CONFECTIONARY PROCESSING

Level-II

Based on *May* 2011, Version 2 Occupational standards

Module Title: Operating Continuous Vacuum Cooker

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LG #72	LO #1- Feed cooker, Operate and monitor Vacuum cooker

Instruction sheet

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

- carrying out the start-up process to manufacturers
- Operating Vacuum cooker
- Monitoring the syrup flow and level into vacuum cooker
- Monitoring and adjust the temperature and steam pressure according to OHS requirements
- Monitoring outflow
- Identifying and complying OHS requirements

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:

- carry out the start-up process to manufacturers
- Operate Vacuum cooker
- Monitor the syrup flow and level into vacuum cooker
- Monitor and adjust the temperature and steam pressure according to OHS requirements
- Monitor outflow
- Identify and comply OHS requirements

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-	Carrying out the start-up process to manufacturers

1.1. Carrying out the start-up process to manufacturers

To start Operating Vacuum cooker slowly will be explained throughout this procedure and it can take many hours for a large continuous vacuum cooker to be heated correctly to operating temperature and pressure. Timing will also depend on how much treated water is available to fill the pot, so be prepared for a long hour and you may have to include a shift handover procedure to safely complete the task.

❖ Attention to start-up the continuous vacuum cooker :

1. Under no circumstances should the pot be left unattended until all of the Following steps have been completed and the pot is up to pressure and Temperature and back on-line if appropriate.
2. Also take care when handling continuously cooking or working on live steam etc.;
3. Always that PPE appropriate to the task is worn.
4. Also remember that most accidents during cooking

Vacuum cooking is the process of cooking food under high pressure steam, employing water or a water- based cooking liquid, in a sealed vessel known as a pressure cooker. High pressure limits boiling, and permits cooking temperatures well above 100 °C (212 °F) to be reached

The Automatic Vacuum Cooker is a high capacity fully automatic machine for the production of high boiled sweets, including solid, centre filled and sugarless candy. The

automatic cooking plant produces hard-boiled candies (also hard-boiled milk caramels) of the finest quality with extreme smoothness and exceptional clarity.

The cooking is without any loss of sugar. The most suitable recipes can be handled with undiminished quality even when cooking batches with less than 1% moisture content. Output, vacuum, cooking temperature, cooking time and batch weight can be easily adjusted. Once set the cooking plants to cook automatically and continuously at low operating cost

Figure 1 stainless steel CK.1000 vacuum cooker

All functions, including set-up procedure and washing cycle, are completely automatic, as well as the control of all process parameters.

Cooked batches are automatically discharged inside the kettles standing under the vacuum chambers without any intervention from the operator.

The pressure cooker was invented in the seventeenth century by the physicist Denis Papin, and works by expelling air from the vessel, and trapping the steam produced from the boiling liquid inside. This raises the internal pressures and permits high cooking temperatures. This, together with high thermal heat transfer from the steam, cooks food far more quickly, often cooking in between half and a quarter the time for

conventional boiling. After cooking, the steam pressure is lowered back to ambient atmospheric pressure,

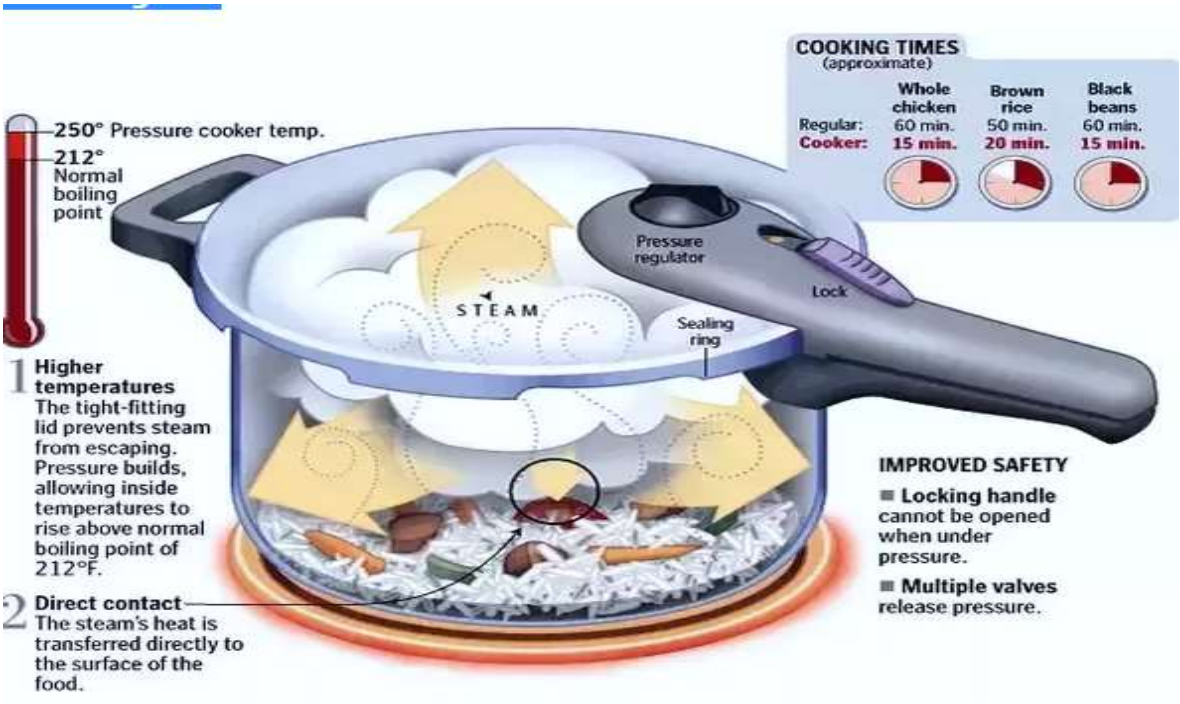

Fig. 1.Vacuum pressure cooker

Self-check 1	Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

Test I: say "True" or "False" for the following questions (4 point)

1. Vacuum cooking is the process of cooking food under high pressure steam.
2. The Automatic Vacuum Cooker is a high capacity fully automatic machine for the production of high boiled sweets, including solid, centre filled and sugarless candy.
3. Vacuum cooker set-up procedure and washing cycle, are completely automatic, as well as the control of all process parameters.

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet 2-	Operating Vacuum cooker

2.1. Operating Vacuum cooker

To improve the quality of the product and to reduce its final cost in order to minimize losses during the process, there are several variables that should be considered like reducing the oxidation, dry skin and moisture control during the cooking process that will allow a significant economic saving

Cooking cookies, candies or syrup and other prepared foods can be a time consuming process which may deteriorate the quality and nutritional value of the product. Sealed cookers allow the cooking process to be carried out in a vacuum or under pressure to improve retention of nutritional properties, texture and flavor or to speed up the cooking process.

The choice of a suitable vacuum cooker depends on the batch size, cooking temperature, vacuum/pressure requirements, steam cooking, and condensate recovery requirements. An easy-to-clean design can speed up transition between products while maintaining the optimal level of hygiene. Let us help you select the right vacuum cooker for your application Vacuum cooker for concentrating sauces and purees

Figure. 1 different size of vacuum cookers

2.2. Reasons to vacuum cook in food industry

Vacuum cooking has become increasingly popular among professional cooks for a variety of reasons. The degree of accuracy obtained by vacuum cooking is impossible to achieve by conventional methods. If you want to know more about this cooking technique and what it can do for your business, we offer you 10 reasons to operating vacuum cooking that will convince you to use it in your industry

At food industry you to discover the full potential of a technique that is increasingly praised, so we show you 10 reasons why operating vacuum cooking in your business is a success:

- Maximum control of the taste and texture of food.
- Guaranteed uniformity in the core and surface of the pieces of cookies, candies or syrup.
- Eliminates the need to reheat certain food areas to reach the desired core temperature.
- Allows food to be stored and heated without sacrificing taste, aroma and texture.
- Possibility of repeating the same cooking results, obtaining a standard quality in production.
- Greater control of the size of the portions, as they can be weighed and seasoned before cooking.
- Preservation of food quality and organoleptic properties.
- Optimization of processes related to hygiene and food safety.
- Reduction of food waste by up to 20%, reducing costs.

Increase in the shelf life of foods, allowing their storage, purchase and production at once.

When operating in vacuum cooker a universal heat exchanger for sugar- and non-sugar recipes

- Dissolution of crystal sugar in slurries
- Pre-cooking of all kind of sugar solutions
- Final cooking of all kind of sugar solutions
- Operation in vacuum / atmospheric pressure / pressure

Self-check 2	**Written test**

Name…… ID…… Date…….

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

Test I: Choose the best answer (3 point)

1. What are the reasons of operating in vacuum cooking in your business?
   A. Preservation of food quality and organoleptic properties.
   B. Optimization of processes related to hygiene and food safety.
   C. Reduction of food waste by up to 20%, reducing costs.
   D. All
2. What types of food you cook in vacuum cooker?
   A. Candy
   B. Syrup
   C. Cookies
   D. All of the above

Test II: Give Short Answer (4pts.)

1. Write some the choice of a suitable vacuum cooker depends on.

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

Answer Sheet

Score = _____

Rating: _____

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

Information Sheet- 3	**Monitoring the syrup flow and level into vacuum cooker**

Name: _____ Date: _____

3.1. Monitoring the syrup flow level into vacuum cooker

Measurements of various syrup flow parameters are done by different gauges and controlled by respective valves. Variable those to be controlled are:

- **Juice input:** Juice input to syrup crystallizer can be controlled by level controller. Level controller helps to control the rate of juice input to the pan.
- **Level**: Level in syrup crystallizer can be controlled by regulating feed inlet.
- **Steam flow**: Steam flow rate must be controlled in comparison with Temperature and vacuum.
- **Brix:** Brix meter uses the conductivity of syrup and transmits signal to control vacuum and temperature percent of body.

The dynamic behavior of an industrial five-effect evaporator in sugar manufacturing is determined using the parameter identification approach. The purpose is to obtain an accurate mathematical model that can be used for advanced control design

Control action:

- **Regulation of pressure (0 psi to 15 psi):** It is done with controlling the steam flow rate inside the vacuum. Opening the valve the flow rate of steam increased and by controlling flow valve down flow rate decreased
- **Regulation of vacuum (-15 psi to15 psi):** It is achieved by controlling input of finely sprayed cold water in condenser. Vapours evolving from pan are fed to condenser. Condenser is a closed chamber. This vapours condensate in condenser hence leading to vacuum in pan.
- **Regulation of Hot water and Syrup (0% to 100 %):** this must be set by the operator on the concentration of syrup being heated in pan. On the basis of operator experience operator sets the boiling condition of pan. In order to increase and decrease concentration over time. This is used when crystal growth is taking place

Level is maintained with control of Hot water valve once the syrup is being started heating. Conductivity is maintained with syrup control valve. Pressure and temperature is maintained with the controlling steam flow rate to vacuum cooker.

In another way of carrying out the invention, in the case of a sugar production mill, the process comprises the steps of:-

- submitting the sugar cane to a juice extraction operation with imbibition by vegetal vapor condensate;
- treating and purifying the extracted juice, using vegetal vapor condensate, evaporation vegetal vapor and inputs, and producing a clarified juice flow, a sludge flow and a vegetal vapor condensate flow;
- treating the sludge flow, producing a filter cake and a recovered juice flow which is returned to the step of treating and purifying the juice;
- submitting part of the clarified juice flow to a multiple effect vacuum evaporation unit, under heating by exhausted steam from the energy generation unit, producing: an exhausted steam condensate, to be returned to the energy

generation unit, at least one evaporation vegetal vapor flow; a last effect vegetal vapor flow, a vegetal vapor condensate flow; and a syrup flow;

- concentrating the syrup until the crystallization point of part of the sucrose contained therein, under heating with at least part of the vegetal vapor flow produced in the evaporation unit, producing a crystallization vegetal vapor flow, a vegetal vapor condensate flow and a crystallized product flow (crystallized mass);
- Centrifuging the crystallized product, producing end syrup (molasses) flow and a sugar flow to be dried and bagged.

Self-check 3	Written test

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

Name…… ID…… Date…….

Test I: Short Answer Questions (3pts.)

1. The syrup flow parameters controlled by:
   A. Juice input
   B. Level
   C. Brix
   D. All of the above
2. Which of the following is set by the operator on the concentration of syrup being heated in pan
   A. Regulation of Hot water and Syrup (0% to 100 %)
   B. treating and purifying the extracted juice
   C. submitting the sugar cane to a juice extraction operation
   D. none of the above

Test II: Fill in blank space (3pts.)

1. Measurements of various syrup flow parameters are done by _____ and _____.

2. _____ in syrup crystallizer can be controlled by regulating feed inlet.

Answer Sheet

Score = _____
Rating: _____

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

Name: _____ Date: _____

Information Sheet- 4 Monitoring and adjust the temperature and steam pressure according to OHS requirements

4.1. Monitoring and adjust the temperature and steam pressure

Monitoring flow vacuum cooker along with measuring temperature and pressure, are critical for optimal operation in gas and steam turbines. If these parameters do not stay within appropriate ranges, a power plant will suffer from issues with safety, performance, and efficiency.

In power plants, safe operations and efficiency are directly linked to business sustainability, financial performance, and long-term feasibility. That's why flow measurement, temperature measurement, and pressure measurement are so important.

The vacuum cooker temperature is a determining factor in turbine safety and efficiency. Increases in the turbine inlet improve the engine's efficiency: the turbine can produce the same amount of power with less fuel, or produce more power with the same amount of fuel. Components, however, face very demanding temperature conditions, in particular at the high pressure compressor exit and at the high pressure turbine inlet. If

temperatures get too hot, chances of compressor blade failure and serious component damage increase dramatically.

Another important element is flow nozzle measurement. Measurements at the flow nozzle are critical because readings are plugged directly into efficiency calculations in the turbine's control system. During plant commissioning and routine operations, operators rely on flow nozzle measurements to validate performance and verify the efficiency of the turbine.

The key to plant safety and performance is the ability to accurately measure and track temperature, pressure, and flow. Information collected at specific measuring points can be used to:

Avoid Metal lurgical Failures: Temperatures need to be maintained below the vessel's melting point in order to avoid metallurgical failure. Too-high temperatures can also lead to creep deformation in the rotating blades.

In steam turbines of vacuum cookers, the following parameters are critical and are continuously monitored:

- Steam and steam condensate's flow rate, temperature, and pressure
- The high pressure throttle
- The hot reheat
- Low pressure induction sections
- Exhaust pressure
- Similarly, in gas turbines, the critical parameters routinely checked include:
- Temperature and flow of the exhaust gas
- Pressure and temperature of ambient air
- Temperature at the compressor inlet
- Pressure and temperature of gas fuel

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Self-check 4	Written test

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

Name…… ID…… Date…….

Test I: choose best answer (4pts)

1. Steam and steam condensate's flow rate, temperature, and pressure on monitored during:

A. The high pressure throttle

B. The hot reheat

C. Low pressure induction sections

D. All of the above

Test II: Fill in the blank space. (3pts.)

1. _____ is a determining factor in turbine safety and efficiency.
2. If temperatures get too hot, _____.

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet- 5	**Monitoring outflow**

5.1. Monitoring outflow

Vacuum cooking (cook-vide) may be an option for production of ready-to-eat cookies with high organoleptic quality. It is defined as the cooking process that is carried out under pressures well below atmospheric levels. Due to the decreased pressure, both the boiling points of the water and the moisture in the foods are lowered. Due to the low temperature and oxygen content during the process, cook-vide presents some advantages including preservation of natural color and flavors of the product. In this work, the effects of cooking temperature (70–100°C), time (3–20 min), and treatments (atmospheric pressure and cook-vide) on Sea Bream fillets were investigated. Changes in weight, water content, fat, protein and color were analyzed.

Steam cooking treatments under vacuum conditions did not imply significant changes in compositional and color attributes, but improved the cooked fillet's appearance and reduced weight loss. Put all the ingredients into the large inner pot of the thermal cooker, cover with the lid and start cooking. Bring the pot to the boil, lower the heat and boil for another 10 minutes. Turn off heat and transfer the inner pot to the thermal cooker. Close the cooker and let it cook for 45 minutes.

The best thing about a thermal cooker is that it continues the cooking process without using any electricity or gas. Slow cookers consume a lot of power and tend to dry up some of the liquid in the food. Sometimes food gets burnt at the bottom if it is left to cook for too long without being stirred. Problems like these are not encountered in thermal cooking as the food will never dry up or get burnt. Once the food is inside, there is no need to keep checking or stirring the pot. Most meat will turn out tender, moist and cooked to perfection, while the vegetables and potatoes retain their shape and texture. No wonder it's called a magic cooker!

Self-check 5	**Written test**

Directions: Answer all the questions listed below.

Name…… ID…… Date…….

Test I: Say "true" or "false" for the following questions (3pts.)

1. Steam cooking treatments under vacuum conditions did not imply significant changes in compositional and color attributes.

2. Vacuum cooking (cook-vide) may be an option for production of ready-to-eat cookies with high organoleptic quality.

3. Due to the decreased pressure, both the boiling points of the water and the moisture in the foods are lowered.

Test II: Short Answer Questions (3pts.)

1. How to monitoring outflow in vacuum cooker?

Answer Sheet

Score = _____
Rating: _____

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

Name: _____ Date: _____

Information Sheet- 6	**Identifying and complying OHS requirements**

6.1. Identifying and complying OHS requirements

OHS (Occupational Health and Safety) has established documented procedures to ensure the following are conducted:

- hazard identification,
- hazard and risk assessment, and control of risks and hazards
- evaluation of effectiveness of control measures

Health and Safety Policies are developed for high risk activities where there is regulatory or industry specific health and safety guidance documentation. Policies are developed through the policy development procedure to ensure compliance with the University policy framework, sufficient consultation and an outcome that is fit for purpose.

Identification and monitoring of legal and other requirements

The Department's Employee Safety and industry manager is responsible for the identification and monitoring of all health and safety legislation, codes of practice, compliance codes, applicable standards and any other requirements relevant to the operations in Department workplaces.

This is to be conducted by reviewing and monitoring the relevant legislation sources which include:

- Work Safe food industry
- Food safety Legislation
- OHS Alerts

The industry is responsible for including all identified legislation and other requirements on the OHS Legislation Register and all relevant policies, procedures and documentation under the Occupational Health and Safety Management System (OHSMS).

Updating the OHSMS with new and changed legislation

The Industry is responsible for updating and maintaining policies, procedures and documentation under the OHSMS when relevant changes to legislation and other requirements occur. This includes making recommendations for review and amendment, as applicable.

The OHS Legislation Register is to be updated by the industry when new legislation is introduced, or changes to legislation are made.

Implementing the OHSMS and legal requirements

The Workplace Manager is responsible for establishing and maintaining the OHSMS within their workplace, as outlined in the OHS Responsibilities Procedure and OHS Management System Audit Procedure.

Communication of legal and other requirements

The INDUSTRY is responsible for communicating to Department workplaces on identified legislation and other requirements, new legislation and changes to legislation. Communication can occur through any of the following means:

- Corporate Mail
- School Update
- Health and Safety Hazard and Information Alerts

All legal and other requirements will be made accessible to all employees via the Procedures within the OHSMS on the Health, Safety and Workers' Compensation .

Legal advice

The industry will engage the services of the Department's Legal Division for advice in respect to OHS legislation and other identified requirements, as required.

Compliance reviews

The industry is responsible for ensuring that OHS legislative compliance reviews occur:

- biennially through review of the Department's OHSMS documentation
- periodically through OHSMS evaluations
- introduce when new activities/operations into the workplace;
- Identify when any OHS compliance gap .

Self-check 6	Written test

Name…… ID…… Date…….

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

Test I: choose best answer for the following questions (3pts.)

1. The industry is responsible for ensuring that OHS legislative compliance reviews occur:
   A. biennially through review of the Department's OHSMS documentation
   B. periodically through OHSMS evaluations
   C. introduce when new activities/operations into the workplace;
   D. Identify when any OHS compliance gap
2. The Department's Employee Safety and industry manager is responsible
   A. Work Safe food industry
   B. Food safety Legislation
   C. OHS Alerts
   D. All of the following

Test II: Short Answer Questions (2pts.)

1. Write down all the regulation establishes the occupational hazard and standards.
2. List and define OHS.
3. Who is responsible to OHS?

Answer Sheet

Score = _____
Rating: _____

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

Name: _____ Date: _____

LG #73 LO #2- Operate and Monitor the vacuum cooking process

Instruction sheet

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

- Delivering the syrup continues in vacuum cooker in the required quantities and viscosity.
- Monitoring the preparation of syrup to meet the specifications for vacuum cooking
- Operating the cooking process
- Monitoring typical equipment to identify variation in operation.
- Identifying , maintaining and reporting the Variation of equipment operation
- Monitoring the cooked product to confirm the specification
- Identifying, rectifying and/or reporting the out-of-specification production/processing outcomes
- Identifying the appropriate shutdown procedures
- Shutting down the process in the workplace procedures
- Identifying and reporting maintenance requirements

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**: • Deliver the syrup continues in vacuum cooker in the required quantities and viscosity. • Monitor the preparation of syrup to meet the specifications for vacuum cooking • Operate the cooking process • Monitor typical equipment to identify variation in operation. • Identify , maintain and report the Variation of equipment operation • Monitor the cooked product to confirm the specification • Identify, rectify and/or report the out-of-specification production/processing outcomes • Identify the appropriate shutdown procedures • Shut down the process in the workplace procedures • Identify and report maintenance requirements
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-	**Delivering the syrup continues in vacuum cooker in the required quantities and viscosity.**

1.1. Delivering the syrup continues in vacuum cooker

Simply put, cooking under vacuum reduces the boiling point of the mass being cooked. The higher the vacuum applied, the lower the temperature required to drive off moisture.

The atmospheric boiling point of a water/sucrose solution varies depending on the percent (%) of solids. A 75% sugar solids solution begins boiling at about 225° F, whether it’s sucrose or sucrose and corn syrup. As water evaporates off, the solids increase and the boiling point also increases. The ideal % solids for a typical hard candy are 97 – 98%. This occurs at about 300° F, which is also the temperature where sucrose begins to decompose or “caramelize. “If your new product challenge involves

controlling moisture, delivering a clean syrup, and retaining functional attributes of key ingredients, vacuum cooking may be the solution.

The classic example of the above is stove-top cooked hard candy. Cooking a hard candy formula atmospherically to 300° – 305° F on an electric range will typically result in a darkened base with a “scorched” or “burnt” flavor note. However, by cooking under vacuum to a final cook temperature of 240° – 285° F, the same residual moisture can be achieved with no discoloration, and the mass will have a syrup flavor.

Figure 4 continues vacuum cooker

1.2. Viscosity measurements in food products and manufacturing

It is defined as the internal friction of a liquid or its ability to resist flow. The internal friction in a fluid can be easily demonstrated by observing a liquid that has been vigorously stirred to create a vortex. Once the stirring has stopped the speed of the vortex is gradually reduced and rotation of the liquid eventually stops. This happens as a result of the frictional force within the liquid and this force has to be overcome in order for the liquid to flow.

Figure 2 Syrup thickness

Supplies Needed

- 4 clear glass jars of the same size (we used pint-sized mason jars)
- 4 Marbles
- Water (enough to fill one jar)
- Corn Syrup (enough to fill one jar)
- Cooking Oil (enough to fill one jar) We used Vegetable Oil, but any Cooking Oil will work.
- Honey (enough to fill one jar)

Self-check 1	Written test

Name…… ID…… Date…….

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

Test I: Say "True" or "False" for the following questions (3pts.)

1. The atmospheric boiling point of a water/sucrose solution varies depending on the % solids.
2. Viscosity is not an important property of fluid foods
3. As water evaporates off, the solids increase and the boiling point also increases.

Test II: Short Answer Questions (3pts.)

1. Write some the ideal % solids for a typical hard candy
2. If your new product challenges it involves?

Answer Sheet

Answer Sheet

Score = _____

Rating: _____

Note: Satisfactory rating - ≥7 points **Unsatisfactory - below 7 & 8 points**

Name: _____ Date: _____

Information Sheet 2-	Monitoring the preparation of syrup to meet the specifications for vacuum cooking

2.1. Monitoring the preparation of syrup to meet the specifications for vacuum cooking

A continuous mixing method and system for preparation of syrup employed as a starting material for continuously manufacturing plate products are disclosed.

The syrup is prepared by a method in which at least one additive is incorporated into at least one master batch of methyl methacrylate or a monomer mixture of methyl methacrylate and a copolymerizable unsaturated compound or a syrup of a monomer-polymer mixture thereof and the flow of the resulting liquid mixture is continuously combined with the flow from another batch of a syrup of the monomer-polymer mixture in a proportion such that the master batch is less in amount than said other batch, and the combined flows are continuously blended with each other.

In the mixing system, the fluctuation in the flow from the master batch is detected by a detecting means which is operable for actuating the closure of the valve means provided for the storage vessel for the master batch, upon detection of the fluctuation in the flow rate from the master batch. Also, metering pumps are provided in the system, each being associated with each of the vessels for the master batch and the other batch for discharging the liquid content of each vessel at each fixed displacement ratio.

The metering pumps are driven by a common motor via respective gear engagements having respective gear ratios for determining the fixed displacement ratios of the pumps. A mixer is also provided in the system for continuously blending the respective liquid contents to continuously obtain the starting material

Occasionally the water /sugar ratio in the recipe will vary depending on the density of the syrup we are preparing. Density is measured in Baume degrees, on a scale that goes from 10° to 33º using a device called hydrometer. If we don't have a hydrometer we can use the following information as a rough guideline: 1 degree Baume is equivalent to 25 gr. (2 tablespoons) of sugar dissolved in 1 liter (4 cups) of water, so if you need a syrup to 10 ° Baume, all we´ll have to do is multiply the degrees by the grams of sugar, as in the following example 10 ° x 25 Gr. = 250 gr. sugar (1-1/4 cup) per liter (4 cups) of water.

Self-check 2	Written test

Name…… ID…… Date…….

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

Test I: Say "True" or "False" for the following questions (3pts.)

1. The syrup is prepared by a method in which at least one additive is incorporated into at least one master batch of methyl methacrylate.
2. Density of syrup is measured in Baume degrees, on a scale that goes from 10° to 33º using a device called hydrometer.

Test II: Give Short Answer (4pts.)

1. Write how to monitoring the preparation of syrup?

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

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet- 3	Operating the cooking process

3.1. Operating the cooking process

Operating vacuum cooking is the process of cooking food under high pressure steam, employing water or a water-based cooking liquid, in a sealed vessel known as a pressure cooker. High pressure limits boiling, and permits cooking temperatures well above 100 °C (212 °F) to be reached. This raises the internal pressures and permits high cooking temperatures. This, together with high thermal heat transfer from the steam, cooks food far more quickly, often cooking in between half and a quarter the time for conventional boiling. After cooking, the steam pressure is lowered back to ambient atmospheric pressure, so that the vessel can be opened safely.

Advantages of operating the vacuum cooking process:

- Minimizes fuel, energy use, CO_2 emissions
- Saves water, less evaporation.
- Saves food — no burning, no cleanup.
- Keeps flavour and nutrients in.
- Convenient — cooks while you are at work or sleeping or travelling.
- Can take travelling or to picnics.
- Reduces smoke, odor, humidity, grease buildup in kitchen.
- Easy cleanup.
- Safer — no power cord, the outside is not hot, spill-proof, reduces injuries.
- Reduces toxic fumes, which means less respiratory problems and other diseases, particularly in children

Prepare and monitor simple Syrup

Figure 1 Plain syrup

❖ **Plain syrup**

Ingredients:

- 2 cups water
- 1⅛ cup sugar

Directions:

Heat water and sugar in a Magefesa saucepan, Bring to a boil then remove from heat and let cool.

figure 2 Citrus syrup

❖ **Citrus syrup**

Ingredients:

- 2 cups water.
- 1⅛ cup sugar.
- ⅓ Cup citrus juice.

❖ **Directions**

Proceed the same way as with the plain syrup. Once cold, stir in the citrus juice of your choice.

❖ **Liqueur syrup**

Ingredients:

- 2 cups water.
- 1⅛ cup sugar.

- 2 teaspoons liqueur. (Rum, Brandy, fruit liqueur etc.)

figure 3 liqueur syrup

Directions:

Proceed the same way as with the plain syrup. When it starts boiling, add the liqueur, let it cook for a few seconds and remove from heat.

Figure 4 Coffee/ Tea Infused Syrup

❖ **Coffee/ Tea Infused Syrup**

Ingredients:

- 2 cups water.
- 1⅛ cup sugar.
- 1¼ tablespoons infusion ingredient (Soluble coffee, chamomile tea, or any other herbal teas).

Directions:

Proceed the same way as with the plain syrup. When it starts boiling, let the selected ingredient infuse for 4 minutes. Strain and cool.

Concetrated Flavored Syrup 710 Ml - Buy Flavor...

❖ **Flavored syrup**

Ingredients:

- 2⅓ cups water.
- 1⅛ cup sugar.

Figure 5 Flavored syrup

- Spices, citrus zest, cinnamon, vanilla, etc.

Directions:

Place water together with the ingredients you have chosen to flavor the syrup with in a Magefesa saucepan. Bring to a boil, simmer for about 3 minutes. Add sugar and wait for the mixture to come to a boil. Remove from heat, strain and cool. These syrups are used to wet pound cakes, cakes, pastries or to prepare fruit sauces, meringues, sorbets and tocino de cielo, a preparation made with egg yolks and sugar.

Self-check 3	**Written test**

Name…… ID…… Date…….
Directions: Answer all the questions listed below.

Test I: Say "True" or "False" for the following questions (3pts.)

1. Operating in vacuum cooking is the process of cooking food under high pressure steam.
2. After cooking, the steam pressure is lowered back to ambient atmospheric pressure, so that the vessel can be closed safely.

Test II: choose best answer for the following questions (3pts.)

1. The Advantages of operating the cooking process is

   A. Saves water, less evaporation.
   B. Saves food — no burning, no cleanup.
   C. Keeps flavour and nutrients in
   D. All of the Above

2. The method of making plain syrup:

   A. Heat water and sugar in a Magefesa saucepan.
   B. Bring to a boil.
   C. Remove from heat and let cool

D. All of the above

Answer Sheet

Score = _____
Rating: _____

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

Name: _____ Date: _____

Information Sheet- 4 Monitoring typical equipment to identify variation in operation

4.1. Monitoring typical equipment to identify variation in operation

Monitoring vacuum cooker helps you to measure progress towards your goals and compare actual results with planned performance. You must be able to use control techniques to identify potential problems and take corrective action to keep operations on target. You also need to adapt when changes occur to schedules and resources due to variations in activities.

Monitoring equipment is used to quantify the amount of variation in a measure that comes from the measurement system itself rather than from product or process variation. Monitoring helps you to determine how much of an observed variation is due to the measurement system itself. It helps you to determine the ways in which a measurement system needs to be improved.

It assesses a measurement system for some or all of the following five characteristics:

- **Accuracy:** Accuracy is attained when the measured value has little deviation from the actual value. Accuracy is usually tested by comparing an average of repeated measurements to a known standard value for that unit of measure.

- **Repeatability:** Repeatability is attained when the same person taking multiple measurements on the same item or characteristic gets the same result every time.
- **Reproducibility:** Reproducibility is attained when other people (or other instruments or labs) get the same results you get when measuring the same item or characteristic.
- **Stability:** Stability is attained when the measurements that are taken by one person in the same way vary little over time.
- **Adequate Resolution:** Adequate resolution means that your measurement instrument can give at least five (and preferably more) distinct values in the range you need to measure.

Self-check 4	**Written test**

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

Name…… ID…… Date…….

Test I: Choose best answer for the following questions. (3pts.)

1. What are characteristics of an effective monitoring process?
   A. Accuracy
   B. Ease of understanding
   C. Meeting needs
   D. All of the above
2. Which one is attained when the measured value has little deviation from the actual value
   A. Accuracy
   B. Ease of understanding
   C. Reproducibility
   D. Repeatability

Test II: Give short answer (3pts.)

1. Write on measurement system for some equipment variation characteristics.

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet- 5 Identifying, maintaining and reporting the Variation of Equipment operation

5.1. Identifying, maintaining and reporting the Variation of equipment operation

Experience shows that many accidents are caused by the employees' improper use of tools and by the use of defective tools and equipment. Employees shall use only tools and equipment that are in good condition.

Tools shall be used only for the purpose for which they were designed. It shall be the responsibility of each employee to make frequent inspections of tools and other equipment used to make sure such tools and equipment are in good physical condition. A supervisor shall prohibit the use of any tool, device or equipment which, in his/her judgment, is unsafe.

- Some of the common defects in tools and equipment that shall be eliminated to prevent accidents are the following:
  - Handles which are cracked, split, broken or loose, in hammers, shovels, sledges, axes, etc.
  - Vacuum cooker that fit poorly, open-end Vacuum cooker, and adjustable Vacuum cooker with spread jaws, or pipe Vacuum cooker that do not hold.

- Ladders having broken or loose rungs or cracked side pieces.
- Ladders with no rubber shoes.
- Rubber protective devices having cracked, cut, or otherwise defective, rubber

5.2. Reporting the Variation of equipment operation

A report is a document that presents information in an organized format for a specific audience and purpose. Although summaries of reports may be delivered orally, complete reports are almost always in the form of written documents

Although the specific causes will depend on the situation, some typical sources of variation can be identified.

Report the main problem areas are related to:

- Instrument needs calibration
- Worn instrument, equipment or fixture
- Worn or damaged master, error in master
- Improper calibration or use of the setting master
- Poor quality instrument – design or conformance
- Wrong gage for the application
- Different measurement method – setup, loading, clamping, technique
- Measuring the wrong characteristic
- Distortion (gage or part)
- Environment – temperature, humidity, vibration, cleanliness
- Violation of an assumption, error in an applied constant

5.2.1 Reporting/contact procedure

- Every employee is responsible for the identification, immediate reporting and where possible elimination and control of emergency in the workplace.

- Hazards that individual employees are unable to correct or eliminate themselves must be reported.
- At any stage, the employee reporting the hazard may enlist the support of their, whose role it is to facilitate discussions between the employee and supervisory/employer level in remedying the hazard.
- Upon receiving the completed Hazard Report Form, the supervisor will take every precaution reasonable in the circumstances for the protection of the worker. In order to define the probability and severity of the risk for the reported hazard, the supervisor will use the Workplace Assessment Tool on the back of the Report Form.

Self-check 5	**Written test**

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

Name…… ID…… Date…….

Test I: choose best answer for the following questions. (3pts.)

1. _____ is a document that presents information in an organized format for a specific audience and purpose. (4points)
   A. Reporting
   B. Renewing and updating information
   C. Informing
   D. Gathering information

Test II: Give short answer for the following questions. (3pts.)

1. Write the purpose reporting; at least three points
2. For whom you report in your workplace?

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

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet- 6	**Monitoring the cooked product to confirm the specification**

6.1. Monitoring the cooked product to confirm the specification

Monitoring the cooked product is a critical issue, so producers often compensate for natural variability in the product and variability in the measurement by overcooking products, but overcooking wastes energy, degrades product quality, lowers the maximum throughput rate of the production line and decreases product yield.

Once the critical limits or parameters are set, it is important to show, through monitoring, that they are actually being attained (if values) or implemented (if programs). This is

done through monitoring. Monitoring activities should be conducted at a frequency to demonstrate control, and to rapidly detect a deviation if one occurs.

Temperature monitoring isn't finished when your product leaves your plant or warehouse on its way to its next stop. Various data-logging approaches have been taken, from fixed devices inside trailers to portable units and even non-electronic, thermal-indicating temperature strips.

Figure 1 Cooked Product Continuous Temperature controlling system

6.2. Benefits of monitoring the cooked product

- Converts cooked temperature paperwork into live displays allowing for immediate reaction to trending temperatures before failures occur
- Increases yield by promoting more frequent data collection and easy adjustment of notification and spec limits based on daily standard deviation reports
- Removes redundant data entry of paperwork into Excel spreadsheets by allowing easy export of data from digital reports to Excel, Word, or PDF
- Report subscriptions allow for immediate dispersion of data analysis reports and graphs to all stakeholders, including those offsite or at a corporate level
- Improves efficiency of temperature takers by removing the redundancy of capturing temperatures with one device and then recording them later

Techniques of monitoring cooked food storage

To monitor safely store and display food, you should follow these tips:

- keep raw foods and ready-to-eat foods separate, to avoid cross-contamination
- store cooked food in clean, food-grade storage containers
- don't store food in opened cans make sure food storage containers have
- do not used to store things other than food, and wash and sanitize them before use
- don't reuse containers that are only meant to be used once
- if a reusable container is in poor condition, throw it out
- cover food with tight-fitting lids, foil or plastic film, to protect the food from dust, insects and cross-contamination
- wash and rinse any garnishes used on food store food in areas specially designed for food storage, such as refrigerators, cool rooms, pantries and food storerooms never store food on the floor or on pallets, or in areas containing chemicals, cleaning equipment, clothing or personal belongings
- remove and avoid using foods that are past their use-by dates, spoilt, or are in damaged containers or packaging
- Know about and avoid the temperature danger zone - Bacteria grow quickly in high-risk foods that are kept at temperatures between 5 °C and 60 °C.
- Be trained in safe food handling and preparation.

Figure 1. Monitoring cooked food storage

Self-check 6	Written test

Directions: Answer all the questions listed below.

Name…… ID…… Date…….

Test I: say "True" or "False" for the following questions (2pts.)

1. The benefits of monitoring cooked product is converts cooked temperature allowing for immediate reaction to trending temperatures before failures occur.

2. Temperature monitoring isn't finished when your product leaves your plant or warehouse on its way to its next stop.

3. Monitoring activities should be conducted at a frequency to demonstrate control, and to rapidly detect a deviation if one occurs.

Answer Sheet

Score = _____

Rating: _____

Note: Satisfactory rating - ≥3 points **Unsatisfactory - below 3 points**

Name: _____ Date: _____

Information Sheet- 7	**Identifying, rectifying and/or reporting the out-of-specification production/processing outcomes**

7.1. Identifying, rectifying and/or reporting the out-of-specification production/processing outcomes

The term out of specifications (OOS), are defined as those results of in process or finished product testing, which falling out of specified limits, that are mentioned in food industry. The OOS may arise due to deviations in product manufacturing process, errors in testing procedure, or due to malfunctioning of analytical equipment. When an OOS has arrived, a root cause analysis has to be performed to investigate the cause for OOS.

7.1.1 Identifying out-of-specification production/processing outcomes

The reasons for OOS can be classified as assignable and non-assignable. When the limits are not in specified limits, called out of specifications. When OOS has occurred, the analyst should inform to quality control manager. Then the senior manager will ask quality assurance for issuing OOS form to analyst. The designated personnel will classify the OOS as either assignable cause or non-assignable cause.

When an OOS result occurs, the laboratory supervisor

Should respond objectively and timely manner.

- At very first, the laboratory supervisor should check the analysis data, which indicates the error in analytical procedure or manufacturing method.
- Then the actual samples, glass ware, instruments and equipment used for analysis should be examined.

7.1.2 rectifying and/or reporting the out-of-specification production/processing outcomes

During OOS happened the production manager should be:

- He should cross examine the chromatograms and reports.
- The laboratory supervisor should discuss with analyst to examine the correctness of the analyst.
- He should verify the calculations.
- Confirm the performance of the instruments and equipment
- He should determine that all the standard solutions, solvents, reagents used for the test resulted in OOS are met quality control specifications.
- The analytical method should be validated and data should be submitted to ensure the validity of the analytical procedure.
- The historical data of analytical procedure, instrument and equipment should be obtained to examine for possible trend

The vast majority of syrup has excellent quality and consumers are happy. Occasionally however, there can be issues with the processing and/or packaging that causes some sort of defect with the syrup. This could be a simple mistake by the producer such Quality Control in the Sugarhouse.

Knowing where things can go wrong and making sure that they don't as not correctly measuring the density, poorly filtering, or not accurately grading the color of the syrup. There are also several naturally occurring (mother nature-induced) off-flavors that can damage the syrups flavor. These are a class of flavors that are the result of natural changes to sap chemistry and not the result of producer mistake. Off-flavors caused during processing can also occur, and are the result of errors made during the collection, storage, concentration, evaporation, filtering, bottling or storage of syrup.

Out of specification

- Test analysis error in Quality control lab
- Lap equipment malfunctioning
- Production equipment malfunctioning
- Human errors in manufacturing

Self-check 7	**Written test**

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

Name…… ID…… Date…….

Test I: choose best Answer (3pts.)

1. A test can be invalidated if a clear root cause has:
   a. Technician Error
   b. Sample/Standard Prep.
   c. Analytical method
   d. Equipment Failure
   e. All
2. What is the abbreviation of “OOS”?
   a. Out of standard
   b. Ordering the standard
   c. Operation of standard
   d. All of the above

Test I: Give short Answer (4pts.)

1. During what syrup OOS happened?

Answer Sheet

Score = _____

Rating: _____

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

Information Sheet- 8	**Identifying the appropriate shutdown procedures**

Name: _____ Date: _____

8.1. Identifying the appropriate shutdown procedures of vacuum cooker

The shutdown procedure of vacuum cooker

The shutdown procedure of vacuum cooker will depend on the type of equipment and the process vacuum cooker. Some steps taken in appropriate shutdown may include:

- shutting off the feeds to stop processes and heat generation particularly if processes are exothermic (produce heat)
- recirculating feeds from supply tanks so they do not enter the unit
- shutting off heating or cooling to the unit or feed preheat system
- shutting off cooker and other mechanical operations
- cooling and flushing materials from the unit

8.1.1. Types of shutdown in the work place

There are some types of shutdown in workplace listed below:

a. Maintenance shutdown

When maintenance to the unit equipment is required, the equipment may need to be entered so that work can take place. The shutdown should be a scheduled or planned shutdown as per Standard Operating Procedures where equipment is:

- isolated (process, mechanical and electrical)
- cooled and depressurized
- purged and gas freed
- cleaned
- Gas tested on a continuous basis prior to and during entry.

A planned unit shutdown will prevent:

- plugging of lines or equipment
- possible damage to equipment
- Possible injury.

To prepare the unit for shutdown, the unit may need to be:

- thoroughly drained and pumped out to remove unnecessary liquids
- purged with steam to remove vapours

- solvent washed to remove deposits that build up on the equipment's internal surfaces
- flooded with water or a solvent to remove any remaining chemicals
- Any chemicals trapped in the unit must be flushed out.

b. Emergency shutdown

An emergency shutdown is initiated in the event of a fire, major spill, instrument failure, power failure, or total loss of control of chemical or physical processes. Emergency shutdown procedures must be followed during a shutdown sequence.

Shutdown of a unit can be initiated by the automatic shutdown system. The systems may be shut down automatically because of temperatures, fluid levels, pressures or flows that are above or below trip points.

- Typical shutdowns initiated by vacuum cooking may include:
  - low liquid level in a vessel
  - high liquid level in a storage tank
  - high viscosity causing increased load on pumping
  - or mixing equipment
  - mixer failure
  - pressure to high
  - temperature to high
  - Low feed flows.

Self-check 8	**Written test**

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

Name…… ID…… Date…….
Test I: say true or false for the following questions (3pts.)

1. The shutdown procedure will depend on the type of equipment and the process vacuum cooker.
2. An emergency shutdown is initiated in the event of a fire, major spill, instrument failure and power failure

Test II: choose best answer (3pts.)

1. A planned unit shutdown will prevent:

A. plugging of lines or equipment
B. possible damage to equipment
C. Possible injury.
D. All

Test III: Short Answer Questions (3pts.)

1. Write down all typical shutdowns initiated by vacuum cooking
2. Write some steps taken in appropriate shutdown.

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet- 9	**Shutting down the process in the workplace procedures**

9.1. Shutting down the process of vacuum cooker

An occasion when a large piece of equipment stops operating, usually for a temporary period or the act of closing a factory or business of stopping a machine.

Normal shutdown includes steps to render the systems safe, such as removal of hazardous process materials and inert (asphyxiating) gases. The systems might be cleaned as part of the shutdown; cleaning is often a process unto itself requiring its own set of startup, operation, and shutdown procedures.

9.2. Shutdown process of vacuum cooker

During shutdown the vacuum cooker in the workplace always follow the following orders:

1. Stop the machine
2. Make sure the power is cut during the whole cleaning process.
3. Empty the machine
4. Empty the jacket water
5. Cut off the power supply
6. Clean the vacuum cooker machine

Figure 1 Shutdown process of vacuum cooker procedures

Self-check 9	Written test

Name…… ID…… Date…….

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

Test I: Choose best answer (5pts.)

3. Normal shutdown includes steps to:
   A. Render the systems safe
   B. removal of hazardous process materials
   C. Inert (asphyxiating) gases.
   D. All

Test I: Short Answer Questions (5pts.)

1. Write shutdown process
2. What will you do, before you shutdown process?

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Information Sheet- 10 Identifying and reporting maintenance requirements

10.1. Identifying maintenance requirements

The meaning of maintenance involves functional checks, servicing, disambiguation needed repairing or replacing of necessary devices, equipment, machinery, building infrastructure, and supporting utilities in industrial, business, governmental, and residential installations. Over time, this has come to include multiple wordings that describe various cost-effective practices to keep equipment operational; these activities occur either before or after a failure.

10.2. Benefits of Preventive Maintenance

The direct benefits of preventive maintenance can be summarized as follow:

- Minimized asset failure and breakdowns
- Reduced downtimes
- Safety
- Prolonged assets productive life
- Improved production

Maintenance procedures that should be considered when preparing the planned maintenance program include:

- Carrying out repairs needed when plant or equipment breaks down;
- Predicting, from a history of breakdowns, the life expectancy of parts, bearings, etc., the tasks to be carried out and the frequency to be established;
- Checking the condition throughout the plant of equipment, its running hours, readings of different responses (e.g. vibration, temperatures, current, etc.);
- Monitoring the operating cycle and, where appropriate, seasonal shutdowns of plant, equipment (e.g. production process, 24-hour duty, etc.).

10.3. Reporting maintenance requirements

By using an outline, this document explains how you report maintenance jobs that are performed on positions and equipment. This includes reporting operations, approving operations and closing work order operations and work orders. Losses, damages and equipment breakdown are properly reported, documented and accounted for, given appropriate action.

Report the main problem areas are related to:

- Instrument needs calibration
- Worn instrument, equipment or fixture
- Worn or damaged master, error in master

- Improper calibration or use of the setting master
- Poor quality instrument – design or conformance
- Wrong gage for the application
- Different measurement method – setup, loading, clamping, technique
- Measuring the wrong characteristic
- Distortion (gage or part)
- Environment – temperature, humidity, vibration, cleanliness
- Violation of an assumption, error in an applied constant

Self-check 10	Written test

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

Name…… ID…… Date…….

Test I: Say True or False for the following question (3pts.)

1. The purpose of a successful preventative maintenance program is to finally extend the life of equipment and tools by predicting failures

Test II: choose best answer (3pts.)

1. The benefits of preventive maintenance is:

A. To minimized asset failure and breakdowns

B. To reduced downtimes

C. To Safety

D. All

2. What types of problem you report?

A. Instrument needs calibration

B. Worn instrument, equipment or fixture

E. Worn or damaged master, error in master

F. All of the above

Answer Sheet

Score = _____

Rating: _____

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

Name: _____ Date: _____

Operation Sheet-1	**Techniques of cooking of Plain syrup**

Procedures:-

Step- 1 wears PPE and applies hand washing

Step-2 prepare Mise-en-place

Step- 3 Heat water and sugar in a Magefesa saucepan

Step- 4 Bring to a boil.

Step- 5 Remove from heat and let cool.

Step – 6 finally the plain syrup change to another bowl

Operation Sheet-2	Techniques of cooking of Citrus syrup

Procedures

Step- 1 wears PPE and applies hand washing

Step-2 prepare Mise-en-place

Step- 3 Proceed the same way as with the plain syrup

Step- 4 Once cold, stir in the citrus juice of your choice

Step- 5 Remove from the pan and change to another pot.

Operation Sheet-3	Techniques of cooking Liqueur syrup

Procedures

Step- 1 wears PPE and applies hand washing

Step-2 prepare Mise-en-place

Step- 3 Proceed the same way as with the plain and citrus syrup

Step- 4 When it starts boiling, add the liqueur, let it cook for a few seconds

Step- 5 Remove from the heat and coot it then changes to another pot.

Operation Sheet-4	Techniques of cooking Coffee/ Tea Infused Syrup

Procedures

Step- 1 wears PPE and applies hand washing

Step-2 prepare Mise-en-place

Step- 3 Proceed the same way as with the plain and citrus syrup

Step- 4 When it starts boiling, let the selected coffee/tea ingredient

Infuse for 4 minutes

Step- 5 Strain

Step- 6 cool then changes to another pot.

Operation Sheet-5	Techniques of cooking Flavored syrup

Procedures

Step- 1 Place water together with the ingredients you have chosen to flavor the

syrup with in a Magefesa saucepan

Step-2 Bring to a boil, simmer for about 3 minutes

Step- 3 Add sugar and wait for the mixture to come to a boil.

Step- 4 Remove from heat

Step- 5 Strain

Step- 6 cool then changes to another appropriate equipment.

Operation Sheet-6	Techniques of Reporting for maintenance

Step 1 Write equipment name

Step 2 Repair request number that sent by user department along with repairing details, repair date and name of the requestor

Step 3 Repair request details

Step 4 Fault Details

Step 5 Details of machine / equipment / previous fault details

Step 6 Reason for failure

Step 7 Used material details / costing

Step 8 Repairing details

Step 9 Remark by engineer

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 **2hours**. The project is expected from each student to do it.

Task-1 plain syrup

Task- citrus syrup

Task- 3 Liqueur syrup

Task- 4 Coffee/ Tea Infused Syrup

Task- 5 Flavored syrup

Task- 6 Reporting maintenance

LG #75	LO #3- Shutdown the vacuum cooking process

Instruction sheet

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

- Maintaining the work area according to housekeeping standards.

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:

- Maintain the work area according to housekeeping standards.

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-	**Maintaining the work area according to housekeeping standards**

1.1. Maintaining the work area according to housekeeping standards.

The word “House-keeping” refers to the upkeep and maintenance of cleanliness and order in a house or a food establishment. Industrial good housekeeping is a term which is often not fully understood. However most be good housekeeping is just good common sense. Everyone is responsible for safety and means that all management and every employee should have an understanding of good housekeeping practice, and how it can help to prevent a large number of accidents at work.

Good housekeeping involves the maintenance of good lighting and heating, power supply lines, tools, machinery and the facilities for the efficient storage of materials and equipment Workshop should be kept neat and tidy. Good housekeeping can significantly reduce the risk of an accident and injury, failure to maintain a clean and tidy Workshop can result in accident and injury. Work areas and equipment are to be thoroughly cleaned after use.

1.1. Standards of Good Housekeeping

A. Cleanliness

- immediately clean all areas
- Corner to corner, top to bottom, including surfaces,
- kept clean closets, cabinets and storage areas
- Properly dust; doorknobs and metal Furniture and fixtures are
- Polish with the right metal polishing chemicals.
- Dust and polish windows and glass panels
- vacuumed floors, polish or shampoo when necessary
- Free of liters and dirt Grounds are.

B. Orderliness

- Facilities and fixtures are properly arranged and installed in appropriate location.
- Cleaning equipment’s are properly installed in appropriate location.

C. Sanitation

- The whole area is free from all sources of bacterial contamination such as un-disposed garbage and leftover, stagnant water, etc.
- Wet garbage is properly underlined with plastic, covered and disposed of regularly.
- All items for personal use of guest and which come in contact with items body like cutters, utensils, tables, etc. are sanitized with sanitizing detergents to protect guest from bacterial contamination
- Area is protected from pest infection and regularly fumigated.
- Creating a favorable impression to people outside the Company.

D. Safety

- The production rooms, function rooms and public areas are free from any safety hazards like open electrical outlet, dangling wires, damaged tiles, slippery floors, broken chairs, etc.
- Building is provided with all required safety facilities like ventilated fire exists, emergency alarm, fire extinguishers/hoses, luminous safety signs, etc. safety standards prescribed for building maintenance by the government are strictly enforced;
- Safety instructions during emergencies are available in all rooms
- The production area is prepared for any emergency, has a well-organized safety or emergency procedures and emergency brigade.
- All staff are trained on emergency procedures

E. Materials Control and Preventive Maintenance

- There is a designate budget for supplies and materials

- Consumption of supplies is always monitored. Excessive consumption is determined and reported.
- Par stock requirements are maintained; regular requisitions are made.
- All tools and equipment are stored safely in their appropriate storage
- Chemicals are diluted properly and used sparingly
- Supplies and materials are consumed within the limits of the budget
- All appliances and equipment are regularly checked for any damage and maintained in safe, working condition to avoid accidents.
- Losses, damages and equipment breakdown are properly reported, documented and accounted for, given appropriate action.
- There is regular inventory of supplies and materials.
- Effective control measures are designed and enforced to prevent losses and pilferages
- Regular cleaning and checkup of equipment is undertaken
- Staff is trained on the proper use and maintenance of equipment

Self-check 1	**Written test**

Directions: Answer all the questions listed below. Name……

…… ID…… Date…….

Test I: choose best answer (4points)

1. What is the of benefits good housekeeping?
   A. Increased efficiency.
   B. The reduction of accident hazards.
   C. The reduction of fire hazards.
   D. All of the above
2. Good housekeeping involves the maintenance of:
   A. good lighting
   B. heating and power supply lines,
   C. tools and machinery
   D. All of the above

Test II fill the blank space (4points)

1. Workshop should be kept _____ and_____
2. Good housekeeping can significantly reduce _____

Answer Sheet

Score = _____

Rating: _____

Note: Satisfactory rating ≥8 points **Unsatisfactory - below 8 points**

Name: _____ Date: _____

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