters of interest as they determine the shelf-life quality and hence the economic value of oils Rancidity of vegetable oils may pose health risks including cancer and inflammation because of the formation of toxic and reactive oxidation products? For healthy consumption, unsaturated oils are better than the saturated. Consumption of palmitic oil (highly saturated) is associated with an increased risk of developing cardiovascular diseases. In contrast, edible vegetable oils such as sunflower, olive, canola and Niger-seed oils contains high levels of polyunsaturated fats which make them susceptible for rancidity.

Quality standard of edible vegetable oil

Table 1.1 Edible vegetable oils shall conform to the maximum levels for physical and chemical characteristics indicated in the following table.

No	Parameter	Level	Method of test
1	Moisture and volatile matter at 105 °C, % by mass max.	0.2	ES ISO 662
2	Insoluble impurities, % by mass, max.	0.05	ES ISO 663
3	Soap content, % by mass, max	0.005	ES 65:2001
4	Iron (Fe):		ES ISO 8294
4.1	Refined vegetable fats and oils, mg/kg, max	1	
4.2	Virgin fats and oils, mg/kg, max	0.5	
4.3	Cold pressed vegetable fats and oils, mg/kg, max	0.5	
5	Copper (Cu):		ES ISO 8294
5.1	Refined vegetable fats and oils, mg/kg, max	0.1	
5.2	Virgin vegetable fats and oils, mg/kg, max	0.4	
5.3	Cold pressed vegetable fats and oils, 0.4 max		ES ISO 660
6	Acid value		
6.1	Refined vegetable fats and oils, mg KOH/g fat or oil, max	0.6	
6.2	Virgin vegetable fats and oils, mg KOH/g fat or oil, max	4.0	
6.3	Cold pressed vegetable fats and oils, mg KOH/g fat or oil, max	4.0	
7	Peroxide value		ES ISO 3960 or ISO27107
7.1	Virgin oils and cold pressed fats and oils, mill equivalents of active oxygen/kg oil, max	15	
7.2	Other fats and oils, mill equivalents of active oxygen/kg oil, max.	10	

SUMMARY OF OIL QUALITY STANDARDS

Crude oil quality	
PV	<8 mEq/kg
(Preferably)	<4 mEq/kg
pAV	<4 AVU
(Preferably)	<2 mEq/kg
Bleached oil quality	
PV leaving the bleacher	0 mEq/kg
Phosphorus, P	<1 ppm
(Preferably)	<0.5 ppm
Soap	0 ppm
Chlorophyll (soybean and canola oils)	<30 ppb
Iron	<0.5 ppm
(Preferably)	<0.3 ppm
Calcium	<0.5 ppm
(Preferably)	<0.2 ppm
Magnesium	<0.5 ppm
(Preferably)	<0.2 ppm

Refined, bleached, and deodorized oil must be low in:	
Phosphorus	<1 ppm,
(Preferably)	<0.5 ppm
PV (fresh out of the deodorizer)	<0 mEq/kg
PV (as delivered to customer)	<1 mEq/kg
(Preferably)	<0.5 mEq/kg
pAV	<6
(Preferably)	<4
Conjugated dienes	<0.5%
(Preferably)	Trace
Dimers	<0.2%
(Preferably)	Trace
Polar compounds	<4%
(Preferably)	<2%
Monoglycerides	<0.5%
Diglycerides	<1%
Chlorophyll	<30 ppb
Iron	<0.5 ppm
(Preferably)	<0.3 ppm
Calcium	<0.5 ppm
(Preferably)	<0.2 ppm
Magnesium	<0.5 ppm
(Preferably)	<0.2 ppm

Key: Peroxide value: PV, Free fatty acid: FFA, para Anisidine Value: pAV; Parts per billion; ppb, Parts per million; pp, milliequivalents per kilogram; mEq/kg,

Feature of quality

In a manufacturing or service environment, there are major categories of quality;

- Quality of design,
- Quality of conformance and
- Quality of use.

A) Quality of design

The drawings produced by the planner or designer should show the quality standard demanded by the customer or marketplace in clear and precise terms. Every dimension should have realistic tolerances and other performance requirements should have precise limits of acceptability so that the production team can produce the product strictly according to drawings. To achieve the above, those responsible for design, production and quality should be consulted from the sales negotiation stage onwards. The overall design of any product is made up of many individual characteristics.

In general, design quality refers to the ability of a design to exactly address the design inputs, such as, intended purpose, regulatory requirements and designer own idea. A poorly designed product will not function properly regardless of how well it meets its specifications. Conversely a product that does not conform to excellent design specifications will not properly perform its intended function. This includes:

- Identification of the customers
- Identification of the real needs of the customers and other requirements
- Converting the customer needs in to technical language
- Verifying that the technical language reflects the customer needs

B) Quality conformance

Quality conformance may be defined as the degree of adherence of the product characteristics to the design drawings and specifications. The objective of a quality program is to have a system that will measure and control the degree of product and

process conformance in the most economical way. The producer uses the design to develop a product or provide a service with the available of;

- Personnel
- Equipment and material
- Working procedure
- Working environment

If the design quality does not reflect the intended purpose and other requirements or the organization has no adequate arrangements to convert the design in to the product the final output will not be fit for the intended use/purpose.

C) Quality use

Through interviews with business executives and customer focus group, they are the ten identified determinants of service quality. They are;

- **Reliability**: consistency of performance and dependability, performing the right service at the right time, honoring promises and accuracy.
- **Responsiveness**: willingness or readiness of employees to provide service with given timeliness.
- **Competence**: possession of the skill and knowledge required to perform the service.
- **Access**: approachability and ease of access.
- **Courtesy:** politeness, respect, consideration and friendliness of contact personnel.
- **Communication**: keeping customers informed in language they can understand, listening customers, adjusting language to different needs of different customers, explaining the service itself, how much it will cost, and how problems will be handled.
- **Credibility**: trustworthiness, believability, honesty, company reputation, personal characteristics of personnel.
- **Security**: freedom from danger, risk, or doubt; physical safety, financial security, confidentiality.

- **Understanding the customer**: making the effort to understand the customer's needs; learning the customer's specific requirements; providing individualized attention; recognizing the regular customer.
- **Tangible**: physical evidence of the service, physical facilities, appearance of personnel, tools or equipment used to provide service, physical representation of the service, such as a plastic credit card or a bank statement; other customers in the service facility.

1.2. Checking quality of services delivered against quality specifications

1.2.1. Specification

In a procurement context, a specification can be defined as a statement of needs. It defines what the procurer wants to buy and, consequently, what the supplier is required to provide. Specifications can be simple or complex depending on the need. The success of the procurement activity relies on the specification being a true and accurate statement of the buyer's requirements. Apart from being a means of identifying the goods or services required, a specification will form part of any future contract that might result from offers received.

A good specification

A good design specification should be clear, consistent and exact. Reasonable tolerances should be included and should be non-restrictive to encourage competition. A design specification provides explicit information about the requirements for a product and how the product is to be assembled.

Types of specifications

I. Functional specifications

These are specifications that define the function, duty or role of the goods or services. It nominates what the goods or services are broadly required to do. Functional specifications define the task or desired result by focusing on what is to be achieved

rather than how it is to be done. They do not describe the method of achieving the intended result. This enables suppliers to provide solutions to defined problems.

II. Technical specifications

These are specifications that define the technical and physical characteristics and/or measurements of a product, such as physical aspects (for example, dimensions, color, surface finish), design details, material properties, energy requirements, processes, maintenance requirements and operational requirements. They are used when functional and performance.

III. Performance specifications

These are specifications that define the purpose of the goods or services in terms of how effectively it will perform, that is, in capability or performance terms. Performance is a logical extension of function. Performance specifications define the task or desired result by focusing on what is to be achieved. They do not describe the method of achieving the desired result. This enables suppliers to provide solutions to defined problems.

Self-Check – 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer questions

1. List the major categories of quality? (2 point)
2. Write types of specifications? (2 points)

Note: Satisfactory rating - 4 points Unsatisfactory - below 4 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer sheet

1._____

2. _____

Information Sheet 2- Evaluating service delivered using evaluation quality parameters

2.1. Evaluating services delivered

Before the final service delivered to the end user it should be evaluate to do so there is method of quality evaluation. Specifications or material specification and design of quality are parameter use to evaluate the delivered service. An inspection is, most generally, an organized examination or formal evaluation exercise. In edible oil and fat processing activities inspection involves the measurements, tests, and monitoring applied to certain characteristics in regard to processing unit. The results are usually compared to specified requirements and standards for determining whether the item or activity is in line with these targets, often with a standard inspection procedure in place to ensure consistent checking.

2.1.1. Evaluating service delivered through inspection techniques

Inspections are performed at various times during the edible oil and fat processing. Include inspection on raw materials and components from outside sources (incoming inspection), and final inspection on finished product to ensure the functional quality and the appearance of the product (outgoing inspection). The modern view of quality control encompasses a broader scope of activities throughout the company. This diversion keeps the inspection as an essential technique in quality assurance and doesn't reduce the necessity for inspection instead. Industrial experience shows that the manufacturer may monitor its process at every stage, the acceptance inspection for the final product and incoming raw materials inspections are still necessary. The acceptance inspection is kind of middle bridge between 100% inspection and zero inspection, which has a primary advantage of fewer resources needed including money, labor, and time. Inspection is usually meant that, at certain stages in the course of processing, a comparison is made between what has actually been produced and what should have been produced. According to production or processing flow, the inspection may be divided into:

- Incoming inspection
- In-process inspection
- Final inspection

Incoming inspection: concerns goods upon delivery from vendors and/or suppliers. It consists of inspection of raw materials, components, sub-assemblies and so on.

In-process inspection: aims to prevent products of unacceptable quality from being manufactured. It provides data for making decisions on the product (accept or rework or reject), as well as on the process (run or stop).

Final inspection: final inspection and/or testing is done after manufacture has been completed, with the object of making sure that the goods concerned are satisfactory for dispatch to the customer or maybe to another department for the next operation.

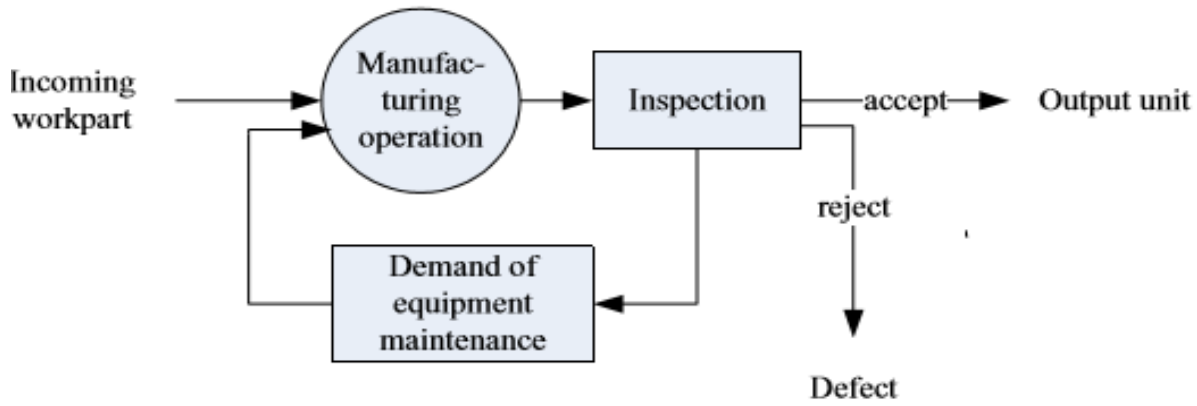

Figure 1. Inspection process

2.1.2. Ways to evaluate delivered services

The first important step for evaluating your services is determining what you want to evaluate. After you determine this, you need a system to capture the necessary data to allow you to analyze the results to make a final evaluation. Surprisingly, there are three types of evaluation options. Each type of evaluation is unique to the type of information required to judge the results.

1. Goals-based evaluation

Goals-based evaluation is a method used to determine the actual outcome of a process when compared to the goals of the original plan. Performing a goals-based evaluation helps a company to further develop successful processes and either discard or reconfigure unsuccessful ones. There are certain observations that are used to gauge a project when using a goals-based evaluation that can help the efficiency of a small business.

2. Process-based evaluation

Although this type of evaluation does not immediately seem to be relevant to evaluating service, it has merit. A process-based evaluation feels more qualitative in nature. It focuses on who, what, when, and how. In a process-based evaluation the focus is mapping out a process and determining how well the process is working or where the process breaks down leading to failure. When the problem is identified, the goal is to change the process.

3. Outcome-based evaluation

This type of evaluation answers the question, “Are my services making a difference in the lives of my customers?” In the rehabilitation world, one of the best ways to determine this is to learn how much functional change happens as a result of your services. To most accurately know, you need a system that risk adjusts for patient factors that affect outcomes.

- Do you capture level of function prior to beginning services?
- Does your system risk adjust?
- As a bonus feature, do you have a system that can predict the final outcome?
- Do you capture level of function prior to discontinuing an episode of care?
- Does your system have the capability for benchmark reporting?

An outcome-based evaluation will focus on what functional change happens in your processing products. A great system will combine both the effectiveness and efficiency

of your services. When the predominant fee-for-service payment model changes toward a value based payment model, you will need to perform outcome-based evaluations at least quarterly.

The common service or product delivered measurement

If you're starting out with measurement but don't have a clearly articulated strategy or any strategy at all – you're probably feeling stuck about what to measure to manage performance. With no goals, no objectives, and no clear priorities, everything seems important and it's too overwhelming to measure everything. They are five service delivered measurements;

Measure 1:- Customer satisfaction

This is probably the most common and most important of the five. It is the only measure that will connect you with the relevance of the work you are doing. If customers are not happy, then everyone is wasting at least a portion of their time. Measure how your customer judges the outcome of your product or service, through surveys or at the end of each transaction with the customer. You can ask them directly, give them a survey form, or send them to a website form. If you also collect data about what aspects of your product or service are most important to customers, it will give you clues about more specific things that might be important to measure also e.g. easy access to support staff or accuracy of bills.

Measure 2:- Product/service defects

Defects is a measure of quality, and a translation of what the customer expects your product or service to do, into something you can count to assess how often the product or service actually does what is expected. Your customer satisfaction measure is a companion to this one. And the extra data collected about what is most important to customers about your product or service will help you define what constitutes a defect (e.g. something breaks, something doesn't operate correctly, a delivery deadline was missed, an invoice has errors).

Measure 3:- Production/delivery time

The time it takes to produce / deliver your product or service for your customer is a very useful thing to measure. It is not just about meeting the time commitments you made to your customer but focusing everyone on the full process that make the production / delivery time what it is. This measurement will also show unnecessary time wastage which should result in greater efficiency.

Measure 4:- Productivity

Productivity is a measure of your process efficiency, and is essentially the rate at which you can produce outputs, relative to the inputs it takes to do so. A great measure to focus on eliminating waste and rework, wasted time and wasted actions. Productivity can measure many things i.e.

- What is product output compared to time taken
- What is the product output versus cost

Measure 5:- Innovation (or improvement) ideas

This is about making active suggestions about how to improve performance. A good workplace will share and discuss the first 4 measures and their outcomes among the work team. This sharing will actively encourage improvement ideas and suggestions. This process encourages everyone to deepen their understanding about performance, and how they can influence it.

Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short Answer Questions

1. What is inspection? (2point)
2. List type of inspection? (2points)
3. Write the importance of evolution service delivered? (3points)

Note: Satisfactory rating - 7 points Unsatisfactory - below 7 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer sheet

Test I

1._____

2. _____

_____

3._____

Information Sheet 3- Identifying cause of any identified faults and taking corrective actions

3.1. Identify the problem or symptom

You shouldn't assume that everyone knows the problem already. Take the time to document the problem or problem symptom in clear terms that everyone can understand. Make sure to also explain the impact of the quality problem to the process. The first rule of problem resolution is that if you can't define the problem, you can't resolve it.

3.2. Identify the root cause

Try to identify the root cause of the problem and explain how the root cause ultimately results in the problem that has arisen. If you can't track the root cause to the perceived problem, you haven't taken your investigation far enough. Some of common causes of faults include:

- Hurried work; when teams are in a hurry to complete their work it increases the chances of making mistakes
- Changes to scope and specification; when specification and/or the size of the work changes midstream, workers and teams can make mistakes while trying to adjust to the changes, especially if those changes are poorly communicated
- Complexity; technical tasks and complex processes invite people to make errors
- Upstream errors; some errors can be passed-down from one team to another, and if undiscovered, they can continue to be passed along until later stages of the project or until the customer receives the product
- Communication issues; lacking a system to notify downstream teams of important product information or issues can cause people to make mistakes
- Staff turnover; new staff are more prone to making mistakes as they’re coming up-to-speed
- Misunderstood specification; inheriting a specification that is difficult to understand or left open to interpretation can introduce errors, and those errors

can be compounded as other teams work from the same specification process improvement is specifically aimed at alleviating the causes of a quality problem, and thereby increasing schedule performance and increasing customer satisfaction on projects.

3.3. Identifying faults and taking corrective actions

The standard requires you to have ways to identify a product or service nonconformity and to decide what to do about it. It might be necessary to keep it separate from acceptable products and services. For instance, where customer complaints on nonconformities are infrequent, the entire history of the complaint, its investigation and the corrective action taken can be recorded in a correspondence file. The following are the most common external indications, which enable you to target where attention is needed;

- Customer complaints
- Guarantee claims

3.4. Determine alternatives and impacts

Once the cause is identified, you should look at the alternatives and the impact of each alternative. Although it's best to try to solve the root cause of the problem, sometimes it's not possible and sometimes it's not cost effective. In these instances, you might need to look at alternatives that resolve the symptoms of the problem. Sometimes there's a very obvious solution that needs to be implemented. However, in many cases there are a number of potential alternatives. For each alternative, they should also address the impact to the project in terms of costs, benefits, and risks. It's worthwhile to make sure you look at the solutions as holistically as possible, so that you can make select the best alternative.

3.5. Corrective action

Corrective action eliminates the root cause of a known problem; it is reactive. Preventive action eliminates the root cause of an anticipated problem; it is proactive. A problem is an undesirable effect that involves any situation that results in customer dissatisfaction or waste. Both corrective and preventive actions can be seen as steps in a quality improvement cycle. The need for corrective action can arise when an internal nonconformity (product, service or quality management system) occurs, or from external sources such as customer complaints, warranty claims or problems encountered with a supplier. Corrective action is an important activity. It seeks to eliminate permanently the causes and consequent effects of problems that could have a negative impact on;

- Your process or business results
- Your organization's products, services, processes, quality management system
- The satisfaction of your customers

Corrective action involves finding the causes of a particular problem and then putting in place the necessary actions to prevent it from recurring. Corrective action shall be to the degree appropriate to the magnitude of the problem and commensurate to the risks encountered. Understanding the benefits, risks, and costs are crucial in maintaining a balance in implementing the total quality management process. The corrective action process shall include but not be limited to:

- The effective and timely handling of customer complaints, return of defective material, reports of product nonconformance (from internal operations and external suppliers), and internal and external audit corrective action requests; Identifying and investigating the root cause of non-conforming product, non-conforming processes, systemic quality system deficiencies and recording the results of the investigation;
- Determining the corrective action needed and applying controls to ensure corrective action is taken and root cause has been addressed;
- Implementing and recording changes in procedures resulting from corrective action;
- Analyzing customer impact and notifying customers who are under contract for notification;

- Prompt notification of the persons responsible for corrective action when a product or process fails to meet the required specifications.

3.6. Execute

A mini-plan is put into place to address the quality problem and implement the chosen alternative. These activities should be moved into the project or process work plan to ensure that they are performed.

3.7. Monitor

The resolution plan needs to be monitored to ensure that the quality has improved as expected. If the quality has improved or is moving in that direction, you may allow the plan to continue. However, if the quality is not improving as expected, further corrective action may be required.

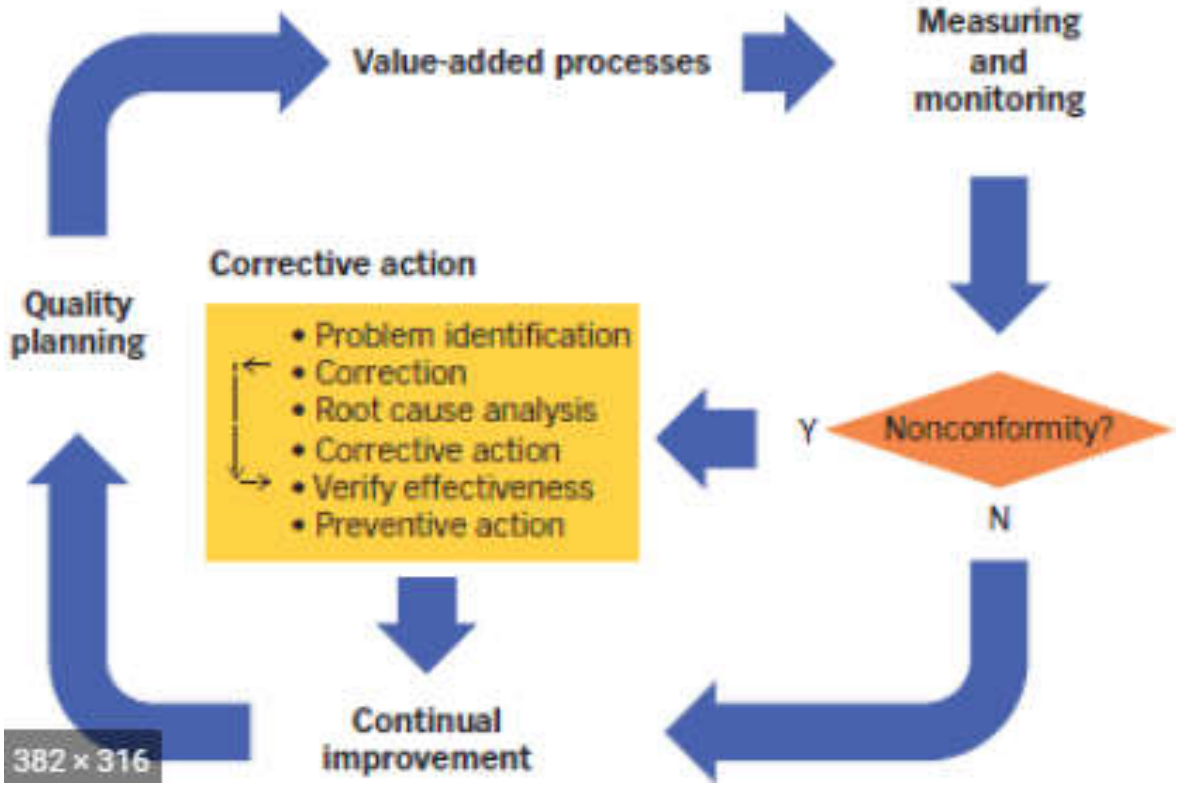

Figure 2. Quality planning corrective action

Self-Check – 3	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short Answer Questions

1. What is corrective action? (2 point)

2. List some of common causes of faults? (5 points)

Note: Satisfactory rating – 7 points Unsatisfactory - below 7 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer sheet

1._____

2. _____

Operation Sheet 1– Evaluating service delivered using quality standards and parameters

Objective: to know quality standards and quality parameters to evaluating service delivered

Equipment and materials: Note book, camera, pen, pencil

Use the following steps to know delivered service evaluation standards and parameters

Step 1. Prepare yourself with full information about the quality standards and quality parameters to evaluating service delivered and prepare check list and questions

Step 2. Ask your instructor to prepare a tour to the nearby small scale oil factory or enterprises.

Step 3. Tell your objective and ask for the owner's permission to interview and visit their enterprise

Step 4. Collect all available data and information concerned to the enterprise situation such as use of quality standards and quality parameters during oil processing

Step 5. Identify quality attributes and standardizing parameters of products for different purposes such as consumption, local market, export market, further processing by using incoming inspection, in-process inspection and final inspection.

Step 6. Understand processing product and processed product from national and international standard from different point of view such as HACCP principles, general principles of food hygiene, good manufacturing practice and appropriate food legislation, in order to establish basic conditions that are suitable for the production and handling of safe food at all stages of the food chain, traceability (tools to locate the source and the root causes of a particular problem of quality or safety by the information recorded from a particular product, regardless of the stage of production) in order to establish basic conditions that are suitable for the production and handling of safe food at all stages of the food chain.

Step 7. Give recommendation according to their quality attributes related to quality standards and quality parameters for improvement if necessary.

LAP TEST	Performance Test

Name…… ID…… Date……

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **5** hour. The project is expected from each student to do it.

Task: Evaluating service delivered using quality standards and parameters?

LG #19	LO #3- Record information

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Recording basic information on the quality performance
- Maintaining records of work quality

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Record basic information on the quality performance
- Maintain records of work quality

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 1- Recording basic information on the quality performance

1.1. Recording information on quality performance

Basic information on the quality performance should be recorded in accordance with workplace procedures and records of work quality are maintained according to the requirements of the company. Good and effective documentation is an essential and integral part of good practice. Its purposes are:

- To define the materials, operations, activities, control measures and products;
- To record and communicate information needed before, during or after manufacture or processing;
- To reduce the risk of error arising from oral communication; and to permit investigation and tracing of defective products.

The system of documentation should be such that as far as is practicable the history of each lot of product, including utilization and disposal of raw materials, intermediates and bulk or finished products, may be ascertained and thus traceability maintained. Where documentation is maintained electronically safeguards need to be in place to ensure the data is entered correctly and that sufficient back-ups are made so that, in the event of file alteration, corruption, deletion or destruction, the original data can be retrieved.

To facilitate proper and effective use of documents they should be designed and prepared with care, be free of errors and pay particular attention to the following points:

- The title (which should be unambiguous), nature and purpose of the document should be clearly stated. The document should be laid out in an orderly fashion, and be easy to check.
- It is an advantage if it is possible to revise part of a document without necessarily completely rewriting the whole;
- The way the document is to be used, and by whom, should be clearly apparent from the document itself.
- Where documents bear instructions they should be written in the imperative, as numbered steps. They should be clear, precise, and unambiguous and in

language the user can understand. Such documents should be readily available to all concerned with carrying out the instructions;

- The size and shape of documents and the quality and color of the paper used should be considered in relation to the typing/printing, reproduction and filing facilities available;
- Reproduced documents should be clear and legible. Sufficient training on how to complete the documents should be given to the relevant personnel and the effectiveness of the training should be regularly assessed.

If an error is made or detected on a document it should be corrected in such a manner that the original entry is not lost and the correction initialed and dated. Where appropriate, the reason for the correction should be recorded. The documentation system should include procedures for issue, authorization, periodic review and revision. An outdated or superseded document should be removed from active use, and a copy, marked that it has been superseded, retained for reference. Routine internal audits will help ensure that the correct versions of documents are being used. It may be useful to prepare a manual which describes the overall quality assurance system, the procedures employed and the documents used.

1.2. Types of documents

The following lists are not exhaustive but do give an indication of the types of documents which are advisable:

- Specifications, instructions and procedures:
  - ✓ Ingredient specifications;
  - ✓ Packaging materials specifications;
  - ✓ Copy of order and/or terms of conditions of purchase;
  - ✓ Master manufacturing instructions (including standard recipes);
  - ✓ Intermediate specifications;
  - ✓ Bulk product specification;
- Finished product specifications;

- ✓ Quality control (including analytical and microbiological) procedures and methods;
- ✓ Standard procedure for product recall;
- ✓ Equipment operating instructions;
- ✓ Cleaning instructions, good housekeeping and pest control schedules;
- ✓ Machine and equipment maintenance schedules;

Records and reports

- ✓ Records of receipt, examination, approval and issue for use of raw materials and food packaging materials as required by law;
- ✓ Records of the testing and release of intermediates, bulk products and finished products;
- ✓ Records of process control tests;
- ✓ In-process recording instruments charts;
- ✓ Weight or volume control charts;
- ✓ Lot manufacturing records;
- ✓ Customer complaint records;
- ✓ Quality control summaries and surveys;
- ✓ Quality audit reports and records;

Programs

- ✓ Production programs;
- ✓ Training programs;
- ✓ Quality audits.

Figure 1. Recording information

Self-Check – 1	Written test

Name…… ID……. Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer

1. List the information to be record? (4pts)
   a._____
   b. _____
   c. _____
   d. _____

Note: Satisfactory rating - 4 points Unsatisfactory - below 4 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

a) _____
b) _____
c) _____
d) _____

Information Sheet 2- Maintaining records of work quality

2.1. Maintaining records of work quality

It is essential to maintain quality records not only to conform to the regulations but to also aid management in reviewing the effectiveness of quality system and making decisions on how to improve it. The records that are maintained also demonstrate that products were manufactured to specifications and standards.

Maintaining records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled. The organization shall establish a documented procedure to define the controls needed for the processing, identification, storage, protection, retrieval, retention and disposition of records. Records shall remain legible, readily identifiable and retrievable. Records exist in all companies. These records can provide you with information to help your processes effectively. You will need to show that you have actually done something, recorded certain information, or met a particular requirement.

Self-Check – 2	Written test

Name…… ID……. Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer

1. List the importance of maintaining quality work record?(2pts)

Note: Satisfactory rating – 2 points Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

1. _____

_____

LG #20	LO #4- Study causes of quality deviations

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Investigating and reporting causes of deviations from final outputs or services
- Recommending suitable preventive action based on quality standards and identified causes of deviation

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Investigate and report causes of deviations from final outputs or services
- Recommend suitable preventive action based on quality standards and identified causes of deviation

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 1- Investigating and reporting causes of deviations from final outputs or services

1.1. Deviation

A deviation is a departure from standard procedures or specifications resulting in non-conforming material and/or processes or where there have been unusual or unexplained events which have the potential to impact on product quality, system integrity or personal safety. For compliance to good manufacture practice and the sake of continuous improvement, these deviations are recorded in the form of deviation report.

Some of the most challenging quality problems are those which are connected with defect investigation in spite of careful planning and proper process control certain defects may still be revealed during assembly or in final inspection. To prevent these defects from recurring, they have to be investigated to find the underlying causes so that efforts can be made for its elimination. The causes of certain defects are fairly obvious and can directly be identified. In fact the analysis element in any process control system is a form of defect investigation in the sense that based on the defects observed the causative factor is identified which in turn gives a clue to the corrective action required. However, there are other defects which cannot be readily explained. There may be so many possible causes that it may be difficult to spot with any degree of certainty the factor which has caused a particular defect. In such cases, formal defect studies may be carried out to find the real cause and the remedial measures required.

Types of deviations:

The following are some examples of deviations raised from different functional areas of edible oil and fat processing.

- Production deviation - usually raised during the manufacture of a batch production. Deviation - raised due to an environmental, health and safety hazards.

- Quality improvement deviation - may be raised if a potential weakness has been identified and the implementation will require project approval.
- Audit deviation - raised to flag non-conformance identified during internal, external, supplier or corporate audits.
- Customer service deviation - raised to track implementation measures related to customer complaints.
- Technical deviation-can be raised for validation discrepancies. For example: changes in manufacturing instruction.
- Material complaint- raised to document any issues with regards to non-conforming, superseded or obsolete raw materials/components, packaging or imported finished goods.
- System routing deviation - raised to track changes made to bill of materials as result of an artwork change. A deviation should be raised when there is a deviation from methods or controls specified in manufacturing documents, material control documents, standard operating procedure for products and confirmed out of specification results and from the occurrence of an event and observation suggesting the existence of a real or potential quality related problems. All batch production deviations (planned or unintended) covering all manufacturing facilities, equipment's, operations, distribution, procedures, systems and record keeping must be reported and investigated for corrective and preventative action. Reporting deviation is required regardless of final batch disposition. If a batch is rejected a deviation reporting is still required. Different Levels of deviation risks: for the ease of assessing risk any deviation can be classified into one of the three levels based on the magnitude and seriousness of a deviation.

Level 1: Critical deviation from company standards and/or current regulatory expectations that provide immediate and significant risk to product quality, patient safety or data integrity or a combination/repetition of major deficiencies that indicate a critical failure of systems.

Level 2: Serious deviation from company standards and/or current regulatory expectations that provide a potentially significant risk to product quality, patient safety or data integrity or could potentially result in significant observations from a regulatory agency or a combination/repetition of other deficiencies that indicate a failure of system/s.

Level 3: Standard deviation observations of a less serious or isolated nature that are not deemed critical or major, but require correction or suggestions given on how to improve systems or procedures that may be compliant but would benefit from improvement (e.g. incorrect data entry) how to manage reported deviation. The department manager or delegate should initiate the deviation report by using a standard deviation form as soon as a deviation is found. Write a short description of the fact with a title in the table on the form and notify the quality assurance department within one business day to identify the investigation.

Quality assure (QA) has to evaluate the deviation and assess the potential impact to the product quality, validation and regulatory requirement. All completed deviation investigations are to be approved by QA manager or delegate. QA manger has to justify wither the deviation is a critical, serious or standard in nature. For a deviation of either critical or serious nature QA delegate has to arrange a cross functional investigation. For a standard type deviation a cross functional investigation (CFI) is not necessary. Immediate corrective actions have to be completed before the final disposition of a batch. Final batch disposition is the responsibility of Quality Assurance Department. If a critical or serious deviation leads to a CFI, corrective and preventive actions should be determined and follow up tasks should be assigned to area representatives. After successful completion of the follow up tasks deviation should be completed and attached with the batch report /audit report/ product complaint report /safety investigation report as appropriate.

1.2. Investigating causes of quality deviations

- Design and specification
  - ✓ vague or insufficient manufacturing particulars or illegible drawing prints
  - ✓ Impracticable design or incompatible component and assembly tolerance.
  - ✓ Obsolete drawing being used.
- Machinery and equipment
  - ✓ Inadequate process capability
  - ✓ Incorrectly designed tooling
  - ✓ Worn tools jigs or dies
  - ✓ Non-availability of gauges or measuring equipment
  - ✓ Poor maintenance of machines
  - ✓ Equipment affected by environment condition such as temperature, humidity.
- Materials
  - ✓ Use of untested materials.
  - ✓ Mix-up of materials
  - ✓ Substandard material accepted on concession because of the non-availability of correct material
- Operating and supervisory staff
  - ✓ Operator does not possess adequate skill for operating the process equipment.
  - ✓ Operator does not understand the manufacturing drawing or instructions relating to the process.
  - ✓ Machine setter does not know how to correctly set the machine.
  - ✓ Careless operator and inadequate supervision
  - ✓ Undue rush by the operator to achieve quantity targets
- Process control and inspection
  - ✓ Inadequate process controls
  - ✓ Non availability of proper test equipment
  - ✓ Test equipment out of calibration
  - ✓ Vague inspection /testing instructions

- ✓ Inspectors do not possess the necessary skill

1.3. Reporting causes of quality deviations

A quality report is defined as are port conveying information about the quality of a statistical product or process. It contains text, one or more quality indicators or a combination of both and it can be recorded on paper, in a file or a database. Report variation and potential problems to supervisor/manager according to enterprise guidelines. The best methods to display monitoring data are the ones that work for your implementation team and other users. Some people find tables to be an effective way to communicate information; others prefer graphs. You should report the same results to all users of the monitoring information, but each type of user will be interested in different aspects of the information. A supervisor is expected to convert managerial ideas and goals into concrete operational results. But the problem is that he is not given enough authority to make operational decisions and also not accepted as a part of the management. His position is such that he is often in a dilemma as to whom to please. If he pleases managers, he is subjected to earn the displeasure of the workers and vice versa. Thus to be successful in his activity, supervisor should keep an equal distance between the two parties and balance their conflicting attitudes and goals. A non-conformance or cause of quality deviation report is then prepared. The purpose of the report is to document the details of a deviation from expectations. The report helps define the problem in a clear, logical and concise way so that management can take steps to implement changes.

Self-Check – 1	Written test

Name…… ID……. Date…….
Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer

1. Write levels of deviation risks? (5points)

2. Write types of deviation? (5points)

Note: Satisfactory rating - 10 points Unsatisfactory - below 10 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet
Name: _____ Date: _____

1. _____
2. _____

Information Sheet 2- Recommending suitable preventive action based on quality standards and identified causes of deviation

2.1. Corrective and preventive actions

Corrective and preventive action (CAPA, also called corrective action/preventive action or simply corrective action) consists of improvements to an organization's processes taken to eliminate causes of non-conformities or other undesirable situations. It is usually a set of actions that laws or regulations require an organization to take in manufacturing, documentation, procedures, or systems to rectify and eliminate recurring nonperformance. Non-conformance is identified after systematic evaluation and analysis of the root cause of the non-conformance. Non-conformance may be a market complaint or customer complaint or failure of machinery or a quality management system, or misinterpretation of written instructions to carry out work. The corrective and preventive action is designed by a team that includes quality assurance personnel and personnel involved in the actual observation point of nonconformance. It must be systematically implemented and observed for its ability to eliminate further recurrence of such non-conformation.

Corrective action taken to eliminate the causes of non-conformities or other undesirable situations. Preventive action taken to prevent further reoccurrence of such non-conformities. CAPA is used to bring about improvements to an organization's processes, and is often undertaken to eliminate causes of non-conformities or other undesirable situations. CAPA is a concept within good manufacturing practice (GMP), Hazard Analysis and Critical Control Points/Hazard Analysis and Risk-based Preventive Controls (HACCP/HARPC) and numerous processing standards. It focuses on the systematic investigation of the root causes of identified problems or identified risks in an attempt to prevent their recurrence (for corrective action) or to prevent occurrence (for preventive action).

Preventive action is any proactive methodology used to determine potential discrepancies before they occur and to ensure that they do not happen (thereby

including, for example, preventive maintenance, management review or other common forms of risk avoidance). Corrective and preventive actions include stages for investigation, action, review, and further action is required. It can be seen that both fit into the PDCA (plan-do-check-act) philosophy as determined by the Deming-Shewhart cycle.

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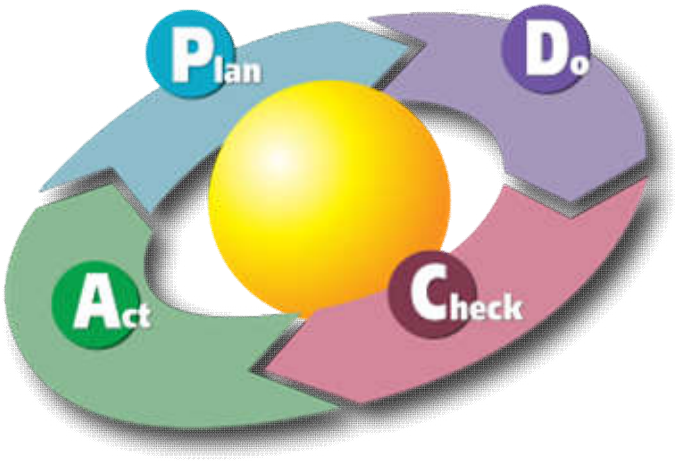

Figure 1 The plan-do-check-act cycle

Implementation of corrective and preventive actions is the path towards improvement and effectiveness of quality management systems. Corrective actions are nothing but action/actions based on problem identification. The problem or a non-conformance can be identified internally through staff suggestions, management reviews, document reviews or internal audits. External leads to finding the root cause of the problem can include customer complaints/suggestions; customer rejections; non-conformities raised in customer/third-party audits; recommendations by auditors.

2.2. Recommending suitable preventive action

Preventive action is an important activity. It seeks to prevent the occurrence of potential problems that could have a negative effect on your business results, products, processes, quality management system, or customer satisfaction. Preventive action can take two forms.

- The first is the elimination of potential failure modes.

This technique should be deployed in the advanced quality planning stage of new product or process development.

- The second form of preventive action is the elimination of potential failure modes

When information from processes, systems, work operations, process capability studies, yield analyses, deviations, concessions, quality records, audit reports, service reports, or customer complaints suggests a nonconformance may occur. Steps shall be taken according to documented procedures to eliminate potential nonconformance. The minimum, preventive action process should include, but not be limited to:

- ✓ Determining the steps needed to verify or deny the potential nonconformance;
- ✓ Gathering and analyzing the required data;
- ✓ Determining the effectiveness of the implemented containment actions;
- ✓ Applying controls to ensure the solution is effective in resolving the problem at an acceptable level corresponding to the risks encountered;
- ✓ Reviewing preventive action activities by management for trends and impact on procedures, products, processes, and systems.

Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer

1. What are the purpose of preventive and corrective actions? (3 points)
2. List the two form of preventive action? (2 points)

Note: Satisfactory rating – 5 points Unsatisfactory - below 5 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

1. _____
2. _____

LG #21	LO #5- Complete documentation

Instruction sheet

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Recording information on quality and other indicators of service
- Recording all service processes and outcomes

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Record information on quality and other indicators of service
- Record all service processes and outcomes

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks

Information Sheet 1- Recording information on quality and other indicators of service

1.1. Recording information on quality and other indicators of service

Performance indicators are given important information about quality. Each metric has its specific uses. It's down to you to employ these in a way that works best for your business. Key performance indicators help you measure performance versus set goals. Record information from processed products by using quality indicators such as iodine value (degree of unsaturation), peroxide value (formation of primary oxidation products), moisture content, specific gravity (purity), and acid value (free fatty acids formation because of rancidity) are key indicators of interest as they determine the shelf-life quality and hence the economic value of oils. Rancidity of vegetable oils may pose health risks including cancer and inflammation because of the formation of toxic and reactive oxidation products. For healthy consumption, unsaturated oils are better than the saturated. Consumption of palmitic oil (highly saturated) is associated with an increased risk of developing cardiovascular diseases. In contrast, some edible vegetable oils contains high levels of polyunsaturated fats which make them susceptible for rancidity. It might then be sensible to focus on setting customer engagement benchmarks to achieve higher retention rates. Key performance indicators (KPIs) can identify issues in need of addressing. Measuring customer satisfaction across multiple touch-points may reveal phone users are the least satisfied, whereas those using live chat are extremely satisfied. Makes sense then to incorporate live chat across all possible touch-points and encourage phone users towards live chat where they are likely to have a better experience.

Self-Check – 1	Written test

Name…… ID……. Date…….
Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer

1. List the importance of performance indicators? (5pts).

Note: Satisfactory rating – 5 points Unsatisfactory - below 5 points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet
Name: _____ Date: _____

1. _____

Information Sheet 2- Recording all service processes and outcomes

2.1. Record all service processes and outcomes

Create the categories you need to encompass all your records. Organize documents into recognizable categories that make sense to your personnel. The primary criterion for a category is that it not overlap any other category. If a major category is customers, then each customer, or compatible group of customers, should serve as a sub-category. Product or vendor records must be in different categories. Within each category and sub-category, individual records can be arranged alphabetically by title, by date initiated or completed, department or any other method that makes retrieval convenient, consistent and efficient.

Give special attention to any record handlers, whose job is to collect, file and distribute records; and unit supervisors, who are likely to receive questions after the system is in place. Use the development team members to assist you in monitoring the system for changes that will correct problems or make it easier and more efficient to use. A filing system without a back-up system is not complete or secure. Companies suffered large financial losses or went out of business when they lost their data. For critical records, it may pay to make duplicate records and file them in secure, fireproof off-site locations. Another alternative is to scan critical data electronically and transmit the files to off-site, online storage. If privacy of data is an issue, you can back the files up to your own drives, which you keep in a secure, off-site location. Record documents includes operation procedures, specifications, work practice, operating instructions etc. the important issue is that your people have the information they need to do their job. Documentation should indicate, who does what, where, when, why, and how. It should not be a wish list of what you would like to happen in your business, but should clearly and accurately reflect what really happens.

Self-Check – 2	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Short answer

1. Write the importance of record all service processes and outcomes? (5 points)

Note: Satisfactory rating -5 points Unsatisfactory - below 5points

You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

1. _____

_____

Reference Materials

Book:

1. ISO, “ISO 9001:2015 Quality management systems - Requirements,” Vernier, Geneva, Switzerland, 2015.
2. Ekwu F, Nwagu A. Efect of processing on the quality of cashew nut oils. J Sci Agric Food Tech
3. Environ. 2004;2004 (4):105–10. 3. Endo Y. Analytical methods to evaluate the quality of edible fats and oils: the JOCS standard methods for analysis of fats, oils and related materials (2013) and advanced methods. J Oleo Sci. 2018; 67 (1):1–10.
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5. Mehmood T, Ahmad A, Ahmed A, Khalid N. Quality evaluation and safety assessment of different cooking oils available in Pakistan. J Chem Soc Pak. 2012;34(3):518–25.

5. Mukherjee S, Mitra A. Health efects of palm oil. J Hum Ecol. 2009;26 (3):197–203.

WEB ADDRESSES

1. http://www.hqontario.ca/portals/0/documents/evidence/quality-standards/qs-process-guide-en.pdf
2. https://asq.org/quality-resources/learn-about-standards
3. https://www.epa.gov/sites/production/files/2013-11/documents/2106p01.pdf
4. https://bmcresnotes.biomedcentral.com/track/pdf/10.1186/s13104-019-4831-x.pdf
5. https://www.researchgate.net/publication

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