Textile chemical processing

NTQF Level – II

Learning Guide#13

Unit of Competence: Weigh and Check Textile Materials and Products

Module Title: Weighing and Checking Textile Materials and Products

LG Code: IND CHP02 M05 0919LO1-LG013

TTLM Code: IND CHP02 TTLM5, 0919v1

LO1. Prepare for weighing

Instruction Sheet	Learning Guide #13

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

1.1 Identifying textile materials and products

1.1.1 Yarns for tufting

1.1.2 Spun cotton, worsted and woolen yarns

1.1.3 Finishing knitted garments

1.1.4 Finishing hosiery garments

1.1.5 Non-woven raw materials and fabrics

1.1.6 Finishing fabrics used in textile printing

1.1.7 Fabrics used in dyeing and tufting

1.1.8 Finishing

1.2 Taking textile materials and product samples

1.3 Organizing weighing or measuring equipment

1.3.1 Weighing, measuring and mixing equipment

1.3.2 Checking weighing calibration

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

- identified samples of Fiber, yarns, other materials and products to be weighed are taken
- Organized an appropriate weighing or measuring equipment.
- checked Calibration as required

Learning Instructions:

1. Read the specific objectives of this Learning Guide.

2. Follow the instructions described in number 2 to 3.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” in page 12, Self-check2 in page15, Self-check3 page17

5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 1”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.

Information Sheet-1	Identifying fiber, yarns, other materials and products

Introduction

Weighing:

Weighing is an important operation in gravimetric analysis. Usually it involves theuse of an electronic balance with a minimum readability of 0.1 mg. In order to ensure reproducible results, sample handling is very critical especially when hygroscopic materials are weighed. For most textile materials, an accurate weighing result can only be obtained by repeated heating–cooling–weighing until a constant weight is reached. During the weighing operation, the following precautions should be taken:

Identification of fibers, yarns and fabrics

Fiber:-A unit of matter, either natural or manufactured, that forms the basic element of fabrics and other textile structures. It is characterized by:-

- having a length at least 100 times its diameter or width
- at least 5 millimeters long to spun in to yarn
- flexibility
- cohesiveness
- sufficient strength and
- Other important properties include elasticity, fineness uniformity, durability, and luster

The identification of textile ***fibers*** is a task frequently performed in a textile laboratory.

The need to identify fibers arises in fibers research as well as during fabric production and processing

Identification tests are performed by utilizing tests that take advantage of the different chemical (and to some extent Physical) characteristics of fibers.

The main groups oftextile fibers are: protein, cellulose, and manmade fibers

(1) Animal or protein fibers;

(A) SILK

Weighing methods for silk are:

1st method:

The silk is socked with stannic chloride solution followed by fixation with sodium carbonate followed by soaping .

Marginal weight increase is observed but the strength is also adversely affected in these methods.

2nd method:

- The silk socked in stannic chloride and the fixed with sodium phosphate
- It is then washed and treated with little amount of sulphuric acid.
- It is then soured, washed and take out

Even though increase in weight is considerable, the strength loss is still high in this method.

3rd method:

- In this method the fixation is done with sodium silicate
- This brings out the required increase in weight without affecting the strength much.

4th method

- Finally weigh the sample

There are, of course, other natural and artificially made fibers besides those listedin, but these are of lesser importance. All these fibers are dyed in a widerange of colors, with various fastness properties, for a multitude of different textile products. Each type of fiber requires specific types of dyes and dyeingmethods. Fortunately, the dyeing of many minor fibers is often very similar to thatof a chemically related major fiber.

(B) Vegetable or cellulosic fibers;

Fabric weighing

It is a fundamental property of that needs to be controlled during the manufacturing process in order to avoid economic loss, for example, by buying heavier fabric than is necessary for the product being manufactured.

To analyze the given fabric sample

Apparatus: Scissors, balance, scale, , fabric weight determination apparatus, fabric thickness tester.

Width is determined using measuring scale held perpendicular to the selvedges when the fabric is fully spread out without creases or wrinkles.

Fabric weight is determined using the round sample cutter and the accompanying balance. When cutting the fabric, avoid selvedges and wrinkles. Carefully transfer all loose fibers to the balance. The reading may be repeated across the width of the fabric with samples being taken every 25 centimeters. Average the readings and report the mean.

Note: Care should be taken to ensure that the fabric is completely represented in weight determination. The weight obtained is the weight in grams per square meter. Alternately

a known area may be weighed and the grams per square meter calculated from this data

Procedure for weighing:

a) Preparation of the instruments
b) Sample of the fiber is ready for test
c) Operation of the instruments
d) Examine and Record the results

1.1.1 Organizing weigh in yarns for tufting

The most common measurement of tuft yarns is denier or yarn denier.Is unit of weight for the size of a single filament or yarn bundle?

The heavier (coarser) the yarn and the more resilience it will offer. Denier is expressed as the weight in grams of 9000 meters of yarn 9000 meters of an 18DPF (denier per filament) would weigh 18 gms and 9000 meters of a weigh2,460gnms. The higher the DPF, the greater the fibers resilience and its resistance to bending, but also the higherit feels to the hand.

1.1.2 Spinning cotton, worsted and woolen yarns

Spinning cotton yarns

Is the first steps of textile product processing. The process of making yarns from the textile fiber is called spinning. Spinning is the twistingtogetherof drawn out strands of fibers to form yarn, through it is colloquially used to describe the process of drawing out, inserting twist, and winding on to bobbins.

Yarn made out of staple fiber is known as spun yarn,because the staple fibers should undergo number of process stages so that a yarn can be madeout of them.

Worsted – spun yarns, used to create worsted fabric , are spun from fibers that have been combed to ensure that the fibers all run the same direction, butt-end (for wool, the end that was cut in shearing the sheep) to tip ,and remain parallel. A short draw is used in spinning worsted fibers(as opposed to a long draw).

Woolen–spun yarn

Is the spun using a short staple fiber prepared by hand carding and rolled into rolags. A drum carder can also be used. When spinning the fiber the long draw or medium draw technique is used to allow the fibers to warp uponit while trapping air in the center. This makes the yarn soft and bouncy.

1.1.3 Finishing knitted garments

Finishing refers to all those extra touches that make a knitted project look fabulous and fit well. If you want a garment that looks handmade, not homemade,then proper seaming and fitting in of sleeves are key.

Sophisticated finishing technique

1. Plan your finishing from the start
2. Seams perfect to me
3. Embrace short rows
4. The best complement is no complement at all

1.1.4 Finishing hosiery garments

Hosier, also referred to as leg wear, describes garments worn directly on the feet and legs. The term originated as the collective term for products of which a maker or seller is termed a hosier, and those products are also known generically as hose. The term is also used for all types of knitted fabric, and its thickness and weight is defined by denier or opacity.

Hosiery garments arethe products of hosiery fabric produced from hosiery yarn comes from a separate spinning process, and is used with circular knitting machines to form fabric.

Types of hosiery

- Body stocking
- Thigh –high stocking
- Hosen (clothing)
- Knee highs
- Socks
- Tights
- Toe socks

1.1.5 Non-woven raw materials

Non woven fabrics will be mostly, the geotextiles, for which the raw materials are, polypropylene, polyethylene or polyester.

All these raw materials are geosynthetic. They can be both biodegradable, and non biodegradable, depending on their raw materials.

1.1.6 Non-woven fabrics

Nonwoven manufacturing processes

There are three main routes to web forming:

– The dry laid system with carding or air laying as a way to form the web;

– The wet laid system;

– the polymer-based system, which includes spun laying (spun bonding) or specialized technologies like melt blown, or flash spun fabrics etc.

Fabric weight (fabric mass) is defined as the mass per unit area of the fabric and is usually measured in g/m^2 (or GSM). Fabric thickness is defined as the distance between the two fabric surfaces under a specified applied pressure, which varies if the fabric is high- loft (or compressible).

The fabric weight and thickness determine the fabric packaging density, which influences the freedom of movement of the fibers and determines the porosity (the proportion of voids) in non woven structure. The freedom of movement of the fibers plays an important role in non woven mechanical properties, and the proportion of voids determines the fabric porosity, pore sizes and permeability in non woven structure.

Fabric density, or bulk density, is the weight per unit volume of the non woven fabric (K/m^2) divided by the measured thickness of the fabric (m).

Fabric bulk density and fabric porosity are important, because together they influence how easily fluids, heat and sound transport through a fabric.

1.1.7 Finishing fabrics used in textile printing

Finishing of fabrics used in textile printing

- Singeing
- Desizing
- Scouring
- Bleaching
- Mercerizing
- Dyeing
- Printing
- Mechanical finishing

1.1.8 Using fabrics in weaving

Woven fabric is any textile formed by weaving. Woven fabrics are often created on a loom, and made of many threads woven on a warp and a weft. Technically, a woven fabric is any fabric made by interlacing two or more threads at right angles to one another.

1.1.9 Using fabrics in dyeing

Dying is the process of application of dyes or pigments on textile materials such as fibers, yarns and fabrics.

Natural fabrics like wool, cotton, linen, and silk absorb and capture dyes well as does nylon. Other synthetic fiber like polyester, spandex, olefin, acetate, and acrylics will not dye evenly unless you use a dye specially formulated for synthetic fiber.

1.1.10 Using fabrics in knitting

Knitting is a method by which yarn is manipulated to create a textile or fabric, often used in many types of garments. Knitting creates multiple loops of yarn, called stitches, in a line or tube.Knitting has multiple active stitches on the needle at one time.

1.1.11 Using fabrics in tufting

When fabric is tufted, stitches or buttons are sewn through the item , usually a cushion or mattress, to keep the stuffing inside from bunching or shifting .

Tufting also adds a decorative element to furniture and cushions. Tufted fabric is a type of medium –to high –loft fabric with loops.

Self-Check – 1	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. Write the Procedure for weighing yarns and fibers?
2. What is non woven fabric?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1. _____
2. _____

Information Sheet-2	Finishing or measuring equipment

1.2 Finishing or measuring equipment

Equipments used to measure various fiber parameters

- high volume instrument (HVI)
- microscopes, scales
- Electron micrographs
- Beam balance

1.2.1Weighing equipment

- Measuring scale
- Micro and ultra balance
- Beam balance
- Mass balance
- Simply scale
- Balance scale
- Electronic weighing scale

1.2.2 Measuring equipment

Measuring equipments are:

- Measuring cup
- Graduated cylinder
- Colorimeter

- Burette
- Pipette
- Tape measure
- Steel rule
- Thermometer

1.2.3 Mixing equipment

- Portable mixer stand
- Stationary mixer stand
- Tanks and vessels
- Stainless storage
- Pots
- Mixing machines
- Stirrer

Self-Check – 2	Written Test

I. Choose the correct answer and write on space provided(4points each)

1.What are the Equipments used to measure various fiber parameters?

2. Mention the mixing equipments used?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

2_____

Information Sheet-3	Checking Calibration

1.3 Checking Calibration

The amount or quantity of heaviness or mass,amount a weights.

Asystem of units for expressing heaviness or mass to load fabrics yarns fibers.

Steps to follows instrument calibration:

- Identify the measuring device
- Determine certification , calibration, accuracy check requirement
- Corrective action
- verification

Self-Check – 3	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. Write the steps to follows instrument calibration

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

REFERENCES

1. A Howsmon and W A Sisson, in *Cellulose and cellulose derivatives*, 2nd Edn, Part 1, E Ott*et al*., Eds
(New York: Wiley-Interscience, 1954) 251.

2. J G Cook, *Handbook of Textile Fibres*, 5th Edn (UK: Merrow Publish. Co., 1984).

3. M Lewin and E M Pearce, Eds, *Handbook of Fiber Science and Technology,* Vol. IV, *Fiber Chemistry* (New York: Marcel Dekker, 1985).

4. P G Drexler and G C Tesoro, *Handbook of Fiber Science and Technology,* Vol. I, Part B, M Lewin and S B Sello, Eds (New York: Marcel Dekker, 1984).

5. C Crossley, *J.S.D.C.*, **114** (1998) 194.

Textile chemical processing

NTQF Level – II

Learning Guide#14

Unit of Competence: Weigh and Check Textile Materials and Products

Module Title: Weighing and Checking Textile Materials and Products

LG Code:IND CHPO2 M05 0919 LO2-LG14

TTLM Code:IND CHPO2 TTLM5, 0919v1

LO2. Weigh materials and products

Instruction Sheet	Learning Guide #14

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

2.1 Weighing textile raw materials and products

2.2 Applying OHS practices for weighing

2.2.1 Hazard identification and control

2.2.2 Risk assessment

2.2.3 Risk reduction measures implementation

2.2.3.1 Manual handling techniques

2.2.3.2 Standard operating procedures

2.2.3.3 Personal protective equipment

2.2.3.4 Safe materials handling

2.2.3.5 Taking breaks

2.2.3.6 Ergonomic arrangement of workplaces

2.2.3.7 Following marked walkways

2.2.3.8 Safe storage of equipment

2.2.3.9 Housekeeping

2.2.3.10 Reporting accidents and incidents

2.2.3.11 Environmental practices

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

- Weighed Fiber, yarns, raw materials and products accurately.
- Conducted Weighing according to materials handling and OHS practices.
- Recorded and documented Weights correctly

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 20.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” in page 61,. Self-check 2” in page24, Self-check 3” in page27, Self-check 4” in page29 ,Self-check 5” in page39 ,Self-check 6” in page42, Self-check 7” in page44 and Self-check 8” in page45
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 2.
7. Submit your accomplished Self-check. This will form part of your training portfolio.

Information sheet-1	Analyze opportunities for corrective and/or optimization action

Introduction

2 Analyze opportunities for corrective and/or optimization action

2.1 Weighing fiber

Cotton fiber are natural hollow fibers, they are soft, cool known as breathable fibers and absorbent. Cotton fibers can hold water 24-27 times their own weight. They are strong, dye absorbent and can stand up against abrasion wear and high temperature.

L.G # 2 Self-Check – 1	Written Test

I. Choose the correct answer and write on space provided(4points each)

1.why do we weigh cotton fibers?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-2	Weighing yarns

2.2 Weighing yarns

Yarn weighing refers to the thickness of yarn used by knitters, weavers, dyers and other fiber articles. Changing yarn weight or needle size can have a significant impact on the finished project, so standardized systems have been spread about, as well as conversion systems for regional standards (especially needle sizes).

Yarn weight is important in achieving the correct gauge or tension for a particular project and can help with the yarn substitution.

L.G # 2 Self-Check – 2	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. Mention the function of weighing of yarns?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-3	Weighing raw materials

2.3 Weighing raw materials

The textile industry involves the design and production of raw materials and fabric used to create products sold in the marketplace. Textiles must be accurately measured to ensure that the correct amount of material produced for each product.

The accurate weighing of raw materials according to the formulation for a given ration is perhaps the most important unit operation involved in feed manufacture, since no amount of mechanical processing can make up for any deficiencies in nutrients which have been omitted from the mixture. The point at which weighing occurs in the feed milling process will depend upon the design of the mill. Raw materials may be selected from store, weighed and then subjected to grinding and mixing, or materials may be pre-ground, then weighed and mixed. There are advantages and disadvantages in both approaches and their choice will depend upon the raw materials to be processed and the design considerations of machinery manufacturers. In small units, raw materials in sacks can be weighed individually on a platform scale with either a dial or lever-arm movement or if bags are known to be of accurate weight they can be counted and any excess needed for the formulation weighed on the scales. Lever-arm scales are cheaper to purchase than dial scales, tend to be more robust, but are less convenient in use. Where possible, it is advisable that all scales be fitted with an adjustable tare, so that operators do not need to make calculations when allowing for the weights of containers into which raw materials may be tipped for weighing.

Large bin-type weighers are often used for raw materials which have been pre-ground or are free flowing and discharge readily from storage bins or silos. Bin-type weighers

may be mobile or stationary. Inline weigherswhich measure the quantity of material flowing over a small electronic sensor and volumetric dischargers are also available. Units which quantify raw material by volume tend to be more applicable to small feed units handling cereals of constant bulk density, and do not often find application in tropical countries where ingredients have diverse bulk-density characteristics. Designs of weighers are many and various but the above have been given to illustrate typical machines in use in feed mills.

The weighing of raw materials requires great care and inaccuracies must be kept to a minimum. It should be noted that errors in the weighing of small quantities of raw materials often have far greater influence on the growth performance of animals than errors in the weighing of large quantities of material, for example, the omission of say, 25 kg of bran from a mixture requiring 400 kg of bran is of much less significance nutritionally than the omission of 1.5 kg of vitamin pre-mix say from the same mixture requiring only 2.5 kg of pre-mix. It may therefore be necessary to purchase a scale to weigh small quantities, of up to 25 kg, with an accuracy of Â±100g and a greater capacity scale, for example up to 500 kg with an accuracy of Â± 2.0 kg. The use of accurate scales is of particular importance when handling expensive and/or potent raw materials such as vitamins and medicinal additives which are added at low inclusion rates.

Self-Check – 3	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. What are the importances of weighing textile raw materials?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-4	Weighing products

2.4 Weighing products

Fabric weight is one of the criteria for determining the washing parameters. For instance, silk responds well to hand laundering. However, heavier (suiting) fabrics of silk may shrink out of shape, unless they have been preshrunk. In any case, dry cleaning may be preferable for these heavier fabrics, as they may be pill less and keep their shape better if not softened by washing.

As a general rule, tightly knitted fabrics, or more correctly, fabrics knitted with low loop length relative to the machine gauge, are stretched in their width on the machine and therefore contract, i.e. shrink, in their width direction during laundering.

Relatively loosely knitted fabrics tend to be stretched in their length direction by the fabric take-down tension and therefore relax (shrink) in their length direction during laundering.

Self-Check – 4	Written Test

I. Choose the correct answer and write on space provided(4points each)

1.Why we Weighing products of textiles?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-5	Applying OHS practices

2.5 Applying OHS practices

OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures like:

- Manual Handling Techniques
- Standard Operating Procedures
- Personal Protective Equipment
- Safe Materials Handling
- Ergonomic Arrangement Of Workplaces
- Safe Storage Of Equipment
- Housekeeping
- Reporting Accidents And Incidents
- Environmental Practices

Items related to health and safety that should be included are:

- Emergency procedures.
- Location of first aid stations.
- Health and safety responsibilities, including those specified by legislation.
- Reporting of injuries, unsafe conditions and acts.
- Use of personal protective equipment.
- Right to refuse hazardous work.
- Hazards, including those outside own work area.
- Reasons for each health and safety rule

2.5.1.1Handling manual techniques

What is manual handling?

Moving and handling, also known as manual handling is any action involving physical effort to move or support an object or person by:

- Lifting
- Pushing
- Pulling
- Manuoeuvring
- Steadying
- Carrying
- Transporting

By law, employers are required to undertake a risk assessment and does everything that is reasonably participate in order to reduce the risks associated with manual handling.

Manual handling technique for lifting:

- Before lifting an item, think: can you use a manual handling aid instead? Where is the load being moved to? Are there any obstructions?
- Adopt a stable position with feet apart and one leg slightly forwarded to maintain stability. Make sure that you are wearing suitable footwear.
- Get a good holed on the load and hung it close to your body where possible.
- When carrying, keep the load close to your waist for as long as possible. Put the heaviest side of the load closest to your body.
- If you need to, put the load down and adjust your grip before continuing the lift.

2.5.2 Operating standard procedures

Standard operating procedures are written, step by step instructions that describe how to perform a routine activity. Employees should complete them in the exact same way every time so that the business can remain consistent .standard operating procedures help maintain safety and efficiency for departments such as:

- Production /operations
- Sales and customer service
- Employee training
- Legal
- Financial

A standing operating procedure should never be difficult to read or vaguely worded.
It should be brief, easy to understand and contain actions steps that are simple follow A good standard operating procedures should clearly outline the steps and inform the employee of any safety concerns.
The standard operating procedures should be the bases for training any new employees. They should also be updated every year to ensure they stay relevant to the current needs of the organization.

2.5.3 Personal protective equipment

What is personal protective equipment?

It means PPE or equipment you use to guarantee your own safety.

The best safety equipments are:

- Safety for head
  Example: helmet
- Protect your eye
  Example: safety glass
- Hearing protection
  Example: ear plugs
- Maintain a good Respiration
  Example: mask, Dust musk,
- Hand gloves
- Safety shoes

2.5.4 Safe materials handling

As machines became larger, speedier and more complicated, they also introduced new potential hazards. As materials and processes became more complex, they infused the workplace with potential health hazards. And as workers had to cope with mechanization and the demand for increasing productivity, work stress, largely unrecognized or ignored, exerted an increasing influence on their well-being.

The following are six material handling tips that can help:

- Minimize ergonomic risk factors
- Provide personnel protective equipment
- Upgrade your equipment
- Reduce noise and vibrations
- Respond to reports of employee fatigue

- Use the right equipment.

2.5.5 Taking breaks

Encouraging employees to take regular breaks throughout the day, including lunch break, is an easy way for employees to boost employee wellness along with work performance.

Benefits of taking breaks:

- Breaks help to process and train information
- To be more creative
- To cultivate healthier habit
- To be more productive

2.5.6 Arranging ergonomic work places

Ergonomic workplaces arrangement:

Workplace ergonomics is the practice of designing workspace in a way intended to minimize employee health risks and increase employee productivity, thus reducing employer costs. Try to observe the following two figures!

Benefitsof superior ergonomics:

- ❖ Happier employees
- ❖ Higher production

- A greater safety commitment and etc.

Ergonomics work place is the process of designing or arranging work places, products and systems so they fit the people who use them. This means producing a work space to accommodate for workers health needs.

Ergonomics, in fact, is a branch of science. It aims to learn about human abilities and limitation, and then apply this learning to improve people's interactions with products, systems and environments. It improves the work places and environments to minimize the risk of injury or harm. As technologies change, we need to ensure what we use is designed for our body's requirements.

2.5.7 Following marked walkways

Floor marking is the process of using visual cues such as lines, shapes, and signs on floors to make a space easier for people to navigate. These cues divided spaces, highlight hazards, outline work stations and storage locations, direct traffics, and convey important safety or instructional information.

Floor making is often a visual communication system that includes wall signs and labels.

2.5.8 Safe storage of equipment

Machinery such as forklifts such as be kept in a safe location where it is protected from unauthorized access, weather and accidental damage. It must be kept away from drive ways, walk ways and other areas where access is required. All equipment should be turned off when not in use.

2.5.9 Housekeeping

Housekeeping refers to the management of duties and responsibilities involved in the running of a household, such as cleaning, cooking, home maintenance, shopping, laundry and any activities performed in house. These tasks may be performed by any of the household members or by other persons hired to perform these tasks. The term is also used to refer to the money allocated for such use.

2.5.10 Reporting accidents and incidents

What is an accident?

An unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage, injury or ill health

Examples of what should be reported:

- Injuries from needles, scalpels, broken glass
- Slips, trips and falls
- All occasions where a first aider was required
- Injuries resulting from being hit by a moving vehicle

Near miss: an event not causing harm, but has the potential to cause injuries, ill health or damage to property.

Examples of what should be reported:

- Window unit falling from a building a building site
- All fires
- Fire doors not closing properly

- Person trapped in a lift
- Collapsed shelving unit

Accidents and unexpected incidents at work are something you try to avoid. But they can happen. This all starts, with reporting. Employees should report all accidents and incidents to their employer by filling to the accident book. Employers should investigate all reports and notify their insurance company.

Accident reports can be used to:

- ❖ Gather information
- ❖ Identify problems
- ❖ Prevent it from happening again
- ❖ Provide training
- ❖ Improve management skills
- ❖ Comply with legal requirements and etc.

In any case, it's best to report and investigate accidents quickly. You can get more information while the incident is fresh in everyone's minds. And, the quicker you act to fix any problems found, the less risk of it happening again.

2.5.11 Environmental practices

Best environmental practices

- Plan ahead and prepare the work
- Dispose of waste properly
- Minimize the impact of campfires
- Camp and walk on durable surfaces
- Be considerate of other people
- Respect others

Self-Check – 5	Written Test

I. Choose the correct answer and write on space provided(4points each)

1 Mention the best environmental practice?

2. What is an accident?

3. What is the advantage of ergonomics arrangement in work place arrangements?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

2_____

3_____

Information sheet-6	Conducting Weighting

2.6 Conducting Weighting

In simple term calibrating to check the reading of balance or scale, a refrence weight is placed on the plan. The error is defined as difference between the measured value and (the reading) and the true value(the reference weight)

Analytical balances are very sensitive pieces of equipment, and can measure mass down to only 0.00001 gm. An analysis may require this sort of specificity with the substance she is weighing, so accuracy is important. A calibration procedure assures the analyst that the balance is working correctly, but the calibration is only as good as the analysis calibration techniques. Ensure that you do not have to follow a particular procedure to calibrate the balance.

- Check the expiry date of the calibration sticker on the analytical balance if there is one.
- Inspect the balance for a sticker, or refer to the balance documentation that states how often the balance needs to be calibrated.
- Center the bubble on the spirit level of the balance.
- Ask others analysts that they have turned off the balance in the previous hours and check that nobody has moved the balance.
- Open the door to the balance if it has one
- Clean off any dust or particles on the balance
- Close the door and tare the balance by pressing the tare button
- Chose one or more weights to calibrate the balance with.

- Open the door, pick up a weight using tweezers or gloves – oils and moisture on your hands can alter the weights.
- Refer the manual to the calibration procedures, to ensure the weights are within acceptable tolerance level.

Self-Check – 6	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. What are the procedure to calibrate the weighing balance.?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-7	Recording Weights

2.7 Recording Weights

Connecting your scale to Personal Computer and recording the weight should not be a difficult task.

Weight received from a scale or balance to file, optionally adding the data and time.
Connecting your scale to a PC and recording the weight should not be a difficult task. However, data logging software available from scale manufacturers or third parties is often expensive, difficult to use or frustratingly unreliable. We developedSimple Data Logger (SDL) to address these issues.
SDL writes the weight received from a scale or balance to a file, optionally adding the date and time. The CSV files generated by SDL can easily be opened in Excel and other spreadsheet applications for further processing and visualization.
If your scale or balance is listed in SDL, simply select it and press the set default parameters for device button. Otherwise, select generic measuring instrument• and enter the interface parameters manually. Set the radio button to match your connection: specified a terminator (a.k.a. delimiter, the last character your scale sends in each line of data) or a timeout (e.g. 100ms, SDL will process received data if no additional data is received during this time).

L.G # 2 Self-Check – 1	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. How do we recording weighs?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-8	Documenting Weights

2.8 Documenting Weights

Documentation helps to build up a detailed picture of what a manufacturing function has done in the past and what it is done in the past and what it is doing now and, thus, it provides abases for planning what it is going to do in the future.

Thus far we have dealt with indexes that support Boolean queries: a document either matches or does not match a query. In the case of large document collections, the resulting number of matching documents can far exceed the number a human user could possibly sift through. Accordingly, it is essential for a search engine to rank-order the documents matching a query. To do this, the search engine computes, for each matching document, a score with respect to the query at hand. In this chapter we initiate the study of assigning a score to a (query, document) pair.

L.G # 2 Self-Check – 8	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. What the function of document weighing?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

REFRENCE

1. http:// www.craftyarncouncil.com/weight.html
2. twitter.com/web/status/
3. htt://bizfluent.com>how7576502-eto
4. https://workdesign.com
5. Switchedontosafety.com>ergonomics
6. https://www.epa.gov>documents
7. https://www.bing.com/search?q=ergonomic+workplaces&form
8. https://www.haspod.com/blog/management/reporting-accidents-incidents-at-work
9. https://www.bing.com/search?q=concepts+of+housekeeping&form

Textile chemical processing

NTQF Level – II

Learning Guide#15

Unit of Competence: Weigh and Check Textile Materials and Products

Module Title: Weighing and Checking Textile Materials and Products

LG Code: IND CHPO2 M05 0919 LO3-LG15

TTLM Code: IND CHPO2 TTLM05, 0919v1

LO3. **Check materials and products**

Instruction Sheet	**Learning Guide #15**

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

3.1. Checking textile raw materials and products

3.2. Checking color blend yarns

3.3.Checking raw materials

3.4.Checking textile

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

- Checked correctly Yarns, raw materials and products for color, blend and number if appropriate.
- Checked the weight of the fibers, yarns, raw materials and textile products against production order.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 52.
3. Read the information written in the “Information Sheets -”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” in page 53,. Self-check 2” in page 58 Ask from your trainer the key to correction (key answers) or you can request your trainer to correct

your work. (You are to get the key answer only after you finished answering the Self-check 1and ,2).

5. If you earned a satisfactory evaluation proceed to “Information Sheet 3”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 3.
6. Submit your accomplished Self-check. This will form part of your training portfolio.

Information sheet-1	Recommend corrective and/or optimization actions

3 Recommend corrective and/or optimization actions

3.1 Analyzing causes of changes

Change analysis is a root because analysis techniques that use the precise specification of single deviation (problem or adverse event) so that changes and/or differences (potential cause factors) can be found by comparison to closely related un deviated situations.

As suggested by the name of the techniques, change analysis is based on the concept that change can lead to deviations in performance.Change in a Corrective action are simply consists of improvements to an organization 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 a failure of machinery or a quality management system, or misinterpretation of written instructions to carry out a 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-conformance.

Corrective action: action taken to eliminate causes of non conformities or other undesirable situations.

Optimize action: Action taken to prevent further reoccurrence of such non conformities. Both is used to bring about improvements to organizations processes, and is often undertaken to eliminate causes of non conformities or other undesirable situations.

Corrective actions are implemented in response to customer complaints, un acceptable levels of production conformance, issues identified during an internal audit, as well as adverse or unstable trends in product and process monitoring such as would be identified by statistical process control.

Analysis is a root because analysis techniques that use the precise specification of single deviation (problem or adverse event) so that changes and/or differences (potential cause factors) can be found by comparison to closely related undeviated situations.

As suggested by the name of the techniques, change analysis is based on the concept that change can lead to deviations in performance.

Self-Check – 1	Written Test

I. Choose the correct answer and write on space provided(4points each)

1. Define the corrective change?
2. Why we Analyzing causes of changes?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

Information sheet-2	Recommend corrective and/or optimization actions

3.2 Identifying changes for standard, procedures and training

To identify a standard change it helps to know what to look for. As a reminder a standard change is: a pre authorized change that is low risk, relatively common and follows a procedure or work instruction.

Training is the most important factors behind higher service quality and customer experience. However, for training to be effective it must be designed and implemented well.

Training is the single most important driver for service quality and it is there for one of the most important internal processes a company can have.

3.2.1. Checking Yarns

Yarn check production is not checking for any for only dependencies. This means that if you want to use yarn check during deploy, you cannot, it would always fail.

Yarn weight can be checked by handy little knitting secret called WPI (warps per inch)

Step 1: Warp the yarn around a pencil not tightly.

Step 2: Once you have warped your yarn, count the number of times it loops around the pencil within the first inch.

Step 3: Then, compare that number with the numbers on the WPI chart

Yarn have different weights WPI chart

Yarn weight	Warp per inch	Gauge
0 lace weight yarn	>35	>8.5sts/inch
1-fingering weight yarn	19-22	7--8 sts/inch
2- sport weight yarn	15.-18	5.75--6.5 sts/inch
3-DK weight yarn	12-14	5.5 --6sts/inch
4-worsted weight yarn	9-11	4--5 sts/inch
5- bulky weight yarn	7-8	3--3.75 sts/inch
6-super bulky weight yarn	<6	1.5—3sts/inch

3.2.2. Checking raw materials

Prior to the manufacturing process, raw materials can be inspected to identify if the materials themselves meet specifications. During the manufacturing process, products are inspected at the factory to verify that quality requirement and specifications are being met.

3.2.3. Checking products

Is one of the purposes of quality controls inspections is to check the production status. You want to confirm product quality, but also make sure the manufacturer is not behind schedule.

If you are an inspector you appointed- come after the whole production is completed, all you need to check is whether all packed. This is important because an inspection is much more reliable when the whole order is ready.

The solution is to proceed with inspections during production. In addition to checking product conformity and quality, the following points can be checked

- Check if the factory has full technical specifications from the Clint
- Check how many lines are working on these products
- Check how many workers per line
- Check the date of arrival of materials/ components
- Check the date of beginning of bulk production
- Check the total production quantity

3.2.4. Checking color blend yarns

If you have a limited number of colors does not worry. Even with the 3 basic colors you can get almost all the rest. Our online color mixer will help you. The mixer will be useful if you want to match colors for soap making, wall painting, learning, and other applications.

By clicking on the colored circle, you are vertically added to mix one drop /part of dye. You can click minus to reduce the number of drops. To obtain the required color proportions, you can add 2, 3 or more drops of one kind of paint.

Mixing ratio is displayed as a percentage. Water can be added to mix.

One part of water = 100 ml. Also, you can place unlimited colors on the palette.

On the top you can see 2 tabs:

Mixer and palette, Just click palette to see all saved colors. Just click palette to see all saved colors.

- Click reset for refresh current mix
- Click anywhere on mixed area save current color
    - Click to check the color

When working with gradiance sets the first step is to determine where to make your transition. If you are using a pattern written for gradiance sets this will have been done for you and noted in the pattern. For patterns not written for gradiance sets please check our information on using gradiance sets for shawls or socks.

3.2.5. Checking raw materials

Checking the quality an suitability of raw material and selection of material. It is an important part for textile production, distribution and consumption

There are some reasons for textile testing: such as checking raw materials, monitoring production assessing the final product investigation of faulty material, product development and research.

3.2.6. Checking textile

Fabric inspection is done in gray form or finished form. The inspection of fabric is a procedure by which the defects of fabric are classified according to degree or intensity of defects. The fabric inspection is done for both gray fabrics.

Finished fabric inspection such as

- Shade check
- GSM test
- Width or diameter test
- Shrinkage test
- Crocking test
- Pilling test
- Color fastness test
- Dimensional stability
- WPI and PPI

L.G # 3 Self-Check – 2	Written Test

I. Choose the correct answer and write on space provided(4points each)

Mention the method of Yarn weight can be checked by handy little knitting secret called WPI (warps per inch)?

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1_____

REFERENCE

https://towardsdatascince.com

http://www.itil-officialsite.com

https://qualityinspection.org

https://study.com>acadamy>lesson or https://www.qima.com

https://trycolors.com or https://www.10rowsaday.com

Textile chemical processing

NTQF Level – II

Learning Guide#16

Unit of Competence: Weigh and Check Textile Materials and Products

Module Title: Weighing and Checking Textile Materials and Products

LG Code: IND CHPO2 M05 0919 LO4-LG016

TTLM Code: IND CHPO2 TTLM05, 0919v1

LO4. Confirm documentation

Instruction Sheet	Learning Guide #16

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

4.1 Confirm documentation

4.1.1 Ordering production

4.1.2 Delivering documentation

4.1.3 Tickets or labels

Specification sheet this guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to:

- Checked against Fibers, yarn, raw materials and product weight, color and order of details documentation.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 61.
3. Read the information written in the “Information Sheets 4”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” in page 67
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 5”. However, if your rating is unsatisfactory, see your trainer for further instructions or go back to Information sheet 4.
7. Submit your accomplished Self-check. This will form part of your training portfolio.

Information sheet-1	Confirm documentation

Introduction

4.1 Confirm documentation

Production orders from different customers should have to be documented. There may be different types of orders. E.g. it be yarns of different counts, fabrics of different quality and the amount of each products. etc.

Order confirmation, Import, Receipt of the material at factory documentation, during production, Export, shipping documentation.

One of the most important factors for textile industry is proper documentation. A perfect documentation system can help you to finish the whole process properly without any problem.

So that we need to understand all textile departments documentation properly

Order conformation documentations are:

1. Copy of master Letter of credit or received of this documentation from the buyer, the exports become sure that they would obtain foreign currency after the perches shipment.
2. Contract sheet sing by buyer and vender
    - Style number
    - Shipment date
    - Mode of shipment
    - Fabric description

- Labels etc

3. Product package
    - Spec sheet
    - Taken tag
    - Design of fabric
    - Approval card

Documentation during production

- Daily production report
- Daily quality report
- Daily production report

Export documentation

- Packing list
- Inspection certificate
- Bill at leading
- Air way bill
- Certificate of origin collect from custom

4.1.1Ordering production

Textile manufacturing is complicated. The sheer volume of available fabrics, materials, and designs can turn the ordering process in small nightmare. But before manufacturing company transforms fibers in to fabric, you have to receive an order for a finished product. In order to give the customer what they want, your company has to order the appropriate raw materials.

4.1.2 Delivering documentation

The amount of products delivered from factory to customers and the types of the products to be delivered should have documented.

Delivery documents generally provide the delivery instructions for an order or trip and specify the products and quantities to deliver. They serve to transfer ownership of the products to the customer. Some types might also specify the product price and additional charges.

What are the types of delivery documentation?

- Bulk delivery ticket

Provide the delivery instructions for the sale order and specifies the bulk products and quantities to be delivered to the customer. It is used to transfer the owner ship of the product to the customer.

- Bulk invoice

This document provides the delivery instructions for the sales order or trip and specifies the bulk products and quantities to be delivered to the customer. It shows the product price, tax, and other additional charges that might apply.

- Packaged delivery ticket

This document provides the delivery instructions for the sales order or trip and specifies the packaged product and quantities to be delivered to the customer. It is used to transfer the owner ship of the product to the customer.

- Packaged invoice

This document provides the delivery instructions for the sales order or trip and specifies the packaged products and quantities to be delivered to the customer. It can be used to recorded additional information about what was actually delivered.

4.1.3Tickets or labels

The Labeling of textile products harmonizes the names of textile fibers and other terms used in labeling or other documents accompanying this product, in order to ensure adequate information for customers and to promote the development of the market.
Labels which show the sizes, quality, types and amount of products produced are all kept properly

What is textile product?

- A raw, semi-worked or made up product exclusively composed of textile fibers
- A product containing at least 80% by weight of textile fibers
- The textile fabric and others

How should the product labeled?

- All items must carry a label indicating the fiber content either on the item or the packaging
- A textile product consisting of two or more fibers accounting for 85% of finished product should be marked with the fiber followed by a percentage, e.g. cotton 80%,polyster15% Nylon5%
- If the product consists of two or more components with different fiber contents, e.g. a jacket with lining
- Any decorative matter that makes up 7% or less of product is excluded from the indication of fiber content
- Only certain names can be used for textile fibers

4.1.4 Specification sheet

Specification sheet is a sheet which contains detail information about the products. It contains date, time, amount and types of production. So that it must be documented and kept properly.

A specification sheet, or data sheet, describes the technical aspects of a project. Specification sheets are very detailed lists, useful both to inform end consumers, and also to close sales with potential clients. Specification sheets allow consumer to compare a product with competition in an equal manner.

A specification sheet is a document that summarizes the performance and other characteristics of a product, machine, component, or soft ware

Self-Check – 1	Written Test

I. Choose the correct answer and write on space provided (4points each)

3. What is documentation?(10)
4. How should the product labeled?(10)
5. What is the function of labeling?(10)
6. Write the advantage of specification?(20)

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Reference

http://www.ibisworld.com/default.aspx

www.textileschool.com>textile-pr

https://docs.oracle.com>over-deliv-docsa