International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 02, 2020
ISSN: 1475-7192

Analysis of Quality Control of Instant Mie Products Using C-Chart Methods (PT XYZ)

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***Abstract*---*This study looked at instant noodle products with bag-noodle and cup noodle types at PT XYZ. Both products address a fairly high defect rate based on company standardization, including: the shape and structure of the product. This resulted in not achieving production targets. Therefore, supervision of the production process is very necessary to minimize the number of defective products. The C-Chart method is a solution to determine the level of product damage in the production process. Thus, the purpose of this study is to provide information about product quality based on the level of damage, so that the production process can run effectively and efficiently.*

Keywords*---*Quality, Reject, Noodles, C-Chart

I. INTRODUCTION

Quality is one of the factors that determine the achievement of production targets. Products that do not meet the standard quality of instant noodles will be declared as reject products and declared as scrap. Scrap is the term used for defective products to be disposed of. The more products that do not meet quality standards, the production target is not achieved.Based on data from April 2018 to July 2018, it shows that the causes of the most defects are in the form factor of mi which is as much as 40.1%, especially for production line 7 of 46.3%. In order to produce a quality product, the company supervises the production process. This supervision is needed to minimize the number of defective products. The method used is C-Chart. The purpose of this study is to provide information about product quality based on the level of damage, so that the production production process can run effectively and efficiently.

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DOI: 10.37200/IJPR/V24I2/PR200577
Received: 30 Dec 2019 | Revised: 13 Jan 2020 | Accepted: 25 Jan 2020

Table 1:*Rejection rates per line*

No	Line	Reject Bentuk Mie (%)
1	1	25,0
2	2	24,3
3	6	36,0
4	7	46,3
5	8	27,7
6	10	39,3

Meanwhile, based on observations of instant noodle products, there were several factors that led to not achieving the production target, one of which was the number of noodle blocks that did not meet the standard. Blocks of noodles that do not meet the standards will be rejected and declared as Scrap. This block block rejection is classified into several parts, namely reject because it is raw / charred, the weight of nonstandard noodle blocks, contaminated noodle blocks and nonstandard forms of noodles. Observations were made 3 times for each production line with the number of samples of 100 noodle blocks per observation. The types of reject rejects include: 12% raw noodle / charred block, 10.2% nonstandard weight block, 31.7% polluted noodle block, nonstandard noodle form. 40.1%.

Table 2:*Average rejection Level*

Jenis Reject	Rata-rata reject
Blok mie mentah/gosong	12%
Berat blok mie tidak standar	10,2%
Blok mie tercemar	31,7%
Bentuk mie yang tidak standar.	40,1%

II. LITERATURE REVIEW

Statistical Quality Control is a method of collecting and analyzing quality data, as well as interpreting these measurements. Then, quality control explains the processes in an industrial system, to improve the quality of output through a statistical process in meeting customer needs and expectations. The basic concept of process control statistics is to compare "what is meant by a normal process" based on a data set from a period of normal operation, with "what is happening now" based on sample data from ongoing operations (Gerald Smith, 1996).

In controlling statistical processes there are 2 types of data known (Vincent, 1998), namely:

1. Data attribute

   Attribute data is qualitative data that is calculated using enumeration lists for the purposes of recording and analysis. Attribute data is discrete. In addition, a summary or classification related to a set of requirements has been set, the record is considered as an "attribute".

2. Variable data

Variable data is quantitative data that is measured using certain measurement tools for the purposes of recording and analysis. Variable data is continuous. If a record is made based on actual conditions, measured directly, then the measured quality characteristics are referred to as "variables".

Data collected from operations under normal conditions is used to compile control charts and control limits. The control limit is designed so that if the ongoing operation is not too different from normal operation, statistics

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calculated from ongoing data are within the control limit. Conversely, if the ongoing operation shows a striking difference with normal operations, then statistics calculated from ongoing data will be outside the control limit. This condition is said to be out of control condition (Mayarova, 2019).

One control chart for quality is C-Chart. Map control (control chart) is a statistical method that distinguishes variations or irregularities due to common causes and special causes. Deviations caused by special causes are usually outside the control limits, while those caused by common causes are usually within the control limits. Control charts are also used to improve process quality, determine process capability, help determine specifications - effective specifications, determine when the process can be carried out on its own, and when adjustments can be made, and find the cause of not accepting these quality standards.

Theoretical Framework

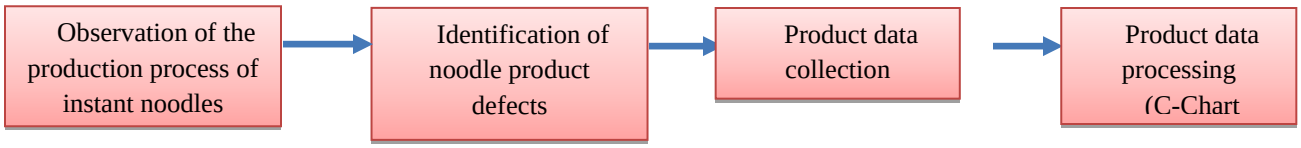

Figure 1:*Theoretical Framework*

This study identifies factors that cause damage or disability in instant noodle products. The process of observing instant noodle production produces several factors that are the causes of product damage through identification of problems in instant noodle products. Therefore, product data will be collected to be managed using the C-Chart method. Thus, information about the level of product quality based on the level of damage can be known. Information obtained can improve the quality of production to run effectively and efficiently.

III. FINDINGS

Based on the results of observations of instant noodle production, especially on Line 7, the noodle form does not meet the highest standards. Map control (control chart) is a statistical method that distinguishes the existence of variations or irregularities. This is due to common causes and special causes. The use of kendari maps must be based on measurable data. The proposed analysis method is to use C. control chart.

IV. DISCUSSION AND CONCLUSION

Based on observations made at PT Indofood CBP Sukses Makmur, Bandung Branch Noodle Division, it was found that the quality of the blokmie products produced greatly influenced the achievement of production targets and the amount of waste. The higher the number of rejects the more the production target is not achieved. The highest reject percentage is caused by nonstandard noodles, which is 40.1%. The production line that produces the most noodle blocks with nonstandard forms is line 7 with a percentage of 46.3%. To take corrective action, a control map must be loaded.

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