Summer training at

Group pharmaceuticals limited, Bengaluru

(April 1 - May 31, 2019)

Operational efficiency improvement

By

Melvin philip

Under the guidance of

Dr. Saurabh Kumar Banerjee

MBA Pharmaceutical Management

2018-2020

School of Pharmaceutical Management

IIHMR Jaipur

2019

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that **Melvin Philip** has undergone Summer Training at**Group Pharmaceutical Limited, Bengaluru, India**from 1st April 2019 to 31st May 2019.

The candidate himself/herself completed the project assigned to him/her in Summer training. His/her approach to project was sincere and proactive. This Summer Training is in partial fulfillment of the course requirement recommended for the award of MBA in Hospital and Health Management/Pharmaceutical Management/Rural Management.

I wish him/her success in all his/her future endeavors.

Dr. Saurabh Kumar Banerjee
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IIHMR University, Jaipur

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healthy smiles matter

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Date: 31.05.2019

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **MR. MELVIN PHILIP** student of MBA in Pharmaceutical Management from School of Pharmaceutical Management, IIHMR University, Jaipur, has successfully completed his Internship under me in operations SCM on "**Operational Efficiency Improvement**" at Group Pharmaceuticals Limited, Malur, from:01.04.2019 to 31.05.2019.

During this period, the student's behavior and conduct was found to be good.

We wish him all the best for his future.

For **Group Pharmaceuticals Ltd,**

Ann Attavar
Director of SCM

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Acknowledgement

I extremely thankful for the completion of this summer intern work to the almighty god and my family who support and blessings were with me in every moment of my life.

I would like to extend my sincere gratitude to Mr. Sunil Attavar, Managing Director, Group pharmaceutical limited for providing me an opportunity to learn and develop professionally.

I would like to extend my sincere gratitude to my Project mentor Mrs. Ann Attavar, Director SCM, Group Pharmaceuticals Limited for providing me an opportunity to learn and develop professionally for her valuable suggestions support and keen interest throughout the study that help me in completing this project. I thank for the freedom of thoughts expression and trust which was greatly upon me. I would also like to pay my gratitude to entire team of Group Pharmaceuticals Limited Bengaluru who has helped me by sparing their valuable time support and guidance to achieve my task successfully.

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I am very much thankful to all the executive members and staff of Group Pharmaceuticals Limited for their supports and cooperation.

I would like to thank all those who helped me directly and indirectly to complete this work.

At last but not the least most importantly I am thankful to God who is the creator and director of all the initial and final modes to reach the destiny.

Melvin philip

MBA pharmaceutical management

(10^{th} Batch)

Declaration

I hereby declare that this Summer Internship project and titled **operational efficiency improvement** it in group Pharmaceuticals Limited Bengaluru submitted to iihmr University Jaipur in the partial full fulfillment of requirement for the award of degree of MBA Pharmaceutical management is a Bonafide and the study carried out by me under the guidance of **Mr Saurabh Kumar Banerjee** Assistant professor IIHMR University Jaipur. The extent of information gathered in the study is discussed in this project report. This work is original and confidential.

MELVIN PHILIP

CONTENT TABLE

Executive Summary

This is a study conducted in Group pharmaceutical limited Bengaluru, the purpose was to increases the operational efficiency by determining the optimum manpower required for the particular process by studying all the detailed activities using time motion study as well as observational study. In this study each and every step of the production (manufacturing, filling and packing) is observed and the time is calculated and, on the basics of the processes carried out there, the total manpower required for the particular activities has to be determined. Then checked out the with the help of the departmental heads and looked out for the activities that are taking more time than the standard time for that particular processes and tries to find out the reason for the lag time in process. Another objective of this project is to increase the manufacturing yield which is being lost during whole production process. These two main components of the operation in the pharmaceutical industry.

My first step involved observing of all the activities occurring in the productions plant which gave the clear picture of the workload that needs to be completed daily for the effective and efficient processing the products. By calculating manhours as well as analysing hourly output I was able to get conclusion of total number of persons required for the particular activities. To increase the manufacturing yield, I closely observed and analysed the activities which directly involved in whole production process. Then I collected all information where all losses occur in or during the processes after analysing that come to result by improving our whole manufacturing and filling process, we can improve our manufacturing yield.

Company profile

Group Pharmaceuticals Ltd
healthy smiles matter

Group Pharma is an innovative pharmaceutical company having 38 years of proven expertise in dental and oral care.

At Group Pharma we develop, manufacture, market and export a wide range of niche oral care products that cater to consumers with specific dental and oral conditions combining newly researched ingredients as well as nature's goodness.

Our facilities in addition to being ISO 9001:2015, ISO:22716 and ISO:13485 certified are WHO cGMP and PIC/S compliant. This enables us to consistently deliver the best products to the dental fraternity, consumers and also to contract, develop and manufacture for large Indian and multinational companies.

We constantly keep upgrading technologically and streamline our operations to ensure best industry practices. We are dedicated to over 800 employees, their families and all our stakeholders. We are driven by our purpose of delivering 'the best' for good oral health, well-being of the society at large and the growth of our people.

Our quality policy

To meet and exceed the expectation of our customers in terms of product quality and delivery of pharmaceuticals and cosmetic product.

We achieve power objectives by maintaining equality and safety focused culture through

- Best available resource.
- Well trained personals.
- Good manufacturing practice.
- Comprehensive quality management system.
- Continual improvement programs.
- Quality risk management.

Hence, we add group Pharmaceuticals Limited are committed to maintain quality safety efficacy and reliability of our products through equality culture with the desired quality management system in place.

Manufacturing Units

Group was established the year 1980 since the group is engaged in manufacturing and marketing tablets liquids external preparations and cosmetics across globe. Group started in 1980 with first plant at Tarapur near Mumbai. To handle the increase the volume construct of a model plan to manufacturing liquids and semi solids incorporating Technologies and sophisticated equipment capable meeting cGMP, Schedule M and W H O requirements was initiated in the year of 2001 at Malur and the facility became full operational in March 2002. Total land about 170000 square feet and build up area 42000 square feet for drug facility 30000 square feet for cosmetic facility.

Group pharmaceuticals is a medium size Indian pharmaceutical company manufacturing and marketing wide range of Pharmaceutical formulations with proven expertise in the field of dental and oral care. The group pharmaceuticals have two manufacturing units: -

1. Tarapur near Mumbai dedicated to manufacture tablets the facility is designed and equipped with the appropriate infrastructure equipment to produce most sensitive hygroscopic tablets like denture cleaning tablets.
2. Second facility for manufacturing drugs and cosmetics at Malur building compliance of pic GMP wh0 guidelines Schedule M and Schedule M part 2 for manufacturing of oral and external gents toothpaste creams mouthwashes and oral liquids.

Features of drug manufacturing facility at malur:-

- Line 1 – Ointment, Creams, lotions.
- Line 2 – liquids, lotion.
- Line 3 – liquids.
- Line 4 – Cosmetics.

Accreditations

- WHO
- GMP
- PICs
- Schedule M
- Schedule M part 2
- ISO 9001
- ISO 13485
- ISO 22716

Achievements

- IDM a quality excellence award year 2003
- IMO Ukraine year 2008 and 2011
- ISO 90011: 2015 certificates for drug and cosmetics
- ISO 22716: 2007 certificates for cGMP
- ISO 13485: 2016 for medical devices

Dosage form manufactured

Ointments, Creams, Medicated gels, Lotions, Toothpaste, Liquid dosage form including, Liquid orals, Suspensions, Syrups, Mouthwashes, Astringents, Liquid gels.

Technical related highlights

- Full support of ventilating air conditioning system AHU for both facilities.
- Manufacturing washing feeling area covered under glass 1,00,000 filtered with temperature humidity control for both facilities.
- All adjoining areas and secondary packaging areas covered under 5 Micron filter air for both facilities.
- Sophisticated Effluent treatment plant.
- Independent water purification plant compiling IP and bp utilising the Reverse Osmosis process.

Our customers are

- Dr Reddy's
- GSK
- Abbott
- Biomin Technologies
- Remedial labs

Quality Control

Group Pharmaceuticals having well-established quality control department having its own quality control lab and qualified technicians. Laboratory divided into wet lab instrumentation lab microbiology lab packing material lightning lab. It also performs stability studies at accelerated condition as well as CRT condition of new formulations and marketed products.

Quality Assurance

Group Pharmaceuticals Limited have their Quality Assurance department which is effective and independent Quality Assurance system which is in operations in the plant are showing that each and every stage of manufacturing analysis documentation and Engineering comply all the regulatory requirements.

Introduction

Operations management is the administration of business practices to create the highest level of efficiency possible within an organization. It is concerned with converting materials and labour into goods and services as efficiently as possible to maximize the profit of an organization. Operations management involves utilizing resources such staff, materials, equipment and technology. Operations management handles various strategic issues, including determining the size of manufacturing plants and project management methods and implementing the structure of information technology networks. Other operational issues include the management of inventory levels, including work-in-process levels and raw materials acquisition; quality control; materials handling; and maintenance policies. Operations management entails studying the use of raw materials and ensuring minimal waste occurs. And understands local and global trends, customer demand and the available resources for production. It also includes the approaches the acquisition of materials and use of labour in a timely, cost-effective manner to deliver customer expectations. Operations is that part of a business organization that is responsible for producing goods efficiently as well as effetly.

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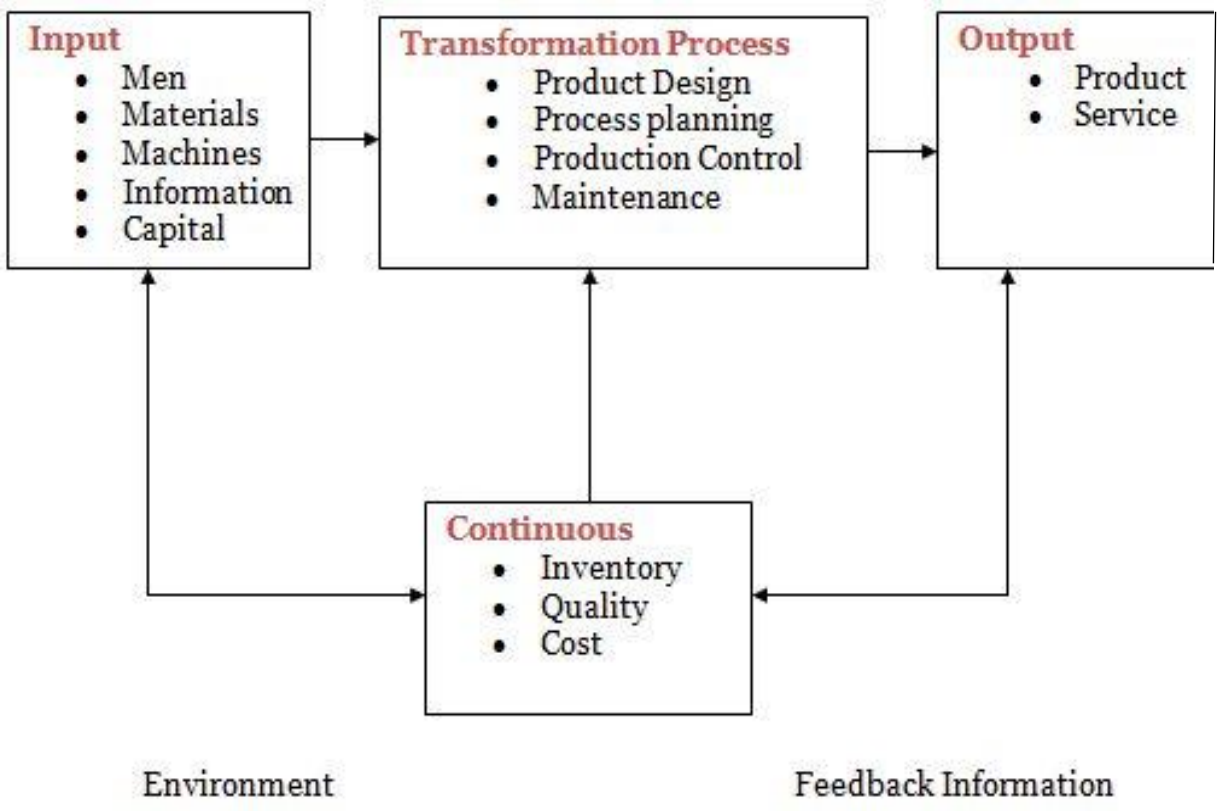


The word ‘Operational Efficiency ‘consist of two words ‘Operations’ and ‘Efficiency’ thus in simple words, Operational Efficiency is a measure of task or activities. It is target of delivering superiority product to customers in the most efficient behaviour. Resource consumption, production, distribution and inventory management are all common aspect of operational efficiency. Every business is associated with ‘Efficiency’. The concept of efficiency depends on the cost of input for the output produced. To an engineer efficiency may relate to of input/output ratio or output of a machine while for a cost accountant it refers to reduction of cost. Generally, ‘efficiency' means capacity to receive earnings through consumer satisfaction. Thus, ‘efficiency’ means different things to different people. it can also describe the extent to which time, effort and cost is well used for intended task. It represents how well a relevant action is performed. It relates with selecting the best course of action Efficiency is a measure of whether the right amount of resources has been used to deliver a process, service or activity. Efficiency is not only reducing cost, increasing profit, diversifying business and fulfilling other business objective but it also includes maintaining quality, providing services and retaining customers. “Performing tasks with reasonable effort ‘doing things the right way.” (Fraser, 1994) Similarly, U.N.E.S.C.O. observed, “An ability to perform well or to achieve a result without wasted resource, effort, time or money (using the smallest quantity of resources possible). Educational efficiency can be measured in physical terms (technical efficiency) or in terms of cost (economic efficiency).” (Fraser, 1994) Efficiency is a measure of the resource used cost to achieve stated goals.

Operational efficiency is the foundations of all business. It is referred to how efficiently various business operations are carried out. It is comparison between inputs and output result of a company. The input applied by a company is cost, people, time and work. Output results are production, service and quality. The maximum output received from the applied inputs is the operating potency of a business organisation. Generally, it minimizes loss and maximizes capability of resources in order to maintain quality product and service to customer. It discovers losable processes and resources that drain company’s profit. It helps in design new work processes that improve quality and production. Operational efficiency has a direct impact on profit margin of a company. Operational Efficiency is a critical drive for business Excellency. It is systematic management of resource of the company to achieve maximum results. Operating efficiently means implementing system that is appropriate and cost effective. These decisions about company will have long term effect on quality and profitability. To remain competitive a company must boost operational efficiency wherever possible.

Importance of Operational Efficiency

- Determination of Working Capital requirement
- Cost Diminution
- Strategic Assessment
- Eliminating waste

Rationale

Under operation management, there is the optimum utilization of resources leading to profits of the organization. The efforts of the employees and the various raw materials are efficiently utilized and converted into the services and goods required by the organization. operation management plays a crucial role in an organization as it handles issues like design, operations, and maintenance of the system used for the production of goods. Operation management is the function that turns an organization's resource (manpower and materials) into products and services. In manufacturing, understanding operations in important as this area of the business where the vast majority of a company money is made or lost.

The aim of this study to increase the operational efficiency in company by standardizing the manpower and increase the manufacturing yield, these are two main factors through which the operational efficiency can be improved. The efficiency of operation is depend on the time taken to complete the particular task by man as well as by machines, so with the application of time motion study we can analyse total time required and delays for the particular process and optimal manpower required for that particular task.

This study is done by the direct observation of the staff workers and by noting time for each task, to see how long it take time to complete particular task through which we can improve our process as well as we set our new production goals. The study is entirely based on time, work and manpower required for the particular task.

Objectives

- To study the optimal utilization of the manpower in operational activities
- To access the total time delay in particular process or task.
- To observe the major reason for delay the process and Recommending the for improvement.
- To suggest the way to increase the manufacturing the yield.

Methodology

Study area – Group pharmaceutical limited malur facility.

Type of study – Descriptive.

Type of study tool - Activity observation.

Study hours – 400hr.

Data collection method

Primary – Direct Observation.

Secondary – Production Documents.

Findings and data analysis

Product			Desensitizing toothpaste S1	
Batch			XXXXX69	
Quantity			21,429	
Line			4	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	840min	857min		
Filling				
No. of personnel	4	4	4	1operator,1helper,1inspector 1decartonning
Time Required	210 min per machine.	210 min	210 min per machine	The machine setting time exceed then the standardised time. There was delay due to small breakdown.
Machine speed	50Tubes/min	50Tubes/min	50Tubes/min	
Packing				With 14 manpower target of above 6000 per hour achieved and autocartonator used in packing
No. of personnel	18	14	14	
Time Required	210min	210min	210min	
Manufacturing yield				As per the Required Quantity.
Total quantity(kg)	1500	-	-	
Actual quantity	1492			
% yield	99.46	-	-	
Total Manpower	25	21	21	Total Manpower for product.
Total time	1260 min	1277min		
Efficiency %	98.66			

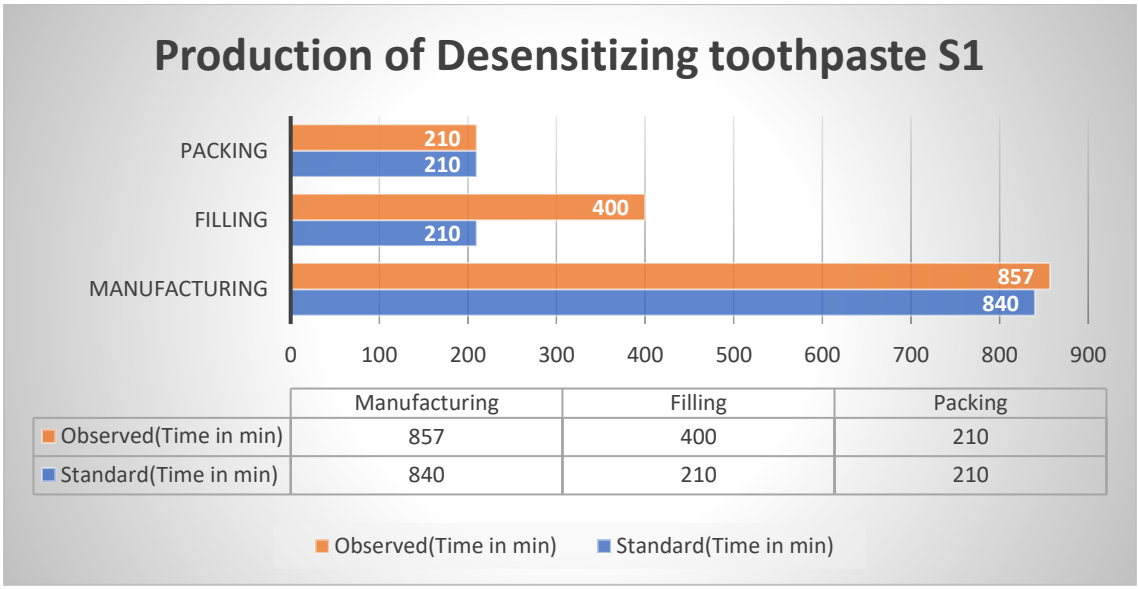


Fig 01 – The above data show that the Manufacturing and filling time is slightly increased than the standardised time.

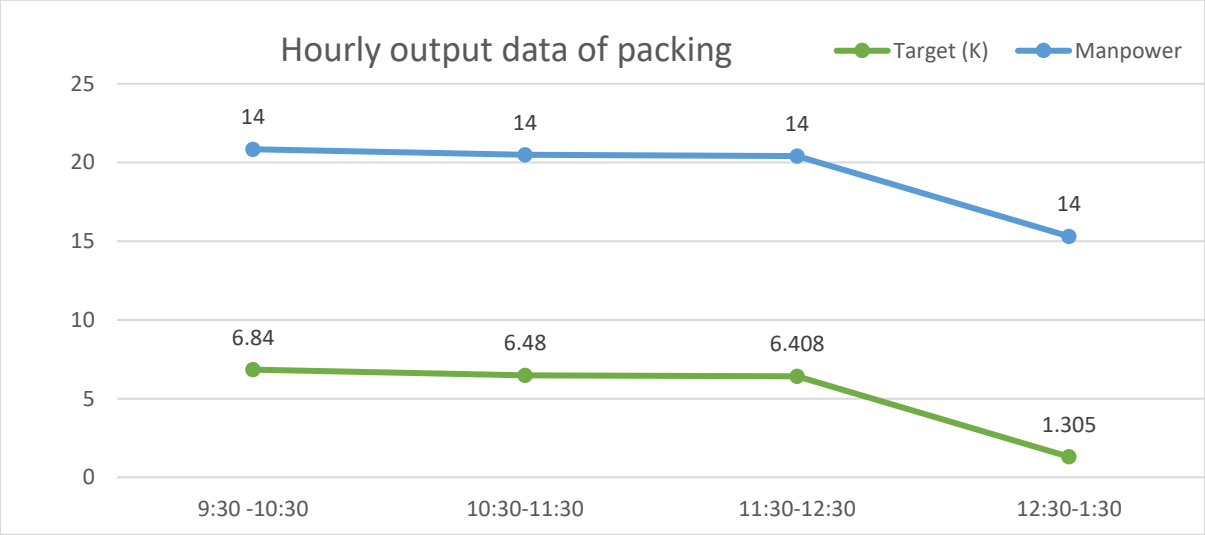


Fig 02 – Above Data show that 14 members are can achieve the target packing of above 6000 unit in an hour.

General Recommendation: -

- Machine Setting time should be reduced and there was leakage problem with the machine Cf:Tf 02 and Cf:Tf 03.
- For Packing of Desensitizing toothpaste S1, 14 members are required for this particular activity with the help of autocartonator.
- Weighing balance should be calibrated.

Disclaimer: - Due to non-disclosures agreement some brand names cannot be specified.

Product			SHY-NM	
Batch			BSN 912	
Quantity			15000	
Company			Group pharmaceuticals limited	
Line			5	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	1080min	1102min		Change over take place
Filling				1operator,1helper,1inspector 1decartonning
No. of personnel	4	4	4	
Time Required	300min	380min	320min	Machine setting time exceeds than standard and training should be given to operators.
Machine speed	50tubes/min	50tubes/min	50tubes/min	
Packing				
No. of personnel	18	18	14	
Time Required	240min	240min	210min	With 14 manpower we can achieved the target of approximately 4200.
Manufacturing yield				As per required
Total quantity(kg)	1500	-	-	
Actual quantity	1495	-	-	
% yield	99.66	-	-	
Total Manpower	25	25	21	Packing section optimum 14 member are required.
Total time	1700min	1722min	1610min	
Efficiency %	-	98.22	105	The can be efficiency increased by the decreasing in filling as well as in packing line by optimising manpower.

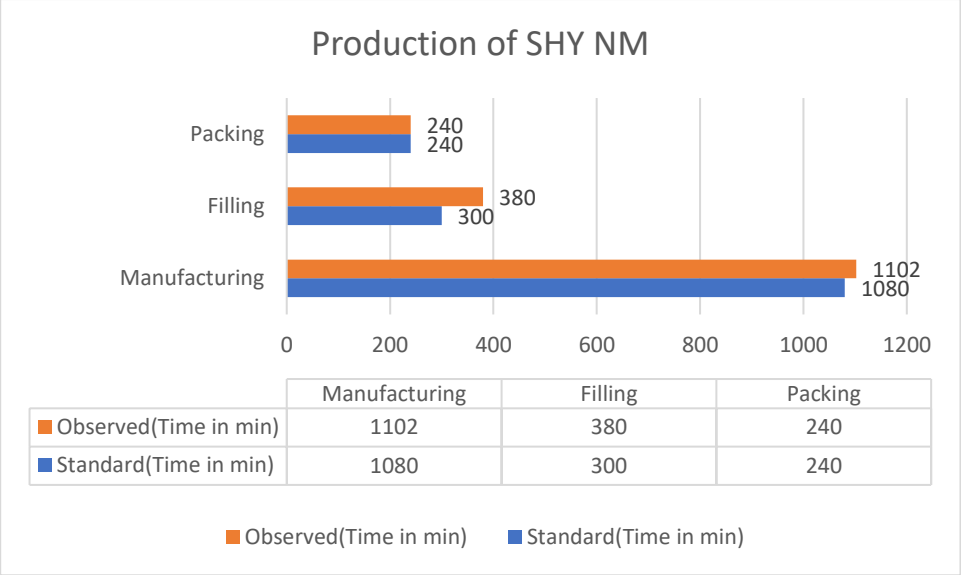


Fig- 03 The above data shows there was time lag in filling section and Manufacturing section.

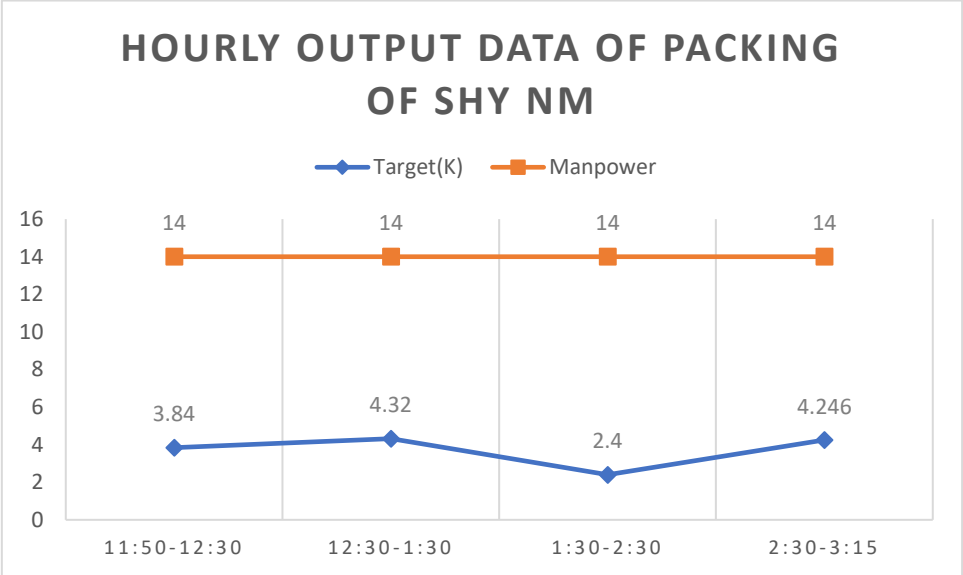


Fig-04 The above data shows with 14 manpower in packing we can achieve the hourly output of approx. 4200.

General Recommendation: -

- The total manpower required for the production of the SHY NM product is 21 it includes (3 in manufacturing ,4 in Filling and 14 in Packing).
- For packing it is suggested Autocartonator machine should for packing of SHY NM.
- The Skilled worker must be employed for the activites.
- Training should be given to operator.

Product			SHY-XT	
Batch			BXT905	
Quantity			14,285	
Company			Group pharmaceutical limited	
Line			5	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	960min	980min	-	
Filling				
No. of personnel	4	4	4	1operator,1helper,1inspector 1decartonning
Time Required	285min	360min		Delay due machine setting.
Machine Speed	50tubes/min	50tubes/min	50tubes/min	
Packing				
No. of personnel	18	16	14	
Time Required	-	300min	240min	With 14 manpower we can achieved the target of approximately 4200.
Manufacturing yield				As per required
Total quantity(kg)	1000	-	-	
Actual quantity	995	-	-	
% yield	99.5	-	-	
Total Manpower	25	23	21	
Total time	1545min	1640min	1520min	Decrease time in filling and packing area.
Efficiency %	-	94.20	101	By improving our packing line and filling line we can improve our efficiency.

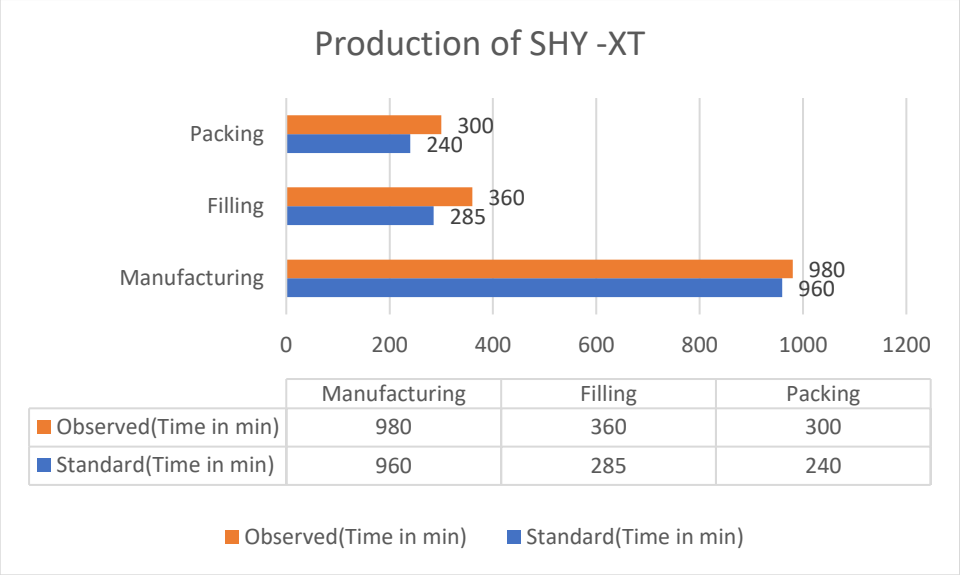


Fig-05 The above data shows that there was Lay of time more in Filling are then the Packing and manufacturing area.

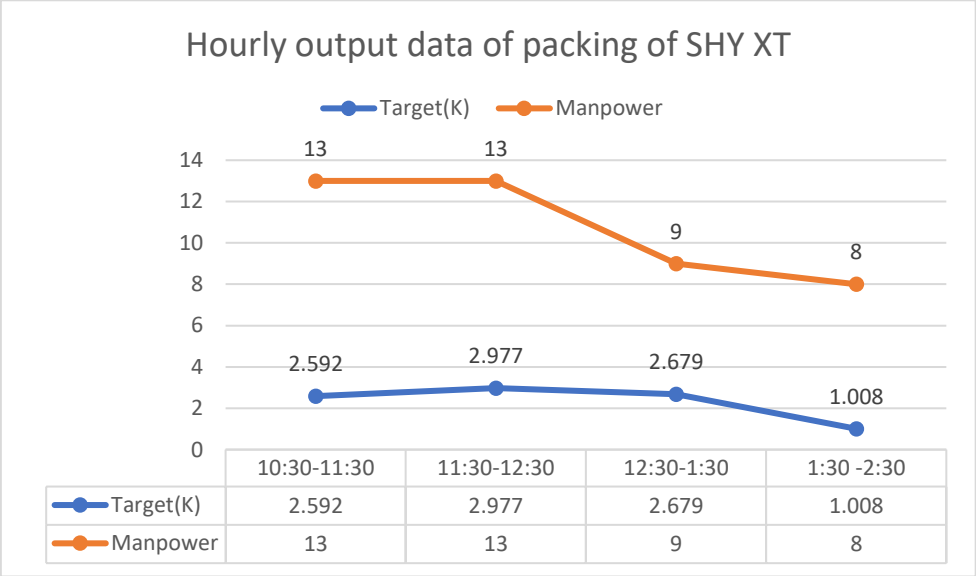


Fig-06 The above Data we get inference that 13member in the packing achieved the target of approximately 3000.

General Recommendation: -

- The total manpower required for the production of the SHY XT product is 21 it includes (3 in manufacturing ,4 in Filling and 14 in Packing).
- The supervisors should be more involved in the supervision work than the documentation work.

Product			Alkaliser solution	
Batch			XXXXX51	
Quantity			4,444	
Line			3	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	240min	292min	-	
Filling				
No. of personnel	10	11	10	10 members are optimum in filling area for this product.
Time Required	180min	180min		
Machine Speed	-	-	-	
Packing				
No. of personnel	17	12	12	Supervisors are should more focus on the supervision part than documentation.
Time Required	Online	Online	Online	
Manufacturing yield				
Total quantity(kg)	900	-	-	As per the Required.
Actual quantity	898	-	-	
% yield	99.71	-	-	
Total Manpower	30	26	25	
Total time	450min	472min	-	
Efficiency %	95.33			

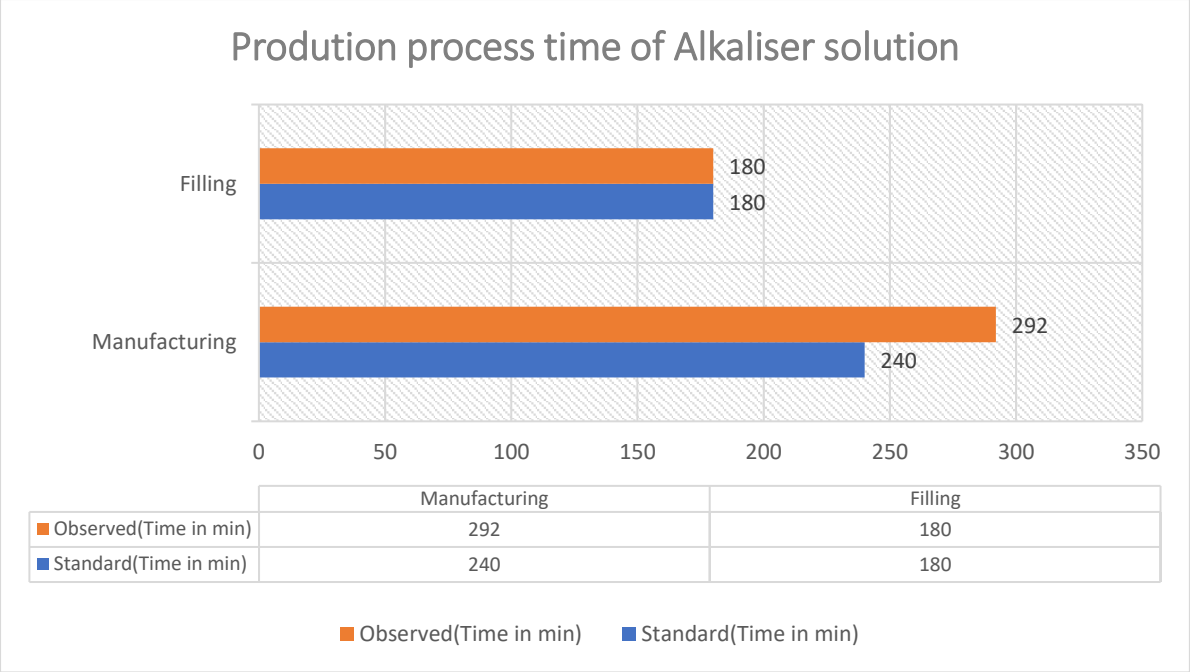


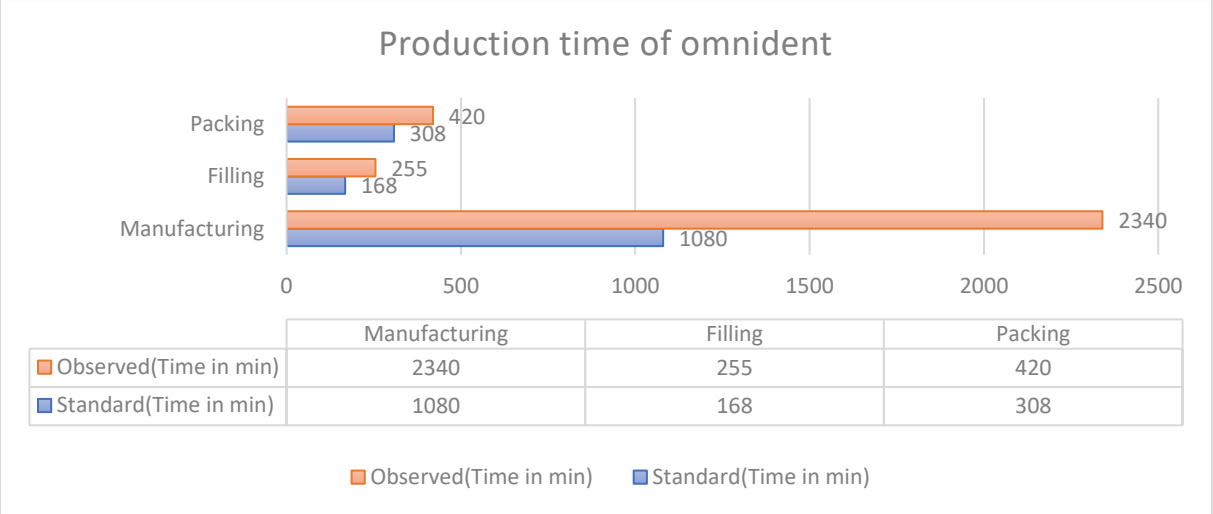
Fig 07 The above data show the manufacturing time is more than standard time.

General Recommendation: -

- The total manpower required for the production of the Alkaliser solution product is 21 it includes (3 in manufacturing ,10 in Filling and 12 in Packing).
- The Skilled worker must be employed for the activity(packing).

Disclaimer: - Due to non-disclosures agreement some brand names cannot be specified.

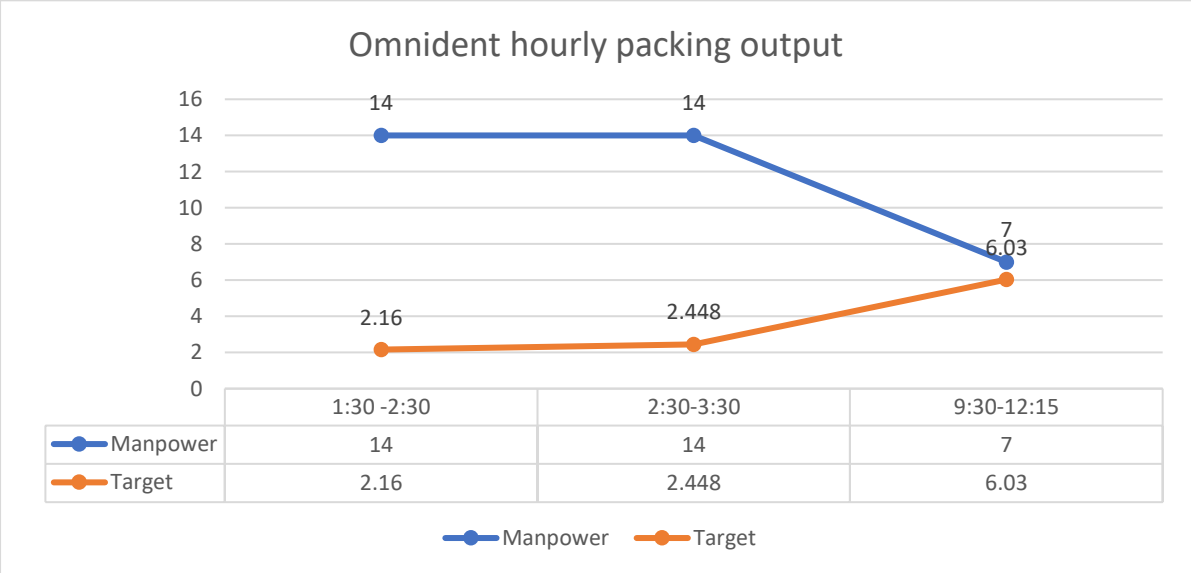
Product			Omnident	
Batch			OM913	
Quantity			12,857	
Company			Group pharmaceutical Limited	
Line			1	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1Helper,1supervisor
Time Required	1080min	2340min	-	Soaking time is higher so time is increased
Filling				
No. of personnel	4	4	4	1operator,1helper,1inspector1 decartonning
Time Required	168min	255min		
Machine Speed	80Tubes/min	80Tubes/min	80Tubes/ min	
Packing				
No. of personnel	20	11	14	
Time Required	308min	420min	308min	As we consider the 14 members here, we can achieve it in approx. 308min whole packing of omnident
Manufacturing yield				As per the requirement
Total quantity(kg)	900	-	-	
Actual quantity	825	-	--	
% yield	99.4	-	-	
Total Manpower	27	18	21	
Total time	1556min	3015min	-	
Efficiency %	51.60			



	Manufacturing	Filling	Packing
Observed(Time in min)	2340	255	420
Standard(Time in min)	1080	168	308

Observed(Time in min) Standard(Time in min)

Fig08 The above data shows the manufacturing time then packing and filling time all these observed timeing are exceeding the standardised time.



	1:30 -2:30	2:30-3:30	9:30-12:15
Manpower	14	14	7
Target	2.16	2.448	6.03

Manpower Target

Fig 09 From above data we get the inference that 14 members can achieve the target of approximately 2500.

General Recommendation: -

- The total manpower required for the production of the Omnident product is 21 it includes (3 in manufacturing ,4 in Filling and 14 in Packing).
- More skilled worker should be employed in packing for this line to increase hourly output of packing of this line.

Product			Aclaim	
Batch			A1092	
Quantity			14,285	
Company			Group pharmaceuticals limited	
Line			5	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	720min	690min	-	
Filling				
No. of personnel	4	4	4	1operator,1helper,1inspector 1decartonning
Time Required	300min	345min	-	
Machine Speed	50Tubes/min	50Tubes/min	50Tubes/min	
Packing				
No. of personnel	18	12	14	
Time Required	300min	300min	-	
Manufacturing yield				As per the Requirements
Total quantity(kg)	1000	-	-	
Actual quantity	993	-	-	
% yield	99.3	-	-	
Total Manpower	25	19	21	
Total time	1320min	1335min	--	
Efficiency %	98.87			

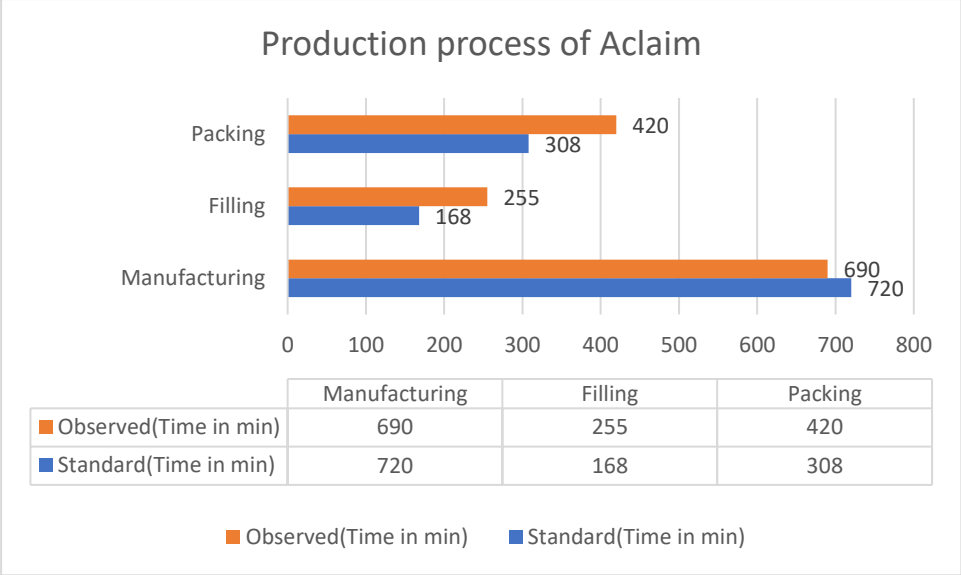


Fig- 10 The above data shows that manufacturing time is less than standard time and filling and packing time is exceeding the standard time.

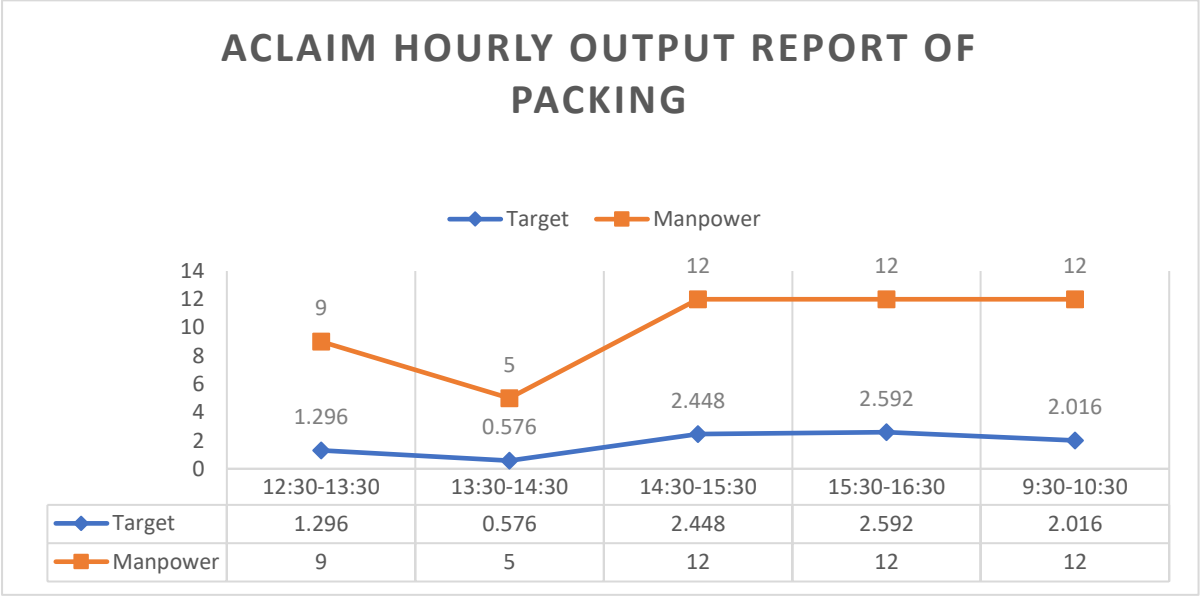


Fig -11 From above given data we get the inference that Approximately 12 members are able to produce output of 2600 in one hour.

General Recommendation: -

- The total manpower required for the production of the Aclaim product is 21 it includes (3 in manufacturing ,4 in Filling and 14 in Packing).
- For packing of this product suggesting the autocartonator should take in use.

Product			Pediflor Kids T/P	
Batch			B.PD907	
Quantity			21,429	
Company			Group Pharmaceutical Limited	
Line			5	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	900min	902min	-	
Filling				
No. of personnel	4	4	4	1operator,1helper,1inspector 1decartonning
Time Required	420min	450min		
Machine Speed	50Tubes/min	50Tubes/min	50Tubes/min	
Packing				
No. of personnel	18	15	14	
Time Required	354min	540min		
Manufacturing yield				
Total quantity(kg)	1500	-	-	As per the Requirement
Actual quantity	1480	-	-	
% yield	98.86	-	-	
Total Manpower	25	22	21	
Total time	1674min	1892min	-	
Efficiency %	89			

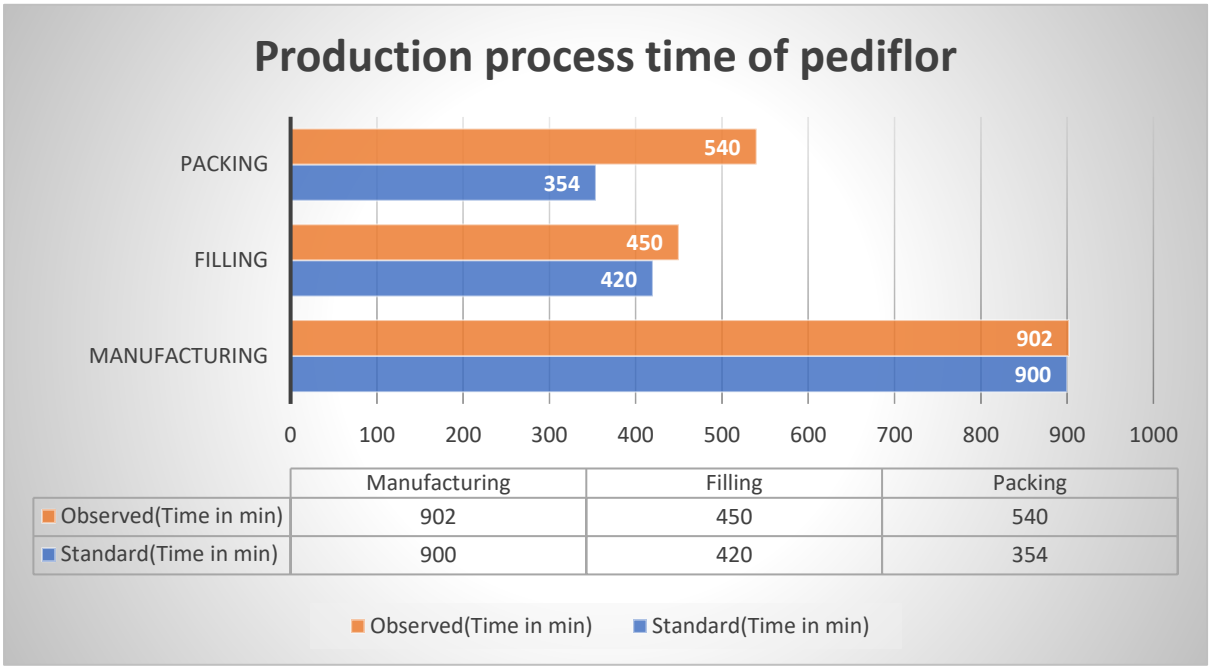


Fig-12 The above data shows that Packing time is exceeding than the standard time and manufacturing and filling time is approximately same as of standard.

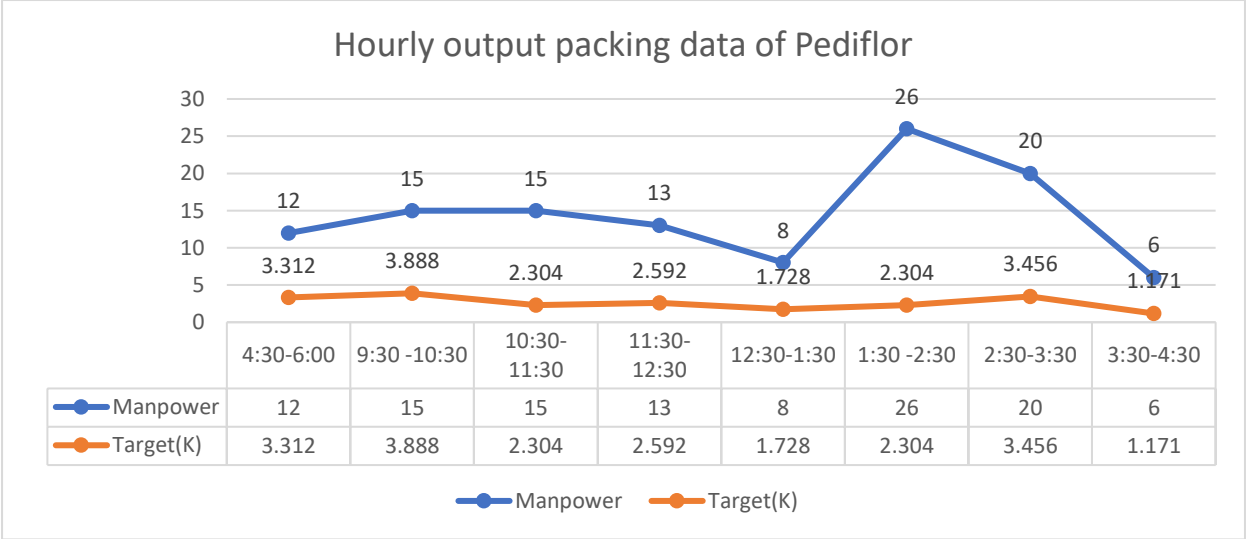
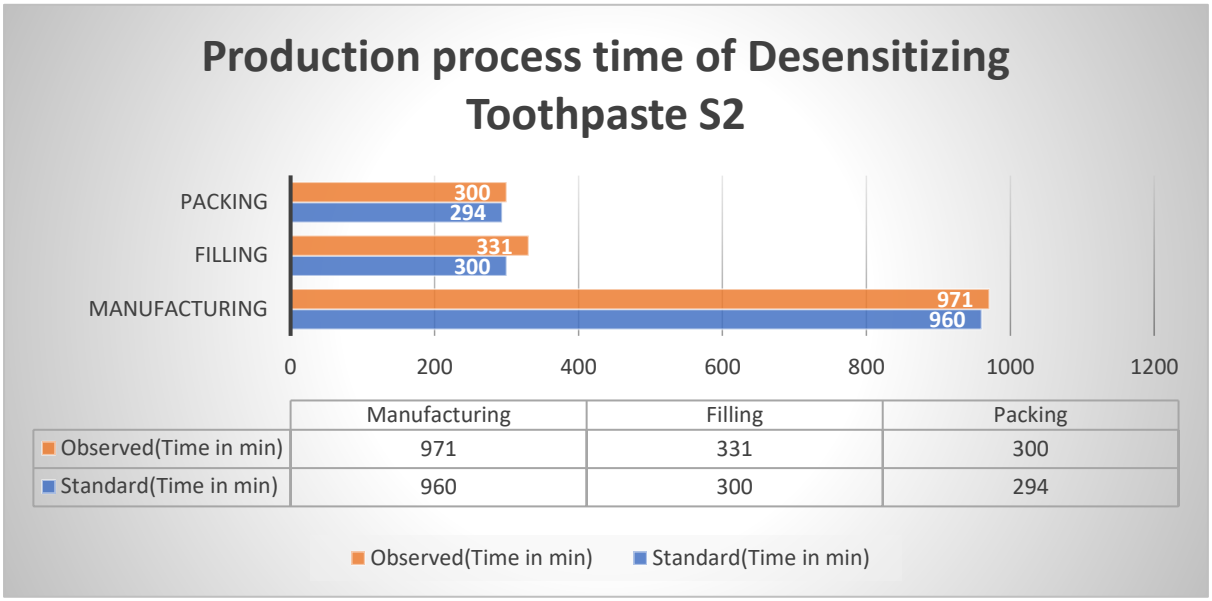


Fig-13the above data shows with 15 members we can achieve the target packing of the approximately 3800per hour.

General Recommendation: -

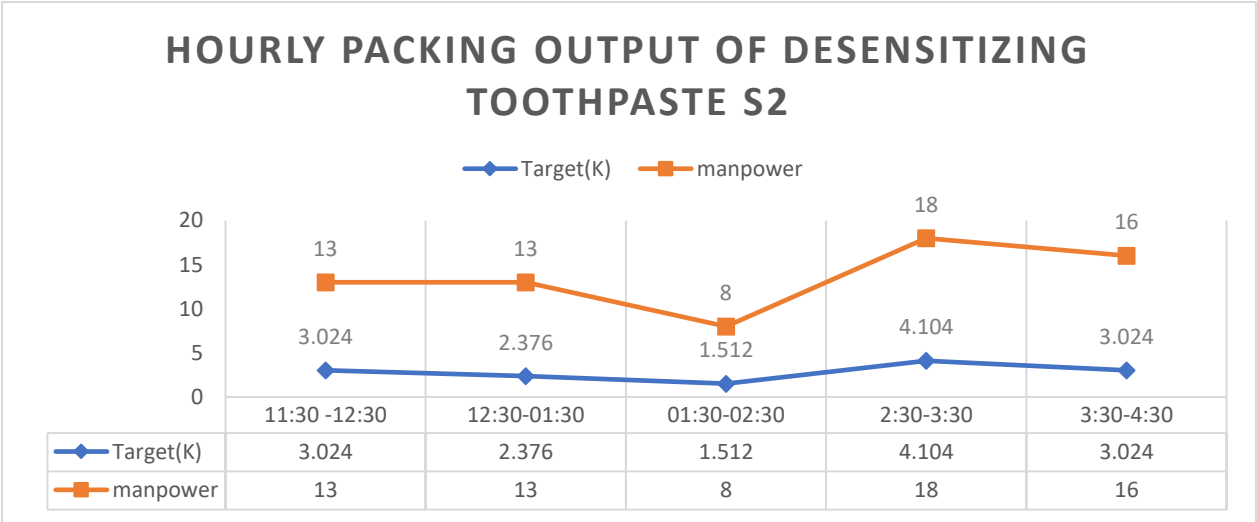
- The total manpower required for the production of the Pediflor kids toothpaste product is 21 it includes (3 in manufacturing ,4 in Filling and 14 in Packing).

Product			Desensitizing toothpaste S2	
Batch			XXX32	
Quantity			15000	
Line			5	
	Required	Observed	proposed	Remarks
Manufacturing				
No. of personnel	3	3	3	1operator,1helper,1superviour
Time Required	960min	971min	-	
Filling				
No. of personnel	4	4	4	1operator,1helper,1inspector 1decartonning
Time Required	300min	331min	-	
Machine Speed	50Tubes/min	50Tubes/min	50Tubes/min	
Packing				
No. of personnel	18	18	14	
Time Required	294min	300min		
Manufacturing yield				As per the Requirement
Total quantity(kg)	1500	-	-	
Actual quantity	1499	-	-	
% yield	99.93	-	-	
Total Manpower	25	25	21	
Total time	1554min	1602min	-	
Efficiency %	97			



	Manufacturing	Filling	Packing
Observed(Time in min)	971	331	300
Standard(Time in min)	960	300	294

Fig-14 The above data shows that all the process manufacturing, filling and packing having slight deviation from standard time.



	11:30 -12:30	12:30-01:30	01:30-02:30	2:30-3:30	3:30-4:30
Target(K)	3.024	2.376	1.512	4.104	3.024
manpower	13	13	8	18	16

Fig-15 The above data shows that by 13 members we can achieve the target packing of 3024 per hour.

General Recommendation: -

- The total manpower required for the production of the Desensitizing toothpaste S2 product is 21 it includes (3 in manufacturing ,4 in Filling and 14 in Packing).
- Autocartonator should be used in packing of Desensitizing toothpaste S2 product

Disclaimer: - Due to non-disclosures agreement some brand names cannot be specified.

Limitation

Followings are the main limitations of operational efficiency:-

- There are many non-quantifiable factors which affects the efficiency of the firms. This factor such as manager's skills and knowledge, availability of naturally resources etc affects the efficiency of a firm.

- Effect of a personal observation and judgement.

- Human efforts greatly affect the operational efficiency of a firm. It is difficult to measure exact effect of human resource on operational efficiency of a firm.

Conclusion

Operations Management is very important in the organization because they played a big role in the business as they create the highest level of efficiency within the organization. Operations Management is also the one who run the business to make it successful and achieve an excellent result. The two main factor which directly contributes to operational efficiency is optimum use of resource like manpower, material and effective utilisation of the time without any delay. At the end of study get conclusion that for the particular activities we required only optimum no. of manpower for the particular products production and able to identifying the area where we can improve our operational activity by eliminating the extra manpower as well concentrating on the time-based activity and as there was extra manpower should be eliminated and there we optimum manpower our operational efficiency will increase as well cost get decreased and when we follow the standard time required for the particular task it will also add to increase our operational efficiency. Manufacturing yield improvement is also part of study after collecting and analysing data get at the conclusion if we improve the filling process, we can able to increase our manufacturing yield as well as operational efficiency.

Recommendations

- All Weighing machine should be of least count .01 for accurate result of manufacturing loss in filling area.
- The supervisors should more involve in supervision then the documentation part.
- The OEE sheets should be regularly on daily basics monitored by manager of the production units.
- The juggling of manpower should be stopped i.e. the manpower employed for the particular product should maintain till the completion of whole tasks.
- To increase the manufacturing yield the filling process is strictly monitored
  (1) The o ring are changed at regular interval of time.
  (2) The weighing balances should be calibrated.
- Manpower required for products: -

Products	Required	Proposed
Desensitizing toothpaste S1	25	21
SHY NM	25	21
SHY XT	25	21
Omnident	27	21
Alkaliser solution	30	25
Aclaim	25	21
Pediflor kids	25	21
Desensitizing Toothpaste S2	25	21

- The only one inspector should be employed in line irrespective of single machine and double machine.

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