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Participant Handbook

Sector
Logistics

Sub-Sector
Warehousing(Storage and Packaging)

Occupation
Packaging

Reference ID: **LSC/Q2216, Version 3.0**
NSQF Level 4

Goods Packaging Machine Operator

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Prime Minister of India

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Certificate

CURRICULUM COMPLIANCE TO QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS

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SKILLING CONTENT: PARTICIPANT HANDBOOK

Complying to National Occupational Standards of
Job Role/ Qualification Pack: **'Goods Packaging Machine Operator'** QP No. **'LSC/Q2216,V3.0 NSQF Level 4'**

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(Logistics Sector Skill Council of India)

Acknowledgements

We wholeheartedly thank all the organizations who have immensely helped us in endorsing the contents of this Participant Handbook thus contributing towards Government of India's initiative in skilling based on the Qualification Pack (QP) & National Occupational Standards for a Goods Packaging Machine Operator in Warehousing.

About this Book

This Participant Handbook is designed to facilitate training to the Goods Packaging Machine Operator Qualification Pack (QP). It provides learners with the necessary knowledge to major warehousing topics, such as preparing goods, moving goods, loading, unloading, operating packaging equipment to pack goods and pasting labels onto the sealed packing cases, stock counting, receiving, sorting, picking, packing and shipping, getting knowledge on various storage area in the warehouse.

Its decision-making orientation provides a real-world approach focusing on large and small warehouse industry. The book elaborates how Individuals in this position to perform general physical activities for preparing goods for packaging, creating labels and understand other Packaging Operations and using the process of operating the different packaging machines. This handbook also provides the latest information on the usage of technologies to perform these operations.

Key characteristics of this handbook:

(i) It discusses concept of warehouse management in an easy to learn manner.

(ii) It presents warehousing concepts in interactive and professional way.

(iii) It gives opportunity to learners to visualize themselves in a professional warehouse set-up.

Key Learning Objectives for the specific NOS mark the beginning of the Units for that NOS. The symbols used in this book are described below.

Symbols Used


Key Learning Outcomes


Summary


Unit Objectives


Tips


Notes


Exercise

9. Employability Skills -60 hours (DGT/VSQ/N0102)

The book on New Employability Skills is available at the following location:

https://eskillindia.org/NewEmployability

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1. Introduction to Goods Packaging Machine Operator

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Key Learning Outcomes

At the end of this module, participant will be able to:

1. Describe Supply Chain and Logistics Management
2. Classify the components of supply chain and logistics sector
3. Detail the various sub-sectors and the opportunities in them
4. Explain various activities in Warehouse
5. Discuss the roles and responsibilities of goods packaging machine operator
6. Describe the organizational structure in warehousing industry
7. Discuss Warehousing industry and job opportunities in it
8. Identify the components of supply chain and logistics sector
9. Perform various activities in Warehouse
10. Identify various sub-sectors and the opportunities in them
11. Perform your job role as goods packaging machine operator
12. Identify the employment opportunities in the warehousing industry

Unit 1.1: Logistics and Supply Chain Management

Unit Objectives

At the end of this unit, participant will be able to:

1. Describe supply chain management
2. Explain Logistics management
3. Explain the significant flows in Supply Chain Management

1.1.1 What is Supply Chain Management?

"Supply chain is like nature; it is all around us." Dave Waters.

All actions starting from point of origin through point of utilization till End of Life of the Product or Service are enveloped by Supply Chain Management. It involves Planning and implementing part of satisfying the consumer demand.

Supply Chain definition: The material movement and its flow, from the source to the end consumer. Supply chain entails manufacturing, purchasing material, transporting, warehousing, demand and supply planning, customer service, and management of all the supply chain processes.
This process is based on integration. The primary responsibility of supply chain is to connect major business procedures and functions across and within different firms and create a unified and high performing model for business. The several logistics management processes mentioned above are a part of supply chain, furthermore to manufacturing processes and processes across product design, marketing, sales, IT and finance.

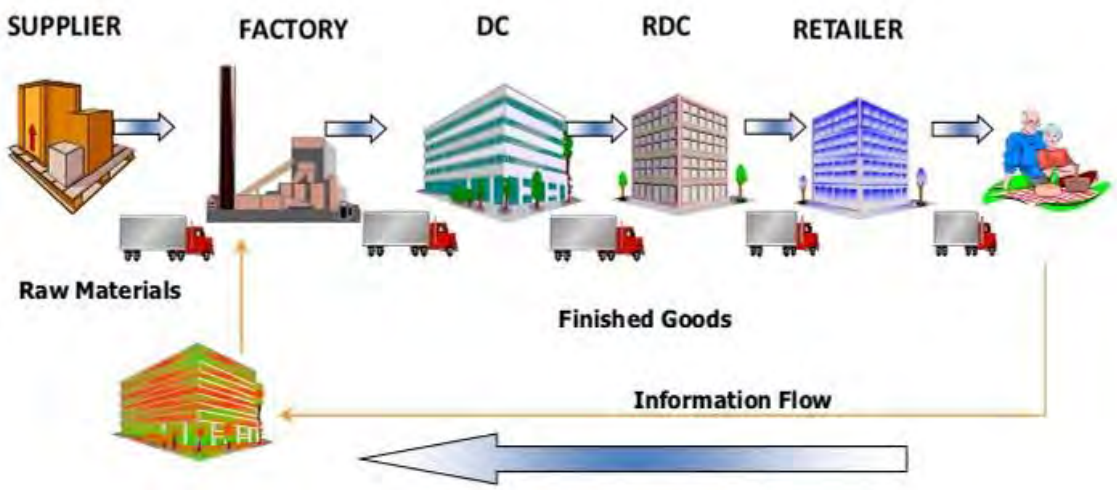


Fig 1.1.1 Supply Chain Flow

1.1.2 Introduction to Supply Chain Management

The supply chain is a system of storage and distribution. It performs the role of procurement of resources / material, conversion of these materials into semi-finished and finished goods, and the supply of these final products to consumers. The existence of Supply chains cannot be denied in both service and manufacturing establishments, even though the complexity of the process may vary significantly from one industry to another industry and one firm to another firm.

This system of supply chain is typically seen to lie between fully vertically integrated organizations, where the entire product and material flow is owned by one firm and those where each network member operates self-sufficiently. Therefore synchronization between the various players in the chain is the key in its operative management.

Above given picture is a specimen of a very simple supply chain for a sole product, where raw material is acquired from suppliers, converted into finished goods in a single step, and then transported to supply centers, and ultimately, consumers. Genuine supply chains have manifold of end products with collective components, facilities and capacities.

Components of Supply Chain Management
Five main components of Supply Chain Management are as follows:

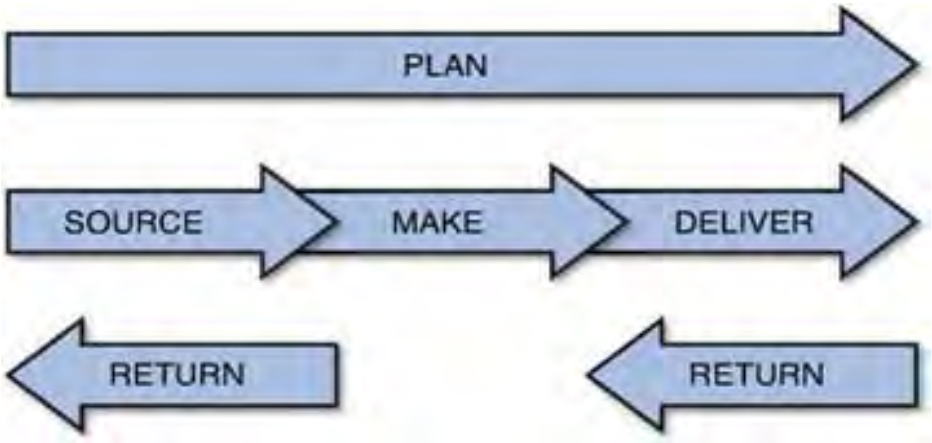


Fig. 1.1.2. Components of Supply Chain Management

Supply chain management is defined as *"The movement of materials as they flow from their source to the end customer. Includes purchasing, manufacturing, warehousing, transportation, demand & supply planning and inventory management. It is made up of people, activities, information and resources involved in moving a product from its supplier to customer."*

As per SCOR, the five important components of supply chain management are -

PLAN - SOURCE- MAKE- DELIVER- RETURN

PLAN: This stage addresses how customer demand will be met through the supply. As can be seen in the picture, plan function interacts with customer to get demand forecast. This gets translated into supply plan and communicated to the supplier for sourcing raw material.

SOURCE: This is the step where one must identify the various possible vendors for the raw materials required for the manufacturing. Just identifying suppliers will not be enough. It should also include the availability of products, the cost involved, ease in transporting goods and even the payment terms.

MAKE: The third component involve the activities like designing, producing, testing, packaging and then synchronizing all these activities for delivery. The raw material from suppliers are transformed to finished goods for the customer.

DELIVER: This stage involves the delivering the right product at the right place at the right time in the right quantity and at the right price. Here the supply chain transports the finished goods from factory to the warehouses, warehouse to distributors, distributors to retailers and finally retailers to final consumer.

RETURN: This is the last stage in supply chain which is becoming increasingly important. Here the defective, damaged or even the rejected goods are returned by the customer. The supply chain must respond to the customer quickly and return the goods by optimizing the cost.

1.1.3 What is Logistics Management?

Logistics Management

Logistics management is the fragment of supply chain management that devices, implements, and controls the effective forward, and reverse flow as well as storage of goods, material, services, and linked information between point of development and point of utilization to meet customer's requirements.

Logistics management comprises activities such as Inventory control, warehousing, and transportation management. Logistics management mainly focuses on the transportation and storage of products as a part of the supply chain.

Logistics management encompasses two main processes:

Inbound logistics: Includes the activities connected to obtaining, storage and transport of Raw Materials.

Outbound logistics: Involves the storage and delivery of final products to customers.

How is it different from Supply Chain Management?

SCM is an overarching concept and it includes logistics management as one of its components.

Logistics mainly deals with warehousing, inventory management, transportation, import and export management, track and trace and related processes.

SCM is a wider concept and is a tool to create competitive advantage for any company. Besides logistics, it carries various other functions like supply chain planning and strategy, forecasting and demand planning, production and supply planning, procurement and vendor management, collaborations and coordination with upstream and downstream partners, information flow management.

Supply chain management essentially ensures three flows:

a. Product flow / Service Flow
b. Information Flow
c. Finance/Money Flow

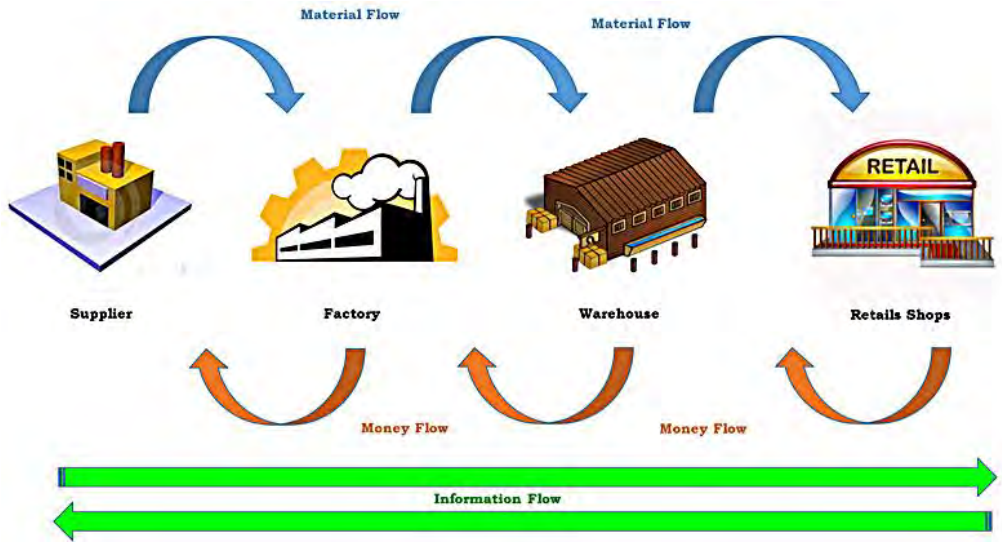


Figure 1.1.3 Supply Chain Flow

Product flow simply means the flow of products between the supplier, manufacturer and the end consumer. This taps the sale of the products as well as the return in case it doesn't meet customer satisfaction.

Information flow involves the exchange of information amongst the manufacturers and the suppliers as well as updating the status of the delivery on a real time basis, deprived of any delay or distortion to make sure that the demands are met with right supplies. This process includes the market monitoring amongst the supply chain associates to understand end-user preferences.

Finance flow is a product of the Product flow and the information flow. It includes credit terms, consignments and payment schedules as well as ownership arrangements. A Receiving assistant works in a warehouse, and their prime duty is to receive consignments, check the packaging for goods, check for quality and return any damaged packages as well as to assist in daily warehousing or storage operations. They are expected to be sound in technical matters concerning these machines and are expected to know the operations concerning labeling, packaging and customer orders for shipment making sure of the quantity and type specified in the Pick list. We will learn about this in greater detail in the next unit.

Notes

Unit 1.2: About the Course

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the importance of the Goods Packaging Machine Operator
2. Describe the organizational structure
3. Elucidate the main objectives of this course

1.2.1 Goods Packaging Machine Operator

Goods Packaging Machine Operators are also known as Goods Packaging Operators or Packaging Operators. Individuals in this role are responsible for operating packaging equipment to pack goods and pasting labels onto the sealed packing cases. Packaging machine operatives are accountable for running the machines that make products before distributing them. They are also responsible for completing all relevant documentation on the packing and maintenance of the packaging machines. Following is a chart showing their position in the warehouse operations:

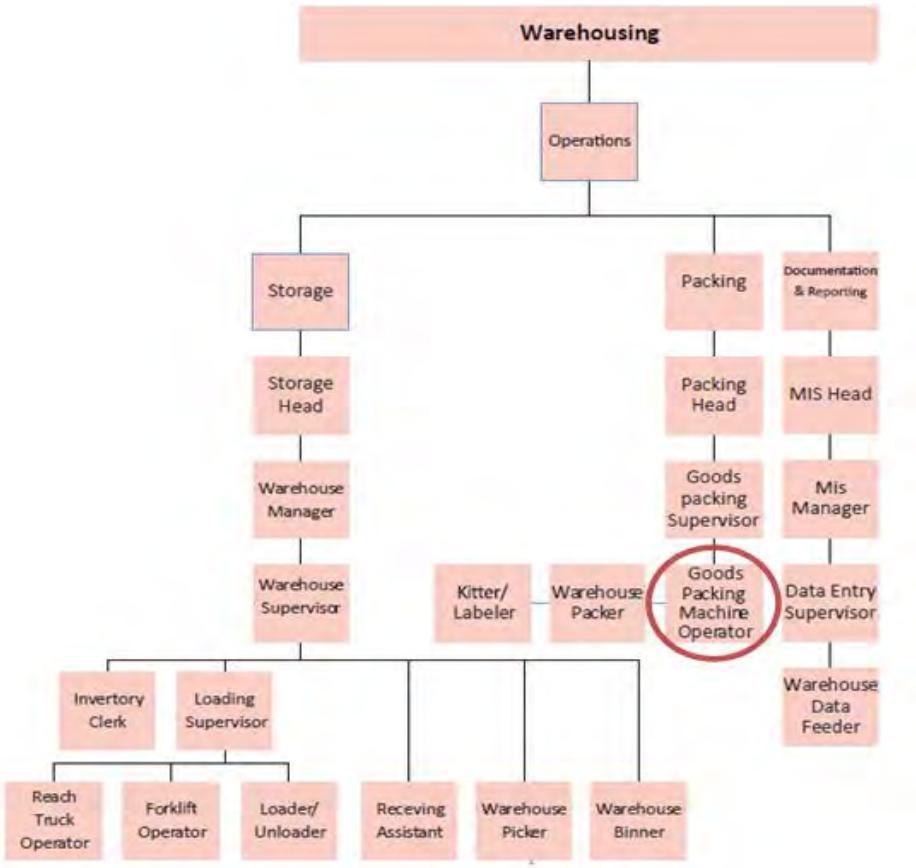


Figure 1.2.1: Warehouse Organization Structure

Packaging operators pay attention to all machine-specific roles such as configuring the apparatus, loading and effectively operating the machines, and enhancing the machine capability. They essentially need to make sure that the machine works at its maximum capability, supervise its maintenance, and carry out timely quality checks. They also need to be aware of the packaging material appropriate for each product and ensure its availability as well as stocking the packing material for future use. Labeling is an essential part of the job and an operator should know how to label and read labels as well.

A packaging operator will be required to work well with his/her team and achieve joint goals. The individual must be able to prioritize and execute tasks within scheduled time limits. The individual should be able to maintain high concentration levels throughout his/her shift. The most essential skill of a Goods Packaging Machine Operator is his/ her alertness and attention to detail, which prove to be assets to a company.

1.2.2 Objectives of the Course

- The primary objective of this course is to make individuals to perform general physical activities in order to recognize goods, package and label then and takeover procedures at the warehouse through the use of packaging machines and assisting equipment
- An individual should develop the knowledge of organizational products, policies and procedures.
- Trainees should understand the risk and impact of not following defined procedures/work instructions
- They should be able to demonstrate clear technical knowledge about nature and characteristics of components being packaged, the appropriate machines to be used to carry out a procedure, the inspections to be conducted and the labelling techniques
- Provide knowledge of how to use packaging equipment such as cartons, tray packer, blister packer, over wrappers, etc. as well as labelling equipment.
- To learn how to read labels, handling instructions and understand the codes as per company procedures and read safety manuals and safety signs on the warehouse floor
- To demonstrate clear communication with the supervisor, and peers regarding the chain of activities on the shop floor to learn smooth running of daily activities
- To demonstrate the ability to judge workloads and packaging machine limitations; volume, capacity, and manpower need during peak and nonpeak hours.
- To understand customer timelines and ensure that they are efficiently met
- To possess analytical skills and demonstrate an ability to track progress, complete tasks without errors and notice common incidents and take necessary safety measures.

Tips

1. Be open to learning and understand the expectation of the course
2. Gain knowledge about your position in the organizational flow and your supervisors

Notes

Unit 1.3: Introduction to Warehousing

Unit Objectives

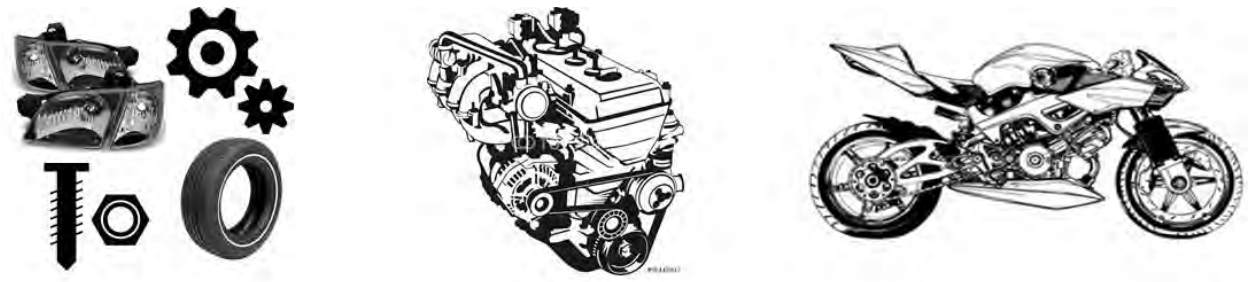
At the end of this unit, participant will be able to:

1. Explain the importance of warehouse in supply chain
2. Describe the various activities carried out in a warehouse
3. Identify the significance of policy and procedures

1.3.1 Need for Warehouse

Whenever goods are created or manufactured, they are not directly sent to the markets for sale. They are stored and released as and when required. This process of storage requires proper arrangement for conserving goods from the moment of their production or acquisition till the moment of their use or sale. Storage operation when done on a large scale in addition to a quantified manner it is termed as 'warehousing'. **'warehouse'** is the term used for the place where goods are stored.

Warehouse is used for storage or assembling of goods, in order to make goods available whenever required. A warehouse can store various different types of goods such as, RM-Raw materials, WIP-Work in progress goods, FG-Finished goods, etc.



RM - Raw Material **WIP - Work in Progress** **FG - Finished Goods**

Figure 1.3.1: Types of Goods / Inventory

Moving and storing products is a part of Logistics. Warehouses used for storage carry out the function of holding products that have recently been made, are awaiting transit, or are at source location awaiting consumer order. The image above depicts that a Warehouse may contain several forms of goods such as raw material storage, in transit storage, finished good storage, and storage in distribution centers.

Warehouses play a pivotal role in supply chain management. As the word indicates, supply chain consists of various links and warehouse is one of its strongest links. As mentioned earlier, the biggest challenge of supply chain is the ever-widening gap between the demand and supply. Warehouse plays the role of a stabilizer during these fluctuations. Warehouse can be called as a place for everything and everything in its place.

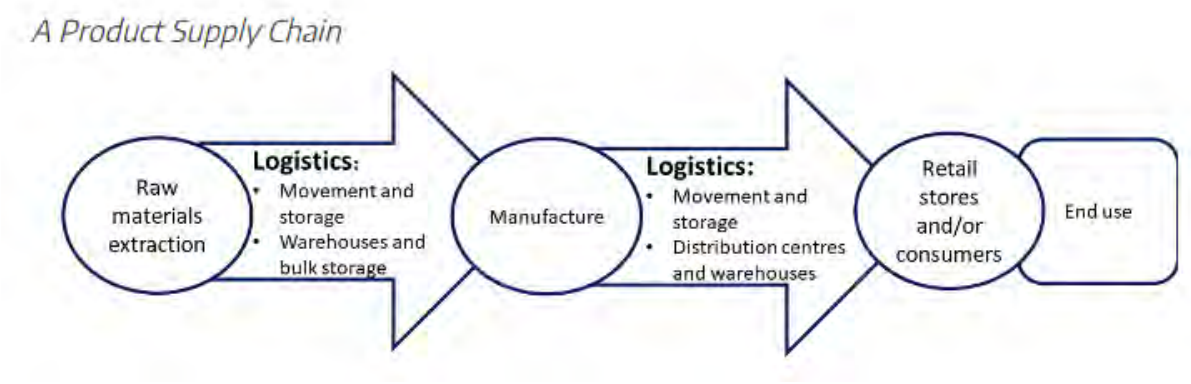


Figure 1.3.2: Product Supply Chain

Some of the major roles of warehouse are:

1. ***Facilitating regular and constant flow of goods:*** This is done by balancing between the demands forecast and supply constraints.
2. ***Provide safe custody of goods:*** In supply chain goods are always exposed to various risks. A warehouse can mitigate these risks by playing the role of an intermediary.
3. ***Consolidation of cargo:*** Volume always provides cost benefit. The goods can be procured from various sources. Warehouse is a place where these goods can be stored for maximization of various cost benefits.
4. ***Break bulk point*:** While consolidation can be one advantage, then even breaking the bulk can also provide much benefit. In this case, bigger shipments can be customized thus making it easier for the supplier and the customer.
5. ***Value added services*:** The strength of supply chain is in adding value at every step in the process. It is difficult to add value while the goods are in motion or in transit. Warehouse is an ideal place for many value additions for the goods.
6. ***Managing seasonal supplies*:** This is one big challenge many of the stake holders face. Seasonal goods demand many facilities which will vary from season to season. A warehouse can act as a transshipment point where all such facilities can be tailor made.
7. ***Product Mixing*:** Product mixing gives great cost benefit to the supplier who in turn can pass on this benefit to the end user. Warehouse is a place where different products can be gathered and stored. Thus, it becomes the ideal place for the companies to mix their products for maximization of profits.
8. ***Defining the time to market*:** Markets always demand the right product at right place in right quantity for the right price. The unreliable production, unpredictable transits and unforeseen constraints during movement of goods makes this a difficult task. However, this can be easily achieved by holding the right amount of inventory at the warehouse.
9. ***Specialized services*:** Warehouse also provides many specialized services like customs bonding and so on.

1.3.2 Warehouse Activities

Post reception of goods and right before shipping, several of internal warehouse processes are carried out in order to ensure an effective flow of inventories within the warehouse and the the process of organization and maintenance of company inventories. The following enlists the activities performed in most of the warehouses;

1. **Receiving** – Wherein you receive the products from the supplier; Schedule Carrier, Unload Vehicle and finally Inspect
2. **Stow** – Scanning the received goods, checking it for damages, and place goods in storage
3. **Put Away** - Classify Product, Recognize Product Location, Move Products, Storage of goods and Update Records
4. **Storage** – storing products on the basis of size, popularity, reachability, etc.
5. **Order Picking** - Data, Batch Picking, Walk & Pick
6. **Shipping** - Plan Carrier, Load Vehicle, Bill of Loading, Record Update

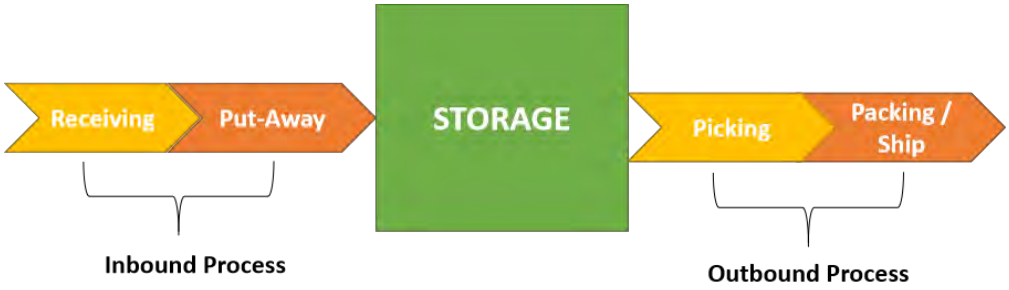


Fig. 1.3.3. Warehouse activities

1.3.3 Introduction to Warehouse Operations

A typical warehouse will receive, store, rearrange and repackage goods. When goods reach at the warehouse, those are placed larger units called pallets and at the time of shipping the goods have to be packed individually or in smaller cases. Therefore, the outbound activities are usually labor intensive. For instance, to transfer 10,000 separate boxes of paper clips, the participation of labor force would be wide. But, for transporting 48 case boxes, the labor prerequisite is relatively low. And much lower for moving a pallet loaded with 24 cases. Eventually, warehouses that receive bulk shipments, they tend to store them in a way to simplify the process and push faster recovery so as to get them picked, organized and repacked to reduced units as per customer needs.

The restructuring of a product involves the subsequent processes:

1. **Inbound Processes**

- Receiving
- Stow
- Put-away

2. **Outbound processes**
   - Processing customer orders
   - Order-picking
   - Checking
   - Packing
   - Shipping

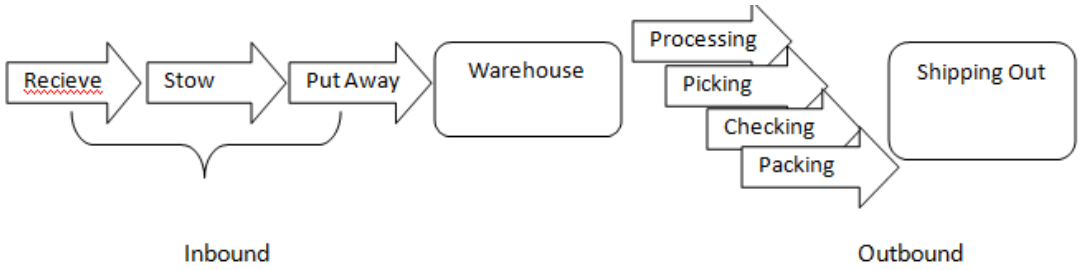


Fig. 1.3.4. Warehouse Process

1.3.4 Warehouse Management System - An Introduction

The software used to manage and track all the warehousing processes is called Warehouse Management System. The main purpose of WMS is to regulator the storage and movement of goods as well as to monitor the transactions related to material movement. An industrial strength relational database product such as Informix, Oracle, Sybase, DB2 or other are used in order to build this system. The processes of WMS comprise directed picking, directed replacement and directed put away, but are not just limited to these. The primary logic will utilize a blend of location, item, quantity, order information and unit of measure to determine the location to stock and the sequence to perform these operations.

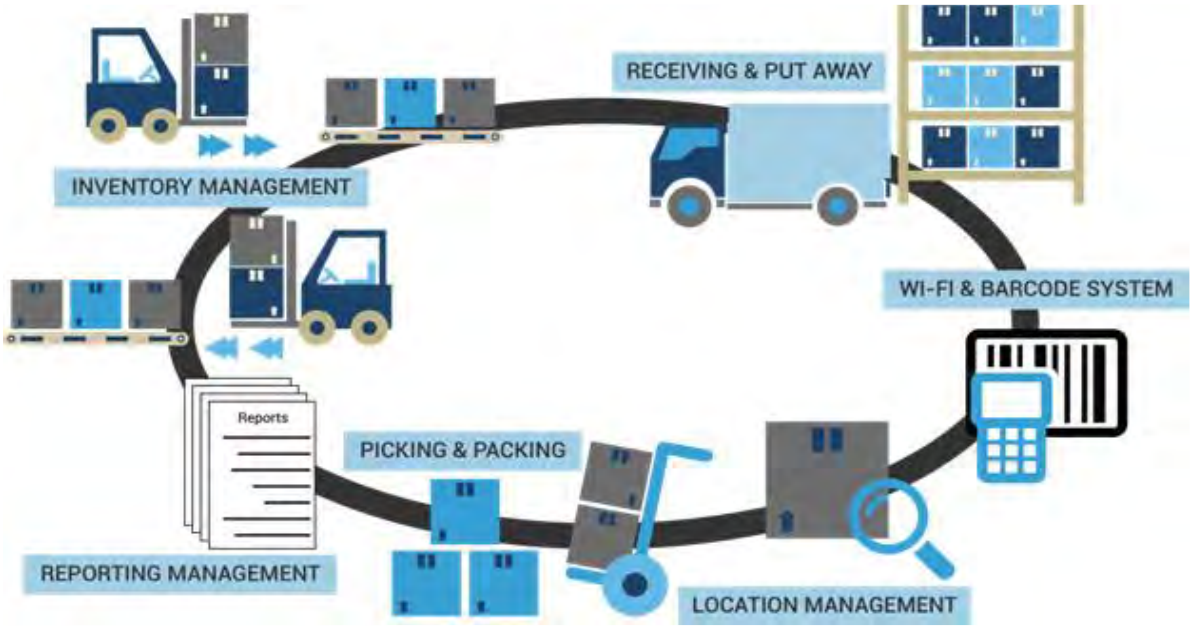


Fig 1.3.5: Warehouse Management System

WMS aids in keeping down inventory costs while cumulating overall efficacies. WMS comprises:

- Warehouse capacity management
- Cross docking
- Load Planning
- ABC Stratification
- Picking optimization

The benefits of WMS include:

- Transparency in storage and accuracy
- Higher space utilization
- Decrease in shipping errors and thereby cost
- Reduction of Inventory carrying cost

1.3.5 Prerequisites for WMS Implementation

WMS needs are quite widespread. The features of each SKU and the location of the same should be maintained at the thorough level or it can also be done by combining similar items and locations into categories. For instance, every SKU characteristics includes at the detailed level, the unit measure of the item stocked and the weight of an unit and (cases, pallets) and information for example the possibility of mixed storage with other SKU s, maximum quantity for each location, hazardous categorization, maximum stack height, feasibility of racking, nature of the item (raw material or finished good), acceptance of the item etc. However, only a limited number of operations require information of individual items as mentioned above and most other operations will profit by creating groups of products that are similar.

The picking, replenish and put away location of the item will be decided by the system automatically. The systems have to follow a precise logic that has to be allocated to various combination of item/location/order which is likely to occur. Few such locations are as follows:

Location sequence:
The movement through the warehouse is well-defined and every location is allocated a sequence number. The sequence numbers will help the movement inside the warehouse especially in preparing the order for packaging. However, in the put-away process, the logic will look for the primary location in the sequence in which the product can be stored.

Zone Logic:
By breaking the storage locations into several zones activities like, direct picking, replenishment and put-away to and from specific areas can be done easily. This logic has to be united with some other logic to determine the precise location within the zone as zone logic can stipulate the area alone.

Fixed location:
Regulate fixed locations for specific items that enable direct picking, put away and replenishment. Fixed locations are usually utilized as primary picking locations in case or piece picking.

Random Location:
These are like fixed locations however these are not assigned with any items. However, a different logic has to be combined to point out the exact location.

First-in-first-out:
Picking directed to older inventories first.

Last-in-first-out:
This is appropriate for handling perishable products for exports. This logic is the opposite of the previous one; picking from the latest inventory first.

Unit of measure or quantity:
Picking based on the quantity or unit-of-measure mentioned in the order. For example, if the order is for 20 items, pick from the fixed locations and for more than 20 go to reserve storage locations.

Fewest Locations:
This logic concerns much around the productivity. Pick-from-fewest needs quantity information to allocate least number of locations to store the items. Ultimately the logic finds the fewest possible locations to store the entire quantity of items. Even though, it is attempting to reduce the put-away time and increase the efficiency, it does not hold good in terms of space utilization.
Pick-from-fewest will leave small quantities of items scattered in the warehouse and put-to-fewest leaves small locations empty.

Reserved locations:
In case of requirement of predetermined specific locations to put-away or pick-from, this logic can be used. While attempting to cross dock, reserved locations can be used to move the specified items to inbound shipping or staging or directly to an awaiting outbound trailer.

Nearest location:
This logic looks for the closest location required to put-away or pick from. During setup, it is better to test whether the logic is choosing the shortest route or closest location. The logic always chooses a straight line route for calculating the shortest distance. The logic may suggest the picker a location (straight line calculation) that is 30 feet away, for which the picker has to move 200 feet up and down the aisle while there might be another location available at just 50 feet away in the same aisle. Bu
t, for the logic 50 is greater than 30.

Maximum cube:
Cube logic uses unit dimensions to calculate cubic inches per unit and then compares it with the cube capacity of a location to determine how much can the location hold. If all units are of equal size and if they can be stacked one over the other, cube logic will work. As it is practically rare, this logic is not relevant to the practical world.

Consolidate:
If a location has the same SKU as it appears in a put-away list, the same location can be used, so as to keep the like items consolidated.

Lot sequence:
The Lot Sequence uses the logic that uses lot number or lot date to find out the locations to pick or restock. Combination of logics can fetch good results. For example, if a warehouse has multiple locations with same receipt date, then one may employ pick-to-clear logic with first-in-first-out.

Need for WMS:

It is essential for introducing best practices within a warehouse but it also assists in activities like ergonomic improvements, refining warehouse layout and minimalizing travel time by having fast moving items nearer to the dispatch area. The warehouse efficiency can be improved through the inclusion of a software technology. Consumers have become extremely demanding these days and with the influence of communication technologies, the expectation for real time response to all their queries has increased. Even Marketing, Sales, and Finance teams needs real-time data for their seamless operations.

The inventory will be managed by a stock-control system at stock location and quantity level but this cannot manage the productivity of the warehouse. A WMS can perform data processing and movement co-ordination within the warehouse thus, increasing the competitive nature and response towards consumer or client demands. Hence, WMS is a priceless tool for refining an organization's productivity and client focus.

Notes

Unit 1.4: Warehouse Equipment and Layouts

Unit Objectives

At the end of this unit, participant will be able to:

1. Detail on the different types of storage systems in a warehouse
2. Detail on various MHE equipments used in a warehouse
3. Understand the concept of Warehouse layouts

1.4.1 Warehouse Handling Equipment

Warehouse equipment are used for storage, movement, protection and control of material and people throughout the end to end process of the warehouse. Materials handling includes moving, packaging, and storing all the materials used inside the warehouse. The different kinds of equipment which are used in a warehouse can be broadly classified into three categories, viz, storing equipment, material handling equipment and safety equipment. A judicious selection of different store equipment is a key to the successful operation of a storeroom

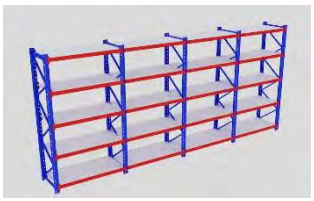
Forklifts, reach stackers, pallet trucks, heavy duty racks, slotted angle racks, cranes, hoists, handrails, bollards, wire partitions are all example of warehouse handling equipment. Warehouse equipment are used to increase output, control costs, and maximize productivity. A well-designed handling system attempts to achieve the following:

- Improve the efficiency of the warehouse with fewer efforts.
- Allow handling of several types of goods which cannot be manually handled or lifted.
- Cut down on manual efforts and labor costs.
- Reduce potential damage to material during storage and handling.
- Maximize the utilization of the cube space inside the warehouse.
- Minimize the accidents inside the warehouse.
- Reduce the overall cost of operations of the warehouse.
- Improve service levels of the warehouse

Following are the ways, warehouse equipment may be classified.

Fig. 1.4.1. Warehouse Equipment Classification

Storage Equipment

Name	Picture	Description
Selective Pallet Racking		Selective Pallet Racking is the simplest & economical racking system which allows 100% accessibility to each pallet. This racking is suitable for large variety of SKU's irrespective of quantity.
Heavy Duty Racks		Heavy duty shelving is a simple storage solution which facilitates storage of non-palletized items. Ideal for large variety of medium to big sized items that can be handled manually.
Longspan Shelving Racks		Longspan Shelving is ideally suited for items which are light/medium in weight and voluminous in nature. This types of racking is used for Auto, Retail, Engineering Sectors
Bin Racking		Usually used in Spares part storage for storing smaller items.
Slotted Angle Racks		This shelving is a versatile system best suited for storage of small components, bins, cartons having light loads up to (300 kgs) level.
Mezzanine Flooring		Column based Mezzanine floor system is a light weight steel flooring system provided at a suitable height above the ground. The system can be configured to suit the layout of the room, taking into account pillar positions, door positions etc.

Cantilever Racking System		Generally used where the need is to hang the products like tyre.

Table. 1.4.2. Storage Equipment

Material Handling Equipment (MHE)

Name	Picture	Description
Hand Pallet Truck (HPT)		One of the most important equipment in the Warehouse. Used to lift and move pallet within the warehouse.
Battery Operated Pallet Truck (BOPT)		This is Battery Operated version of Hand Pallet Truck. Used in large warehouses for fast movement of Material.
Integrated Dock Levelers		Aids loading and unloading of goods by acting as bridge between truck and Loading Bay edge.
Forklifts		Another very important equipment in the Warehouse. A forklift is a powered industrial truck used to lift and move materials over short distances. It can pick up goods a height with HPT or BOPT cannot do.
Reach Trucks		Reach trucks are designed for 'reaching' extreme heights. They are used for highly racked warehouses for lifting of Pallets.

Stackers		Suitable for stacking, double pallet handling, order picking and horizontal transport. Available both in Manual and Electric version.
Chain Pulleys and Hoists		These are used to lift and lower heavy loads in the warehouse. Again, available in Electric of Manual versions.
Dollies		Used to move heavy equipment, boxes, and other bulky items within the warehouse.
Trucks		Can be made wooden, steel, aluminium, or plastic, used for movement within the warehouse.
Utility Carts		Movement of material like Garments and tools inside the warehouse.

Table. 1.4.3. Material Handling Equipment (MHE)

Safety Equipment

Name	Picture	Description
Emergency Wash Station		Used in Chemical Warehouses for body and Eye Wash in case of any spillage or leak.

Anti-fatigue Mats		Used in the warehouses which deal with oil, grease and other slippery material.
Barrier Rails		These barricades protect valuable equipment and workers from hazards in the workplace.
Bollards		Heavy-duty bollards provide a physical barrier between fork trucks and valuable equipment.
Column Protectors		Universal rack protectors protect rack columns from damaging impact that can be caused by forklifts or heavy machinery.
Wire Partitions		Wire enclosures work well as tool rooms, security cage, or to store hazardous material.
Traffic Visibility Mirrors		Wide angle convex mirrors designed to increase surveillance, provide security, and promote safety.
Handrails		Safety guardrails make overhead walkways and mezzanines safe with easy to install guardrails.

Miscellaneous Equipment		Floor signs and other range of products for safety in the warehouse.

Table. 1.4.4. Safety Equipment

1.4.2 Warehouse Layouts

A warehouse layout which if created well can streamline the flow of work and create quicker shipping times. Nevertheless, if your warehouse is not proficiently utilizing the space it can negatively impact the supply chain, shipping time and workflow. Augmenting the warehouse layout can radically improve operations, however, each warehouse is different, and what works for one might not be replicated. Though, there are a few limited base design choices that may very well work and anybody working in a warehouse should be mindful of these.

Here are the top three warehouse layout designs:

1. U- Shaped Design

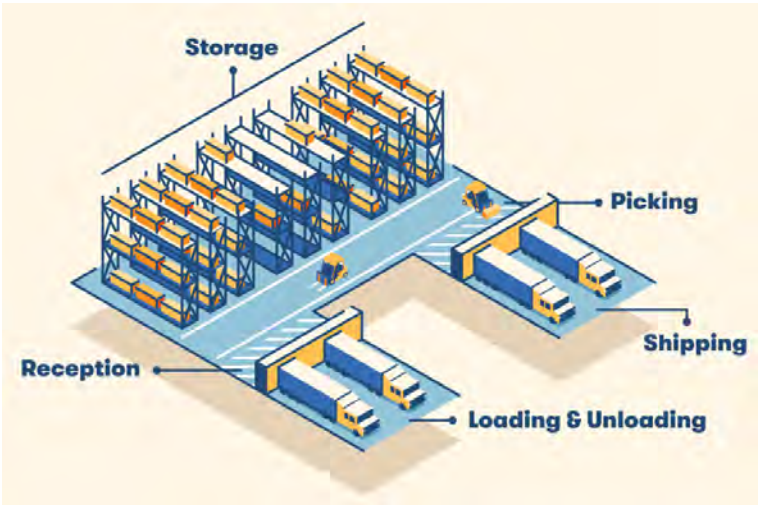


Figure 1.4.1: U shaped Layout

This layout is an incredible option for any warehouse pertaining to its simplistic design that can be replicated almost anywhere. As suggests, the warehouse is created in a “U” shape, like a semi-circle. The plan suggests the loading and shipping area to be put close together. Followed by this, place the reception area, also recognized as the staging area. The Staging area is a place where the unloaded products are segregated and sorted before they are positioned in the suitable storage spaces. The

back end of the warehouse would be filled by storage area with active storage — or the most widespread products if the warehouse — squeezed in the center of static storage — which goods are the most inclining to sit on the shelves.

I- Shaped Layout

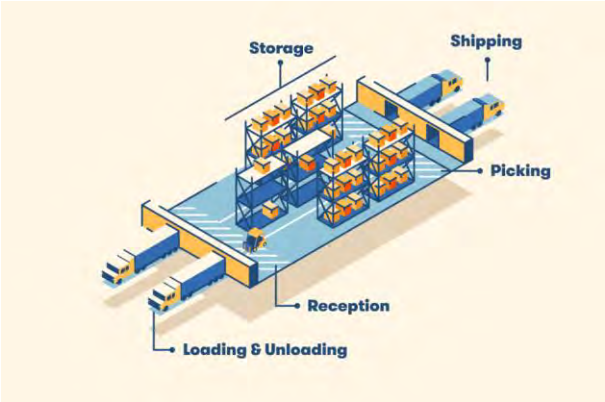


Fig 1.4.7: I shaped Layout

This is also referred to as a through-flow design. The I-shaped layout is brilliant for high-volume warehouses. It's created in an "I" shape, with the storage area in the middle, loading and unloading area on one end and the shipping area on the other. The products are ordered in a way that the higher-volume objects are retrieved easily. Nevertheless, products typically need to travel the entire length of the warehouse to go for shipping.

L- Shaped Layout

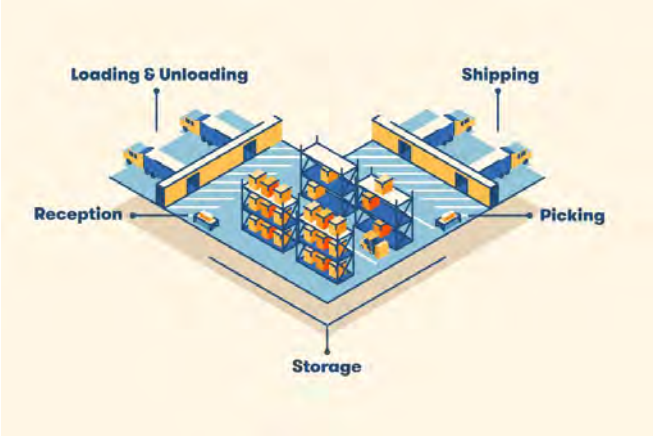


Fig 1.4.8: L shaped Layout

The rush hour flow of the warehouse is set up in the shape of "L" in this warehouse design. Reception and loading areas are situated on one side of the building, while the picking and shipping areas are set up together, next to each other. The left over space is filled with goods and it has a plenty of space for storage.

Notes

Unit 1.5 – Roles and Responsibilities of a Goods Packaging Machine Operator

Unit Objectives

At the end of this unit, participant will be able to:

1. Detail several job roles of a goods packaging machine operator
2. Understand the responsibilities of a goods packaging machine operator

1.5.1 Roles and Responsibilities of a Goods Packaging Machine Operator

- **Prepare for Packaging**

Fig 1.5.1: Preparing for Packaging

To be competent at packaging and operating packaging machines, an operator needs to prepare for packaging. The first step in this is to obtain information about the products being packaged so that an operator can decide the material needed for packaging and the technique. Secondly the operator needs to prepare the packaging area and make sure that there is enough space, no unnecessary items, no spillage or breakage. They also have to assess the packaging equipments required in terms of machine, wraps, tapes etc and also check for appropriate PPE.

- **Packaging Operations**

For effectively and timely carrying out the packaging of goods, the operator needs to know the various steps in packaging of goods. They should be able to assess the sequence of packaging on the conveyer so that the fellow colleagues do not face issues while carrying their tasks. The operator should be able to assess common issues effecting packaging like weight and size and also

the nature of product. The operator should also be trained enough to resolve packaging machine issues in case of breakdowns or malfunctions.

Fig 1.5.2: Packaging Operations

- **Labeling**

Fig 1.5.3: Labeling

The first step in this process is that the operator has to prepare for labeling. To do so the operator must be aware about the product, the type and its size. They also need to know their work schedule and the number of packages required to be labeled by the end of the day. He/ she should be aware about the tasks to be performed before, during and after the labeling process.

- **Post Packaging Activities**

Post shift activities for a goods packaging machine operator usually involves a post shift inspection of machines and putting away packaging material. The operator should make sure that the machines are switched off; any extra material used for packing shouldn't be lying around as it can be easily misplaced. The extra or waste labels and packing material should be thrown away or replaced. They should check for any kind of spillage or damages and escalate the matter to the supervisor. Last but not the least the operator should be aware of the SOP's and the hand over protocol of the company they are working for. Before handing over for the say the operator must fill in an inspection or a schedule so that it is easier for the next operator to take over the job.

Figure 1.5.4: Post shift activities

- **Housekeeping**

Figure 1.5.5: Housekeeping

Housekeeping is an essential skill and a task that the goods packaging operator should perform with perfection. It is essential that the packaging area is clean at all times, before and after the shift is completed. Therefore, the operator should inspect the areas clearly, make assessments about what products and techniques should be used and follow a proper cleaning process step by step.

- **Maintain Health, Safety, and Security Measures**

It is essentially the most important role and responsibility of a Goods packaging machine operator in order to ensure the safety of themselves as well as the other workers. The operators need to comply with all the safety guidelines and procedures lay down by the company and with assistance from their managers. They need to ensure that their safety gear is in place and the environment that they are working in is hazard-free. They also need to ensure that they are extremely well trained and follow regulations to their best abilities.

The above was a brief detail about the roles and responsibilities of a Goods Packaging Machine Operator. More details shall be provided in the chapters as we go ahead.

Tips

To be successful,

- Carry Achievement motivation
- Keen to learn.
- Train yourself to finish what you started.
- Dream big.
- Do not hesitate to ask for Help.
- Do not be afraid to make mistakes.
- Do not limit your working hours during the learning phase

Summary

At a ground level, the fundamentals of supply chain management are covered, along with the significance of logistics linkage in managing an effective supply chain. In this unit, the three primary supply chain management flows are covered in detail. With the established goals, the participant will be able to comprehend the primary responsibilities of the individual as a Goods Packaging Machine Operator. The requirement of a warehouse and various tasks performed inside the warehouse are also covered in this unit.

Notes

_____

_____

_____

_____

_____

_____

_____

Scan the QR code to watch the related video

https://www.youtube.com/watch?v=4-QU7WiVxh8
Logistics management

https://www.youtube.com/watch?v=lZPO5RclZEo
Supply chain management

Exercise

Multiple Choice Questions

1. The correct sequence of supply chain process is
   A. Plan – Make - Source – Make - Return
   B. Plan – Source – Make – Deliver – Return
   C. Plan – Make – Deliver – Source - Return
   D. Plan – Source – Deliver - Make – Return
2. Which of the following is not a classification of equipment being used in the warehouse?
   A. Storage
   B. Safety
   C. Earth moving
   D. Material handling
3. Which of the following activity is part of the shipping activity in the warehouse process?
   A. Order processing
   B. Unload vehicle
   C. Cycle count
   D. Filling bill of transport
4. Which of the following is not a role played by the warehouse?
   A. Consolidation hub
   B. Break bulk
   C. Value added services
   D. None of the above

Fill in the Blanks

1. What are the three important flows in logistics management?
2. The _____flows in both directions in logistics management?
3. A goods packaging operator reports to a _____?
4. What are the different types of goods stored inside a warehouse?
5. Order picking is an _____ process?
6. A packaging operator is responsible for packaging, _____ and housekeeping

True or False

1. Supply chain management includes logistics management.
2. Audit is not one of the requirements for conducting documentation in the warehouse.
3. A goods packaging operator has to ensure that there is sufficient tape and other sealants to carry out operations.

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Logistics Skills Council

2. Prepare for Packaging

Unit 2.1 – Introduction to Packaging

Unit 2.2 – Prepare Packaging Area

Unit 2.3 – Prepare Packaging Equipment

LSC/N2201

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Describe the different types of packaging material and packaging techniques
2. Explain how to calculate the amount of packaging accessories and stationary requirements for the day
3. Discuss the evaluation process of the necessary space and area required to perform operations based on the product type
4. List the various inspections to be performed to ensure proper functioning of the packaging machine
5. Identify the different types of packaging material and packaging techniques
6. Calculate the amount of packaging accessories and stationary requirements for the day
7. Evaluate the necessary space and area required to perform operations based on the product type
8. Comply with the safety rules and regulations at the workplace
9. Choose the appropriate PPE based on the environment
10. Perform various inspections to ensure proper functioning of the packaging machine

UNIT 2.1: Introduction to Packaging

Unit Objectives

At the end of this unit, participant will be able to:

1. Understand Packaging
2. Detail on the types of Packaging material and techniques
3. Understand the Packaging Process

2.1.1 What is Packaging?

All of the goods we purchase are packaged, whether we are consumers or enterprises.

Since then, packaging has evolved into a marketing tactic to entice customers to purchase a product. Initially, packaging was just designed to protect things during transfer and handling in a warehouse.

When a product is delivered in a factory, a warehouse, or to a customer's location, corporations employ packaging to protect it from harm. Industrial packaging is typically done to safeguard goods when they are transported from a supplier to a client or from a manufacturing facility to distributors.

The purpose of packaging in logistics and supply chain management is to move goods from the warehouse to the distribution centers and back to the warehouse.

In logistics and supply chain management, packaging is responsible for transporting goods from the warehouse to the distribution centers, then to the retail outlets. The products must be displayed in these outlets' or retailers' original packaging for exhibition purposes and occasionally in secondary packaging for bulk customers.

The logistics division places importance on package shape since they prefer products that are standard in shape and size so that they would be simpler to transfer and store.

Figure 2.1.1 Packaging in warehouse

2.1.2 Items used for Packaging

The goods once picked needs to be packed before delivering to the final customer. This is because of two reasons -

- In warehouses, most of the products are stored in bulk carton or boxes to make use of warehouse space.
- The customer requires the products in various small quantities as per the demand flow - where breaking the bulk is required.
- The likelihood of harm increases significantly if products are not properly packed. The shipping carton must be sturdy enough to not easily bend or crush, and it must be packed tightly enough to prevent merchandise shifting during travel.

Main items used for packing are -

Plastic- The most common packaging material is plastic and it various forms. Though it is the easiest and most effective material, it is also difficult to dispose of. It is used for packaging consumer goods, food items, personal hygiene products, and tools. It is light, firm, reusable and recyclable.

Wood- Mostly used for pallets and crates and packaging heavy duty products. It is a form of external or secondary packaging. Packaged finished goods are bundled up into large wooden cartons for bulk deliveries. Wood is strong, easily destructible; however it takes up a lot of space and is susceptible to damage due to humid and hot environments

Paper & Board- Because it is inexpensive, retains its shape, and is simple to design, paper is used extensively. Due to its weakness, it is typically utilized for inside packaging rather than for external packaging.

Cardboard- This is the most commonly used and cost-effective way of packing. However, cardboard packing will not be strong and are exposed to getting wet in rainy seasons.

Corrugated Boards – is essentially a container made of disposable material. The sides of these boxes are made up of layers of material, and these layers cover all the sides of the box. There are precisely three layers, the outer, the middle and the inner layer. The central layer of the box is fluted, this means that it has a structure of rigid, wave shaped arches, their job essentially being to provide cushioning and support for heavy weight materials placed in the box.

These boards are used regularly for packing and shipping products as it has a durable and strong nature. While cardboards and several other materials aren't impact-resistant. Corrugated boards can endure the rigors of transfers from a warehouse to a mail dispensation center and ultimately to a delivery vehicle.

Metal- Metal is used mainly for packing food materials or high value products. Amongst all aluminum is the most attractive. Metal is used for packaging materials like Oil, chemicals, perishable food items etc. A large usage of metal containers is done for bulk transportation. It is used as an external packaging in most cases.

Foam and **Bubble wrap** are other items used for packing which are quite common. It is mainly used for furniture and items which are more fragile.

Fig. 2.1.1 Corrugated boxes

Fig.2.1.2 *Filling Material (Usually thermacol)*

Fig. 2.1.3 Paper and Plastic bags

Fig. 2.1.4 Cardboard Boxes

Fig. 2.1.5. Wooden boxes and Crates Packing

Fig. 2.1.6 Metal Packaging

Fig. 2.1.7. Bubble Wrap and Shrink Packing

Calculating Requirement of Packaging Accessories and Stationary

- The space available for storage and the weight of the package is primary to determining the requirements
- Packaging must be light, protective, and cost effective
- Be sure you minimize the amount of material used by sizing packaging appropriately
- The Packaging department supervisor would initiate a material request note for the needed product. The requisition will comprehend details of material code, material name, SKU, batch number, and requirement date.
- The packer or you as the packaging machine operator will ultimately obtain the material requisition memo and start planning for the material supply activity based on the material requisition.
- The packaging operator will be provided with the Bill Of Material (BOM) which will carry the Packaging Material details (A.R. Number/ Control No.) for the batch to be dispensed by the packaging department.

- Material management software shall generate the packaging order in which the material details will get arranged in an automatic manner based upon FEFO (First Expiry First Out) and then by FIFO (First In First Out).
- Only approved products will be populated on the list
- At one time, only one batch products shall be dispensed. For the purpose of dispensing in the first go an open container/ box of the materials would be used.
- Ensure that all packaging material is approved and no rejected packaging material is still stored
- As a packaging operator, you need to ensure that there is enough stock of the regularly required packaging material. Therefore create an inventory for the same.

2.1.3 Types of Packaging

Packaging and Pallets

A warehouse is necessary for the storage and movement of goods for a business. The company should create their own packaging so that the things may be readily stored on pallets in order to maximize the storage capacity of a warehouse. The cost of materials handling will decrease when packaging develops that enables a large number of products to be handled safely and professionally on a pallet. Costs in the warehouse and across the supply chain will increase if packaging is developed that limits the number of items that can be placed on a pallet. Effective packing will also benefit customers who will be buying goods by the pallet.

Fig. 2.1.8 Pallets

Packaging Types

There are two kinds of packaging that are used for finished goods:

Internal packaging: The one that the customer sees is this one. It has all the required information required by law and was created primarily to appeal to the buyer.

External packaging: Protection must be sufficient to safeguard both the finished product and its inside packing. In order to grasp handling and product barcodes as part of RF technology in the warehouse, it should also contain enough information on it to make it easy to identify the contents. The sizes and dimensions of the external packaging must be specified so that a reasonable quantity may be stored on a pallet as effectively as possible.

Fig. 2.1.9 Internal Packaging

Fig. 2.1.10 External Packaging

Packaging can be divided into the following four categories as well:

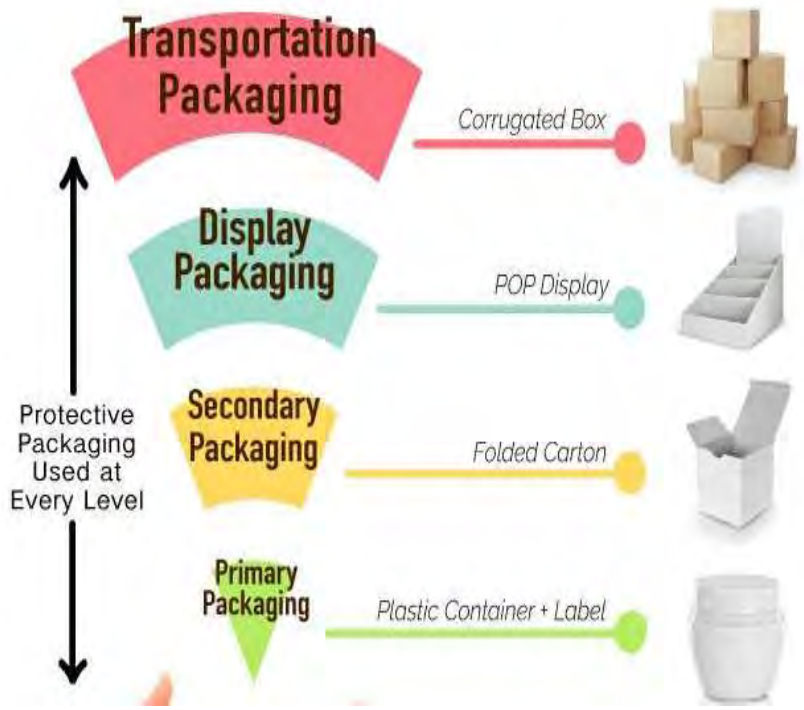


Fig. 2.1.11 Types of Packaging

There are majorly three types of **paper packaging**:

corrugated boxes, boxboard or paperboard cartons and lastly, paper bags and sacks.

Corrugated boxes as discussed earlier are usually used to carry heavier goods such as appliances, electronic goods, wine, fruit and vegetables.

Primary Packaging: it is the initial packaging of a product. Usually, it is packed in plastic containers and labelled

Secondary Packaging: it is the next level of packaging and it is usually created with Paper packing material / cardboard boxes / thermocol / bubble wrap, so that it is safe from any damage.

Display Packaging: is usually meant to create a brand image or an attractive display to attract customers. This packaging will have the logo of the company, the design of the package for selling.

Transportation Packaging: this kind of packaging includes the use of Corrugated boxes / Wooden boxes and sealing of packages with plastic sheet packing so that while the products are transported, they do not go through any damage.

Tips

- There are several other types of packaging materials available at a warehouse.
- Each warehouse has its own protocol for packaging and moving products
- Keep in mind the product being packaged before selecting the material, your supervisor will guide you in this process.

Notes

UNIT 2.2: Prepare Packaging Area

Unit Objectives

At the end of this unit, participants will be able to:

1. Understand the process of preparing the packaging area
2. Prepare for packaging according to product type

2.2.1 Packaging according to Product Type

Packaging of FMCG goods

The packing process for FMCG goods is seen in the section 2.2.1. Individual products are packed into cartons, cartons to master cartons and lastly into pallets if required.

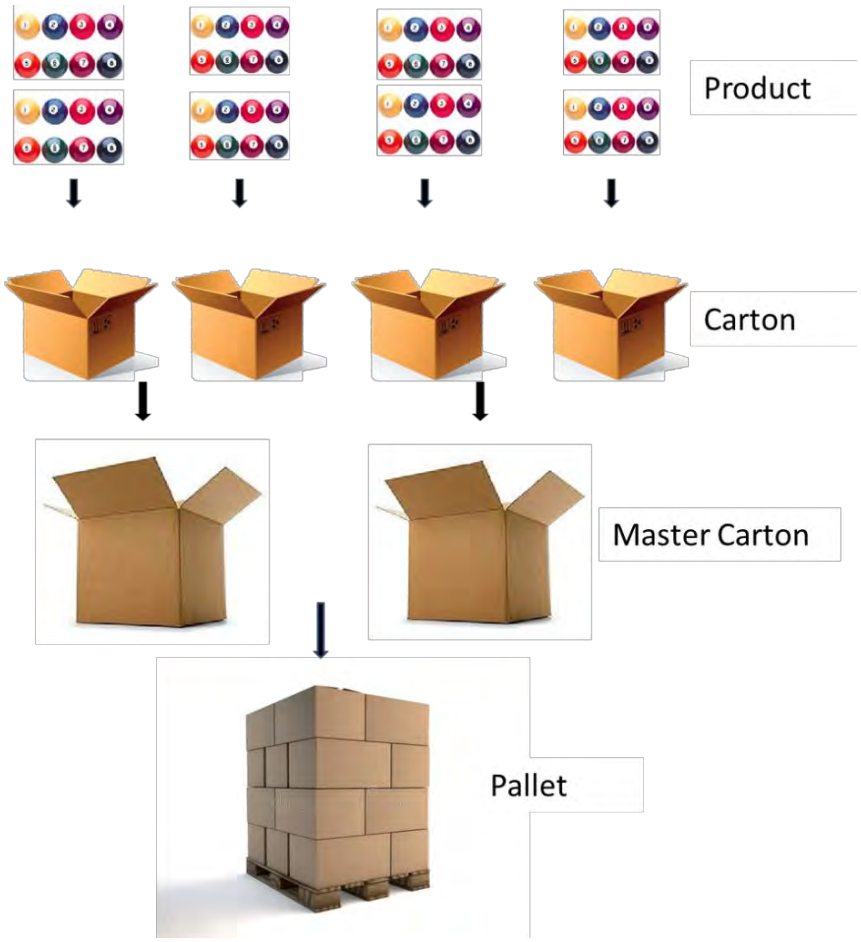


Fig 2.2.1 Packing and Palletization of FMCG

The product is packed into shipping cartons with any air space being filled with packing material such as thermocol, airbags or shredded paper. The shipping cartons can be shrink wrapped or strapped. The cartons are labeled, stamped and marked.

The possibility of damage increases greatly if the packages are packed poorly. The equipment needed in the packing area includes tape machines, box knives, shrink wrap machine, strapping machine and various stamps.

Returns from the customer should be closely monitored to find the returns related to poor packing and the process should be improved accordingly.

Fig 2.2.2. Packing of goods

Another common technique used in FMCG is shrink wrap and bubble packaging.

Fig 2.2.3. Bubble Wrap of Goods

Packaging in Automobile Industry / Heavy Machinery

The **automobile / heavy machinery industry** consists of cars, two wheelers, commercial vehicles, earth moving equipment and other transportation equipment. Among all supply chains, the supply chain of automobile industry is considered to be most complex as it consists of handling varied nature of parts such as raw material, assemblies and sub-assemblies, spare parts and finished goods.

The industry is extremely fast paced with concepts such as Just in Time (JIT), which makes the timelines very tight.

One of the most difficult part of automotive warehousing is handling large variety of parts. The parts could be varied from glass windshield to electronic circuits to steel frames to tyres to miniature parts. In case of automotive packaging there is no “one size fits all” solution. Shipping and handling each part require a different skill set.

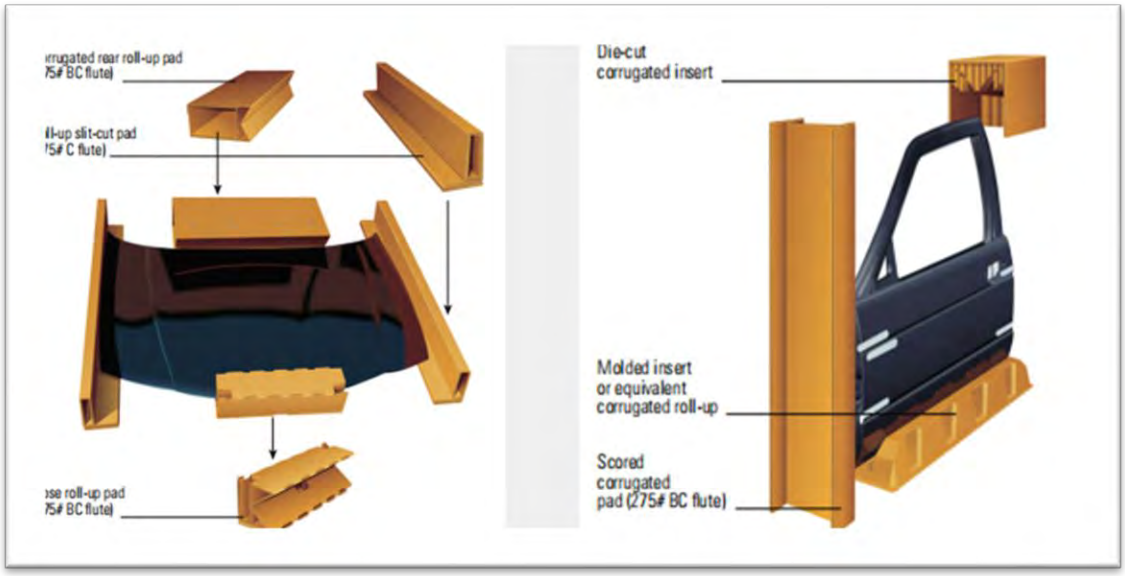
The packaging can be divided into two major classes:

- Expendable packaging
- Returnable packaging

Expendable Packaging

This kind of packaging is a single use packaging and is disposed off once delivered to the final customer. The packaging is typically made of material which is paper, or wood based such as cardboard or crates.

Fig. 2.2.4. Expandable Packaging



Though this packaging is convenient for small parts or long distances, it creates a carbon footprint and is not suitable for heavier parts. Following are some of the pictures of expendable packaging. Following are the kind of material which can be used for the inside of the boxes to package the parts:

- corrugated
- foam
- molded pulp
- plastic
- wood
- void fill
- specialty/custom

Returnable packaging

As the name suggests, this packaging is meant to be reused in the manufacturing & distribution cycle. The products will be packed in returnable packaging, travel from OEM to manufacturer and the empty packaging comes back from the manufacturer to the OEM for reshipping. This process when a vehicle, returns to the manufacturer to pick up more products and then deliver to the same destination, we often call this as “milk run” in logistics terms. In this case, materials such as steel racks, crates and pallets are employed. Returnable Packaging provides several benefits:

1. Reduced carbon footprint.
2. No packaging wastes.
3. Packaging material is made from steel which makes it far more rigid.

4. Better protection of parts.
5. Tailored as per the part shapes and dimensions.
6. Better protection from moisture and other containments.
7. Tighter inventory control.
8. Cost saving.
9. Better worker safety.
10. Clean and organized.

Following are some of the common options used in returnable packaging:

- **Steel Containers and Racks**: Steel solutions are common in automotive industry. They can withstand rough transportation and provide good protection to products.
- **Plastic Packaging Containers**: Plastic crates are user-friendly, customizable, easy to clean, and lightweight options.
- **Wooden Frames**: Wooden storage solutions are sturdy and durable with some frames being customizable and certain crates being collapsible.

Returnable packaging is improving the way automotive industry ships their products around the country. Lot of returnable shipping racks is made of metals such as aluminum, steel, stainless steel and corrugated steel. These are suitable to transport parts namely engines, transmissions, axles, radiators, fragile mirrors, sculpted components, die, motor, jig, fixture, and other heavy material. These racks provide an efficient and effective means of storing, protecting, and shipping a diverse range of components for the automotive industry. Most of the times these racks are customized and allow for easy loading and unloading of parts.

Fig. 2.2.5. Returnable Packaging

Fig. 2.2.6. Returnable Packaging

Fig. 2.2.7. Returnable Packaging

2.2.2 Pre- Packaging Work Area Inspections

While assembling and preparing the material for packaging of goods is essential, the operator has to ensure that the area for carrying out packaging is also prepared. Following are a few important points to be considered while preparing for packaging:

- Remove any unnecessary items from the area to make space for the items to be packaged.
- Perform a quick safety inspection of the workplace.

- Make sure there is no spillage or breakage etc at the packaging area
- Make maximum use of conveyer belts for packaging as they are safe and ergonomically constructed
- Clean up any spills or breakages
- Ensure there is no flammable or hazardous material at the packaging area or near the material
- Gain a knowledge of standard operating procedures (SOP) according to company guidelines
- Ability to make a judgment as to whether the packaging equipment is in good condition or not

2.2.3 Small Packaging Equipments

Apart from the packaging material the following two equipments are essential to first level of packaging. Your supervisor shall guide you to use them appropriately.

Tape machines: Most of the cargo is taped. This machine helps to tape the cartons efficiently and effectively.

Fig. 2.3.4. Tape Machine

Shrink wrap: In this case the whole cargo is covered by plastic sheets and a machine is required to wrap using this

Fig. 2.3.5. Shrinking Machine and Shrink Wrapped Cargo

Tips

A person (Warehouse Picker, Forklift driver, Warehouse employee, Guest from other industry etc.) whoever is entering into the warehouse floor/operation area (Storage location, Handling machine, equipment etc.) must wear Personal Protective Equipment all the time for his/her own safety. Usage of PPE is important considering the safe workplace procedures, training and supervision to encourage people to work in a safe and responsible manner.

Notes

UNIT 2.3: Prepare Packaging Equipments

Unit Objectives

At the end of this unit, participant will be able to:

1. Enlist the necessary pre- packaging checks to be performed
2. Detail on the different types of Packaging Machines used in a Warehouse

2.3.1 Important Inspections needed for Packaging

Post evaluating the necessary space and area required to perform packaging operations the next step is to carry out various inspections to be performed to ensure proper functioning of the packaging machine. Follow the below given steps for the inspection:

- Check the condition of packaging equipment such as cartons, tray packer, blister packer, over wrappers, etc.
- Ensure you have enough tape and shrink wrap for packaging along with the packaging stationary like thermacol, paper wrap, cutters or cutting equipment, bubble wrap etc.
- Make any setting changes that are required to ensure the machines are working well
- Ensure there are enough sealants. Load them into the packaging machine
- Switch on packaging equipment and ensure that that it is warmed up and ready for packaging. Note the temperature, speed, etc
- Perform a trial to ensure that the machine is working well.
- Recalibrate machine setting if required to ensure that work will be done properly.
- Report to the supervisor if there is a problem that could not be fixed.

2.3.2 Types of Packaging Machines

All packaging operations, from basic packages to distribution packs, involve packaging machinery. Numerous packing procedures are included in this, such as fabrication, cleaning, filling, sealing, combining, labelling, overwrapping, and palletizing.

Without packaging equipment, some packing procedures cannot be completed. For instance, heat seals are frequently used to prepare or seal containers.

When the machinery or packaging line is adjustable between production runs, packaging operations might be designed to handle solely uniform packages or to handle a variety of package sizes and forms. Although certain automated lines can tolerate large random variation, slow manual operations allow personnel to be flexible to package variation.

Types of Packaging Machinery/ Equipments

Fig.2.4.1 Packaging Machine

Robots: for packaging are designed to code, seal, open, transport, fill, palletize, and label product packaging. Almost any process concerning the movement or packing of products or goods can be mechanized by a packaging robot. Robots are widely used in a range of businesses.

Scales: These start from a small digital bench scales going up till pallet weighers and dual platform scales. These are known as Industrial scales. The wide range comprises of scales that are perfect for weighing paper and printed material, for heavy duty goods, industrial applications and forklift cargo, also some that are odd shaped for over weight articles, some with a built in hydraulic lift and robust trolley design.

Shrink Tunnels: also known as a heat tunnel, is a heated tunnel that is mounted around or over a conveyor system. Shrink film is loosely applied to packaging items; with the help of heat this film shrinks to fit comfortably and tightly around the wrapped object.

Skin Packaging Machines: It is the method by which, while being heated, a thin plastic film contracted over the item and bonded to the printed boards. useful for the packing of tools, toys, cosmetics, and other things used in health and beauty. It provides improved shelf display and shields the products from dust and debris.

Strapping Machine: Transportable units are created using a strapping machine. Types of strapping comprise of polyester, nylon, polypropylene, steel, paper, and composites. The category of strap to be used depends on the needs, for example, elasticity, strength, ability to endure various environments, ease of use, cost and safety.

Stretch Wrap Unit: When cargo needs to be wrapped in stretch wrap, this unit is used. Stretch wrap, often known as stretch film, is a plastic film that is stretched around objects. The items are tightly bonded by the elastic retrieval. In contrast to shrink wrap, which uses heat to compress a plastic sheet firmly around an object, this method involves stretching the sheet before tightly wrapping the goods.

Fig.2.4.2 Packaging Machine

Over Wrappers: A roll of heat sealable film is cut from an overwrapping machine and is wrapped around a product. This product is available as a single item or a package. Using hot sealing mechanisms, the folded film is sealed.

Accumulators: Located at the end of a packaging line, these gather and sort finished goods. Products are rotated by accumulators in a collection area, saving space. Depending on their use and the products being packaged, accumulators come in a wide range of sizes and models.

Check weighers: When a product passes by on a conveyor belt, a check weigher perfectly matches the weight of the object. If the products are not within the desired weight, users can predetermine the anticipated weight, and the conveyor will stop.

Air Pillow Machine: This device creates an air pillow by injecting air into plastic bags. The delivery of products is cushioned by the air cushions. Air fills in empty spaces in the packaging to prevent goods from shifting while they are being transported.

Bagging Machine: Products are dispensed into bags using these devices after being opened. Users can have consistent product quantities put into bags every time to bagging equipment.

Carton Sealers: These utilise tape to seal the boxes. The tape is applied as the box moves through the carton sealer. These completely seal the boxes. With the right tape, carton sealers may increase efficiency and reduce product damage.

Conveyors: These move products from one site to a selected alternative. A packaging line nearly always employs conveyors. Conveyors are used throughout constant packaging lines for total automation. They are among the most important components of a packing line that is fully automated. They are available in numerous varieties and sizes. Some are powered by electricity, while others are propelled by gravity.

Air Pillow Machine

Carton Sealer

Conveyor

Fig.2.4.3 Packaging Machine

Notes

_____

_____

_____

_____

_____

_____

Tips

- Every warehouse has their own machines and operating systems, learn these systems and operations from your supervisor
- Understand the safety precautions and pre inspections to be carried out
- Give value to PPE and learn its proper usage
- Demonstrate an understanding of packaging and equipments used for the same

Summary

In this chapter we discussed the process to prepare for packaging of goods. A goods packaging machine operator needs to be aware about the several packaging techniques, equipments and machines and we discussed about these in detail. Personal Protection equipments are the important tool for a warehouse operations, this will ease the work and maintain safety in operations. Some of the commonly used PPE and its advantages are clearly depicted in this unit. Different forms of packing technologies used in the warehouse operations are explained in this unit. We have highlighted in great detail the need for packaging and benefits.

Scan the QR code to watch the related video

https://youtu.be/urjIro_4Ydo

Layers and types of packaging

Exercise

1. Explain the different types of packaging in a warehouse

2. Which of the following is not used as PPE in FMCG?
   A. Helmet
   B. Bags
   C. Safety Belts and Harness
   D. Shoes

3. The packing material most to protect products from impact is
   A. Paper bag
   B. Cartons
   C. Corrugated boxes
   D. Pallets

4. What is the use of a Tape Gun?

Fill in the Blanks

1. Packaging process provides _____ to the product when it is moved from one place to another

2. _____ is the most durable and commonly used packaging material

3. _____ and _____ are used for heavy duty packaging

4. Automobile industry has two types of packaging _____ and _____

5. _____ and _____ machines use plastic sheets as their primary material for packaging

True or False

1. Wooden storage is very sturdy and durable
2. Plastic packaging is durable and can be easily disposed, without any environmental harm
3. Packaging area should be cleaned and maintained before packaging
4. After inspection of the packaging machine an operator can start packaging process immediately

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3. Packaging

Unit 3.1 - Seal the Packages

Unit 3.2 – Dealing with issues and common packaging machine problems

LSC/N2202

Key Learning Outcomes

At the end of this module, participant will be able to:

1. List the various steps involved in packaging of goods
2. Explain how to assess the proper sequence of packaging on the conveyor
3. Discuss how to check if packaging is within weight limits
4. Describe the reporting deviation escalation matrix.
5. Discuss the guidelines and SOP while moving sealed packages to labeling areas
6. Define the process to be followed in case of a breakdown
7. Discuss the corrective measures to resolve packaging machine malfunctions
8. Perform the various steps involved in packaging of goods
9. Assess the proper sequence of packaging on the conveyor
10. Check to ensure that the packaging is within weight limits
11. Report deviation as per escalation matrix
12. Follow the guidelines and SOP while moving sealed packages to labeling areas
13. Follow the standard protocol in case of a breakdown
14. Demonstrate the corrective measures to resolve packaging machine malfunctions

UNIT 3.1: Sealing Packages

Unit Objectives

At the end of this unit, participant will be able to:

1. Identify the steps involved in goods packaging
2. Enlist the sequence of packaging on a conveyor
3. Discuss the guidelines and SOP while sealing the packages and moving sealed packages to labeling areas

3.1.1 Steps in Packaging Process

Order packaging is a process wherein all the goods for an order are packed into appropriate containers before being shipped to the customer / the supplier. This step comes second to the picking process in the order fulfillment process. The packing process is carried out in the warehouse and classically consists of selecting appropriate materials and a suitable container to pack the goods, weighing the package, and labeling it with the required packing slip or invoice.

What makes order packing important?

1. Minimize Damages

It is not only important for the customer to receive the right product, but also equally significant that they get these products in good condition and without any damage. Damaged goods are a pain for the customer as well as the business. In a warehouse, damage can occur at a variety of levels:

- Forklift can drop a material
- They can fall off a conveyer belt
- Fall due to damaged pallets

Packaging must be created in each of these instances to handle these challenges and safeguard items from damage. However, it must be light enough to prevent the finished products' weight from being greatly increased, which would raise transportation expenses.

2. Promote brand identity

Several businesses usually manage their own shipping and to maintain a brand identity they usually add something extra to their packaging boxes besides the invoice and shipping label. This something extra is either a logo, the design of the box using the colors they use, or some other aspect of the packaging. For example, Amazon adds it's brand name and logo to each packaging box, so that the customers can tell before opening where the package is from. This method of packaging makes the packages visually appealing, and it also boosts brand identity and makes for a good marketing tool.

Steps in the process of order packaging:

Step 1:

After the picking process, products are brought to the packing area. Packing operators then choose a suitable box or container to put the goods in as per the order. It is essential to use a proper sized box so that the amount of wasted space is reduced.

Step 2:

In the second step we pack the product. The packing operator chooses the packaging material based on the type of the products that are being packaged. For example, fragile products like glass require extra material for cushioning, such as bubble wraps, foam peanuts, or even air cushions. Some warehouse organization software can even sketch the most well-organized way to pack, depending on the weights and sizes of all the boxes and goods used. Most usual format of packaging is as follows:

Product-Carton-Master Carton-Pallet Packing

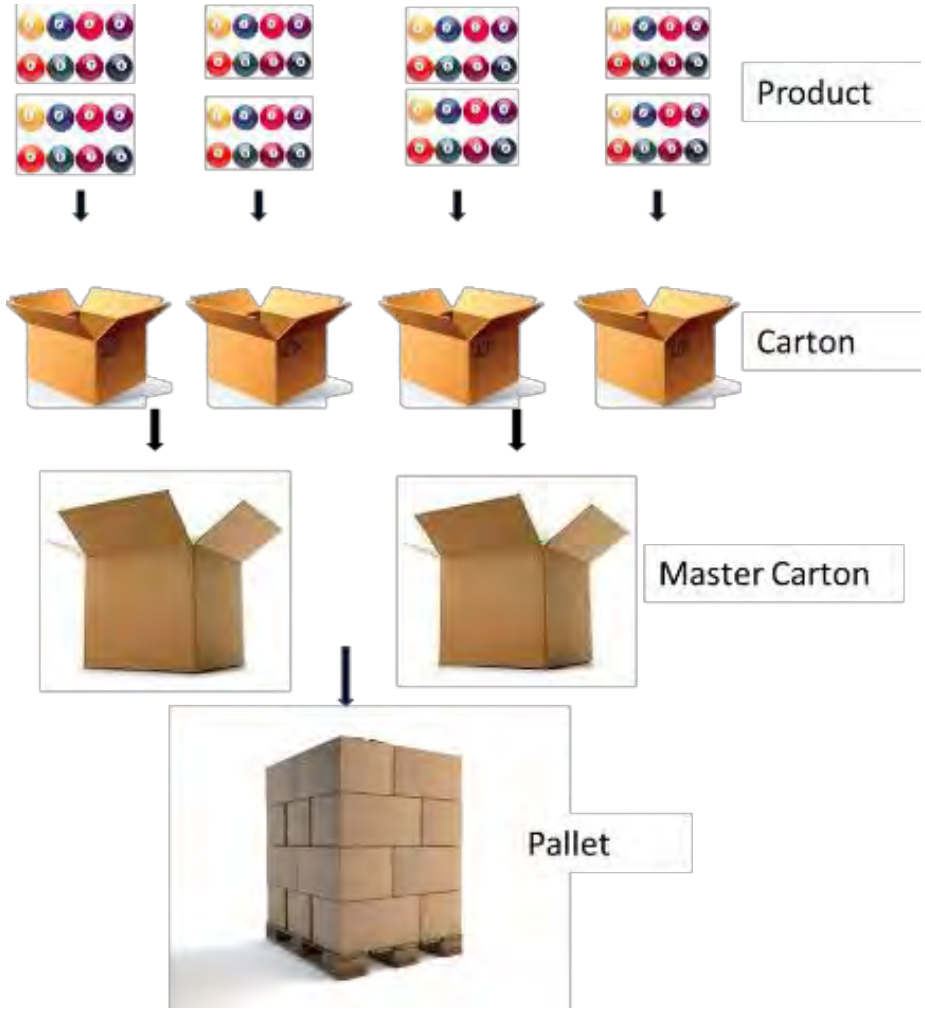

Fig. 3.1.1 Carton Packing

This packaging is the most commonly used packing in warehouses. Depending on the nature of products, it may end at carton or master carton level.

Step 3:

Once the goods have been wrapped, packed, and sealed, the ready package is weighed and measured. Packing operators need to enter this information in order management systems to generate a precise packing slip for the package.

Step 4:

At the end, a courier service is selected to transport the packages. The shipping labels are printed out by the packers along with the invoice for the order, and these are attached to the package. Once done, the package is ready to be shipped!

3.1.2 Conveyors for Packaging

Fast, effective, and exact packaging is essential to manufacturing and related industries. Even though they aren't always taken as seriously as they deserve, conveyors have long been crucial building blocks of this process.

Conveyor belts were once thought to be used only to transport things from one location to another, but technology has advanced in these systems to incredible heights.

What can conveyors do now?

Conveyor belt scales and other automated conveyor system components can be used to practically streamline every phase of packing today. These systems can also weigh, sort, and monitor tones to ensure value in packaging and error-free packaging flow management in addition to the transportation of parts and goods. Increased performance and productivity are the results, along with decreased errors, package damage risk, resource waste, and other benefits. Overall, higher automation yields better results, which puts any business ahead of the competition.

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Fig. 3.1.2 Conveyor Packing

How do conveyor systems help business efficiency?

Following are five ways that conveyor systems assist packaging operations become more productive and efficient:

1. *Automated movement of goods* – Conveyor systems automate the transportation of items, greatly increasing output. Additionally, it increases packing productivity in businesses with a smaller workforce by lowering the cost, time, and labor necessary for manual procedures. Higher productivity and more effective procedures result in substantially higher returns.

2. *Less energy usage* - Conveyor systems ensure that packing activities are more energy efficient by automating the transport of goods. To save energy, various systems can be developed such that only specified components are active at any one moment. Along with lowering the carbon footprint, it has a significant impact on the company's daily operating expenses and return on investment (ROI).

3. *Lower chance of accidents* - Physical movement of parts and items carries a considerable risk of injury, but workplace safety is the foundation of any successful organisation. By limiting workers' exposure to hazardous machinery, high loads, and other situations, conveyor systems assist in reducing risk to the workforce. Additionally, increased automation lessens workloads, which boosts employee satisfaction and productivity.

4. *Higher accuracy and reliability*— The conveyors not only increase the safety and speed of product transportation, but they also ensure that a high degree of accuracy is maintained throughout the packaging process. Conveyor scales, for instance, can assist with sorting, weighing, and tracking at every level of operations and can be integrated with existing warehouse management systems for data gathering and analysis.

5. *Maximizing floor space*— For packing, warehouse, and distribution facilities, floor space needs to be made as much use as possible. The conveyor system may be customized to fit each part of the facility while maximising the utilisation of the accessible roof space. These systems enable wider floor workspaces for other operations by making use of the overhead space and rerouting components around any impediments.

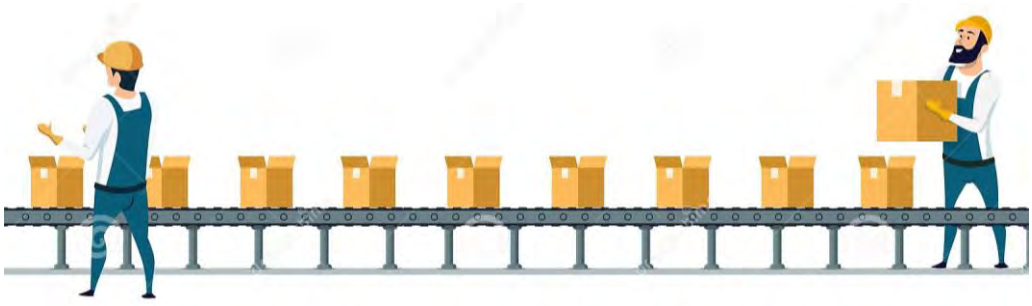

Fig. 3.1.3 Conveyor Packing

Packaging activities can be ensured to happen more quickly and precisely with the help of appropriate planning and the right conveyor system and associated components. Better flexibility can be had if a company invests in a clever system that is easily adaptable to various container sizes.

3.1.3 Guidelines for Sealing Packages

1. Check that the goods to be packed are in their appropriate packaging cases.
2. Ensure that the packaging cases are lined up and ready on the conveyor belt of the packaging machine
3. Use the packaging equipment to seal the packaging cases in an optimal manner
4. Weigh the package to determine if it is within the allowed limits.
5. Report errors and discrepancies, if any to supervisor.
6. Remove sealed package from the packaging machine
7. Follow guidelines with respect to handling, move sealed packages to the labeling area or handover to carpenters if requires a wooden packaging.
8. Perform labelling or handover sealed package to a labeler for labelling as per company policy

3.1.4 SOP for Sealed Packages

1. Each Packer has to collect the Printed Deliveries (Store Copy) and MRP Sticker from the Picking-Packing In charge
2. Packer should collect Material from picker along with Dealer copy.
3. Packer should ensure the condition of Pre packing box, if box get damaged it should be handover supervisor for new pre-packing of the part
4. Packer to segregate material like Fragile, Glass, Heavy and Light material and arrange the material on packing table as per delivery
5. If a certain part is found short in quantity at packing table then packer has to inform picking supervisor to arrange required quantity.
6. Select the suitable secondary boxes to pack materials separately as per material category.
7. If any short/ extra found in MRP sticker count inform to supervisor & handover the extra MRP sticker to supervisor
8. if the box area is more than the 500 Sq. Cm paste Big MRP and if less than 500 Sq. Cm paste the Small MRP
9. Scan the Barcode for first packet of the Order Line and then enter the MPQ manually

10. Packer should make note of the box no. on PAN while filling the boxes as per each order line.
11. If any cut order line found, highlight it and take sign off by supervisor
12. Case entry should be given at a time on both dealer & store copy after dropping the material in the Box
13. If fragile material is in the box paste the "Handle with care" sticker
14. Packer should ensure the MRP sticker to display out while stacking in Box.
15. Packer Should ensure to fill proper filler material (Scrap Cartons) while packing
16. Box should be packed with in its stated max weight capacity as per master list provided, if exceed material should split in to the multiple boxes
17. Packers should insert the packing slip (customer copy of PAN) inside the last box of delivery and ensure the box to be stamped with "**Packing Slip Inside**"
18. Each shipping carton formed should be sealed with a Company tape and the box has to be placed on a weighing scale to note the total weight
19. Packer has to mention the case code and the weight of particular case on the PAN, against each case code packer to mention the case code no. against the order line in delivery.
20. Stamping to be filled on the PAN and enter the Total no. of cases, Partial packed order lines, cut order line no's & details, Packers name& sign, Supervisor name & sign, after completion packing.
21. Destination sticker to be chosen, for Commercial, STO - White Sticker & for VOR - Yellow Sticker

Notes

UNIT 3.2: Deal with Issues and Common Packaging Machine Problems

Unit Objectives

At the end of this unit, participant will be able to:

1. Understand the aspects of efficient packaging
2. Discuss the escalation matrix to be followed for reporting deviations.
3. Define the process to be followed in case of a breakdown
4. Discuss the corrective measures to resolve packaging machine malfunctions

3.2.1 Efficient Packaging

1. Packaging should be Lightweight:

The product packaging should be made to be lightweight for storage and shipping to be cost-effective. In warehouses, businesses often select materials that are extremely lightweight. The initial options are plastic, aluminum, and paperboard. Because they are so lightweight, plastics and paperboard can protect completed goods reasonably effectively. In addition, the ability to recycle paper, cardboard, and some plastics helps lessen the amount of waste dumped at nearby landfills. Aluminum is a fantastic material for food containers since it is sturdy, lightweight, and recyclable. Boxes made of corrugated cardboard are widely used, strong, incredibly light, and simple to recycle. These cardboard boxes are readily available and highly popular. Printing is also simple. These boxes are also suitable for the hassle-free application of RFID tags and make it simple to print package information on them using barcodes.

2. Protect the Internal Packages:

Packaging should strive to create packaging that are both light and damage-resistant in order to prevent finished goods from becoming heavier. A light package also guarantees lower overall shipping costs. It shouldn't merely concentrate on potential harm that could occur during picking, storing, sorting, and packing. It should be resistant to environmental harm, hence the packing must be durable. The effectiveness of the warehouse should be affected by unexpected temperature changes, damage from moisture, contamination with other goods, or damage from static (mostly for electronic items).

3.2.2 Escalation Matrix to Report Deviation

The Packaging Machine Operator is an individual who carries out the operations on the packaging line. There might be some discrepancies and machine or product damages while carrying the warehouse operations (put away, picking, packing, returns etc.), especially during packaging. The operators report all these damages and losses to the packaging supervisor/manager for his actions.

There is a procedure framed by the organization for dealing with loss or damages to goods. The individual as a packaging machine operator has to be well aware of these reporting procedures for safe and structured operations. The operator needs to report the problems to the packaging supervisor for corrective measures. If the operator discovers any corrupt practice by any of its colleague, vendor or customer he should immediately report to his supervisor or follow the rules framed by the organization.

Certain organization provides an email ID or telephone number where all such incidents must be reported. The operator should never try to confront the person or try to correct the unethical practice by himself. His job is always to report and let higher authorities take appropriate action.

Most of the organizations do follow a formal escalation matrix. In case operator finds a violation or a practice which is large enough and demands bigger intervention S/he may report to senior authorities. Also, in case, the reporting of the violations goes unattended and unaddressed S/he may follow the escalation matrix. The following grid shows a sample escalation matrix.

Fig. 3.2.1. Escalation Matrix

3.2.3 Guidelines and Protocols to be followed for Breakdowns

1. Communicate the breakdown to the supervisor and the maintenance department and handover a breakdown intimation
2. Assist the technician in case the breakdown is technical
3. Attend to the small maintenance issues of the machine in case it can be handled
4. Switch off the power supply of the machine and put an “Under Maintenance” sign so that other operators do not make use of it
5. Thoroughly examine the device and determine what caused the malfunction.
6. After determining the problem, if any machine part must be fixed, disassemble it or mark it for easy identification.
7. Keep the machine's components in a suitable tray and clean it.
8. Lubricate the machine parts as directed by the machine whenever lubrication is needed.
9. Record the information of the breakdown and repair on the machine history card
10. If there is a machine jam or the conveyor gets stuck, press the reset button, and perform the corrective measures.
11. If the machine stops because the sealant got over, reload the sealant.
12. If a package was missed during sealing, identify it and place it near the end of the line to be sealed again.
13. Ensure machine is not operated beyond rated capacity in case of breakdown.
14. For any other issues, including accidents report to the supervisor using the escalation matrix discussed above.

Tips

- Understand the codes and ethics of packaging and working in a warehouse
- Learn the escalation matrix and utilize it to ensure smooth functioning in your warehouse
- Understand the safety precautions and pre inspections to be carried out
- Demonstrate the corrective measures to resolve packaging machine malfunctions

Summary

In this chapter we discussed the process of Packaging goods. A goods packaging machine operator needs to be aware about the several steps in the process of packaging, the use of several packaging materials and machines. The operator should also be aware about the process of getting optimum use out of a machine and the warehouse area for good packaging. Important concepts such as integrity and ethics are discussed in this chapter. There are a set of code of conduct and etiquettes which needs to be followed and practiced by all the employees. Any violations of ethics and code of conduct should be properly dealt with and escalated to the seniors as per the matrix set by the organization.

Exercise

1. Highlight the benefits of conveyors in packaging.

2. Explain the importance of an Escalation Matrix.

3. Which of the following is not a step of Carton Packaging
    a. Carton
    b. Product
    c. Label
    d. Pallet packaging
    e. Master carton

4. Which of the following is not a part of packaging product segregation
    a. Fragile
    b. Heavy
    c. Light
    d. Glass
    e. Plastic

5. The final sealed package should include (More than one answer)
    a. Packaging slip
    b. Packing tape
    c. Company tape
    d. Weight and dimensions
    e. Handling instructions

Fill in the Blanks

1. _____ and _____ help to determine the packaging requirements

2. Paste _____ instructions on the box with Fragile products

3. Machines should be regularly checked for _____ and _____

4. If a machine is not working then switch it off and put the _____ sign on it for safety.

5. The _____ should be inserted inside the packaged box for customer's reference.

True or False

1. Goods packaging should be pretty to look at
2. Packages once sealed, need to be moved to labeling
3. Pallets are a great way to package and arrange products
4. Packaging is essential to minimize damage

Notes

Scan the QR code to watch the related video

https://youtu.be/bEeAfQredA8

Packaging conveyor

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4. Labeling

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Unit 4.1 – Prepare for Labeling

Unit 4.2 – Sealed Packages: Collect, Label and Move

LSC/N2203

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Discuss the different types of labeling used as per product requirement
2. Detail the steps to be followed during and after labeling
3. Discuss the procedure for handling goods after labelling is completed
4. Identify the different types of labeling used as per product requirement
5. Demonstrate the steps to be followed during and after labelling
6. Demonstrate the procedure for handling goods after labelling is completed

UNIT 4.1: Prepare for Labelling

Unit Objectives

At the end of this unit, participant will be able to:

1. Understand the process of Labelling and its importance in a Warehouse
2. Describe different types of labeling according to product type
3. Enlist the points to be kept in mind while preparing for labeling

4.1.1 Labeling in a Warehouse

Warehouse labels are essential in inventory management, product picking and packing and most importantly in indentifying a product. The use of warehouse labeling increase efficiency and reduces mistakes while doing operations. Implementing the correct label structured designed to an individual warehouses needs can reduce time spent in activities and increase inventory location accuracy.
The main objective of the product label is to identify the product, its description like dimensions and weight and commodity code. This can be achieved through paper labels, bar code labels or RFID labels. Effective product labelling makes the packaging process very efficient.

There are several products in the warehouse which require special handling, they may be flammable, Fragile, heavy or limited shelf life. This is all indicated through labels outside the packaging. If a product is flammable, it is not supposed to be stored near a heat source. Similarly, if a product a limited shelf life or expiry date it has to be organized by batch numbers or expiry dates. The labels on the products allow one to do this.

In a warehouse there are two categories of labels used –

1. **Warehouse labels** enable the picker to pick the items accurately and at a greater speed.

2. **Product label** is a sheet of paper, plastic film, fabric, metal, or other material that is attached to a container or object and contains symbols or text that describe the thing being purchased. Labeling can also refer to information that is printed directly on a product or container. Products are labelled with standard handling instructions that are attached to the items. The product's serial number and price are disclosed on the barcode label.

4.1.2 Types of Packaging Labels

There are two main categories of labels applied after packaging are:

1. **Shipping Labels**
2. **Safety Labels**

Fig.4.1.1 Shipping and Safety Labels

Shipping Labels:

The most important details for a carrier to take a product from its start destination (a warehouse) to its final destination (a customer's hands) are displayed on shipping labels. Some or all of the following details may appear on shipping labels:

- The name and address of the consignee, the consignor's name and address (including postal code), the date of shipment, the weight and quantity of each package, the contents' description, and the quantity of pieces.
- A packing list of the products may also be pasted.
- Shipping method information (such as express, standard, etc.) is also included on labels so that the carrier can make sure the service for which payment has been made is rendered.

Fig. 4.1.2. Shipping Label

Safety and Handling Labels:

- These labels have headings, images, and text that make it possible to communicate hazards and care instructions for the object being packaged clearly.
- Safety labels for consumer durables and machines are common.
- These labels also convey a lot of information about handling of the cargo; what is the stacking level possible, if it is fragile and needs to be handled with care, what handling equipment can and cannot be used.

Following are some sample information carried on this kind of labels:

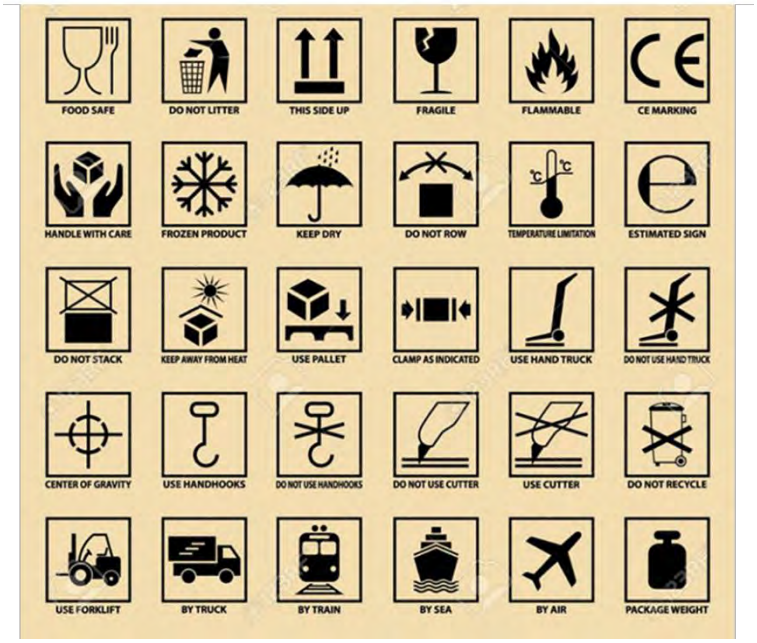


Fig. 4.1.3 Safety Labels

Once the products are packed, they need to be appropriately labelled. Labels can be manually created or printed from the computer.

These days, most of the labels are self-adhesive labels which are printed through computer.

When it comes to printing shipping labels, there are two major choices: an ordinary inkjet/laser printer or a thermal label printer that doesn't require ink.

The possibility of heat, rain, friction, and many handlings for packages exists. This implies that regular printing paper may get ruined and lose its ability to read labels. Use transparent tape on top of the label to make it waterproof and securely fasten it or affix the label to something like a plastic wallet. Ensure that everything is legible to both humans and scanning devices.

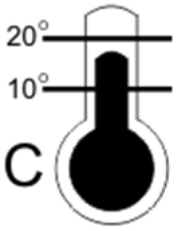
Where to put Labels on the box?

The labels should be of correct size and correctly located. They should be either on the sidewalls of the box or top of the box, never at the bottom. They should be clearly visible to the associate, handling it or machine gun reading. The label should not be folded at the edges. The labels should be applied such that no amount of handling should mutilate them.

Some Essential Safety Labels to be put on Packaging

The main purposes of packing are to preserve the goods until they are sold and consumed as well as to maximise space during transportation.
Give the items to the appropriate packaging with the necessary labels for safety and protection to complete the packaging process. Following are a few icons that are frequently used on packaging. Each has a distinct significance. Typically, the symbols are clear and easy to understand.

	This symbol indicates a gentle reminder to anyone handling the package to keep it out of the rain and out of the humidity. It typically appears on packets made of cards since they would be ruined if they come into contact with water.
	The broken wine glass serves as a warning that the product inside the package could easily be harmed if dropped or handled carelessly. The items within are delicate.
	Another illustration of how the contents should be treated with care is the two hands holding or shielding the package.

	The package must be stored the right way up, as shown by the sign opposite, which is visible to anyone touching it. The arrows point up the package, towards the top.
	The sign showing the thermometer is found mostly on products carrying food and drink. The symbol makes it quite obvious that the contents should be kept between 10 and 20 degrees (centigrade).
	Chemicals that may cause damage to health.
	Chemicals that have a very low flash point, may ignite upon contact with air, require very brief contact with an ignition source, or produce highly flammable gases upon contact with water.
	Chemicals that harm health when present in little amounts.
	Substances that could inflame the skin or other mucous membranes.
	Chemicals that might instantly kill living tissue.

4.1.3 Guidelines while preparing for Labeling

Apart from being aware about the kinds of labeling that can be done on sealed packages, there are several other considerations to be kept in mind. Following are a few guidelines for labeling sealed goods:

- Understand labelling schedule, products being labelled and number of labelled packages required by the end of the day from the supervisor.
- Get information on the type and size of packing cases used for each product.
- Determine what labels are required.
- Collect all the required labels from the supervisor
- Inform supervisor to place orders for more labels if insufficient.

Notes

UNIT 4.2: Sealed Packages: Collect, Label and Move

Unit Objectives

At the end of this unit, participant will be able to:

1. Understand the importance and benefits of correct Labelling
2. Detail the aspects of a good Label
3. Discuss the procedure for handling goods after Labeling is completed

4.2.1 Importance of Labelling

The warehouse staff and customers may find all the information they require about the goods on the label. Without even opening or tasting the goods, labels educate consumers about its quality and features. The price, quality, and quantity of the product are all disclosed on the label.

Labels make it easier for retailers to sell their goods. It also defends against middlemen's misconduct. In summary, labelling is a crucial component that influences sales and profitability and gives precise information about the product.

Fig 4.2.1 Importance of Labelling

The following are the functions of labelling:

Product Identification: Labels aid in locating products as they are moved through the warehouse. The brand and product become more well-known among consumers.

Product Grades: Labels provide information about the product's grade. For instance, the star rating system for air conditioners includes 1 star, 2 stars, 3 stars, 4 stars, and 5 stars

Product Description: The product is introduced, described, and expressed on the label. The product's manufacturer, production date, location, ingredients, safe handling instructions, and best before date are all listed on the label.

Product Promotion: Labels aid in the promotion of goods. Graphs, numbers, and signs draw customers. This encourages them to buy something.

4.2.2 Information required on a Label

Labels come in a variety of forms – pieces of paper, printed statements, imprinted statements on a product, etc. They are usually attached to or integrated into a package.
Must have information in Labelling-

- Country of origin
- Ingredients / Items in the package
- Date of making or manufacturing
- Expiry date of the product in case of perishable items
- Weight of the product
- Dimensions/ Size of the packaging
- Direction of use
- How to store
- Handling marks / instructions
- Brand name / Brand Logo
- Barcode / SKU's
- Warnings in case of chemicals or hazardous goods

Fig. 4.2.2 Information on Labelling

4.2.3 Guidelines for handling goods after Labelling

- Recognize any faults occurring before the packing process, such as broken or missing items or incorrect labels, and report the issues appropriately.
- Collect sealed packages from the labelling area
- Identify the product contained in the packing cases
- Paste all the required labels onto the packing case in the right areas so that it is effectively visible
- Verify that all required labels have been pasted onto the packing case in the right areas
- Move labelled packages to the finished packages area.
- Remove any unnecessary items from the area to make space for the other items to be packaged
- Check that everything is properly labelled and packaged.
- Follow outbound packaging labelling norms laid by the company. These norms are specific to the company and the product
- For a smooth move, read, understand and follow any safety warnings or labelling, such as "fragile" or "heavy."

Tips

- Study the different kinds of labels that are used in your warehouse and understand its usage
- Learn the several symbols for ensuring safety of product as well as personnel at the warehouse
- Follow the supervisor to understand the SOP for labeling at your firm

Summary

In this chapter we discussed the process of Labelling. A goods packaging machine operator needs to be aware about the several steps in the process of labeling, the different types and post labeling activities. The operator should also be aware about the process of moving sealed products post labeling. We have covered these points in the above chapter and have created clear guidelines to perform these activities.

Exercise

1. Describe the types of labeling done for finished goods / sealed packages.
2. List down the must have information required to be added to labels
3. Identify the following signs

True or False

1. Labels have to be applied to both the internal and the external packaging
2. Packages once sealed, need to be moved to labeling
3. A label includes the product name, weight, barcodes, SKU's etc
4. Labelling is essential as it enhances the look of a product
5. Safety labels are common for all the products across warehouses

Notes

Scan the QR code to watch the related video

https://youtu.be/izeWHwDCUes
Safety signs and labels

https://youtu.be/t7xM3LTqkI0
Labels in warehouse

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5. Post Packaging Activities

Unit 5.1 – Post Packaging Activities and Inspections

Unit 5.2 – Prepare Packaging Area

LSC/N2204

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Explain the various inspections to be done post packaging
2. Explain the safety inspection parameters to be followed in the work area
3. Describe the process of handling waste labels and waste packaging materials
4. Discuss the process of storing the unused packaging materials and accessories
5. Define the steps to be followed to prepare the facility for the next shift
6. Explain the escalation matrix for reporting deviation
7. Explain how to fill the necessary documents such as packaging machine status, shift status etc.
8. Follow the safety inspection parameters in the work area
9. Demonstrate the process of handling waste labels and waste packaging materials
10. Demonstrate the process of storing the unused packaging materials and accessories

UNIT 5.1: Post Packaging Activities and Inspections

Unit Objectives

At the end of this unit, participant will be able to:

1. Describe the inspections to be done post packaging operations
2. Discuss the process of handling waste labels and packaging material
3. Explain the process of storing unused packing material and accessories

5.1.1. Inspections to be done Post Packaging

Once the packaging is done, in order to maintain smooth handover of the shift, the packaging operator needs to follow the following steps:

- Clear the packaging line as per SOP of line clearance.
- Switch off packaging equipments that were used during operations
- Dispose damaged labels and packing cases in an appropriate manner
- Perform a quick safety inspection of the packaging and labeling done for the sealed packages and of the areas
- Clean up any spills or breakages in the packaging area
- Return any PPE and equipment used to their storage racks.
- Clean and inspect the packaging equipment to ensure that it is fit for the next day's operations
- Lubricate the machine in case it has not been lubricated according to company norms so that it runs smoothly for the next shift
- Get the line clearance from Packaging supervisor and Quality inspector on line clearance sheet.
- Sort the remaining packaging material and accessories according to product specification.
- Keep rejection material or waste material in rejection box or waste box respectively
- Transfer the Finished packs or sealed packages to respective area, that is to be stored within the warehouse or to be sent out for transfer to distribution centres or customer

5.1.2 Storage of Packaging Material and Accessories

Once the packaging is done, it is time to store the unused packaging material. The same is done when the packaging material arrives at the warehouse. It essential to do a quality test before storing the boxes for their next use. The quality of the box and the consistency of the design alone will guarantee a positive buying experience for every consumer. The larger container containing your materials should be labelled before being stored. Here are some basic guidelines for keeping empty boxes or a sizable carton filled with your packaging materials.

1. Keep it somewhere dry and cool to store. The boxes become moist and moldy in humid environments. Paper and cardboard are porous materials that readily absorb moisture and encourage the development of mold. This could also produce a bad odor. It is recommended to get rid of your boxes if they do develop mold. Use gloves and a mask to protect yourself against mold, which can irritate and make breathing difficult.

2. Keep it out of direct sunlight and other sources of bright light. The molecules in the ink tend to fragment under the influence of light, which prevents them from serving as pigments. This would result in the boxes seeming unappealing.

3. Make sure to inspect your storage area for pipes and water drips. Cover your boxes with clothing or sheets if there are pipes nearby to prevent them from becoming wet.

4. If you're storing mailer boxes or folding carton boxes while they're still flat, make sure to put them horizontally. Because they are composed of a flimsier material than rigid boxes, folding cartons could easily bend or crease if kept vertically. Similarly, even though mailer boxes are constructed of significantly thicker material than folding cartons.


Fig.5.1.1. Packaging Material Storage

5.1.3 Handling waste Packaging Material

There will undoubtedly be some packing and labels left behind for you to trash. Why not find a green way to dispose of it rather than just throwing it in the trash? In addition to being positive for your business, this is a terrific method to inspire your customers to follow suit.

Every company manages garbage in a different way. To minimise damage to the environment, each business has a waste management plan in place. Following are a few simple disposal tips:

1. Recycle cardboard packaging. Paper and cardboard are easily recyclable and can be used to create new boxes. It can also be used once more to hold additional items.
2. Establish waste containers for recycling, plastics, and hazardous materials.
3. Paper boxes made of tissue and other materials can be composted. Invest in a home composting area or send them to a recycling center.
4. Foam, thermocol, and pellets can't be recycled. Instead, consider recycling them for other purposes or contacting shipping companies that take donations.

Fig.5.1.2. Packaging Material Disposal

Notes

UNIT 5.2: Prepare Packaging Area

Unit Objectives

At the end of this unit, participant will be able to:

1. Understand the procedures and inspections to carry out in order to prepare packaging area post operations
2. Describe Escalation matrix for reporting deviation
3. Explain the handover process and documents required for post shift activities

5.2.1 Prepare the Packaging Area for Shift Handover

The post packaging activities consist of activities like – storing the spare packaging material, disposing the waste labels and packaging accessories and lastly ensuring that the packaging area or the line is clear for the next shift. It should be handed over in a way that the next Packaging machine operator can function smoothly. Following are certain important points that need to be followed:

- Clear the packaging line as per SOP of line clearance.
- Switch off packaging equipments that were used during operations
- Check the packaging area and the machines as per the inspection checklist handed over to you by your supervisor
- Remove all the cartons, blisters, pallets etc packaging material kept in the packaging area
- Checking shall be done in areas like, underneath the packing belts, conveyors, on the labeling machines, workbench for any leftover of the previous batch or material and ensure there is no leftover
- Check the area as well as machines for spillage and ensure that they are clean and sanitized
- Before handing over the shift to the other packaging operator, make sure that all machines are checked.
- Update the other operator about the status of packages for the day, condition of the machines and availability and usage of packaging inventory.
- Fill out the important documents required for handing over of the shift

5.2.2 Documents required Post packaging

1. Packaging Machine Inspection Checklist:

COMPANY NAME: DATE:
RESPONSIBLE PERSON:

PREVENTIVE MAINTENANCE SCHEDULE

		DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
		WEEK																															
		MONTH																															
DAILY	Check cleanliness of the sealing bars																																
	Check the cleanliness of the cutting knives and anvils																																
	Check and discharge the sludge container of the pressure regulator																																
	Check cleanliness of the space inside packaging machine and filler																																
WEEKLY	Check cleanliness of the optical probes																																
	Grease and lubricate all sliding surfaces inside the machine																																
MONTHLY	Check rotation of the film rollers																																
	Inspect all moving parts, tighten all bolts and nuts and check cutting and slitter knives																																

EVERY 3 MONTHS	Lubricate all rollers bearings (LV2-3 grease or bearing oil)	last check date:	next check date:
	Lubricate all sliding surfaces	last check date:	next check date:
EVERY 6 MONTHS	Check tension and lubricate all rollers	last check date:	next check date:
	Check oil fillings in transmissions (in case they do not have lifelong fillings)	last check date:	next check date:
	Check condition of sealing jaws	last check date:	next check date:
	Clean the entire line from dust and impurities	last check date:	next check date:

PREVENTIVE MAINTENANCE CHECKLIST

ITEM	TASK	COMPLETE	REMARKS
Squeegee System (if equipped)	Check condition/security and clean/wipe with oily cloth		
Drive Units	Check security and movement		
Shafts	Check security and clean/wipe with oily cloth		
Belts	Check condition and tension – replace if signs of excessive wear		
Belt guides	Check condition/security and check springs		
Drive pulleys	Check condition/security		
Air cylinders	Check condition/security and for any air leaks		
Vacuum	Vacuum belts are easily contaminated. Check and clean often.		
Knife	Remove the knife before cleaning jaw faces. Check for wear and build-up and clean/replace if necessary. Clean knife thoroughly.		
Servo motors	Check condition/security		
Couplings	Check screws for security		
Link arms	Check condition/security		
Grease zerk fittings	Clean before and after lubricating		
Heater cables and plugs	Check condition/security		
RTD cables and plugs	Check condition/security		
Rollers, all	Check that all rollers turn freely and are clean		
Rack and pinon	Wipe clean and lightly oil		
Film roll brake	Check condition/security		
Safety Checks	Check safety switches/magnets for condition/security and function. Same for Estop. With the main power on and faults reset, open and close the doors and verify the air is dumped when the guards open.		

CONTACT

Viking Masek technical support:	(920) 564-5086 or service@vikingmasek.com
Preventive Maintenance & Service Plans:	Click here for more information

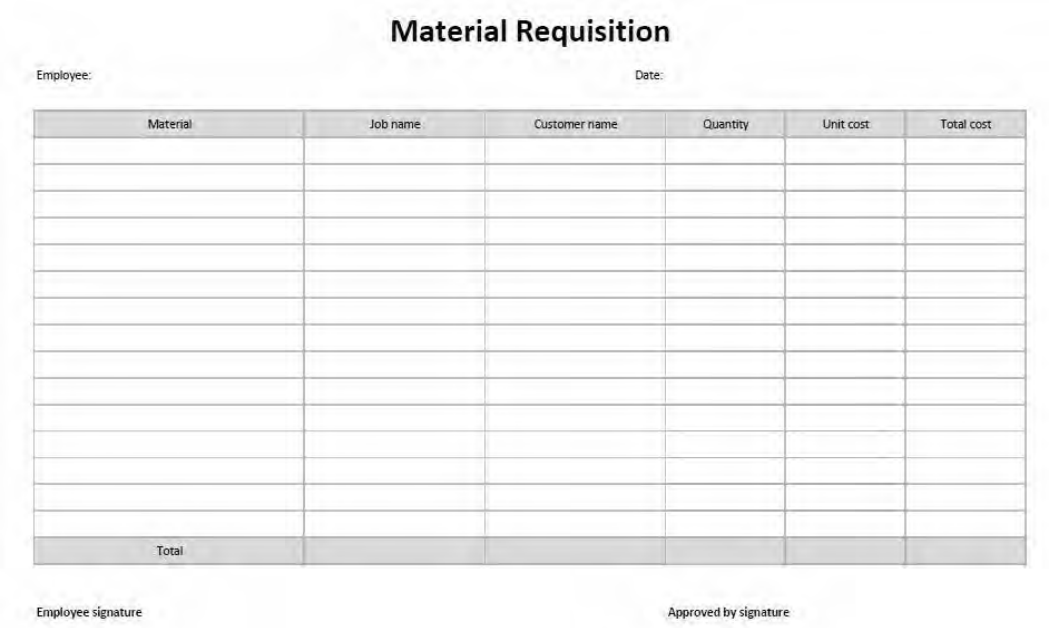
CAUTION

Before cleaning, turn off and disconnect the power.
Sealing jaws and knife are hot. Wear heat resistant gloves and proper Personal Protective Equipment (PPE).
Prior to starting any maintenance activity, the energy sources to the machine must be isolated and locked-out.

Check safety switches/magnets for condition/security and function. Same for E-stop. With the main power on and faults reset, open and close the doors and verify the air is dumped when the guards open.

Fig.5.2.1 Sample inspection checklist

2. **Packaging Material Requisition form**: this is required in case the packaging material is in storage or inventory has reduced and the warehouse needs more. The requisition form is filled keeping in mind the requirement of each accessory / material



Material Requisition

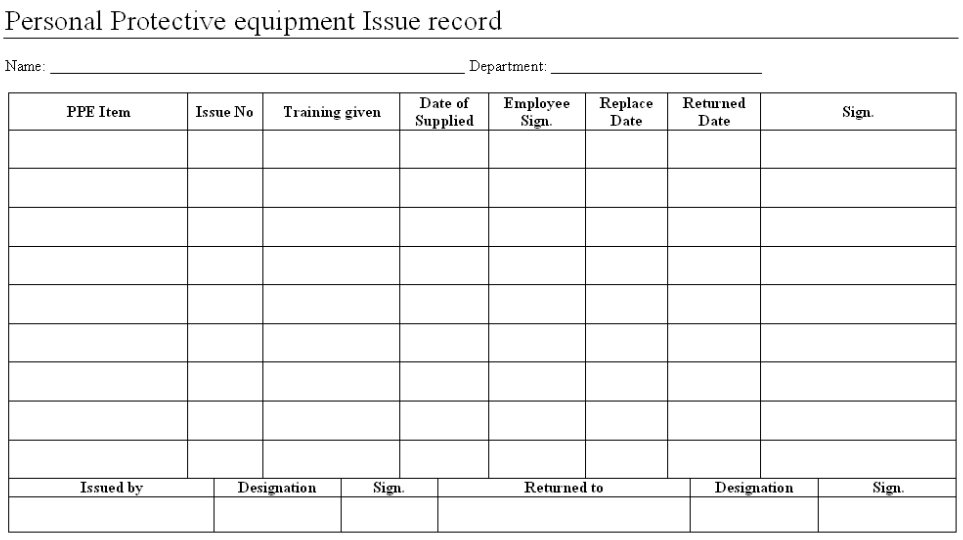
Employee: Date:

Material	Job name	Customer name	Quantity	Unit cost	Total cost
Total					

Employee signature Approved by signature

Fig.5.2.2 Sample Material requisition form

3. Personal Protection Equipment Requisition form



Personal Protective equipment Issue record

Name: _____ Department: _____

PPE Item	Issue No	Training given	Date of Supplied	Employee Sign.	Replace Date	Returned Date	Sign.

Issued by	Designation	Sign.	Returned to	Designation	Sign.

Fig.5.2.3 PPE Requisition / Return form

4. **Procedure for recording damages, breakages etc:**

Warehouse is an action-packed place. Goods are continuously coming in, getting stored and moving out. Despite all precaution there are still some chances of damage or breakage during warehouse operations (put away, picking, packing, returns etc.)

In case of any such incident, the packaging operator is supposed to report immediately to the packaging supervisor and fill in a damage report along with supervisor on immediate basis. Following figure is a small example of a damage report. The key thing in this report is to describe the event as it happened and what actions will be taken in the future to prevent it.

LOSS / DAMAGE REPORT

Format No.: Rev. No. : Rev. Date. :	☐ **Loss Report** ☐ **Damage Report**	Report No: Report Date:

Internal References

Shipment Ref. No.	Shipped Date	Order No.	Material ID	Material Qty	Values	BL No.

Description of Shipment

Destination	Nos. of Days	Insurance No.	Description of Insurance on Loss / Damage

Loss / Damage Date & Time	Responsible person	Authority	Details

Description of Loss / Damage

Item Loss / Damage

Particulars	Item Name	Qty	Value	Repair / Recovery / Loss / damage status

Investigation / Impact – Corrective Actions / Preventive Actions

Nature of Loss / Damage	Responsible Agency	Current Location of Material	Contacts

Remarks

	Prepared by
	Approved by

Fig 5.2.4: Loss / Damage Report

Guidelines to Escalate in case of Deviation

- Notify supervisor regarding any concerns faced at work such as delays due to machine stops, damaged packages, etc.
- Provide feedback regarding damage if any, delays in packaging and labelling, inability to meet an order, etc.
- Complete any forms as required by management such as packaging machine status, shift status, etc.

Tips

- Understand the forms available at the company and study them
- Learn the working of the machines effectively and demonstrate the use of these in day-to-day operations
- Learn effective shift handover so that the functioning of the warehouse is smooth

Summary

In the above unit we have covered the essential post shift duties of a packaging machine operator. To carry out any of these activities effectively it is essential that an operator works on his/ her communication skills. These skills will help you in effective handover procedures as well as escalation procedures. In the above unit we have also covered processes and checklists to be used for maintenance, repair and good condition of the packaging area and the machines. It indicates the several documents required for smooth operations.

Exercise

1. Demonstrate the use of several packaging equipment according to the product requirements.
2. Fill out a basic inspection checklist for post shift inspection.
3. Explain the process of effective packaging waste management.
4. What are the practices of a good shift handover?

Notes

Scan the QR code to watch the related video

https://youtu.be/xP-KBYPf8cM Packaging inspection

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6. Housekeeping

Unit 6.1 – Prepare for Housekeeping

Unit 6.2 – Carry out Housekeeping

Unit 6.3 – Post Housekeeping activities

LSC/N2104

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Discuss the various housekeeping activities to be performed based on the type of surface, strain etc.
2. Describe the alternative cleaning methods
3. List the appropriate cleaning materials and machines
4. Discuss the steps to be followed in cleaning of an area
5. Detail the process of cleaning
6. Explain the process of planning the sequence of cleaning to avoid re soiling
7. Discuss the steps to be followed in pre cleaning process
8. Explain the process of pre cleaning
9. Discuss the steps to be followed in post cleaning process
10. Explain the process of post cleaning

UNIT 6.1: Prepare for Housekeeping

Unit Objectives

At the end of this unit, participant will be able to:

1. Discuss the importance of cleanliness in warehouse.
2. Explain the procedure for maintaining proper housekeeping in warehouse.

6.1.1 Housekeeping in Warehouse

Housekeeping is not just cleanliness. It also means ensuring a safe work environment for the people working. Good housekeeping means so much more in case of a warehouse:

- It means keeping the floor free from slip or trip hazards
- Preventing any fire hazards
- Preventing any hazards around conveyors or charging stations.
- Removing any obstructions in the path for forklifts.
- Ensuring level surface for movement of HPT and BOPT.

Effective housekeeping is an ongoing daily exercise and not a onetime effort.

Why housekeeping activity is required?

In every workspace in every job, good housekeeping is the foundation of safety. However, the warehouse, where a variety of workers utilise a variety of tools for a range of tasks, is where it's most crucial.

Why should we pay attention to housekeeping at work?

A job can be completed safely and correctly, and some workplace dangers can be removed with good housekeeping. Poor housekeeping usually causes accidents by concealing dangers that might result in injury. If paper, trash, clutter, and spills are considered as commonplace sights, then other, more serious health and safety risks might also be viewed as normal. Not merely cleanliness is part of housekeeping. It includes maintaining clean, ordered workplaces, keeping hallways and floors clear of trip and fall risks, and removing waste (such as paper and cardboard) and other fire dangers from work areas. It also necessitates paying attention to crucial particulars including the design of the entire workspace, aisle marking, the suitability of storage options, and upkeep. A significant component of accident and fire prevention is good housekeeping.

Effective housekeeping is a continuous process; it is not a spotty cleanup that is performed occasionally.
Periodic “panic” cleanups are expensive and useless for lowering accidents.

Aisles –

Aisles should be wide enough to safely and easily accommodate the MHE and the people operating there. Aisle should allow movement of material, machines and manpower. Keeping aisles clean is important. Any excess material should not be kept in aisles and block them. The lighting should be installed on the top of the aisles to provide effective illumination for the work. There should be proper warning signs and mirrors at the bling corners. Keeping aisles functional and free is essential to good housekeeping.

Fig 6.1.1. Cleaning of Aisles

Product Slots - Cleaning of product slots may require use of dusters, brooms, mops, or shovels. To clean these rack locations, pull product out of the location with an HPT or forklift and clean slot with cleaning supplies and electric scrubber. This has to be done with utmost care to avoid breakages and damages to product.

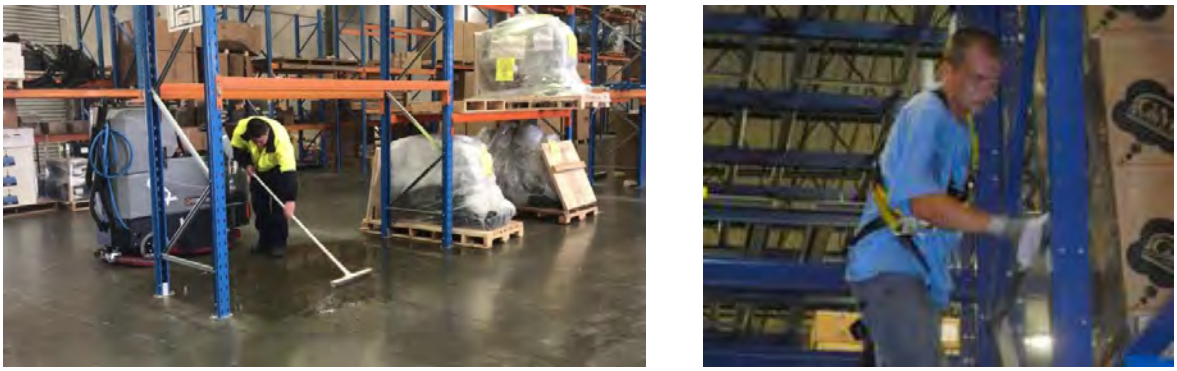


Fig 6.1.2. Cleaning of Product Slots

6.1.2 Guidelines to prepare for Housekeeping

- Inspect the area while taking into account various surfaces
- Identify the material requirements for cleaning the areas inspected, by considering risk, time, efficiency and type of stain
- Ensure that the cleaning equipment is in proper working condition
- Select the suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the appropriate person
- Plan the sequence for cleaning the area to avoid re-soiling clean areas and surfaces
- Inform the affected people about the cleaning activity
- Display the appropriate signage for the work being conducted
- Ensure that there is adequate ventilation for the work being carried out
- Wear the personal protective equipment required for the cleaning method and materials being used

Notes

UNIT 6.2: Carry Out Housekeeping

Unit Objectives

At the end of this unit, participant will be able to:

1. Discuss different cleaning methods
2. Explain the different products used for cleaning
3. Enlist things to keep in mind while carrying out housekeeping activities

6.2.1 Purpose and Benefits of Housekeeping

What is the purpose of workplace housekeeping?

Accidents can result from poor housekeeping, which includes:

- Walking on slippery, wet, or greasy surfaces
- Tripping over loose objects on stairs, floors, or platforms
- Being struck by falling objects; bumping into protruding objects or materials
- Cutting, piercing, or tearing the skin of hands or other body parts on protruding nails, wire, or steel strapping
- Striking against protruding, poorly stacked objects or materials.
- A workplace must "keep" order throughout a workday to prevent these risks.

Even though this effort necessitates extensive administration and planning, there are numerous advantages.

What are some benefits of good housekeeping practices?

The benefits of good housekeeping are:

- Reduced handling to facilitate material flow
- Fewer tripping and slipping incidents in workspaces free of clutter and spills
- Lower fire dangers
- Reduced worker exposure to dangerous substances (such as dusts and vapors)
- Reduced property damage by enhancing preventive maintenance
- Better control of tools and materials, including inventories and supplies
- More effective equipment cleanup and maintenance
- Enhanced hygienic conditions leading to improved health.
- Less janitorial work
- Greater morale
- Greater productivity (tools and materials will be easy to find)

What are the elements of an effective housekeeping program?

Removal of dirt and dust

Enclosures and exhaust ventilation systems may not adequately capture dust, dirt, and chips in some jobs. Light dust and debris can be removed with vacuum cleaners. Industrial models contain specialised fittings for cleaning machinery, walls, ceilings, ledges, and other difficult-to-reach areas where dust and grime may collect.

Fig 6.2.1: Dust and Dirt Removal

Vacuum cleaners with specified uses are helpful for removing dangerous materials. For instance, HEPA (high efficiency particulate air) filter-equipped vacuum cleaners can be used to collect tiny asbestos or fiber glass particles.

The amount of airborne dust can be decreased by dampening (wetting) floors or using sweeping chemicals before sweeping. Manual cleaning may be necessary to remove the dirt and dust that accumulate in areas such as shelves, pipelines, conduits, light fixtures, reflectors, windows, cabinets, and lockers. Using compressed air to clean dust, grime, or chips off tools or work surfaces is not advised.

6.2.2 Surfaces to Clean during Housekeeping

1. **Workplace Amenities**

   Facilities for employees must be sufficient, spotless, and well-maintained. Lockers are required to store the personal possessions of employees. Each shift, restrooms must be cleaned at least once. Additionally, they require a sizable supply of soap, towels, and disinfectants, if necessary.

   Employee facilities should offer specific safety measures, such as showers, washing facilities, and changing rooms, if workers are employing hazardous materials. Some facilities might call for two locker rooms separated by showers. By keeping work clothes distinct from the clothes, they wear at home, using such double locker rooms enables employees to shower off workplace toxins and protects them from contaminating their "street clothes."

Where harmful materials are handled, it should be illegal to smoke, eat, or drink during work. The dining area ought to be kept apart from the workspace and dutifully cleaned after each shift.

Fig 6.2.2: Employee Facilitities

Surfaces

Floors: Spilled oil and other liquids need to be cleaned up right once because slippery floors are a major contributor to accidents. Accidents can also occur if chips, shavings, and dust are allowed to build up. It is possible to stop the accumulation of chips, shavings, and dust by catching them before they fall to the ground or by frequently cleaning them up. Anti-slip flooring should be used in areas like entranceways that cannot be regularly cleaned. Maintaining floors in good condition also entails fixing any flooring that is torn, worn, or broken and creates a trip risk.

Fig. 6.2.3: Surfaces - Floors

Walls: Dark or dirty walls absorb light, but light-colored walls reflect it. Contrasting hues identify physical dangers and obstacles like pillars. While paint can draw attention to railings, guards, and other safety equipment, guarding should never be replaced with paint. The guidelines and requirements for colors should be stated in the program.

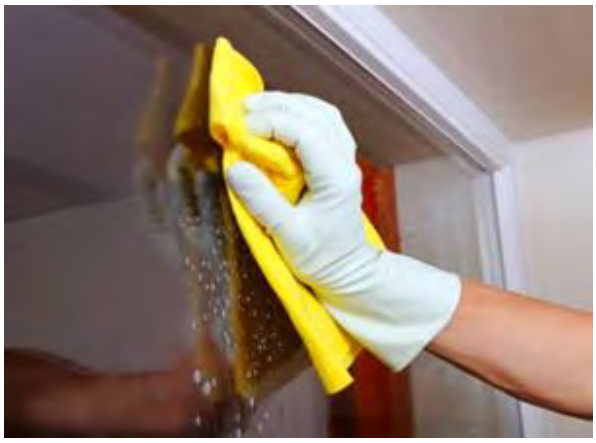



Fig. 6.2.4: Surfaces – Walls

Maintain Light Fixtures

Lack of necessary light is caused by dirty lighting fixtures. Clean lighting fixtures can dramatically increase illumination effectiveness.

Aisles and Stairways

Aisles should be broad enough to safely and comfortably fit both people and vehicles. People, goods, and commodities can move around in aisle space. Mirrors and warning signs can increase visibility around blind corners. Aisles are more likely to be used when they are strategically placed, preventing individuals from cutting through risky areas.


Fig. 6.2.5: Surfaces – Aisles and Stairways

It's crucial to keep stairwells and aisles free. For short-term "overflow" or "bottleneck" storage, they shouldn't be used. Ample lighting is also necessary for aisles and stairs.

Spill Control

Preventing spills from occurring is the most effective approach to manage them. One method is to regularly clean and maintain machinery and equipment. Another is to utilise drip pans and guards in areas where spills are conceivably likely. When accidents do happen, it's crucial to wipe them up right away. To clean up greasy, oily, or other liquid spills, absorbent materials are helpful. It's important to dispose of used absorbents properly and safely.

Fig. 6.2.6: Spill Control

Tools and Equipment

Whether in the tool room, on the rack, in the yard, or on the bench, maintaining the cleanliness of your tools is crucial. Both in the tool room and close to the workbench, tools need the appropriate fittings with clearly designated places to ensure an organised arrangement. After use, swiftly return them to lessen the likelihood that they'll get lost or misplaced. All tools should be routinely inspected, maintained, and repaired, and any worn or damaged tools should be removed from service.

Maintenance

The most crucial aspect of excellent housekeeping may be the upkeep of buildings and equipment. Buildings, machinery, and equipment must be maintained to be functional, safe, and in good condition. This include keeping facilities clean, as well as frequently painting and cleaning walls. Broken windows, damaged doors, faulty plumbing, and cracked floor surfaces can give the impression that a workplace has been neglected; these flaws can also lead to accidents and have an impact on work procedures. Therefore, it's crucial to replace or repair damaged or broken products as soon as you can. The inspection, maintenance, care, and repair of tools, equipment, machines, and processes are all covered by a good maintenance program.

Fig. 6.2.7: Maintenance

Waste Disposal

Good housekeeping techniques include routine scrap collection, grading, and sorting. Additionally, it enables the separation of materials headed for trash disposal facilities from those that can be recycled.

Allowing debris to accumulate on the floor costs time and energy since it takes longer to clear it up. Scrap containers should be placed close to the source of the waste to promote orderly disposal and facilitate collection. Each trash can should have a distinct label (e.g., recyclable glass, plastic, scrap metal, etc.).

Storage

For either temporary or long-term material storage issues, properly organising the stored goods is crucial. Reduced handling, especially if manual material handling is not as necessary, will also result in fewer strain injuries. The stockpiles should not be in the way of work, but they nevertheless need to be accessible when needed. Under sprinkler heads, stored items should leave at least one meter (three feet) of open space.

Reduce the possibility of cartons and drums moving by stacking them on a solid base and, if necessary, cross-tying them. Aisles, staircases, exits, fire equipment, eyewash stations, emergency showers, and first aid stations shouldn't be blocked by stored items. All storage spaces ought to be prominently labelled. Hazardous products such as those that are flammable, combustible, poisonous, and others should be kept in authorised containers in locations that are suitable for the various risks they provide. Materials should be stored in accordance with all standards outlined in the local environmental, occupational health and safety, and fire rules.

6.2.3. Guidelines to prepare for Housekeeping

- use the correct cleaning method for the work area, type of soiling and surface
- carry out cleaning activity without disturbing others
- deal with accidental damage, if any, caused while carrying out the work
- report to the appropriate person any difficulties in carrying out your work
- identify and report to the appropriate person any additional cleaning required that is outside ones responsibility or skill

Tips

"*A stitch in time can save nine* **"**- If the goods are properly packed as per instructions and inspected before dispatch, lot of damages can be avoided.

Notes

UNIT 6.3: Post Housekeeping Activities

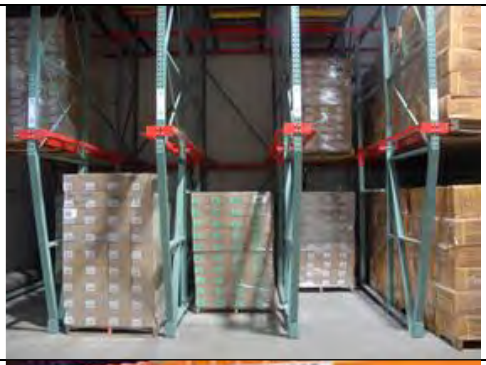
Unit Objectives

At the end of this unit, participant will be able to:

1. Understanding hazards of not being careful during housekeeping
2. Points to keep in mind while finishing housekeeping
3. Do's and Don'ts during Housekeeping
4. PPE to be used during Housekeeping

6.3.1 Risks involved in Housekeeping

Some of the common risks that are identified by a warehouse picker are as follows:

Storage rack beam damage – This may due to poor maintenance or may be due to a forklift arm hitting the beam	
Storage rack beam damage	
Wet floor accidents	

Overhanging boxes and pallets – Improper put away and picking results in such storage and there might be a chance of box falling and cause material and man power damages	
Rope obstructing workforce and causing accidents	
Maintenance material or items dropping on the floor may leads to accidents	
Scrap materials on the floor may also leads to accidents	

One have to ensure that all the machines, materials and the work place surface are in good conditions and safe for working. For industrial usages there are number of housekeeping materials are available. Some of them are given below for reference

Different materials have different form of nature, like some might be very sensitive to electricity and other chemical agents might have other effect while using them. In such case it is mandatory to use required personal protective equipment while handling it.

Fig.6.3.1 Housekeeping material

After equipping yourself and while carrying out the housekeeping activity, inform other people on the shop floor that cleaning process is on progress by placing some caution signages.

Fig.6.3.2 PPE for Housekeeping

Fig.6.3.3 PPE Signage

Use the proper cleaning techniques for the area of work, the type of soiling, and the surface because occasionally even poor housekeeping can result in dangers.

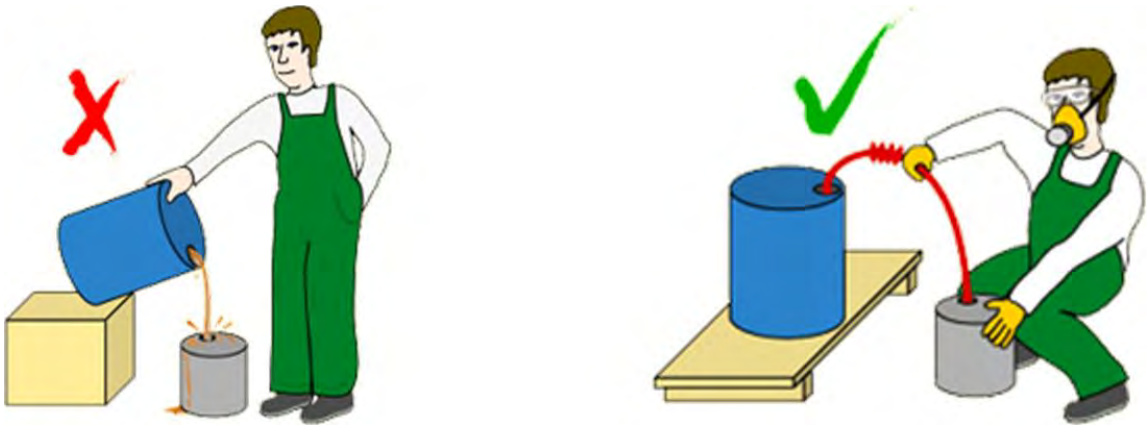


Fig.6.3.4 Do's and Don'ts in Housekeeping

An operator needs to be well-equipped to handle any inadvertent harm that arises while performing the task. Any problems you have while doing your job should be reported to the proper person, as should any additional cleaning that is needed but not your duty.

The most crucial thing to be aware of is that some cleaning solutions, while generally safe when used alone, can occasionally result in hazardous gases or other chemical reactions when combined with other products. It is never advised to combine two separate drain cleaners or even to use them back-to-back. Before using, please read the instructions for combining a certain product with another.

The most important thing is to dispose the collected waste in a proper place that doesn't affect environments and to human in appropriate manner. Additionally, it's crucial to dispose of both used and unused solutions safely and in accordance with the manufacturer's recommendations.

Fig.6.3.5 Do's and Don'ts in Housekeeping

The package operator should ensure that everything is clean, safe, and properly kept for future usage before returning the tools, materials, and personal protective equipment that were used to the locations designated for storing housekeeping supplies.

Fig.6.3.6 Returning Housekeeping Material

6.1.2 Guidelines to carryout Post Housekeeping Activities

- Ensure that there is no oily substance on the floor to avoid slippage
- Ensure that no scrap material is lying around
- Maintain and store housekeeping equipment and supplies
- Follow workplace procedures to deal with any accidental damage caused during the cleaning process
- Ensure that, on completion of the work, the area is left clean and dry and meets requirements

Tips

"*A stitch in time can save nine* **"**- If the goods are properly packed as per instructions and inspected before dispatch, lot of damages can be avoided.

Notes

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Scan the QR codes for the related video's

Warehouse cleaning checklist for daily, weekly and monthly

https://youtu.be/qPlRi-RWNlY

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
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N·S·D·C
National
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Corporation
Transforming the skill landscape

7. Compliance to Health, Safety and Security Norms

LSC
Logistics Skills Council

Unit 7.1 – PPE for Goods Packaging Machine Operations

Unit 7.2 – Implement Safety in Warehouse

Unit 7.3 – Handling Hazardous Goods

Unit 7.4 – 5S Concept

Unit 7.5 – Managing Breach of Safety, Accidents and Emergency Situations

LSC/N2205

Key Learning Outcomes

At the end of this module, participant will be able to:

1. Describe health, safety and security procedures in warehousing
2. Describe 5S at workplace
3. Explain the process of inspecting the activity area and equipment, for appropriate and safe conditions
4. Discuss how to identify unsafe working conditions
5. Explain adherence to SOP while handling dangerous and hazardous goods
6. State the standard protocol in case of emergency situations, accidents, and breach of safety
7. Detail the reporting procedure in case of health, safety and security violations

UNIT 7.1: PPE for Goods Packaging Machine Operations

Unit Objectives

At the end of this unit, participant will be able to:

1. Understand PPE Requirements for a packaging machine operator
2. PPE needs based on product and environment

Personal Protective Equipment

PPE, or personal protective equipment, is clothes or other items that are worn by operators or visitors to cover their bodies from hazards during work. Physical, electrical, thermal, chemical, biohazard, and airborne particle matter threats are all handled with protective gear.

After receiving the schedule for the day and before starting the operations for the day the goods packaging machine operator needs to prepare for the next process which is usage of Personal Protective Equipment - PPE before entering the parking area.

More than 5 lakhs of the nearly 2 million permanently disabling work-related injuries that occur each year include the head, eye, hands, and feet. A tool to do the task is using the appropriate personal protective equipment.

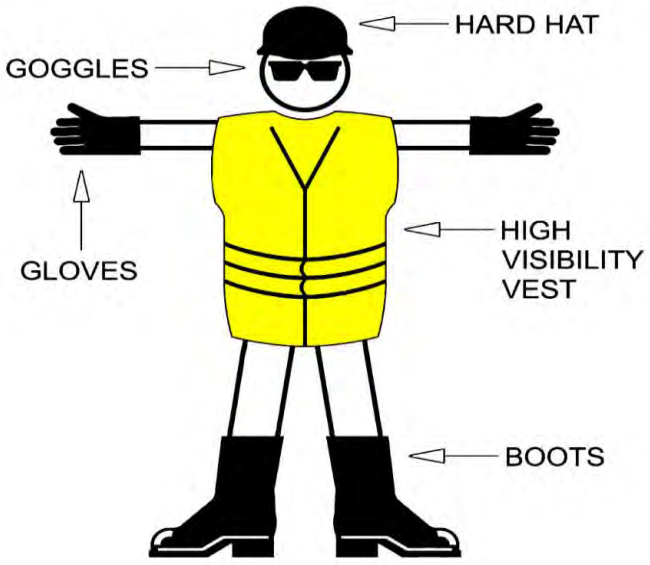


Fig. 7.1.1. Personal Protective Equipment

PPE includes: -

- Respiratory protective equipment
- Safety helmets
- Fall arrest harnesses for working at heights
- Gloves, gauntlets, and sunscreen
- High visibility vests, life jackets, and coveralls
- Safety boots and rubber boots
- Eye and face protection, such as safety glasses and face shields.

7.1.2 Types of PPE

Common Dust Mask	
Respiratory Protection Half-faced, full-faced, disposable, cartridge, air lines, etc.	

Eye protection Sunglasses/goggles, shields, or visors	
Hearing protection Using earmuffs or plugs	
Hand protection Hand gloves or barrier creams	

Foot protection Shoes/boots	
Head protection Helmets, caps, hoods, hats etc.	
Working from heights Harness or fall arrest devices	

PPE Used in handling FMCG Goods

As the material being handled is not too large or bulky or hazardous in nature, those specialized MHE are not required. The general PPE used in warehouses will suffice for FMCG Warehouses.

Fig. 7.1.2. Personal Protective Equipment

PPE Used in handling Heavy / Bulk Goods

Like any other warehouse, in case of bulk warehouse too, the safety of the people working there is paramount. Following are some of the key PPE to be used in bulk warehousing.

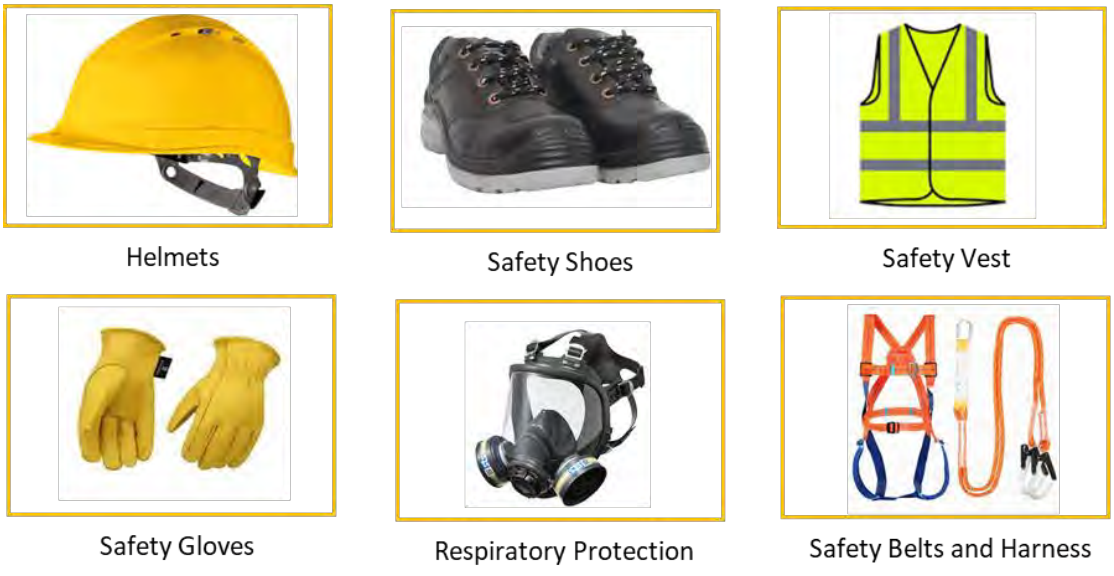


Fig. 7.1.3. Personal Protective Equipment

Precautions in Handling Bulk Cargo

A packaging operator may be dragged into the conveyor path or injured by material that has fallen off the conveyor if they become entangled in it. The following safety measures must be implemented to safeguard employees in order to prevent injuries or lessen their severity.

- Include a pull cord or emergency button to stop the conveyor.
- Conveyor belts with continually accessible emergency stop cables should be installed such that the cables can be accessed from anywhere along the conveyor.
- Create the emergency stop switch with the requirement that it be reset prior to restarting the conveyor.
- Before restarting a conveyor that has stopped owing to an overload, make sure that the proper staff inspect the conveyor and clear the stoppage.
- Forbid personnel from using a conveyor system for handling items.
- Employees should avoid overloading equipment when moving goods mechanically by letting the weight, size, and shape of the material being carried.
- Define the type of equipment employed to prevent employees from being struck by falling when conveyors pass over work areas or aisles.

UNIT 7.2: Implementing Safety in the Warehouse

Unit Objectives

At the end of this unit, participant will be able to:

1. Discuss the criticality of safety.
2. Describe the various safety precautions to be undertaken.
3. Explain the importance of training to warehouse team.

7.2.1 Safety and its Criticality

"Nothing is more important than the safety of the people and goods stored inside the warehouse".

Working in warehouse creates several health and safety risks. If not controlled, it may lead to accidents, injury to people, illness, high employee turnover, lost working hours and at worst even fatalities. Safety rules and procedures are often disregarded to save money, cut corners, lack of focus or insufficient time. Well implemented safety procedures lead to minimum risk of injury, fewer disruptions, lesser absenteeism, higher employee satisfaction and finally better productivity.

As discussed in earlier chapters, companies store their finished goods inventory in the warehouse, they store raw materials on the manufacturing side. The nature of the products stored in the warehouse determine the rules and practices to be adopted to save the people from injuries or mishaps.

As a corporate, companies are also officially bound to implement and maintain safety procedures. The safety procedures should protect the workers from any danger and ensure that they operate in a safe and comfortable environment. However, the companies should maintain safety procedures not just for legal compliance; well implemented safety rules indicate the concern the company carries for its employee's well-being.

Safety Rules in a Warehouse -

1. Make sure to always employ safety equipment.
2. Remove any possible security risks.
3. Defined danger zones should be clearly labelled.
4. Constantly employ secure lifting methods.
5. Offer instruction and retraining programs.
6. Raise awareness of safety in the warehouse.

7.2.2 Safety Procedures to be observed in a Warehouse

A. Vehicle Safety -

When forklifts and reach trucks are used in the warehouse, it is essential to prevent any injury due to impact or crush. It is observed that most of the times the accidents happen while reversing.

Following are some of the safety procedures for using Forklifts:

Fig. 7.2.1 Rules for Forklift Safety

B. Slips, Trips, and Falls -

Various reports indicate slips and falls are the single biggest reason for work related injuries across the world. *To prevent slips, trips, and falls, company should follow the tips mentioned:*

Fig. 7.2.2. Rules for Slips

C. Lifting -

Lifting can be done both manually and using MHE. Both the situations pose safety hazards if not done properly.

To minimize lifting risks, Company should follow the tips mentioned

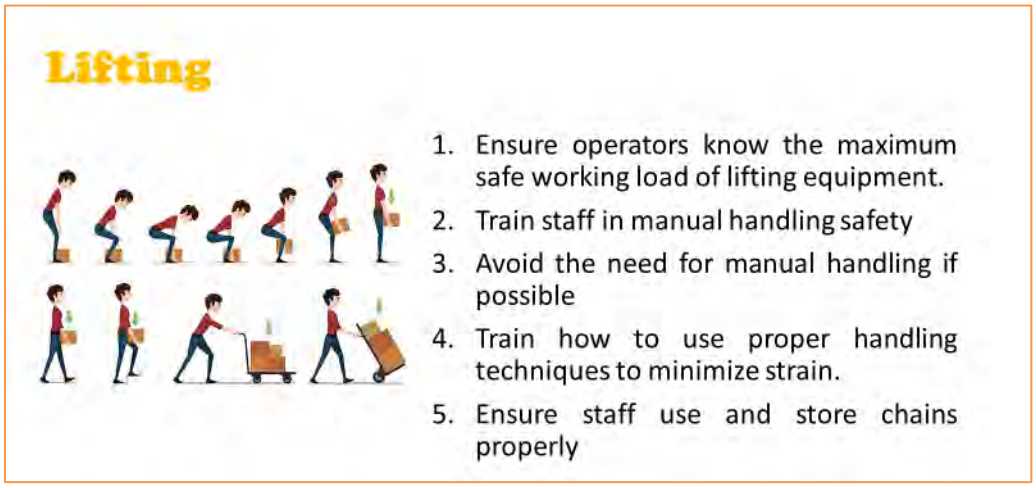


Fig. 7.2.3. Rules for Lifting

D. Fire Safety -

Fire is the biggest hazard warehouse faces. Along with loss of valuable material stored in the warehouse, Fire can even lead to injuries or fatalities to the people working there.

To maintain fire safety, company should follow the tips mentioned

Fig. 7.2.4. Rules for Fire Safety

E. Charging Stations -

Forklifts, BOPT, and other power equipment are recharged at charging stations in warehouse buildings. Explosions and fires might happen if the right procedures are not followed.

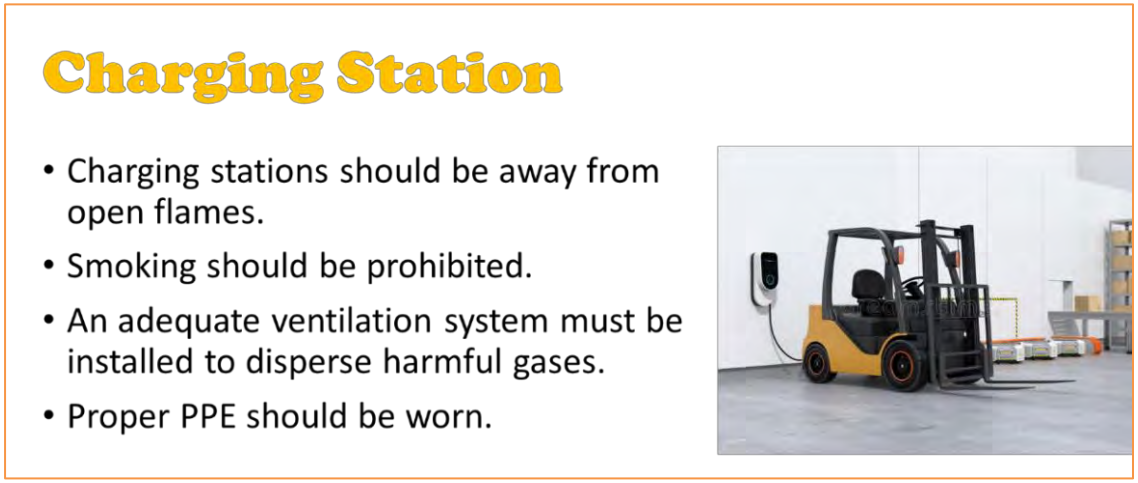


Fig. 7.2.5. Rules for Charging Station

F. Conveyors -

To move goods across a warehouse facility, conveyor machinery is frequently used. However, there are significant risks associated with conveyors for employees, such as getting entangled in machinery and being hit by flying debris. In order to stay safe, it's crucial to:

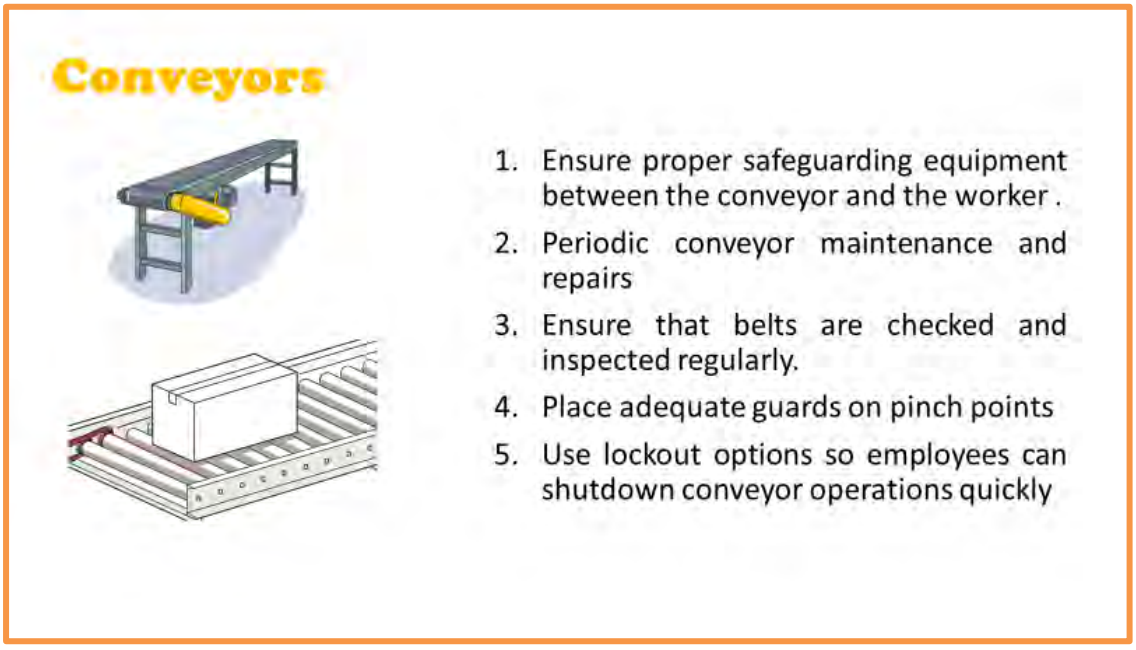


Fig. 7.2.6. Conveyors

G. Docks -

Docks are used in warehouses to load and unload cargo from lorries. Driving forklifts off docks and accidents involving merchandise that are incorrectly placed and fall on workers are two risks associated with docks.

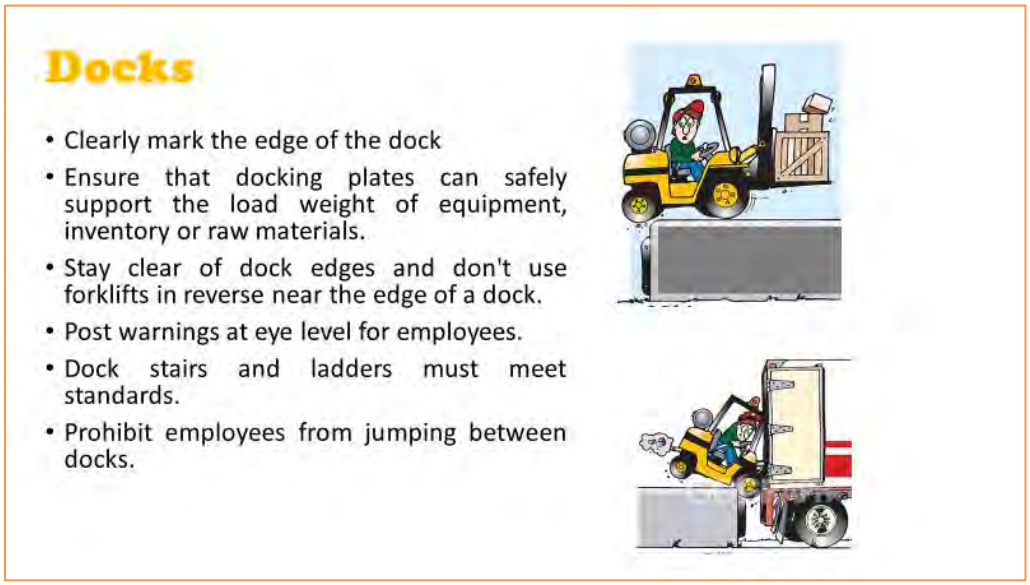


Fig. 7.2.7. Docks

Besides the above precautions, two important points in safety are usage of PPE and employee training.

H. Personal Protective Equipment -

Employees need to wear PPE all the time while working in the warehouse. If PPE is not worn and an accident occurs, it can lead to serious injuries or even fatalities.

It is seen in previous sections PPE to be used to protect head, fingers, feet, eyes and the rest of the body.

One needs to assess the risks in the warehouse to determine which type of PPE the associates need to wear.

I. Training to Staff -

Sense of awareness about safety is the most important factor in safety implementation. Most of the companies run formal safety training programs where all safety related measures are explained and formally practiced. There are regular refresher courses to further reinforce the concept of safety.

- Ensure that all employees are trained and carry up to date knowledge on safety procedures

- Employee should be educated about the consequences which originate by following unsafe work practices
- Any employee not following safety procedures should be strongly dealt including terminating services if required.
- To guarantee the avoidance of collision accidents, all staff members should be urged to remain alert to their surroundings and communicate their locations..
- Companies may implement incentives for zero-accidents and zero near-misses.

5.1.3 Inspection of Work Area

A warehouse is a busy location, and the hectic pace frequently results in accidents. Workers' safety should always be guaranteed by the safety management program.

The warehouse must continually inspect all areas of the warehouse, identify unsafe operating conditions, and properly correct them for safe operation. Tools and equipment should be checked, cleaned and repaired regularly, and damaged or worn tools should not be used.

- No passageways, staircases, exits, fire extinguishers, emergency wells, emergency showers, or first aid stations may be blocked by the materials being stored. Every storage space needs to be identified.
- Regularly inspect the fire extinguishers and fire hoses. Take away all barriers and make these articles available right away. Only individuals who have received the proper training in firefighting techniques should use this equipment.
- Ensure that hazardous materials are stored in specified places in certified containers when storing flammable, combustible, poisonous, and other compounds.
- Check that all power cords are unplugged by gently pushing on the connector while holding it. Do not tug on the rope. Take it out of operation if the power cord is damaged or the cables are visible.
- Highly flammable chemicals shouldn't be kept in a warehouse. It should be kept in a separate area.
- Check the dock area every day for obstructions or damage to fire extinguishers.
- Regularly inspect the conveyor belts to make sure they are undamaged and safe to use.
- Every month, perform flow and alarm testing on the sprinkler systems. inspections of documents.
- Check the pulleys and hoisting slings if pulleys or hoists are being utilised to lift large materials. Make sure hook latches and the necessary PPE are accessible.
- Check all ladders for damage once a week. All ladders, whether made of wood, metal, or fiberglass, should be regularly inspected for any potential flaws brought on by excessive use, and any necessary repairs and/or replacements must be made.

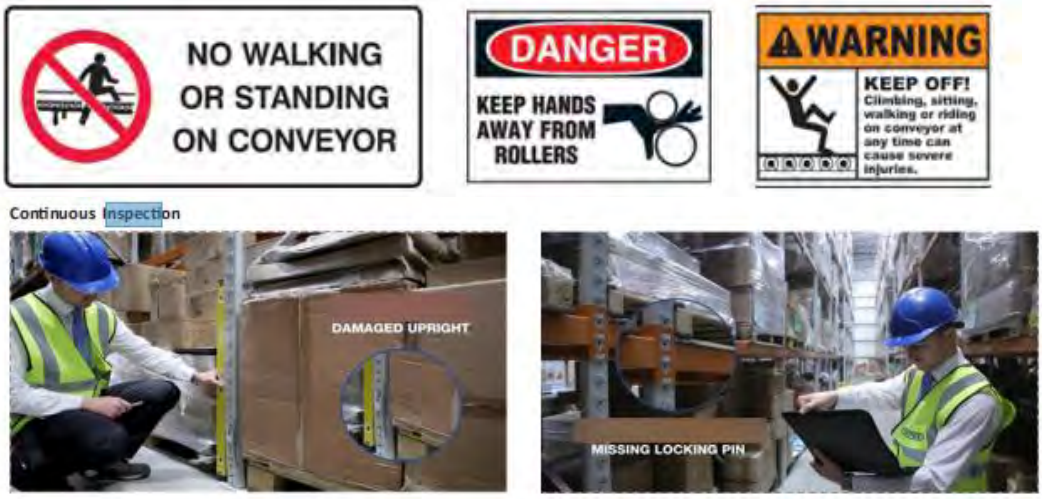


Fig. 7.2.8. Inspection of Work area and Equipment

General unsafe working environment -

- Slip or trip of the employee caused by spillages or wet floors.
- Uncovered power cords or hoses.
- Working overtime, much beyond scheduled hours can also cause accident due to fatigue.
- Lack of proper ventilation.
- Defective plumbing, cracked floor surfaces, broken windows, and damaged doors can all result in accidents and have an impact on workplace procedures.
- No proper usage of PPE by the employees while carrying out warehousing activities. It is warehouse associate's responsibility to ensure that all the workers are using all the required Personal Protective Equipment (PPE) for safe working.

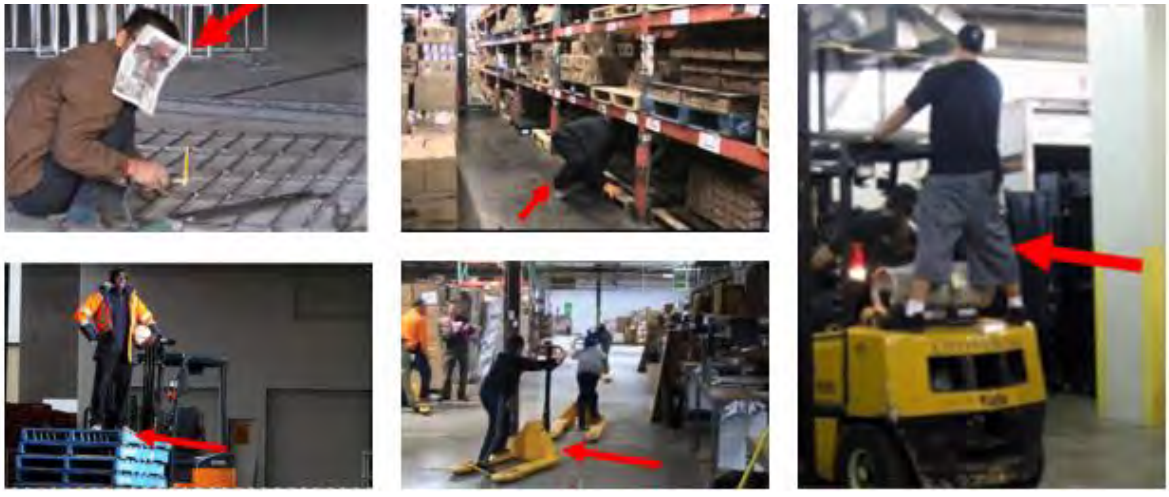


Fig. 7.2.9. Unsafe work practices

Notes

UNIT 7.3: Handling Hazardous Goods

Unit Objectives

At the end of this unit, participant will be able to:

1. Classify the hazardous materials.
2. Explain the concept of safety data sheet.
3. Describe the various do's and don'ts in handling hazardous chemicals.

7.3.1 Handling Procedures for Dangerous Goods

Dangerous and hazardous materials require special handling and attention whenever they are stored in warehouse. A specific Standard Operating Procedure (SOP) is set for each type of such cargo and strict adherence to it to ensure safety of the employees and the warehouse. Following are some of the key points that should be taken care of when dangerous goods are kept in warehouse. Material Safety Data Sheets (MSDS) and container labels will be the basis of reference to conduct the evaluation

All items and substances that are deemed to be dangerous goods must be identified, classified and given one of the standard names used for dangerous goods transportation and storage.

Warehouse must identify the material which cannot be stored together and create separate designated places for them.

Hazardous materials are generally assigned to one or more of the following classifications.

- Any liquid with a flash point below 37 degrees Celsius is considered flammable.
- Combustible Liquid - Any liquid that produces enough vapors to ignite when exposed to an ignition source and has a flash point between 37 and 94 degrees Celsius.
- Flammable Solid - A substance that, when ignited, will burn so vigorously that it causes a hazard. It can catch fire due to friction, moisture absorption, or spontaneous chemical changes.
- Oxidizer: an ingredient that easily releases oxygen to promote the burning of organic material.
- Corrosive - a substance that, according to SAE 1020, corrodes steel at a rate more than 0.250 inches per hour at a test temperature of 130 degrees Fahrenheit or has a pH of between 2 and 12.5.
- Organic peroxide is an organic molecule that has an oxygen-oxygen chemical link.
- A chemical that poses a risk to life or health is considered poisonous.

- Compressed gas is a material that is either a liquid or a gas that is kept under pressure in a container. This includes aerosol cans, lecture bottles, and cylinders. These compounds might be dangerous, inflammable, or neither.
- Cryogenics - extremely cold substances like dry ice, liquid helium, and liquid nitrogen. If these compounds spill in unventilated spaces, they could also pose a threat of asphyxiation.
- Any substance with a specific activity more than 0.002 microcuries per gramme (uCi/g) is considered radioactive.
- Biomedical - human and ape blood, organs, and tissues.

Fig. 7.3.1. Dangerous goods classification

Safety Data Sheet -

A safety and health data sheet, also known as a safety data sheet (SDS), material safety data sheet (MSDS), or product safety data sheet (PSDS), is a written record that provides information on how to stay safe when using various products and chemicals.

• The safety data sheet, formerly known as the material safety data sheet, includes details on each chemical's characteristics. Health and environmental risks; safety precautions; and information on how to handle, store, and transport chemicals.

• Gives hints for each chemical:

1. Equipment for personal protection (PPE)
2. First aid technique
3. Cleaning up a spill

Every employee needs to receive training on how to access, read, and understand safety data sheets.

The safety rules and procedures to be followed in a hazardous cargo warehouse:

A material is considered hazardous if it has the potential to produce consequences like fire, explosion, sudden pressure release, and it also has the potential to cause burns, injuries, convulsions, or even organ damage. Despite numerous obstacles, hazardous materials are necessary at various phases of manufacture and must be kept in a warehouse.

Following are some of the suggestions for handling hazardous material in the warehouse:

Have the right procedures and that works according to the current regulations -

Procedures are made to ensure that the company requirements are met in warehouse. The requirements for safety, to prevent cargo damage, to ensure correct and punctual delivery of goods from warehouse. Meeting all of these requirements is what makes procedures right. Ensure the warehouse is operating the right procedures for cargo and organization requirements.

Staff needs to be certified for handling dangerous goods:

The storage and transport of dangerous goods is a complex practice. It requires detailed understanding and knowledge of the relevant regulations.

The people in the warehouse need to the have the knowledge and skills for dealing with the transportation and security of hazardous materials/dangerous goods.

Only proper trained staff is able to successful apply rules concerning the transport and storage of dangerous goods. Trained staff with the right knowledge and skills know about the risks involved and how to work with these risks, and without training it is extremely difficult to achieve a detailed understanding of the regulations.

Some hazardous goods need to be stored separately as per their classification:

Many dangerous goods are incompatible with other substances. Knowing this is one thing, working in a way that ensures these substances are safely and separately stored is something else. It is a legal requirement that dangerous goods which are not compatible with other substances are stored and handled separately. Avoid interaction that creates serious risks for incidents. A good warehouse and organization know this and uses a barrier or a suitable separation distance to avoid problems.

Documentation should be up-to-date and available to staff at all locations to enable them to perform their role in the quality system:

The people in the warehouse should be aware of the cargo and goods that are stored at any minute. Nobody expects an incident involving dangerous goods but in case it happens, it is better be prepared. Having precautionary statements near the dangerous goods everybody knows that to do when an incident happens. And with proper work instruction cards every employee, even those who are less trained, can follow instruction. Avoid a surprise and have documentation complete.

Below is a ready checklist for associate to refer while conducting the inspection for dangerous /hazardous cargo in warehouse –

Hazardous Material Check List		
1	Product Name	
2	Hazard Class	
3	PPE required to handle	
4	Engineering Controls/ Ventilation	
5	Special Handling Procedures	
6	Storage Requirements	
7	Special Containment	
8	Accident Procedures	
9	Waste Disposal	
10	Special Precautions	
11	Decontamination	
12	Designated Areas	
13	Approved by	

Fig. 7.3.2. Checklist for Dangerous cargo inspection

Notes

UNIT 7.4: 5S Concept

Unit Objectives

At the end of this unit, participant will be able to:

1. Explain the concept of 5S at workplace.

7.4.1 5S at Workplace

5S is a method of workplace organisation that promotes productivity, effectiveness, and safety for workers. This method is intended to keep everything in its proper place and the workplace tidy so that individuals may complete their tasks more quickly and safely.

The term 5S comes from five Japanese words:

- Seiri
- Seiton
- Seiso
- Seiketsu
- Shitsuke

In English, these words are often translated to:

- Sort
- Set in Order
- Shine
- Standardize
- Sustain

Each S stands for a stage in a five-step process that can enhance the operational location's overall functionality.

Numerous advantages of the 5S technique include:

- Low cost
- High quality
- Increased efficiency
- Increase staff satisfaction
- A safer work environment

The 5S method entails evaluating all accessible spaces, getting rid of unneeded items, logically organising everything, carrying out cleaning duties, and continuing this cycle. Clean, organise, then repeat.

Let's examine each component of the 5S in more detail.

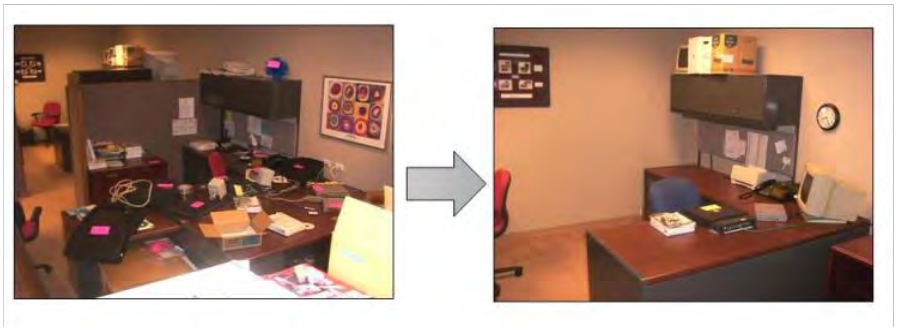


Fig. 7.4.1. 5S at Workplace

1. **Sorting** - The act of discarding away all unwanted, unnecessary, and unrelated materials in the warehouse.

- Classify & sort out
- Remove unnecessary items
- Store as per frequent use/ rare use/ not used at all
- Designate locations for storage
- Monitor progress

Examples: Waste strapping patti and clip, broken pieces of wooden pallets, torn boxes, waster packing material, peeled off BOPP tapes, shrink/stretchable wraps, waste office stationery, waste paper.

2. **Set in Order / Stabilize** - It consists of putting everything in a designated place so that everything can be quickly accessed and quickly returned to the same place.

- Position the items in the warehouse according to their frequency of use.
- Put the frequently used items next to the workplace
- Keep uncommon parts away from the operating location

Examples: GRN, invoice, STN, POD, road permit, LOI and agreement etc. Equipment and assets like HPT, stackers, forklifts, fresh stocks, DOA stocks, restricted and unrestricted stocks, FEs, dust bin, etc. Electrical wiring and fittings should be in intact conditions.

3. **Shine / Cleaning-** It consists of cleaning up the workplace and giving it a 'shine'.

- Cleaning must be done by everyone in the warehouse, from associate to managers (regarding their workplace)
- Every person should ensure that his surrounding place is clean and tidy.
- It works best if every area of the workplace is assigned to a person or a group for cleaning.

Examples: Office area, security area, outside premises, loading and unloading dock/bay, shutters, windows and safety grills, operation table and area, toilets, pantry, DG & meter room, cobwebs, dusting of racks and stock boxes, corners and flooring of warehouse, desks, computers, dustbins, etc.

4. **Standardize** - Standardize is the result that exists when the First Three 'S' - Sort, Set in Order and Shine are properly maintained.

- Proper symmetry (regularity) should be maintained for labeling, nomenclature (categorization), filing, report names, stock boards, signage's, safety posters, stationery management, packing material, pallet size, white boards, address boards, etc.
- Provides a method for preventing errors from happening again and reducing variability.

5. **Sustain/Discipline** - Sustain refers to developing a routine for correctly upholding ethical standards.

- Self-awareness and discipline are necessary to carry out and support all activities.
- A checklist should be drawn up to monitor any activity under 5S
- Make sure everyone follows the rules and makes it a habit
- Creates a common understanding about 5s
- Training for all standards development and success monitoring

Notes

Scan the QR code to watch the related video

https://youtu.be/GFBSmcNRSRk

PPE

https://www.youtube.com/watch?v=kcM9u4heDVk

Warehouse material handling

UNIT 7.5: Managing Breach of Safety, Accidents and Emergency Situations

Unit Objectives

At the end of this unit, participant will be able to:

1. Describe how to handle emergency situations.
2. Explain the steps to be taken in case of any accident.
3. Describe the documentation to be followed in case of any accident.
4. Explain the details on evacuation plan and safe assembly point.

7.5.1 Protocol in case of Emergency Situations

In ideal warehouse should try to prevent accidents from happening as far as possible. Despite all precautions, if accidents still occur, following action needs to be taken.

At the time of incident

- Take control at the scene and try to restore order.
- First aid and emergency calls. Provide immediate assistance to the injured; else call for help. Caring for injured personnel is the top priority.
- Monitor any secondary accidents. This includes banning people who should not be on area. For example, if the spill happened, other employees need not pass by.
- Identify people and conditions on the scene. The people are the witnesses to the event.
- Keep material evidence. Protect the scene and control access again. You do not want to modify or delete any evidence.

Once the immediate emergency is stabilized, the following measures must be taken:

- Assess how much damage is, how severe it can be, and that you need additional resources to investigate.
- Make proper notifications. Make sure senior management is aware. Also call the affected families, any regulatory agencies you need, and your insurance companies.

Other Actions

- The initial report should be completed and submitted for all assessments within 24 hours of the accident.
- Subsequent reports, including recommended actions, should be completed within 48 hours and 30 days.

Finally

- If an accident occurs, it is best to follow a written procedure and learn about the process from staff and management.
- The learning from the incident and how to prevent it in future should be clearly documented.

Below is the standard protocol to be implemented in case of any emergency situation -

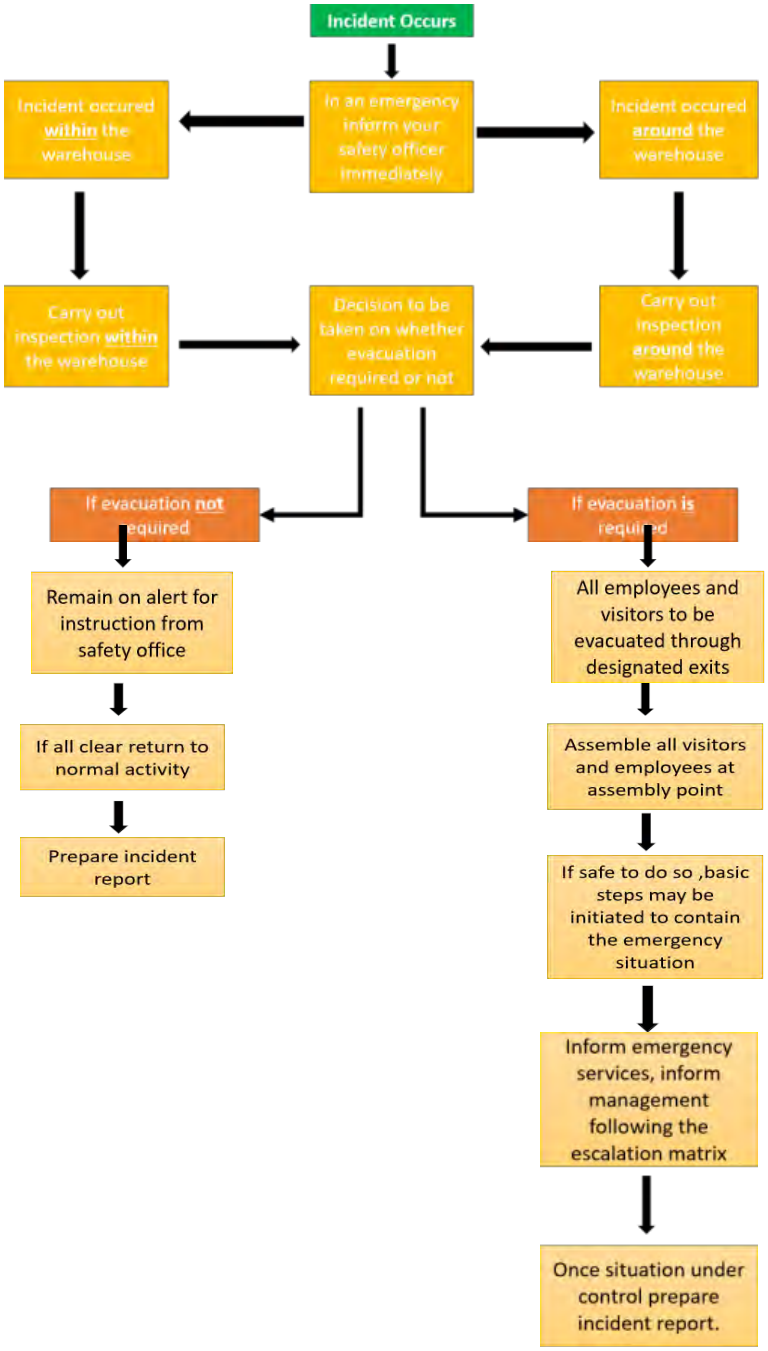
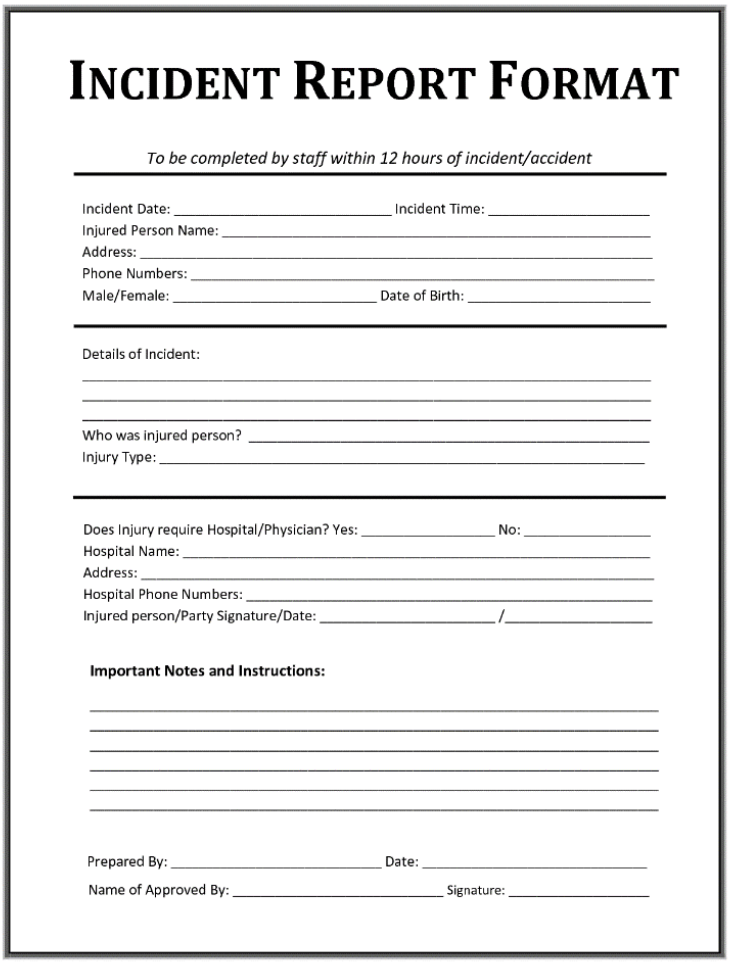


Fig 7.5.1. Flowchart for emergency situation



INCIDENT REPORT FORMAT

To be completed by staff within 12 hours of incident/accident

Incident Date: _____ Incident Time: _____
Injured Person Name: _____
Address: _____
Phone Numbers: _____
Male/Female: _____ Date of Birth: _____

Details of Incident:
_____
_____
_____
Who was injured person? _____
Injury Type: _____

Does Injury require Hospital/Physician? Yes: _____ No: _____
Hospital Name: _____
Address: _____
Hospital Phone Numbers: _____
Injured person/Party Signature/Date: _____ /_____

Important Notes and Instructions:

_____
_____
_____
_____
_____
_____

Prepared By: _____ Date: _____
Name of Approved By: _____ Signature: _____

Fig. 7.5.2. Incident Report Format

Managing Deviations in Health, Safety and Security -

With its wide range of activities, warehousing can lead to a number of dangers and risks. An efficient safety and health management system makes an effort to evaluate each potential safety risk and attempts to implement preventative actions. The management is attempting to shield its most important resource, its employees, as well as other members of the public, from harm by taking this action. Safety precautions defend not only the reputation but also the building, the goods, and the equipment.

- There should be regular inspection with regards to safety and security of the warehouse.
- A periodic checklist should be asked to fill in by the employees with regards to following the safety procedures and their personal hygiene.
- Any employee, if seen violating health and safety norms should be immediately warned. In case if he still does not improve, appropriate actions may be taken.

Tips

- Practicing healthy and hygienic habits every day will improve your mental and physical well-being.
- Since cleanliness accounts for 2/3 of health, maintaining proper hygiene will help you stay strong and healthy!

Notes

Summary

This chapter deals with the health, safety and security norms to be followed within the warehouse to avoid any accidents. 5S is clearly explained and is a helpful tool in organizing the warehouse. Process to be followed while handling hazardous goods is very crucial.

Scan the QR code to watch the related video

https://youtu.be/GFBSmcNRSRk

PPE

https://www.youtube.com/watch?v=kcM9u4heDVk

Warehouse material handling

Exercise

Multiple Choice Questions

1. Which of the following is not an activity to maintain fire safety in the warehouse?
   A. Banning the entry of any match boxes and lighters
   B. Building an emergency response team
   C. Identify the escape routes
   D. Regular inspection and maintenance of forklifts

2. Assigning every area of the workplace to a person or a group for cleaning is part of which S in the 5S methodology
   A. Set in Order
   B. Shine
   C. Standardize
   D. Sort

3. Which of the following is not a part of material safety data sheet?
   A. Properties of the chemical
   B. Storage and handling instructions of the chemical
   C. Price of the chemical
   D. Risk to health of the chemical

4. Which of the following is not a safety hazard?
   A. Employee working for long hours much beyond the shift hours
   B. Employee not being trained on safety procedures
   C. Safety signs not being displayed in the warehouse
   D. Not holding a sunrise or sunset huddle meeting

Fill in the Blanks

1. _____ are the single biggest reason for work related injuries across the world.
2. Removing unnecessary items if the part of _____ S in the 5S at the warehouse.
3. _____in warehouse facilities are formal locations used to recharge Forklifts, BOPT and other Power Equipment.
4. An employee not following safety procedures should be _____.

True or False.

1. Material Safety Data Sheet will carry instructions to clean in case of any spill
2. Conveyors are simple set of rollers and do not pose any threat to the safety of the people working near.
3. It is optional to send an incident report after an accident as long as all the steps have been taken and everything is restored to normal.

Annexure – QR Codes

S.No	Chapter No.	Unit No.	Topics Name	URL	PageNo	QR CODE
1	Chapter no.1 Introduction to Goods Packaging Machine Operator	Unit 1.1: Logistics and Supply Chain Management	1.1.1 Supply Chain and Logistics Management	https://www.youtube.com/watch?v=4QU7WiVxh8	30	Logistics management
2	chapter no1. Introduction to Goods Packaging Machine Operator	Unit 1.1: Logistics and Supply Chain Management	1.1.1 Supply Chain and Logistics Management	https://www.youtube.com/watch?v=lZPO5RclZEo	30	Supply chain management
3	Chapter no.2 Preparation for Packaging	2.1: Preparation for Packaging	2.1.3 Types of Packaging	https://youtu.be/urj Iro_4Ydo	55	Types of packaging
4	Chapter no.3 - Perform Packaging	3.1: Seal the Packages	3.1.2 Conveyors for Packaging	https://youtu.be/bEeAfQredA8	72	Packaging conveyor
5	Chapter no.4 – Labelling	4.1: Prepare for Labelling	4.1.1 Labelling in a Warehouse	https://youtu.be/t7 xM3LTqkI0	86	Safety signs and labels
6	4.Labelling	4.1: Prepare for Labelling	4.1.2 Types of Packaging Labels	https://youtu.be/izeWHwDCUes	86	Safety signs and labels

7	Chapter no.5 - Post packaging activities	5.1: Post Packaging Activities and Inspections	5.1.1. Inspections to be done Post Packaging	https://youtu.be/xP-KBYPf8cM	99	Packaging inspection
8	Chapter no.6- Housekeeping	UNIT 6.1: Preparing for Housekeeping	6.1.1 Housekeeping in Warehouse	https://youtu.be/qPlRi-RWNlY	118	Warehouse cleaning checklist for daily, weekly and monthly
9	Chapter no.7 - Compliance to Health, Safety and Security Norms	7.1: Assess Requirements for PPE – Packaging Machine Operator	7.1.1Personal Protective Equipment	https://youtu.be/GFBSmcNRSRk	144	PPE
10	Chapter no.7 - Compliance to Health, Safety and Security Norms	7.2: Implementing Safety in the Warehouse	7.2.1 Safety and its Criticality	https://www.youtube.com/watch?v=kcM9u4heDVk	148	Warehouse material handling

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