

# Continuous Improvement Approach to Maintain Zero Accident at PT. Malidas Sterilindo Sidoarjo

Kenpurwastuti. N<sup>1</sup>, Gustopo. D<sup>2</sup>, Vitasari. P<sup>3</sup>

<sup>1</sup>Industrial Engineering, Study Program of Industry Management, National Institute of Tecnology  
E-mail : erastiwahono@gmail.com

<sup>2</sup>Industrial Engineering, Study Program of Industry Management, National Institute of Tecnology  
E-mail : dayal\_gustopo@lecturer.itn.ac.id

<sup>3</sup>Industrial Engineering, Study Program of Industry Management, National Institute of Tecnology  
E-mail : primavitasari19@gmail.com

**Abstract** - PT. Malidas Sterilindo is one of the companies in Sidoarjo Regency which has been awarded several times for zero accident from the Government of East Java Province from 2011 to 2019. The company has implemented the Occupational Safety and Health Management System to maintain the zero accident program. But in its implementation there are still several things in the form of unsafe conditions, unsafe actions, near misses, and work accidents that can cause the failure of the zero accident program that is being carried out by the company. Based on company data about work accidents that occur at work from 2016 to 2019, in 2016 there were 1 (one) work accident due to unsafe action, in 2018 found 1 work accident due to unsafe action and 29 (twenty nine) things in the form of unsafe conditions, whereas in 2019 an almost accident occurred (near misses).

Based on these descriptions, it is necessary to have a program to maintain zero accidents through the Occupational Safety and Health Management System by using the concept of continuous improvement by first analyzing the influence of an understanding of and compliance with the safety and health programs towards zero accident.

**Keywords** – Izero accident, Occupational Safety and Health Management System, Continuous improvement.

## I. INTRODUCTION

The previous study were conducted by Dinar Rahadian (2015) which aims to determine the results of the continuous improvement control model to reduce the number of accidents at the work station boilers in the NBH sugar factory. The results showed a control model of occupational accidents towards zero accident at the work station boilers in the Sugar NBH by continuous improvement with the PDCA (*Plan-Do-Check-Action*) system

PT.Malidas Sterilindo Sidoarjo has several programs on safety and health as a preventative measure of workplace accidents for every worker, among others:

1. Basic safety and health training, which includes:
  - HIRA (*Hazard Identification and Risk Assessment*) which is training for risk management
  - fire fighting training for fire prevention
  - accident management training for first aid in accidents
  - personal protective equipment training
  - waste management training
  - Handling of hazardous and toxic materials
  - LOTO (*Log Out Tag Out*) / locking and tagging training
  - emergency response training
  - OSH management system integration and environment training
2. Seminar on HSE (*Health and Safety Environment*) which discusses, among others, ergonomic personal protective equipment (PPE), behavior-based safety, and occupational diseases.
3. The Occupational Safety and Health Advisory Committee is a cooperation between employers and workers to develop

mutual understanding cooperation and effective participation in the application of OSH and the environment.

## II. RESEARCH METHODS

This study uses a descriptive approach, which is a careful measurement of certain social phenomenon. The approach is aimed to find the strtegy that can increase zero accident performance. The population taken in this study is the workers of production and engineering department of the factory, the method used in this sampling is random sampling, which is sampling of population members carried out randomly without regard to strata in the population. The sample in this study is 100 people, the instrument used is used in this research questionnaire.

Data collection technique:

- Observation, to get research data the authors made observations to the research location.
- Interview, interview method is used to find information to support the results of a survey that has been done
- Questionnaire, the questionnaire was used to obtain the voice of customer and was distributed to 100 workers.

## III. RESEARCH RESULT

The results of the analysis using the PDCA method through the annswers of workers are obtained:

### 1. Based on Gender

Based on the description of the respondents from 100 employees of PT Malidas Sterilindo Sidoarjo for male gender as many as 90 people and female employees as many as 10 people with details as shown in the Table 1.

Table 1. Gender of Respondents

Gender	total	Percentage (%)
Man	90	90
Woman	10	10
Total	100	100

2. Based on Age

Based on the results of the distribution of questionnaires it is known that the age of most of the employees of PT Malidas Sterilindo Sidoarjo for the ages of 31-40 years were 47 employees with details as shown in the Table 2.

Table 2. Age Level

Age	Total	Percentage (%)
20-30 years	28	28
31-40 years old	47	47
41-50 years old	25	25
total	100	100

3. Based on Education Level

Based on the results of the distribution of questionnaires it is known that the level of education of most of the employees of PT Malidas Sterilindo Sidoarjo for high school as many as 80 people with details as to Table 3.

Table 3. Education Level of Respondents

Education	Total	Percentage (%)
S1	15	15
D1-D3	5	5
High school	80	80
total	100	100

Strategies with the PDCA method

Based on the results of a survey conducted and looking at the Deming cycle in the continuous improvement process Plan, Do, Check, and Act cycles will be explained as follows:

1 Plan

- a. Strengthening OHS actions in the form of team briefings. The briefing starts when the work begins and was led by the team leader and delivered by each employee in turn every day
- b. Optimizing the function and role of P2K3 as the Committee for Safety and Occupational Health by planning, implementing, evaluating, and controlling. Increasing P2K3 activities, which are monthly, semesterly, and yearly, in connection with safety and health in the company
- c. The implementation of safety and health program as a reward and punishment criteria is stated in company regulations

2 Do (Implementation)

- a. Make a list of business packages led by direct superiors and carried out by workers in turn to deliver unsafe actions, unsafe conditions, and near matters seen or experienced by workers to other workers and their opinions about behavior based safety that should be done. Team briefing activities must be documented in the form of a simple report form that contains the day / date / hour, speaker name, and speaker material.

- b. Coordinate between divisions about work risks that might occur, make signs or messages of safety and health in places that are at risk of accidents, determine ways of preventing hazards in working in each division, ensuring PPE, first aid facilities and fire prevention equipment available and functioning. The results of coordination must be documented and stored in each division in the form of a simple form with a list that contains at least the form of accidents, prevention, actions taken, accident results, and suggested actions.
- c. Develop award criteria for successful OSH implementation which will contribute to the rewards received by workers (in the form of an award certificate, medal, or a sum of money) and determine criteria for violations of OSH that will impact punishment that workers must receive (in the form of verbal or written reprimands, penalties fines or suspension) and make award recipient / punishment report forms for actions that are successful / wrong in safety and health

3 Check (Supervision)

- a. Evaluate that the team briefing activities are carried out every day by looking at the report on the implementation of the activities.
- b. Evaluating the coordination between P2K3 and all parts of the company can be carried out well by ensuring the data obtained in each division starts the occurrence of risk of accidents up to suggested actions and makes the data as an evaluation of optimizing P2K3 activities
- c. Evaluating the effect of the effectiveness of awarding or punitive treatment on success and violation of safety and health based on the award recipient's report and punishment data

4 Action

- a. Determination of daily routine team briefing guidelines and make these activities as a basis for behavior based safety behavior that has never been done before
- b. Establish a list of accident risks in general, prevention methods, recommended actions, and training plans needed to support occupational safety and health in the company
- c. Determination of rewards and punishments for workers who have carried out OHS well or who have violated OHS in company regulations that have been passed by the Office in charge of manpower

Proposed Implementation

Some things that have been implemented since the study was carried out in connection with the implementation of K3 activities in the company can be explained in the following table.

Table 4. Implement improvement proposals

Before Research	After Research
Conducted scheduled training	Scheduled training is carried out and supervision and escorting are carried out in the field for each material delivered
Work accident report form provided	Work accident report forms are provided and workers are given the obligation to fill out forms if an event occurs that creates a risk / hazard

## IV. CONCLUSION

The formulation of the results of the strategy to create a standard for safety and health implementation using the PDCA method at each stage is as follows:

- a. Planning (*Plan*), by strengthening OHS actions in the form of routine *team briefings*, optimizing the functions and roles of the OHS advisory committee, and making OHS implementation a *reward* and *punishment*.
- b. Implementation (*Do*), by making a *team briefing* list, coordinating between divisions about the risks and hazards of work, and compiling criteria for rewards for successful OSH implementation or penalties for violations of OSH
- c. Supervision (*Check*), by evaluating the activities of the *team briefing*, evaluating the coordination between P2K3 with all parts of the company, and evaluating the effectivity of the awarding or *punishing* of the success and violation of K3 based on the award and punishment recipient report data
- d. Action (*Action*), by making the establishment of daily routine *team briefing* guidelines and making these activities

as a basis for *behavior based safety* habits, determining the list of accident risks in general, ways of prevention, recommended actions, and training plans needed to support occupational safety and health in the company, and Determination of rewards and punishments for workers in company regulations that are approved by the Office in charge of manpower

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