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Defect Analysis for HDPE Plastic Bag Products Using Seven Tools Method and Improvement Strategy with Kaizen Method at PT. HSKU

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ABSTRACT

PT. Harapan Sejahtera Karya Utama (HSKU) is a manufacturing company engaged in the production of plastic bags. This company produces various types of plastic bags made from HDPE. One of its superior products is HDPE plastic bags measuring 15x30, with total production from July to December 2022 of 3,072,923 units and a total of 435,670 units of defects. The purpose of this study is to determine the percentage of defects and their causes of defects and to propose quality improvements. This study uses the Seven Tools and Kaizen methods. The results of the study show that the percentage of defects in HDPE plastic bag products measuring 15x30 has the highest defects, namely Hole Defects at 64.76%; Folded Defects at 22.76%; Dirty Defects at 7.45%; and Detached Seal Defects at 5.03%. Proposed improvements are given with the Kaizen method, namely conducting supervision and controlling the five M factors and the five-step plan, namely providing training to improve operator capabilities and refreshments (SOP), applying strict penalties when making mistakes repeatedly, and making machine grouping data. According to the type and function, placing procedure manuals around the machine area, arranging air circulation equipment as needed, and providing storage areas for materials and plastic rolls in a safe and sterile place.

Keywords: HDPE, Kaizen, Plastic, Quality Control, Seven Tools.

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1. INTRODUCTION

1.1. Introduction

Progress field businesses in Indonesia found development in a manner significant. This business development raises competition between growing companies more competitive and tight. Many strategies can respond strictly to increasing competition, such as improving quality products, innovating continuously, and pushing cost production. So that is very important for companies to have a strategy or strength to manage system production well and increase performance sources, the power used to meet demand targets consumers.

Quality is an essential factor determining the success of a product in market competition. Quality, value good products become the focus of attention for customers. Quality value makes various parties responsible for controlling the quality, not only the production division responsible for controlling the quality of the product for the company (Gaspersz, 2005).

The goals for quality control are to specification products to be decreed in a standard reflected company in an end product have to reach the standard quality that has set, grabbed level desired quality, strive for reduce cost inspection as well as make an effort minimization cost design and cost production (Assauri, 2004).

One of the quality tools often used for process controls is seven tools. Seven Tools got defined as several tools that companies or organizations often use to control the process of quality control products. The Seven Tools method uses seven tool statistics such as check sheets, data stratification, histograms, pareto diagrams, scatter diagrams, control charts, and fishbone diagrams (Alfadilah and Fashanah Hadining, 2022).

Quality improvement using seven tools can outline every detail type and cause of the defect products.(Hamdani *et al.*, 2021). Seven Tools are helpful for mapping room scope problems and collecting data in the graphics that make it easy to read and understand. This seven-tool method is used to find the root of the defective product cause and eliminate the root problem so the manufacturing process can improve (Rufaidah and Rosyidi, 2022).

Kaizen is a term taken from Japanese that means draft repair in a manner to keep going continuously. Kai himself defines it as change. Meanwhile, zen defines it as good or positive. So that Kaizen becomes involving refinement, everyone makes continuous improvements. A kaizen process will be considered successful if followed with an effort from human resources. Where is good or whether human resources is key to optimizinguality and productivity (Imai, 2008).

High Kaizen motivation in Japanese companies makes them more efficient and have a certain quality. Kaizen is a holistic and integrated concept that strives to reach sustainable enhancement. Success company Japan made subtraction costs more significant at the world level impacts acquisition application Kaizen philosophy in the company (Gaspersz, 2005).

This Kaizen strategy is implemented using the included tools of the Kaizen Five M-Checklist and the Kaizen Five-Step Plan. Kaizen Five M-Checklist is a tool that focuses on five main elements: people, methods, machines, materials, and the environment. The repair will be implemented if reviewed through the facet aspects system (Alfadilah and Fashanah Hadining, 2022). Japanese companies use the Kaizen Five Step Plan as something method of kaizen implementation. Stages the Lots are known with the 5S, which is an abbreviation of Japanese Seiri (Segregation), Seiso (Arrangement), Seiton (Cleaning), Seiketsu (Maintenance), and Shitsuke (Habitration) (Gaspersz, 2005).

PT. Harapan Sejahtera Karya Utama (HSKU) is a company operating in the field production of pocket plastic. Various types of pocket plastic are manufactured from High-Density Polyethylene, like pocket plastic size 24x40, plastic pocket size 40x67, plastic pocket size 28x48, and plastic pocket size 15x30 production pocket plastic with the highest number in PT. Harapan Sejahtera Karya Utama, namely pocket High-Density Polyethylene plastic with size 15x30, is as many as 3,079,923 pcs of the month July 2022 to month December 2022 in

PT. Harapan Sejahtera Karya Utama always makes an effort to maintain the quality of the resulting product but still finds problems from Exceeding product defects standard company is of 9.2% obtained by various types of a cause of bad quality product.

Therefore, this study aims to know the percentage defect products and the factors of the defect products by using the seven tools method and suggest improving the product quality with the kaizen improvement strategy at PT. Harapan Sejahtera Karya Utama (HSKU).

2. METHODS

2.1. Design, place, and time

This research was conducted at PT. Harapan Sejahtera Karya Utama which is located on Jl. Kutilang, No. 25, Dusun Minggir, Larangan, Kec . Candi, District Sidoarjo, East Java 61271. This research was conducted in February 2023 until the data was fulfilled.

2.2. Types and methods of data collection (surveys)/stages of research (laboratory)

This research obtained the data through interviews, observations, and company internal data. The collected data in this research is from July until December 2022, consisting of the amount of data production Pocket High-Density Polyethylene plastic size 15x30, data quantity defects, and data types defect.

2.3. Processing and analysis of data

The data that has been obtained will be analyzed and processed the data using the seven tools method. The first step is to make check sheets. A check sheet is a table designed for inspection that can be used to record things. The check sheet is important for recording data so users can collect data easily, systematically, and organize when that data appears (Erdhianto, 2021).

The second step is data stratification. After inputting data in the check sheet, the data division process is carried out in small parts based on the characteristics and categories of existing data to make it easier for data processing for the next step. Data stratification was used to help analyze data in the category or proper classification to focus on improvement (Manik, 2020).

The third step is to create histograms. Histogram is a tool in the form of a bar chart used to determine and demonstrate process variability based on data table order size. Intended use of the histogram For distributing and shaping data pattern of the process (Caesandrio Akbar, 2018).

The fourth step is to make Pareto charts. Pareto charts are used To identify the most serious problem and know the solution to solving priority problems. So the Pareto chart is making practical to classify data by size, ranking from highest to lowest (Caesandrio Akbar, 2018).

The fifth step is to make scatterplot diagrams. Scatter plot diagrams are charts showing pair of numeric data on the system Cartesian coordinates to visualize the connection between two variables. Making Scatter plot diagrams aims to determine a correlation between two variables. Scatter plot diagrams are sometimes useful in model regression (Heizer and Render, 2012).

The sixth step is to make control charts. Making a control chart or map control is to identify and analyze trends from time to time. Data is saved chronologically. There are three horizontal lines on the control chart, namely the middle line or Center Line (CL) is the value line center or the mean value shows characteristics quality plotted on the map control. The upper control limit (UCL) is the line above the center line, which shows the control limit top. The lower control limit (LCL) is the line below the central line, which shows the control limit down (Erdhianto, 2021).

The seventh step is to make a fishbone diagram. Fishbone diagrams are tools that identify various factors that become reason disabled or problem. Making this Fishbone Diagram aims to know the main factor affecting the product's quality and impact on the problem under study (Setiabudi, Vitasari and Priyasmanu, 2020).

The next step is to give improved suggestions using a Kaizen strategy. Kaizen itself is something term from Japanese _ to change in a manner that keeps going continuously. Implementing this Kaizen strategy using Kaizen Five M-Checklist is a tool that focuses on five factors key is 5M.[3]. The second implementation tool is the Five Step Plan, a method application used by the company Japan using initials from Japanese words, namely 5S. (Gaspersz, 2005).

3. FINDINGS AND DISCUSSION

3.1. Data Collection

Data collection was carried out from July until December 2022 in the form of total data production, the data type of defect, and total data defects in Table 1 below this, which shows that the amount of production highest occurred in November 2022 as many as 578,838 units and percentage defect highest occurred in September 2022 at 16.2%. Whereas lowest total production happened on August 2022 as with a total of 448,826, and the percentage defect Lowest occurred in November 2022 by 12.9%.

Table 1. Production Data and Product Defects of High Density Polyethylene Plastic Bags size 15x30

Month	Data (Unit)	Hole Defects (Unit)	Folded Defects (Unit)	Detached Seal *Defects* (Unit)	Dirty Defects (Unit)	Number of Defects (Unit)	% Monthly *Defect*
July 2022	508,735	47,380	16,375	3,375	5.210	72,340	14.2%
August 2022	448,826	38,185	14,187	3.218	4,586	60,176	13.4%
September 2022	453,279	50,420	14,690	3.147	5,324	73,581	16.2%
October 2022	526,026	46,160	16,640	3,752	5,630	72,182	13.7%
November 2022	578,838	44,664	19,280	4,598	5,928	74,470	12.9%
December 2022	557,219	55,340	17,980	3,816	5,785	82,921	14.9%
Total	3,072,923	284,230	99,152	21,906	32,463	435,670	

3. 2. Data Processing

Data processing from problem quality products at PT. Harapan Sejahtera Karya Utama uses the Seven Tools method as follows:

The first step is to make check sheets. Check Sheet is used For record results data collection. The object study focused on the production process of pocket High-Density Polyethylene plastic measuring 15x30 from July 2022 to December 2022. The check sheet can be seen in Table 2 below :

Table 2. Chech sheet

Month	Product	Amount Product	Type Disabled				Total *Defect*
			Hole	Folded	Detached *Seal*	Dirty	
July 2022	Pocket Plastic *High Density Polyethylene* Size 30x15	508,735	47,380	16,375	3,375	5.210	72,340
August 2022		448,826	38,185	14,187	3.218	4,586	60,476
September 2022		453,279	50,420	14,690	3.147	5,324	74,581
October 2022		526,026	46,160	16,640	3,752	5,630	72,182
November 2022		578,838	44,664	19,280	4,598	5,928	75,470
December 2022		557,219	55,340	17,980	3,816	5,785	84,321
Total		3,072,923	282,149	99,152	21,906	32,463	435,670

The second stop is to make stratification data. This step is used to group data into a group with the same characteristics. According to the data collected, then established criteria for product defects Pocket HDPE plastic size 15x30 with four types of such as hole defects, folded defects, detached seal defects, and dirty defects.

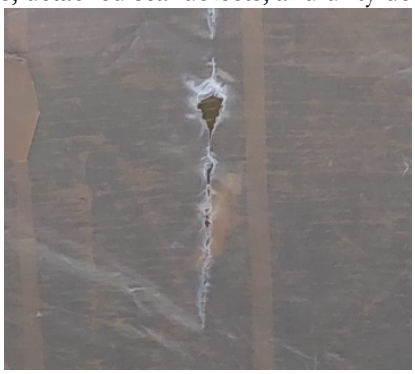

Figure 1. Hole Defects

Figure 2. Folded Defects

Figure 3. Detached Seal Defect

Figure 4. Dirty Defect

Table 3. Data Stratification

Type defect				Total
Hole	**Folded**	**Deta-ched *Seal***	**Dirty**	
282,149	99,152	21,906	32,463	72,340

Table 4. Types and Causes of Defect

Type Defect	Cause
Hole Defects	Caused by the machine roll being too hot, stuck on a sharp thing, and contaminated by dirt on the roll.
Folded Defects	The machine roll causes it pulled too strong.
Detached Seal Defect	Caused by the temperature that is not right.
Dirty Defect	Caused by dirt or contaminating dust _pocket plastic.

The third step is to make histograms. This research uses this histogram to describe grouped data in certain class intervals. The data used in the histogram chart is frequency defects and types disabled from July until December 2022 .

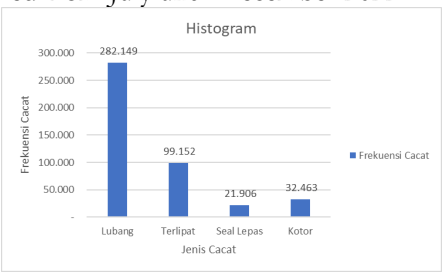

Figure 5. Histogram

Based on Figure 5, the histogram chart above can is known that the order of intervals for the type of each defect with the most number happen known, among other things, hole defects of as much as 282,149 units, folded defects of as many as 99,152 units, detached seal defect is of as many as 21,906 units, and dirty defects as many as 32,463 units.

The fourth step is to make Pareto charts. This research uses the Pareto chart to sort every defect from the biggest to the smallest. Percentage disabled every month with depicted using the Pareto diagram shown in Table 5 and Figure 6. Table 5 and Figure 6 show that type the

highest defect in July – December 2022 is Hole Defects which are as big as 282,149 units with a percentage defect of 64.8%, and type lowest defect is detached seal defect defects that are of 21,906 with a percentage of 5%.

Table 5. Percentage Defects and Percentages Defect Cumulative by July-December 2022

Type of *Defect*	Number of *Disabilities* (Unit)	*Defect* Percentage (%)	*Defect* Percentage (%)
Hole	282,149	64.8%	64.8%
Folded	99,152	22.8%	87.5%
Loose *Seal*	21,906	5%	95%
Dirty	32,463	7.5%	100%
Total	435,670	100%	

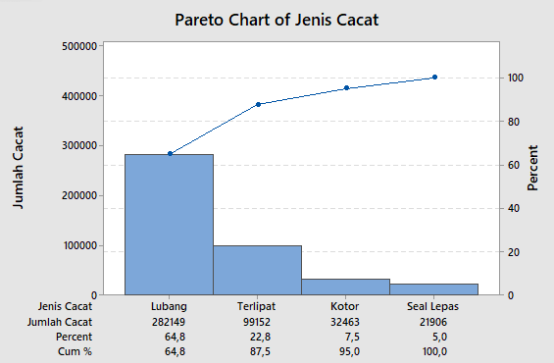

Figure 6. Pareto Product Diagram Disabled July – December 2022

Based on the Pareto diagram, can is known that the dominant order defect is Hole defects, folded defect, dirty defects, and detached seal defects. The next step is to make scatter diagrams toine the connection or correlation between the amount of production and demand, which can be seen in figure 7, figure 8, figure 9, and figure 10.

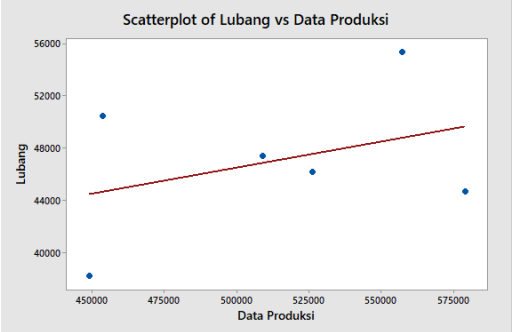

Figure 7. Scatter Plot Hole Defects

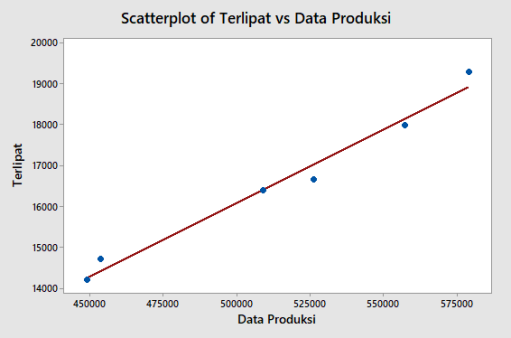

Figure 8. Scatter Plot Folded Defects

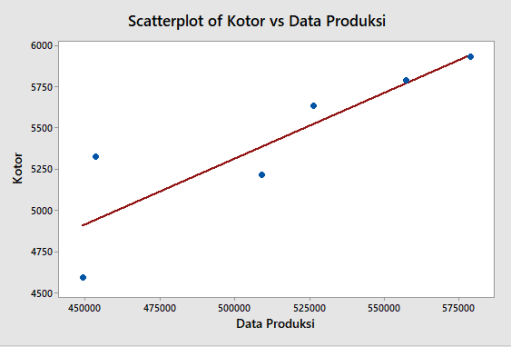

Figure 9. Scatter Plot of Dirty Defects

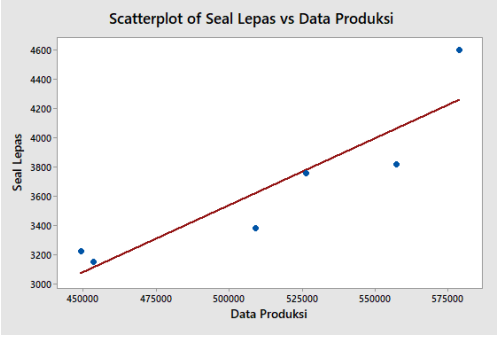

Figure 10. Scatter Plot Detached Seal Defects

Based on the scatter plot, it is known that the amount of the product with each type of defect (Defect Hole, Folded defects, Dirty Defects, and detached Seal Defects) has a connection or correlation positive Where variable Y experienced enhancement along with enhancement variable X. It is shown that the more tall amount production so will increase emergence defect.

The sixth step is to make a control chart. As can be seen in Figure 15 is known that there is data that exceeds the control limit, namely in the second period (August), with total production as big as 408,800 units and total defects of 38,485 units. Furthermore, the fourth period (October), with total production as big as 482,490 units and total defects of 46,160 units, means that the process does walk with good and necessary repairs.

Based on Figure 12, visible data exceeds the control limit, namely in the fifth period (November) with total production as big 578,838 units and total defects of 19,280 units, which means that the process does walk with good and necessary.

Based on Figure 13 some data exceeds the control limit. In first period (july), with total production as big 508,735 units and total defects of 3,375 units. Moreover, the fifth period (November) with total production as big 578,838 units and total defects of 4,598 units, which means that the process does walk with good and necessary exists repair.

Based on Figure 14, some data exceeds the control limit, namely in the third period (September), with a total production of as much as 453,279 units and total defects of 5,324 units, which means that the process does walk with a good and necessary repair.

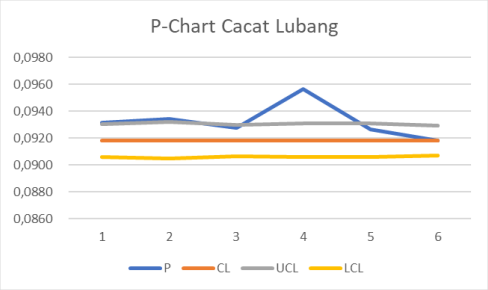

Figure 11. Control Map Hole Defect

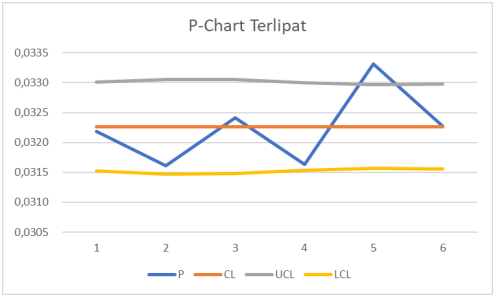

Figure 12. Control Map Folded Defect

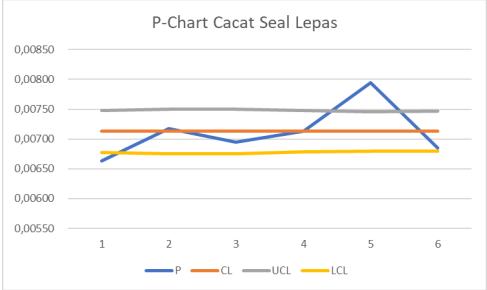

Figure 13. Control Map Detached *Seal*

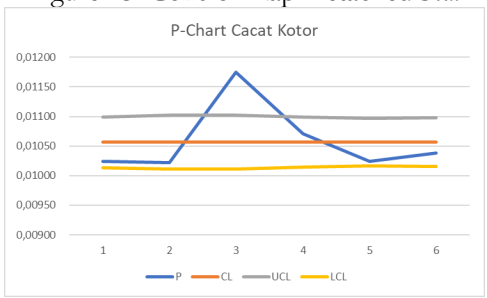

Figure 14. Control Map Dirty Defect

After analyzing the calculation problem, the step is to make fishbone diagrams to determine the root problem of each type of defect. Based on Figure 15 known, the factors reason happening the defects of each type of defect. For defect type hole defect problems reviewed from material factors, man, environment, methods, and machines. The type, folded defect reason problem was reviewed from material factors, man, methods, and machines. For type detached seal defects, the reason problem was reviewed from measurement factors, materials, man, methods, and machines. The type, dirty defect reason problem was reviewed from material factors, man, environment, and machines.

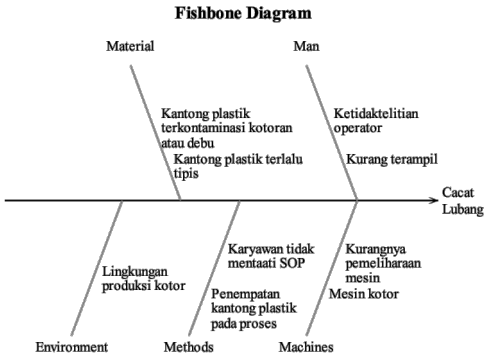

Figure 15. Fishbone Diagram of Hole Defects

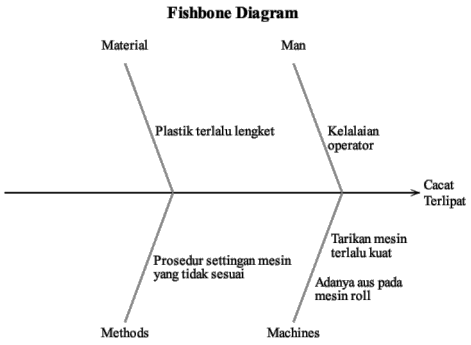

Figure 16. Fishbone Diagram of Folded Defects

Figure 17. Fishbone Diagram of Detached Seal Defect

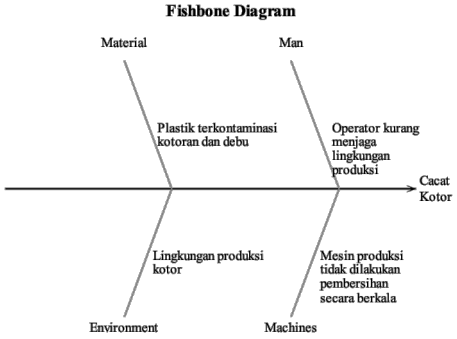

Figure 18. Fishbone Dirty Defect Diagram

After determining the root problem of each defect, the next step is to determine the proposed strategy repair using the Kaizen method. The first step is using the implementation tool of the Kaizen Five M-Checklist.

Table 6. Analysis Problem Hole Defects with Kaizen Five M-Checklist

No.	Factor	Problem	Solving Problem (Proposal Repair
1.	Man	1. Operator inaccuracy 2. Less skilled	1. Conduct a briefing before the production process is carried out. 2. Provide regular training to improve skills. 3. More supervision is strict and instructing the workers by the head of a production.
2.	Machine	1. Dirty engine 2. Lack of machine maintenance	1. Perform machine cleaning after use 2. Perform *maintenance* on the machine regularly
3.	Mileu	1. Dirty production environment	1. Clean the work area after Work has been completed. 2. Disposing of production residue 3. Tidy up the plastic ore raw materials so they do not scatter.
4.	method	1. Improper placement of plastic bags during the cutting process.	1. Tighten SOPs
5.	Material	1. Plastic bags contaminated with dirt or dust 2. The plastic bag is too thin	1. Put the plastic roll in a safe and sterile place.

Table 7. Analysis Problem Folded Defects with the Kaizen Five M-Checklist

No.	Factor	Problem	Solving Problem (Proposal Repair
1.	Man	1. Operator negligence	1. Conduct a briefing before the production process is carried out. 2. Provide regular training to improve skills. 3. Giving more direction and supervision is strict to the workers given by the head of a production.
2.	Machine	1. There is wear on the rolling machine 2. Engine pull is too strong	1. Perform *maintenance* on the machine regularly 2. Tighten machine setting SOP
3.	Mileu	1. No cause happened	-
4.	Method	1. Inappropriate setting procedure	1. Tighten SOPs
5.	Material	1. Plastic is too sticky	1. Provision of a special place for storage to avoid material or plastic being damaged by heat.

Table 8. Analysis Problem Detached Seal Defects with Kaizen Five M-Checklist

No.	Factor	Problem	Solving Problem (Proposal Repair)
1.	Man	1. Operators do not regularly control the engine temperature	1. Conduct a *briefing* before the production process is carried out. 2. Provide regular training to improve skills. 3. Giving more direction and supervision is strict to the workers given by the head of a production.
2.	Machine	1. Incorrect *sealer* temperature. 2. The rotational speed of the machine does not match the speed of the *cutting machine.*	1. Perform *maintenance* on the machine regularly 2. Check before starting the production process. 3. Giving *manual procedure* for using the machine with a method of pasting or putting it in the area around the machine.
3.	Mileu	1. No cause happened	-
4.	Method	1. Improper plastic installation.	1. Create guides for appropriate Work and systematics in the production process.
5.	Material	1. Uneven thickness of plastic	1. Checking the material before the production process.

Table 9. Analysis Problem Dirty Defects with the Kaizen Five M-Checklist

No.	Factor	Problem	Solving Problem (Proposal Repair)
1.	Man	1. Operators do not take care of the production environment	1. Giving more direction and supervision _ strict to the workers given by the head of production.
2.	Machine	1. Production machines are not cleaned regularly	1. Perform machine cleaning after use.
3.	Mileu	1. Dirty production environment	1. Clean the work area after Work has been completed. 2. Disposing of production residue 3. Tidy up the plastic ore raw materials so they don't scatter.
4.	Method	-	-
5.	Material	-	-

After making a kaizen five m-checklist, finding the root problem, and delivering solving the problem. The next step is to determine the Kaizen Five Step Plan in Table 10 for application to the company PT. Harapan Sejahtera Karya Utama for increased quality the resulting product.

Table 10. Kaizen Five-Step Plan Improvement Strategy

Problem	Kaizen Five-Step Plan				
	Seiri (sorting)	**Siton (Setup)**	**Seiso (Cleanliness)**	**Seiketsu (Maintenance)**	**Shitsuke (Habituation)**
Humans : 1. Carelessness of operators 2. Less skilled 3. Operator negligence 4. Operators do not regularly control the engine temperature 5. Operators do not take care of the production environment				1. Provide training to improve operator capabilities and refresh *standard operating procedures* (SOP).	1. Get used to working following *the Standard operating procedure* (SOP). 2. Applicate strict penalties when making mistakes repeatedly.
Machine : 1. Dirty engine 2. Lack of machine maintenance 3. There is wear on the roll machine 4. Engine pull is too strong 5. Incorrect *sealer* temperature 6. The rotational speed of the machine that does not match the speed of the *cutting machine* 7. Production machines are not cleaned regularly	1. Make machine grouping data according to type and function to facilitate the process of checking and maintaining the machine. 2. Classify machine components that are prone to damage.	1. Placed manual procedures for using the machine around the machine area.	1. Cleaned the machine after carrying out the production process.	1. Perform regular machine maintenance.	1. Familiarize workers to always check machines both before and after carrying out the production process in accordance with *standard operating procedures* (SOP).
Environment : 1. Dirty production environment		1. Arrangement of air circulation tools as needed			
Method : 1. Improper placement of plastic bags					1. Updating production methods to make them

during the cutting process 2. Inappropriate setting procedure 3. Improper plastic installation					more structured. 2. Work briefing at the beginning of each day before starting Work.
Materials: 1. Plastic bags contaminated with dirt or dust 2. The plastic bag is too thin 3. Plastic is too sticky 4. Uneven thickness of plastic	1. Grouping plastic ore according to its type so it doesn't get mixed up and scattered.	1. Provide a place to store materials and plastic rolls in a safe and sterile place.			

3.3. Discussion

Based on the results using the Seven Tools method can is known highest defect with a Pareto chart is Hole Defects which is as many as 282,149 pcs with a percentage of 64.76%; Then followed by Folded Defects, as many as 99,152 pcs with a percentage of 22.76%; Dirty Defects of 5,411 pcs with the percentage of 7.45%; and Detached Seal Defects as many as 3,651 pcs with the percentage of 5.03%. Then, for connection or correlation, fourth type hole defects, folded defects, dirty defects, and detached seal defects are released to the amount produced to show that from the fourth type disabled, there is connection positive (correlation positive) where enhancement variable X is followed with upgrade variable Y, which means moment happen enhancement amount production Eat there was also an increase in numbers disabled otherwise. The control chart or map control shows that the fourth type of defects are Hole Defects, Folded defects, Dirty Defects, and Detached Seal Defects. Still, some defects are beyond the control limits (out of control), so an improvement strategy is needed using Kaizen analysis.

To analyze and know the factor reason defects using fishbone diagrams based on man, machines, materials, methods, measurement, and environment. For hole defects, the reason is the handicap is no operator scrutiny, lack of operator skill, machine production dirty, lacking maintenance machine, bag plastic contaminated dirt or dust, bag plastic too thin, placement of pocket plastic in the cutting process No right, the operator is not complying with SOP, and the environment dirty production. For folded defects, the handicap is operator negligence, wear on the rolling machine, pull machine too strong, plastic too sticky, and procedures settings machine that does not work according to SOPs. For loose seal defects reason, the handicap is operators not enough control manner periodically temperature engine, temperature no sealer machine accordingly, the round speed machine that does not work following the speed cutting machine, the thickness of the plastic which is not even, installation less plastic right, and settings temperature less sealer machine right. For dirty defects reason, the handicap is the minus operator guard environment production, machine production, not done cleaning in a manner periodically, plastic contaminated dirt and dust, and the environment dirty production.

Based on the use Kaizen improvement strategy method using tool implementation of the Five M-Checklist and the Kaizen Five Step Plan is a known factor reason disabled need For given proposal repair To Use For reduce percentage product defects pocket plastic High-Density

Polyethylene measuring 15 x 30. As for the proposal, possible improvements given by using an implementation tool of the Five M-Checklist and the Kaizen Five-Step Plan are as follows:

1. Seiri (Sorting)

1.1 For factor machine proposal repair are :

a. Create a grouping data machine following types and functions to facilitate checking and maintaining the machine.

b. Grouping component vulnerable machine broken.

1.2 For proposed material factors repair are:

a. Grouping ore plastic according to order, not mixed and scattered.

2. Seiton (Settings)

2.1 For factor machine proposal repair are :

a. Place manual procedure for use machine around the machine area.

2.2 For factor environment proposal repair are :

a. Setup tool circulation air following need.

2.3 For proposed material factors repair are:

a. Provide storage of materials and rolls of plastic in a safe and sterile place.

3. Seiso (Cleanliness)

3.1 For factor machine proposal repair are :

a. Clean the machine after carrying out the production process.

4. Seiketsu (Maintenance)

4.1 For factor man proposal repair are :

a. Give the training to increase operator capabilities and deliver standard operating procedure (SOP) refresher.

4.2 For factor machine proposal repair are :

a. Do maintenance machine manner periodically.

5. Shitsuke (Habituation)

5.1 For factor man proposal repair are :

a. get used to Working following standard operating procedures (SOPs).

b. Strict application of penalties if human resources error in a manner over and over again.

5.2 For factor machine proposal repair are :

a. get used to workers or operators always checking machine performance before and after the production process per standard operating procedures.

5.3 For factor method proposal repair are :

a. Renew method production for more structure.

b. Briefing Work every beginning day before starting the job.

4. CONCLUSION AND SUGGESTION

Based on the results of production process research, pocket High-Density Polyethylene plastic measuring 15 x 30 in the period month July until December 2022 got a conclusion in first, 30 can is known disabled highest with a Pareto chart is Hole Defects that is as many as 282,149 pcs with the percentage by 64.76%; Then followed with Disabled Folded as many as 99,152 pcs with the percentage by 22.76%; Gross Defects of 5,411 pcs with the percentage by 7.45%; and Defective Seal Detached as many as 3,651 pcs with percentage by 5.03%. Second, given proposal repair For reduce percentage defect production product pocket plastic High-Density Polyethylene measuring 15 x 30, is held supervision as well as control to the five M factors (man, milleu, materials, method, and machine) and five step plans (seiri, seiton, seiso, seiketsu, and shitsuke) which are more strict again is give training For increase operator capabilities and deliver refreshing the standard operating procedure (SOP), applying strict penalties if the workers keep doing an error in a manner over and over again, creating grouping data machine following types and functions to facilitate the process of checking and maintenance machine, put manual procedure for use machine around the machine area, arrangement tool circulation air in accordance need, and provide place storage of materials and rolls plastic in a safe and sterile place. Based on In conclusion, there are suggestions given in this study. First, the company preferably can apply seven tools method to know the resulting product percentage defect. Second, preferably company should consider the use of the proposed strategy repair with the Kaizen method implemented by the company in order to be able to reduce the percentage of defects in the product generated.

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