PROJECT REPORT
ON
ABC ANALYSIS IN CORROPACK INDUSTRIES

Submitted by

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In Partial fulfillment for the award of the degree

Of

BACHELOR OF ENGINEERING

IN

MECHANICAL ENGINEERING

UNDER THE GUIDANCE

Of

PROF.ASLAM HIRANI

Co-Guide -Dr.Mohd. ASIF GANDHI

DEPARTMENT OF MECHANICAL ENGINEERING

Anjuman-I-Islam's

KALSEKAR TECHNICAL CAMPUS

NEW PANVEL

NAVI MUMBAI – 410206

UNIVERSITY OF MUMBAI

ACADEMIC YEAR 2019-2020

INTERNAL EXAMINER PROJECT COORDINATOR

Anjuman-I-Islam's
KALSEKAR TECHNICAL CAMPUS

(Approved by AICTE, recog. By Maharashtra Govt.DTE,
Affiliated to MUMBAI UNIVERSITY)

Plot No. 2 & 3, Sector - 16, Near Thana Naka, Khandagaon,
New Panvel, Navi Mumbai, Maharashtra – 410206

CERTIFICATE

This is to certify that the project entitled

ABC ANALYSIS IN CORROPACK INDUSTRIES

submitted by

SAHIL SHAIKH	**(16ME83)**
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Of the Kalsekar Technical Campus, New Panvel is a record of bonafide work carried out by them under supervision and guidance, for partial fulfillment of the requirements for the award of the degree of Bachelor of Engineering in Mechanical Engineering as prescribed by University Of Mumbai is approved.

Prof.Aslam Hirani	Prof.Zakir Ansari	Dr.Abdul Razzak
(Project Guide)	(HOD) (Mechanical Department)	(HOD)

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DISSERTATION APPROVAL SHEET

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Is approved for the Degree of Bachelor of Engineering, in Mechanical Engineering from University of Mumbai.

Internal Examiner **Seal of the Institute**

DEDICATED
TO
OUR PARENTS

ACKNOWLEDGEMENT

We are grateful and would like to express our sincere gratitude to our supervisor Professor **Aslam Hirani** for his germinal ideas, invaluable guidance, continuous encouragement and constant support in making this research possible. We also sincerely thank him for the time spent proofreading and correcting our many mistakes. We really appreciate the consistent support from the first day we applied to this study to these concluding moments. We are truly grateful for his progressive vision about our training in science.

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We acknowledge our sincere indebtedness and gratitude to our parents for their love, dream and sacrifice throughout our life, which consistently encouraged us to carry on our higher studies in Mumbai University.

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INTRODUCTION

CORROPACK INDUSTRIES

Established in the year 1983**, 'Corropack Industries',** are instrumental in manufacturing and supplying a wide range of quality **corrugated rolls, corrugated boxes and corrugated packaging sheets in Navi Mumbai, Maharashtra.** They take it as our responsibility to deliver best-in-class products and solutions to the esteemed patrons. Also, they have emerged as a trusted name engaged in offering quality packaging material to the customers as per their exact requirements. Corrugated boxes & rolls offered by us are widely appreciated in the market for their reliability, dimensional accuracy, light weight, high endurance and good load bearing capacity. These products are manufactured using quality and other raw material, sourced from the trusted market vendors.

The products offered by them can be utilized for packing medicines, food products, glass & other delicate items. We have been supported by a team of experienced and dedicated professionals, which helps them in efficiently handling all our business operations. Moreover, they are in possession of sophisticated facilities that help us manufacture the products in compliance with set industry standards. Before dispatching the products in the market, their quality experts test these on various defined parameters. Owing to all these factors, they have been able to gain the trust and confidence of their valuable customers.

They have been able to progress in this highly competitive market under the expert supervision of their mentor, **'Mr. Sanjeev Upalekar'.** His vast knowledge of the packaging industry has helped them in offering superior quality products to the customers. They advocate the environmental benefits of corrugated packaging and offer the best-in-class range to the customers. These products are manufactured using quality raw material and latest technology & equipment. Our team understands the market demand and offers the products accordingly. Moreover, they check these products on various quality parameters to ensure that our customers receive a flawless range from our end. Owing to their reliability, excellent load bearing capacity and dimensional accuracy, these products are widely demanded in medicines, food, glass

making & other related industries.

CORRUGATED BOXES: MANUFACTURING PROCESS

Corrugated boxes are made in box plant factories. Designed to be strong, they are comprised of corrugated paperboard, which contains air columns. These columns act as cushion, making the box more secure and protecting whatever it is the box is meant to hold safely.

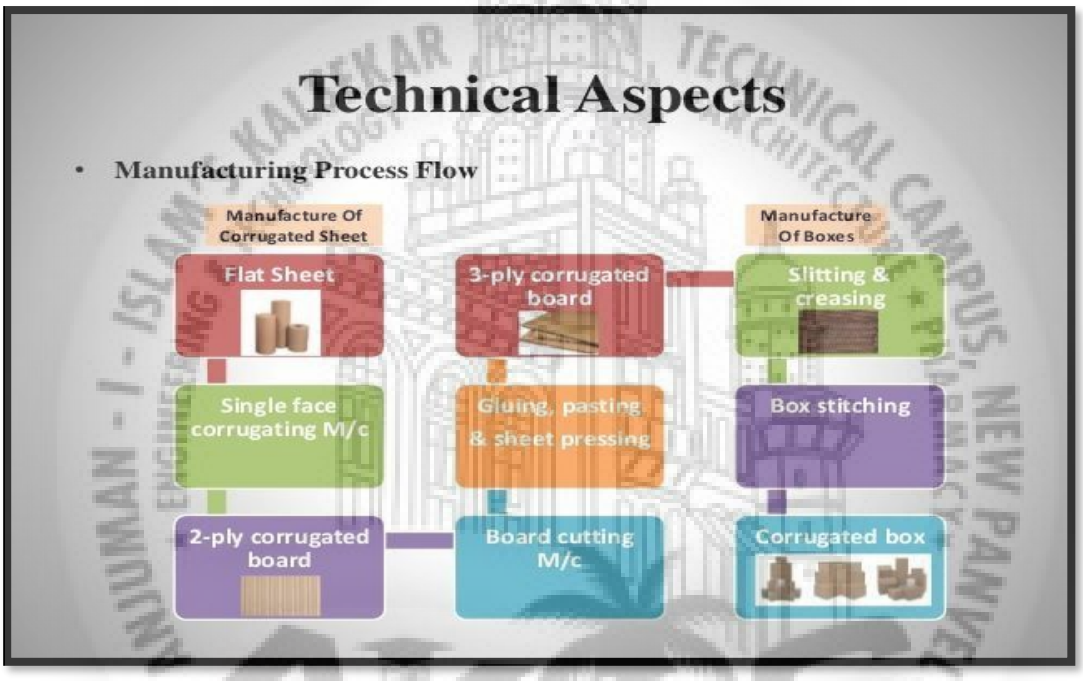


Fig.1 Manufacturing Flow

Before a manufacturer builds a box, he must take into consideration the size, shape, strength, color, flutes, and the coatings. Depending on the required strength of the box, corrugated boxes may be made of one, two, or three layers of flutes and liners.

The key raw material in corrugating is paper. Different grades of paper comprise each layer that makes up a corrugated box.

The process begins by making corrugated board on a corrugating line, a long series of linked machines totaling the size of a football field. Paper is fed into the corrugator, where it is steam-heated and pressed to form corrugated cardboard. One roll of cardboard is corrugated and then glued between two other layers. Corn starch glue bonds the corrugated medium (wavy layer) to the liners (layers of paper). Two liners and a corrugated medium make up your standard three-layer corrugated board.

The medium is first fed through the preheating rollers, then into the corrugating rollers. Steam is forced through both sets of rollers at 175- 180psi. As the paper passes through, temperatures reach 350-365 degrees Fahrenheit.

The corrugated rolls are then covered with IO flutes. The size of the flute changes the width of the corrugated medium. When the hot paper passes between the corrugating rolls, flutes trap and bend it to form the middle of the corrugated cardboard. A finished piece of corrugated cardboard is comprised of a single corrugated layer sandwiched between two liners.

Next, the corrugated medium goes to the single-facer glue station where one layer of liner is glued to the medium. Then the medium and liner go to the double backer glue station where the layer from the bridge is added.
The cardboard is then passed over steam-heated plates, which cure the glue.

At the end of the corrugator, the cardboard is trimmed and cut into large sheets, or box blanks, which then slide into a stacker that loads them onto a platform.

Skilled workers prepare job tickets for each stack of box blanks and route the blanks to fabrication machines. Printing dies and patterns are prepared on large, flexible, rubber or tin sheets. They are loaded onto rollers and the box blanks are fed through it, where each is trimmed, printed, cut, scored, folded, and glued to form a box. Finished boxes are then stacked and sent to a banding machine to be wrapped and shipped.

CORRUGATED BOXES: USES

Popular for their strength, durability, lightness, recyclability, and cost-effectiveness, corrugated boxes are used for the shipping of a variety of items. Due to the quality and safety of packaging items in corrugated boxes, they are used widely in the food industry. The boxes handle the pressure that comes with stacking, making them ideal for easy transporting.

1.1 PROBLEM DEFINITION:

"Improper management of raw material and finished products."

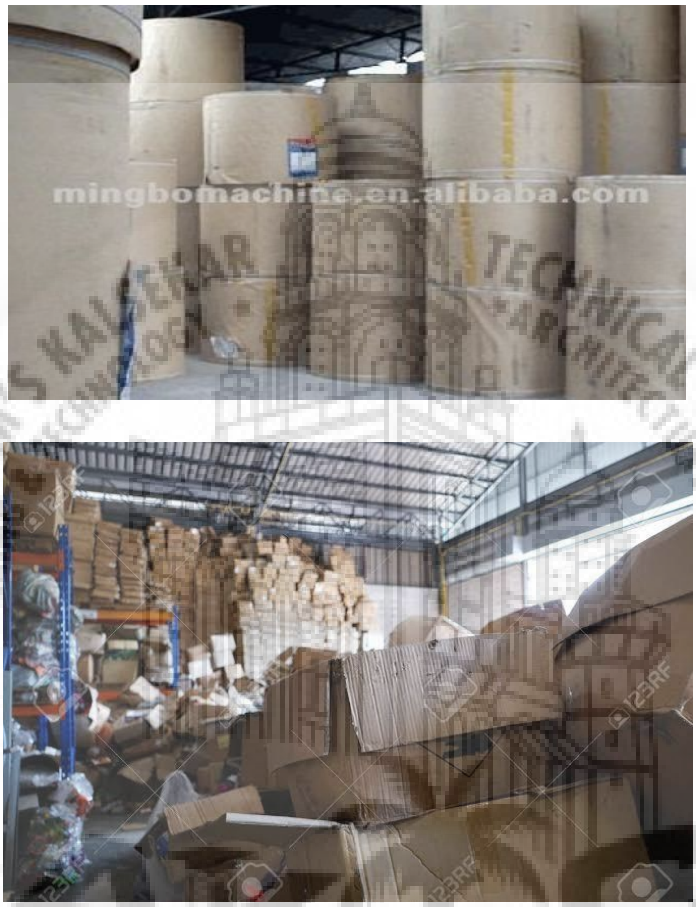


Fig.2. Raw material

After visiting many industries in the MIDC areas of Taloja, Mahape and Rabale we got the problem in Corropack industries in Rabale on which we can do our project. We have visited the Corropack industries on 20th august 2019. In that visit we got the knowledge of how corrugated boxes are made. In our first visit we observe the process of manufacturing. We saw all the process from starting of sheet rolling to end of the finishing product. After this visit we analyzed and found that there is improper management of raw material and finished product. Due to which they are having a space problem for finished products as well as for handling of raw materials.

1.2 AIM/PURPOSE OF STUDY/OBJECTIVES

Aim

The main aim of this project is to highlight the importance of raw material management as raw material make considerable percentage of total cost of manufacturing process.

Purpose of study

Its main purpose of study is to achieve economy by efficiently managing the raw materials. As we have studied the **ABC analysis** in PRODUCTION PROGRAMING AND CONTROL for inventory management hence, we decided to apply this technique of analysis in our project.

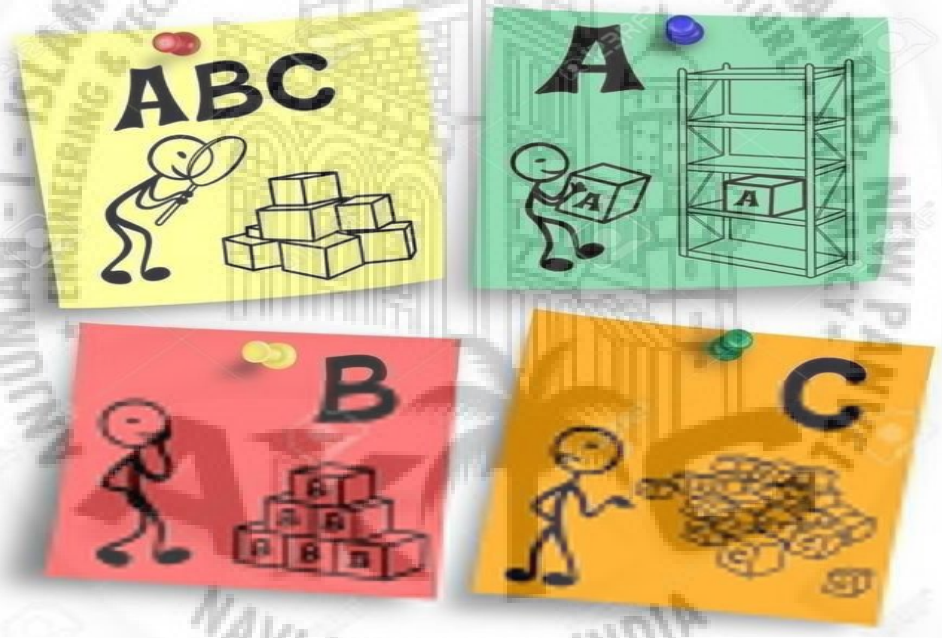


Fig.3.ABC Analysis

Objectives

- This process will define the areas generating maximum profit to the company in a better way.
- It will aids stringent and better controls of high priority inventory.
- Good supplier relation.
- Proper material handling.

CHAPTER NO: 2

LITERATURE SURVEY

One of the primary concerns on performance measurement is to know how much a particular project cost. However, using traditional method on project-based products often leads to inappropriate results. In this paper, they re-examine this issue by comparing the cost of a power station construction project using ABC versus traditional method. The results of survey show that ABC method is capable of providing better estimates for overhead costs compared with traditional method. In other words, ABC method helps reduce some of the unnecessary overhead cost items and increase on some other cost components. **(An ABC analysis for power generation project, Batool Hasania and Younos Vakilalroaiab, iraq February 12, 2013).** ABC analysis is an important tool used worldwide, identifying items that need greater attention for control. It is also known as "separating the vital few from trivial many".

The study was conducted in the cath lab stores of Nizam's Institute of Medical Sciences, a 1300 bedded tertiary care teaching hospital in Hyderabad. The following results were observed **(A Study and Discussion on ABC Analysis of Stores at Nizam's Institute Of Medical Sciences, A 1300 Bedded Tertiary Care Teaching Hospital At Hyderabad.).** Inventory management of raw material is an important part of any manufacturing company, especially for capital cost point of view and the unusual or non-active raw material in inventory is wastage of money for raw material capital cost, especially in small scale industry.

Based on the inventory management methods, some inventory management concepts were considered to minimize the uncertainty raw material capital costs and also improve the raw material purchasing strategy to improve their inventory performance. On the basis of a case analysis for an Induction Cooking Equipment Company which is located in Bangalore, some attempts were made to achieve the goal of minimizing raw material cost, inventory from purchasing activities and purchasing strategy points of view. **(An ABC- Analysis and JIT purchasing Implementation for Optimization of Non- Active Raw Materials in Inventory Management)**

One of the primary concerns on performance measurement is to know how much a particular project cost. However, using traditional method on project-based products often leads to inappropriate results. In this paper, we re-examine this issue by comparing the cost of a power station construction project using ABC versus traditional method. The results of survey show that ABC method is capable of

providing better estimates for overhead costs compared with traditional method. In other words, ABC method helps reduce some of the unnecessary overhead cost items and increase on some other cost components. This helps increase the relative efficiency of the system by reducing total cost of project**(An ABC analysis for power generation project Batool Hasania and Younos Vakilalroaiab)**

An inventory management is most commonly used technique to manage inventory efficiently. There are several techniques to classify the inventory items the most classification technique is ABC analysis. In ABC analysis the items are classified into A, B & C classes based on the total cost usage. Data collection is mainly of 1 year through the general store manager and other staff involved in inventory control operation of sponge iron plant Rasmada.(**ABC Analysis for Inventory Management-Case Study of Sponge Iron**. ***PlantYogesh kumar1 , Ashok lilhare2 , Amit Sahu3, Bhushan lal4 , Yushwant khaperde 5)***

ABC analysis is a well-established categorization technique based on the Pareto Principle for determining which items should get priority in the management of a company's inventory. In discussing this topic, today's operations management and supply chain textbooks focus on dollar volume as the sole criterion for performing the categorization. The authors argue that today's businesses and supply chains operate in a world where the ability to deliver the right products rapidly to very specific markets is key to survival. With suppliers, intermediaries, and customers all over the globe, and product lives decreasing rapidly, this focus on a single criterion is misplaced. The large body of research was summarized based on multiple criteria ABC analysis that has accumulated since the 1980s and recommend that textbooks incorporate their key findings and methods into their discussions of this topic. Suggestions are offered on how this discussion might be structured**.(ABC Analysis For Inventory Management: Bridging The Gap Between Research And Classroom.*Handanhal Ravinder, Montclair State University, USA Ram B. Misra, Montclair State University, USA*)**

CHAPTER NO: 3

METHODOLOGY

Methodology:

In manufacturing industry, an organization requires to maintain a proper balance between critical stock-out and reducing inventory costs. Material cost sums up to be more than 50% of the total cost which demands for the need of managing materials. Estimation is an integral part of material management. Material management is a balancing act. It is harmonizing the functions liable to plan and control the material flow. It maximizes the usage of firm's resources and deliver the essential level of customer's service and gives great profits to the organization. The performance of the process is dependent on the flow of materials. Selective control is required in certain extents of material management like in inventory, items criticality, outdated stocks, inspection, purchasing order and receipt of materials, store-keeping and verification of bills. It becomes nearly impossible to keep in check the numerous items. This calls the need for material management.

ABC Analysis:

ABC analysis is a simple and analytical management tool. ABC analysis is a technique of categorizing inventory items according to their substantial impact on the overall expenditure of an organization. It grants a solution to faulty inventory administration within the purchased items or availed services. It is based on the Pareto Principle which states that "80% of the overall consumption value is based on only 20% of total items".

The breakdown suggests that the inventories are of different values; hence it necessitates different tactics and management controls. The arrangement of categories is based on its anticipated value. ABC analysis is an "inventory categorization method" which entails the dividing items
into three categories, A, B and C: "A" contains the "most valuable items" and "C" consist the "least valuable items", whereas "B" contains items ranging between "A" and "C". It aims to focus on the critical few (A-items) and not on the trivial many (C-items). In this analysis, various items are listed according to their total usage; unit cost and then total cost of items are calculated. Different parameters are listed in tabular format which make it easy for classifying items according to their cost and usage.

This approach states that, when reviewing inventory, items should be rated among A to C by the firm, establishing its ratings on the following rules:

1. A-items:

These items have the "highest annual consumption value" of goods i.e. 70%- 80% of the annual consumption value of the company. Ironically, it accounts only 10%-20% of the total inventory items. They require stringent inventory control, more protected storage areas and improved sales forecasts, re-orders should be frequent, with weekly or even daily reorder; avoiding stock-outs on A-items is a priority.

2. B-items:

These are the interclass items, having medium consumption value i.e. 15%-25% of annual consumption value. It consumes around 30% of the total inventory items.

3. C-items:

These items have the "lowest annual consumption value" of goods i.e. 10%- 15% of the annual consumption value. On the contrary, it accounts for 50% of the total inventory items.

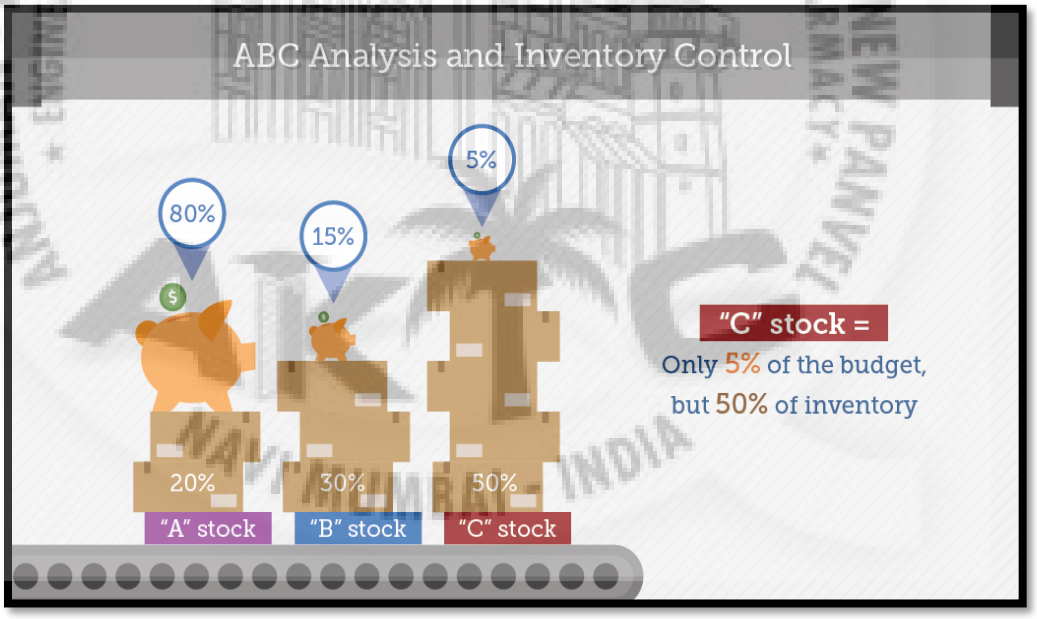


Fig.4. ABC Analysis and Inventory Control

The idea behind using the ABC analysis is to leverage the imbalances of sales. This means that each item must be given the appropriate amount of weight depending on their class:

Item A:

a) These are subjected to strict inventory control and are given highly secured areas in terms of storage

b) These goods have a better forecast for sales

c) These are also the items that require frequent reorders on a daily or a weekly basis

d) They are kept as a priority item and efforts are made to avoid unavailability or stock-out of these items

Item B:

a) These items are not as important as items under section A or as trivial as items categorized under C

b) The important thing to note is that since these items lie in between A and C, they are monitored for potential inclusion towards category A or in a contrary situation towards category C

Item C:

a) These items are manufactured less often and follow the policy of having only one of its item on hand or in some cases they are reordered when a purchase is actually made

b) Since these are low demand goods with a comparatively higher risk of cost in terms of excessive inventory, it is an ideal situation for these items to stock-out after each purchase

c) The questions managers find themselves dealing with when it comes to items in category C is not how many units to keep in stock but rather whether it is even needed to have to these items in store at all

Steps for the Classification of Items

Following are the steps for the classification of items by ABC analysis:

The annual consumption value = (Annual Demand) x (Item Cost per Unit)

1. The unit cost and the demand of each item is obtained over a given period.

2. Multiply the unit cost by the calculated annual usage to obtain the net cost.

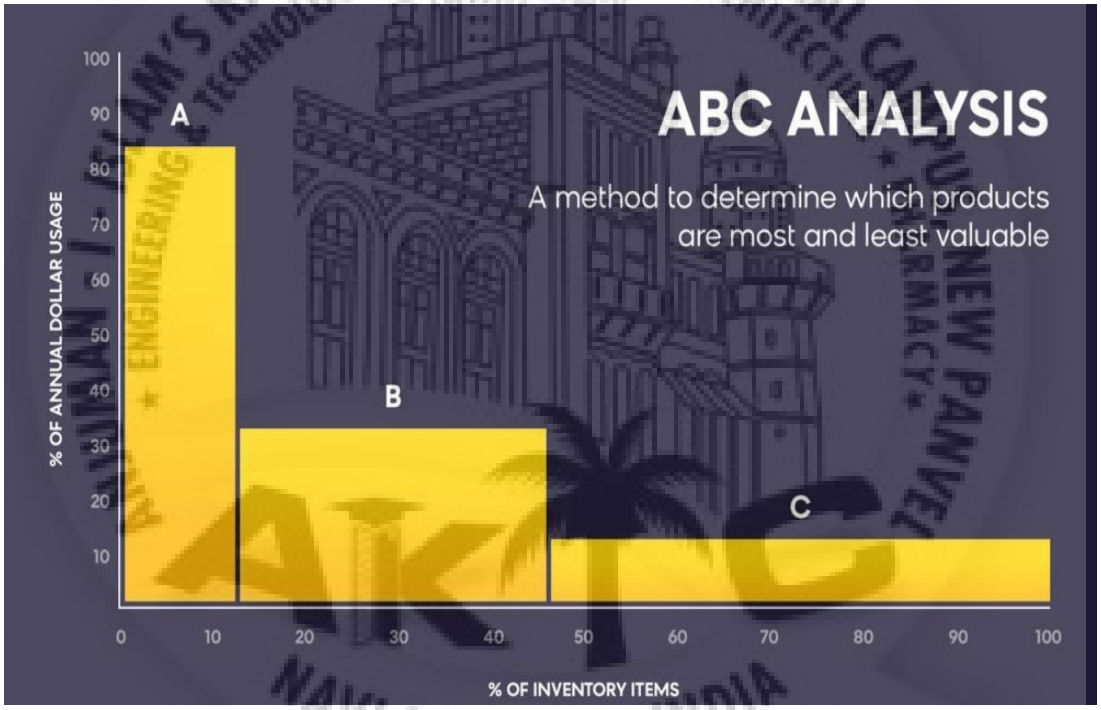


Fig.5.Graph

3. All the items are listed out and arranged in a descending annual cost.

4. Sum up the cost and add up the number of items then, compute percentage on the total inventory of total cost and for total number of items consumed.

5. Draw a graph of percentage items vs percentage cost.

6. Mark from the curve the rational limits of A, B and C categories

CHAPTER NO. 4

CALCULATIONS

In company there are three main types of boxes are made

- 3-ply
- 5-ply
- 7-ply

- After communicating with manager we got the following data related with the weights of boxes.
  - 3-ply(450 gm)
  - 5-ply(600gm)
  - 7-ply(750 gm)

Materials	3-ply (gm)	5-ply (gm)	7-ply (gm)
Sheet	350	490	630
Glue(starch)	60	70	80
Brass pin	12	12	12
Lamination	10	10	10
Rust proofing	10	10	10
Printing(ink)	08	08	08

Usage of component per box

Percentage of contribution of usage of materials per boxes:

Percentage of contribution in usage = $\frac{contribution\ of\ material\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

By using above formula we can calculate the % of contribution of materials on the basis of usage per box.

For example; for 3-ply

contribution of sheet in % = $\frac{weight\ of\ sheet\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{350}{450} \times 100$

$= 78\%$

contribution of glue in % $= \frac{weight\ of\ glue\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{60}{450} \times 100$

$= 13\%$

contribution of lamination in % $= \frac{weight\ of\ lamination\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{10}{450} \times 100$

$= 2.72\%$

contribution of brass pin in % $= \frac{weight\ of\ brass\ pin\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{12}{450} \times 100$

$= 2.66\%$

contribution of printing(ink) in % $= \frac{weight\ of\ printing(ink)\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{8}{450} \times 100$

$= 1.77\%$

contribution of rust proofing in % $= \frac{weight\ of\ rust\ proofing\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{10}{450} \times 100$

$= 2.22\%$

Similarly for 5-ply,

contribution of sheet in % $= \frac{weight\ of\ sheet\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{490}{600} \times 100$

$= 82\%$

contribution of glue in % $= \frac{weight\ of\ glue\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{70}{600} \times 100$

$= 11\%$

contribution of lamination in % $= \frac{weight\ of\ lamination\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{10}{600} \times 100$

$= 1.66\%$

contribution of brass pin in % $= \frac{weight\ of\ brass\ pin\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{12}{600} \times 100$

$= 2\%$

contribution of rust proof in % $= \frac{weight\ of\ rust\ proofing\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{10}{600} \times 100$

$= 1.66\%$

contribution of printing(ink) in % $= \frac{weight\ of\ \text{printing(ink) per}\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{8}{600} \times 100$

$= 1.33\%$

Similarly for 7-ply,

contribution of sheet in % $= \frac{weight\ of\ sheet\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{630}{750} \times 100$

$= 84\%$

contribution of glue in % $= \frac{weight\ of\ glue\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{80}{750} \times 100$

$= 10.66\%$

contribution of lamination in % $= \frac{weight\ of\ lamination\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{10}{750} \times 100$

$= 1.33\%$

contribution of brass pin in % $= \frac{weight\ of\ brass\ pin\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{12}{750} \times 100$

$= 1.6\%$

contribution of rust proofing in % $= \frac{weight\ of\ rust\ proofing\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{10}{750} \times 100$

$= 1.6\%$

contribution of printing(ink) in % $= \frac{weight\ of\ printing(ink)\ per\ box\ in\ gram}{total\ weight\ of\ box\ in\ gram} \times 100$

$= \frac{8}{750} \times 100$

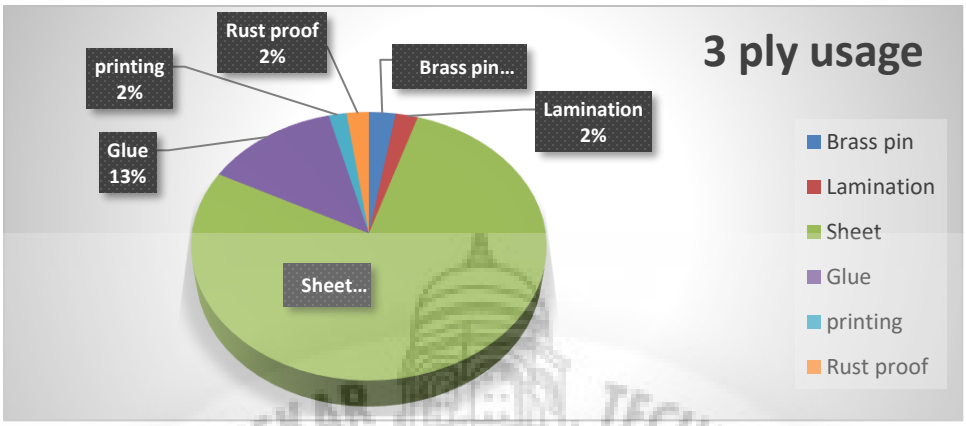
$= 1.06\%$

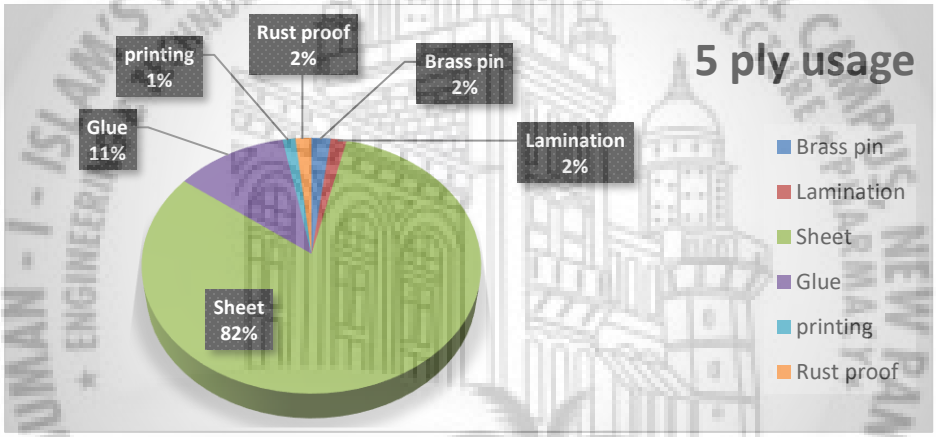
After calculating percentage for usage of materials for making a single box we get the following data;

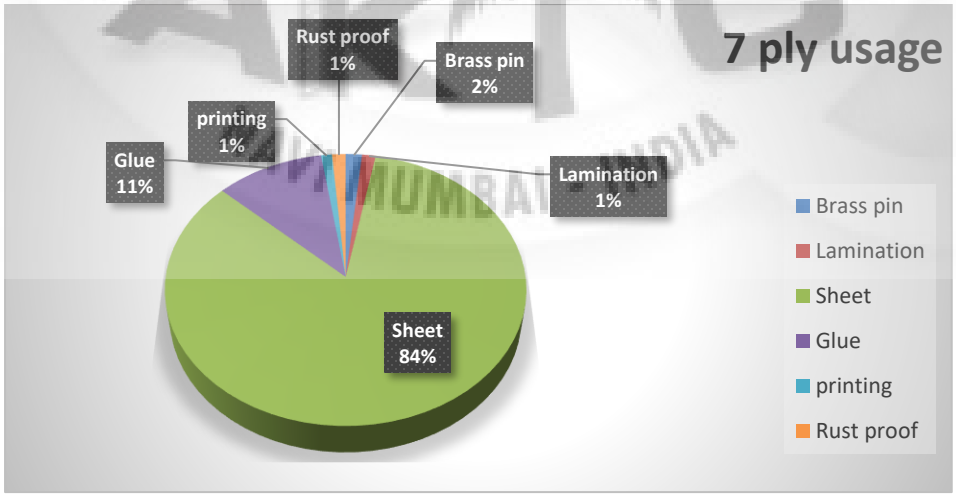
Materials	3-ply (%)	5-ply (%)	7-ply (%)
Sheet	78	81.66	84
Glue(starch)	13	11.66	10.66
Brass pin	2.72	1.66	1.33
Lamination	2.66	2	1.6
Rust proofing	2.22	1.66	1.6
Printing(ink)	1.77	1.33	1.06

Usage of component per box in percentage

Pie chart of percentage of usage of material per box is as follows;







As now we will calculate the percentage of cost contributed by material per box,

From company we got the following data;

Materials	3-ply (rupees)	5-ply (rupees)	7-ply (rupees)
Sheet	14.50	20.50	24.50
Glue(starch)	2	2.25	2.50
Brass pin	4	4	4
Lamination	4	4	4
Rust proofing	1	1	1
Printing(ink)	1	1	1
Total cost	26.50	32.75	37

cost of component per box

by using percentage formula we can calculate the percentage cost contribution of material

Percentage of contribution cost by material = $\frac{cost\ of\ material\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

Therefore for 3-ply boxes;

Percentage of contribution cost by sheet = $\frac{cost\ of\ sheet\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{14.50}{26.50} \times 100$

$= 55\%$

Percentage of contribution cost by glue = $\frac{cost\ of\ glue\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{2}{26.50} \times 100$

$= 7\%$

Percentage of contribution cost by brass pin = $\frac{cost\ of\ brass\ pin\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{4}{26.50} \times 100$

$= 15\%$

Percentage of contribution cost by lamination = $\frac{cost\ of\ lamination\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{4}{26.50} \times 100$$

$$= 15.\%$$

Percentage of contribution cost by rust proof = $\frac{cost\ of\ rust\ proof\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{1}{26.50} \times 100$$

$$= 4\%$$

Percentage of contribution cost by print = $\frac{cost\ of\ print\ \ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{1}{26.50} \times 100$$

$$= 4\%$$

Therefore for 5-ply boxes;

Percentage of contribution cost by sheet = $\frac{cost\ of\ sheet\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{20.50}{32.75} \times 100$$

$$= 63\%$$

Percentage of contribution cost by glue = $\frac{cost\ of\ glue\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{2.25}{32.75} \times 100$$

$$= 7\%$$

Percentage of contribution cost by brass pin = $\frac{cost\ of\ brass\ pin\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{4}{32.75} \times 100$$

$$= 12\%$$

Percentage of contribution cost by lamination = $\frac{cost\ of\ lamination\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{4}{32.75} \times 100$$

$$= 12\%$$

Percentage of contribution cost by rust proof = $\frac{cost\ of\ rust\ proof\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{1}{32.75} \times 100$

$= 3\%$

Percentage of contribution cost by print = $\frac{cost\ of\ print\ \ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{1}{32.75} \times 100$

$= 3\%$

Therefore for 7-ply boxes;

Percentage of contribution cost by sheet = $\frac{cost\ of\ sheet\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{24.50}{37} \times 100$

$= 64.80\%$

Percentage of contribution cost by glue = $\frac{cost\ of\ glue\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{2.5}{37} \times 100$

$= 6.7\%$

Percentage of contribution cost by brass pin = $\frac{cost\ of\ brass\ pin\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{4}{37} \times 100$

$= 10.81\%$

Percentage of contribution cost by lamination = $\frac{cost\ of\ lamination\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$= \frac{4}{37} \times 100$

$= 10.81\%$

Percentage of contribution cost by rust proof = $\frac{cost\ of\ rust\ proof\ per\ box\ in\ rupees}{total\ cost\ of\ box\ in\ rupees} \times 100$

$$= \frac{1}{37} \times 100$$

$$= 2.7\%$$

Percentage of contribution cost by print = $\frac{cost\ of\ print\ \ per\ box\ in\ rupees}{total\ cost\ of\ \ box\ in\ rupees} \times 100$

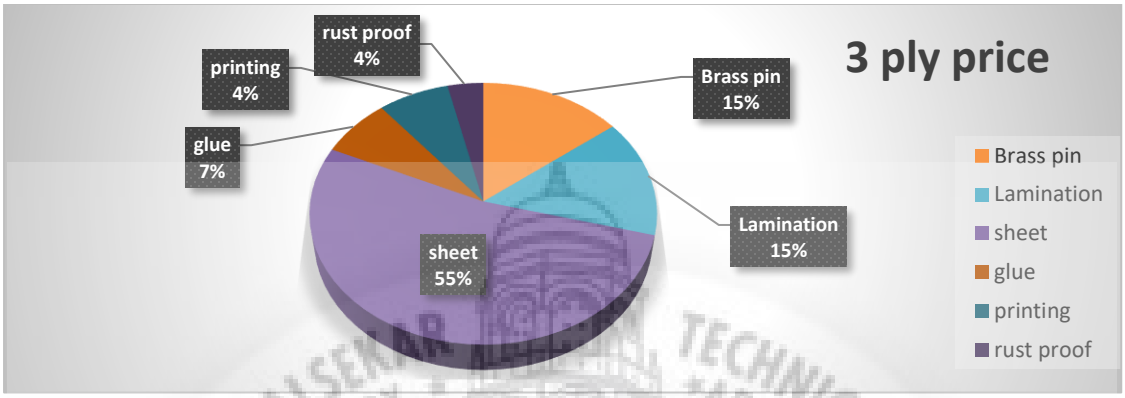
$$= \frac{1}{37} \times 100$$

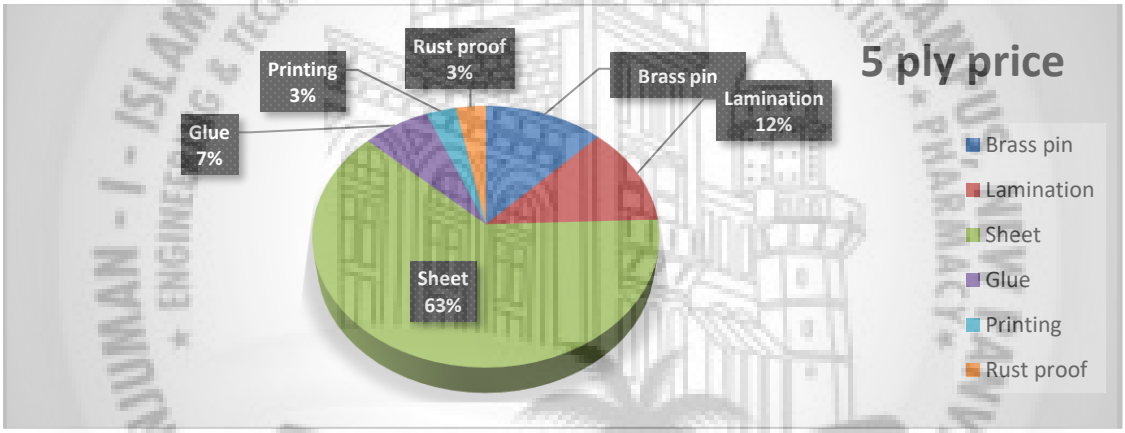
$$= 2.7\%$$

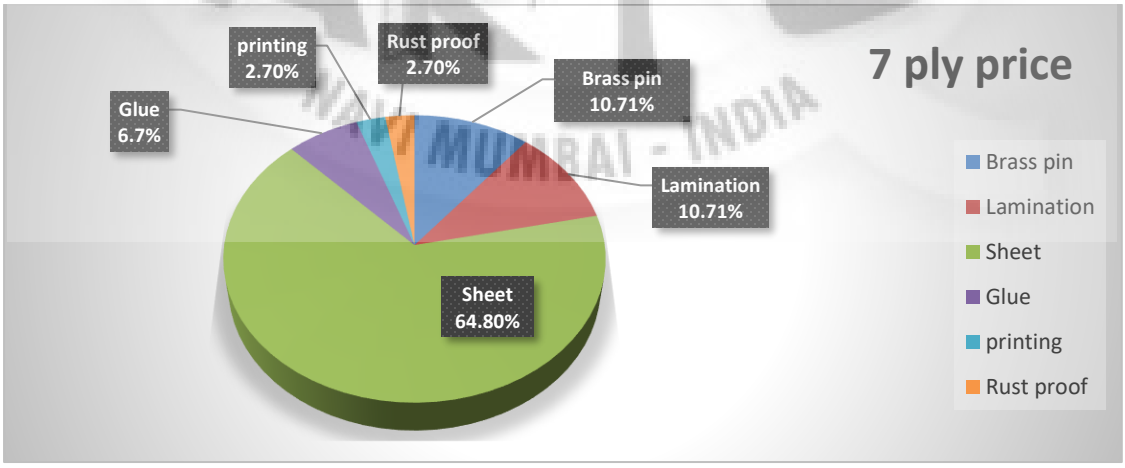
After calculating % cost we got the following data;

Materials	3-ply (%rupees)	5-ply (%rupees)	7-ply (%rupees)
Sheet	55	63	64.80
Glue(starch)	7	7	6.7
Brass pin	15	12	10.81
Lamination	15	12	10.81
Rust proofing	4	3	2.7
Printing(ink)	4	3	2.7
Total % cost	100	100	100

Pie chart for the cost percentage of materials per box is as follows;





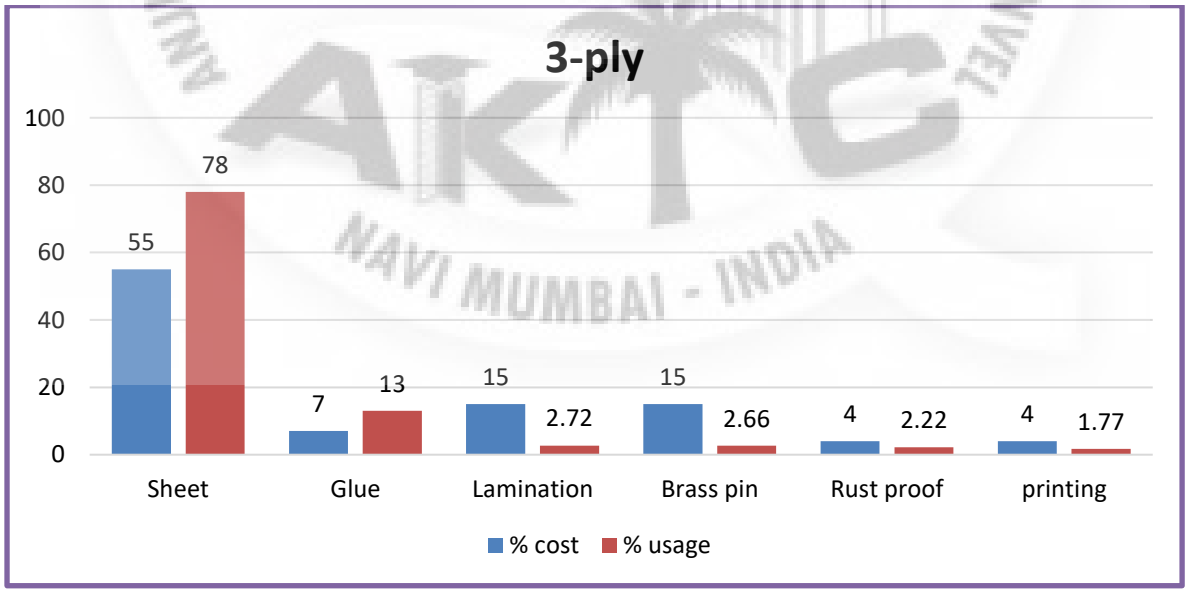


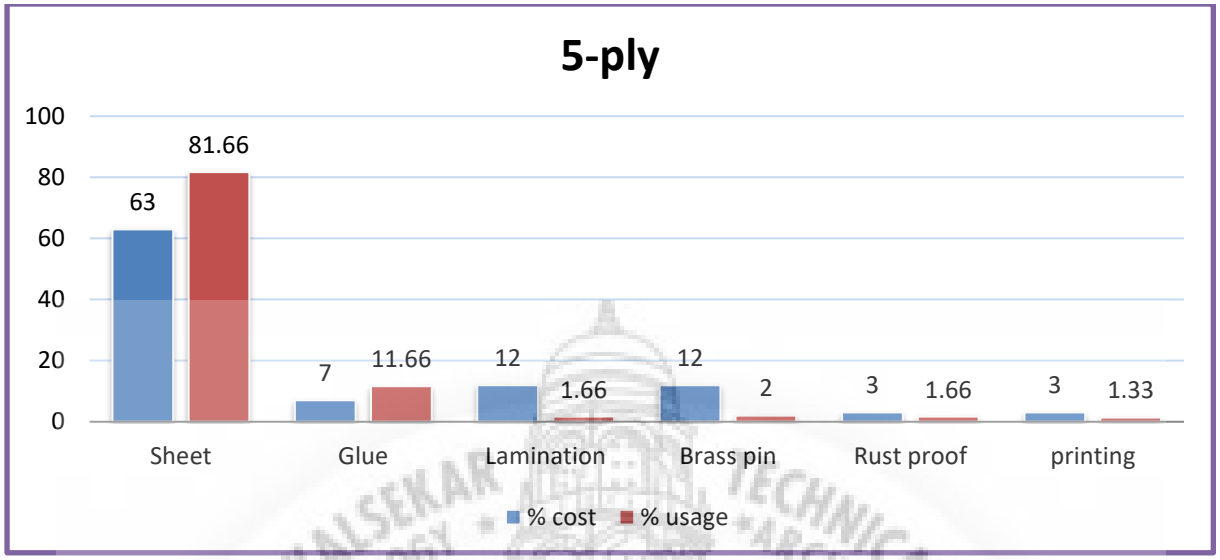
After calculating the percentage of usage of material and cost of material per box we got the following data;

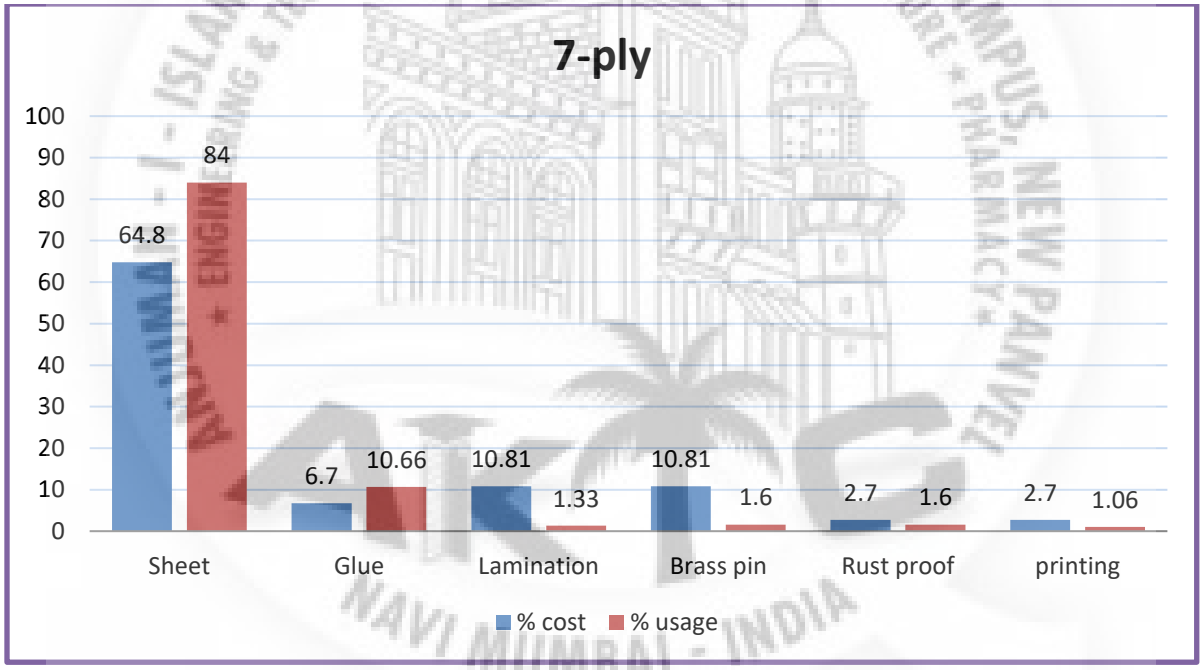
Materials	3-ply (%cost)	5-ply (%cost)	7-ply (%cost)	3-ply (%usage)	5-ply (%usage)	7-ply (%usage)
Sheet	55	63	64.80	78	81.66	84
Glue(starch)	7	7	6.7	13	11.66	10.66
Brass pin	15	12	10.81	2.72	1.66	1.33
Lamination	15	12	10.81	2.66	2	1.6
Rust proofing	4	3	2.7	2.22	1.66	1.6
Printing(ink)	4	3	2.7	1.77	1.33	1.06
Total %	100	100	100	100	100	100

Percentage contribution by material in terms of cost and usage per boxes

The graph we got from this is as follows;







CHAPTER NO: 5

RESULTS AND CONCLUSION

After observing all the observations and calculations we have decided to classify the given materials into three categories i.e. A B and C.

Material	Classification into A B and C
Sheet	B
Glue	C
Lamination	A
Brass pin	A
Rust proof	C
Printing(ink)	C

CONCLUSION

The ABC model works in a manner as to get prime attention to the important items or the critical few and not have unnecessary attention be spent on the not so important items or the trivial many. Each category has a differing management control in place.

This prioritization of attention and focus is vital to keep the costs in check and under control in the supply chain system. To get the best results it is important that items that involve a lot of costs are given the due management attention.

CHAPTER NO: 6

BENEFITS AND LIMITATIONS

4.1 Benefits of ABC Analysis

ABC analysis is beneficial in the following ways:

1. It is a technique of allocating direct and overhead expenditures first associated with the critical activities of the firm. This process defines the areas generating maximum profit to the company in a better way.
2. It aids stringent and better controls of high-priority inventory.
3. It promotes efficient use of its resources to prioritize control of inventory over its impact on final outcome.
4. Resource allocation is more efficient during cycle counts.
5. Its objective is to achieve economy by efficiently managing the materials.
6. It safeguards control over expensive items in which a hefty amount is invested.
7. Clerical costs are substantially reduced and stock is retained at optimum level

4.2 Limitations of ABC Analysis

Following are the limitations of ABC analysis:

1. Conflict with other cost systems. ABC cost allocation differs from the traditional cost system allocation.
2. This method needs more resources to maintain compared to the traditional costing systems.
3. This is a continuous process which needs added data measurement and collection.
4. It needs periodical assessment and updating.
5. This analysis is built on the monetary value of the materials in use. Other important factors one ignored.

CHAPTER NO: 7

EXPECTED OUTCOME

The Expected outcome after the application of ABC Analysis iin Corropack Industries would be as follows:

- Reduction in investment
- Minimum storage cost
- Strict Control
- Saving in Time

Fig.6. Reducing Cost

Fig.7.Saving in time

CHAPTER NO: 8

TOTAL COSTING OF THESIS

The total costing of thesis includes:

- Black book : Rs.500
- Travelling cost : 400 per head.
- Miscellaneous cost : 100 per head.
- Paper Published : Rs. 1500

Grand total cost : 4000 rupees

CHAPTER NO: 9

REFERENCES

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