

# The Management of Medium Hazard Potential at Trimitra Sejati Jaya Ltd (Glue Production)

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**Abstract.** All industrial activities that use, store, produce, and transport hazardous chemicals in the workplace are required to control hazardous chemical to prevent occupational accidents and work-related diseases. Trimitra Sejati Jaya Ltd is a company engaged in the manufacturing industry that produces wood glue, paper glue, packaging, PVAc white glue, and hotmelt adhesive. In its working activities, Trimitra Sejati Jaya Ltd has a risks and hazards impact that requires medium hazard potential management. This research is a descriptive study that was conducted objectively to determine the control of medium hazard potential in Trimitra Sejati Jaya Ltd. The objective of this research is to find out the actual conditions in the field compared to the compatibility of the laws and regulations. Hazard identification, risk assessment and control at Trimitra Sejati Jaya Ltd were carried out using the HIRARC method. The level of risk dominating the work activities in this company was categorized as medium risk. Technical activities, design, construction, chemical material selection, as well as operation and maintenance of installations at Trimitra Sejati Jaya Ltd have been performed in accordance to the company regulations. Trimitra Sejati Jaya Ltd has several employees development activities, such as waste management and handling training and socialization, personal protective equipment usage socialization, fire fighting socialization, and internal briefings that have been carried out for several times. There are existed emergency response plan and procedures such as evacuation routes and assembly points signs, as well as provide fire extinguishers and first aid kits. There are no safe work procedure implemented at Trimitra Sejati Jaya Ltd yet, it only oriented on the existed Quality Management System

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## 1. Introduction

All industrial activities that use, store, produce and transport hazardous chemicals in the workplace are required to control hazardous chemicals in order to prevent work accidents and occupational diseases. The main focus of this study is to create a medium hazard control document, by using hazard identification, risk assessment, and risk control on each job using the HIRARC method, describing technical activities, design, construction, chemical selection, operation and maintenance of installations, labor development activities in the workplace, making emergencies response plans and procedures, and develop safe work procedures. This research was studied in Trimitra Sejati Jaya Ltd, a manufacturing industry company located in the Permata Gedangan Warehouseing and Industrial Complex, Bohar Taman, Sidoarjo, East Java. It was conducted from August 2021 to the end of December 2021.

Trimitra Sejati Jaya Ltd is one of the manufacturing industries in the field of making wood glue products, paper glue, packaging, white glue PVAc, hotmelt adhesive. Trimitra Sejati Jaya Ltd is a company that produces glue, so it cannot be separated from the use of hazardous chemicals ranging from raw materials to finished products (Trimitra, 2021). Based on the amount of chemicals used by the company for the production process under the Threshold Limit Value (TLV) that regulated by the Republic of Indonesia Minister Manpower Regulation Number 187 of 1999 concerning the Control of Hazardous Chemicals, Trimitra Sejati Jaya Ltd classified as a company that has medium hazard potential.

It is necessary to prepare the medium hazard potential control document at Trimitra Sejati Jaya Ltd which aims to fulfill the company's obligations based on 16<sup>th</sup> article of Republic of Indonesia Minister Manpower Regulation Number 187 of 1999 concerning the Control of Hazardous Chemicals, which contains the obligation to produce medium hazard control documents. In addition, Trimitra Sejati Jaya Ltd is in the process of implementing the OHS Management System, which refer to 11<sup>th</sup> article of Indonesia Government Regulation Number 50 of 2012 concerning the Implementation of OHS Management System which contains identification of potential hazards, assessment, and risk control using HIRARC method.

HIRARC is a method to find hazards, control hazards, and assessment of hazards. HIRARC is one of the requirements that must exist in implementing OHS Management System sourced from ISO 45001: 2018 Clause 4.3.1. It requires an organization or company that will implementing OHS Management System to prepare the HIRARC form on company. HIRARC can be divided into 3 stages, as the identification stage hazard by hazard identification, risk assessment, and risk control (Setiawan: 2019). The purpose of the HIRARC is to identify, evaluate and control OHS risks in a work process. Besides that, HIRARC aimed to reduce the number of accidents on work places and to protect all work processes.

## 2. Materials and Methods

The data were collected through observation, interview, documentation and existed documents analysis. The study started by using assessment of HIRARC start from identify each activity or work, identify machine tools and materials in each activity in the work, analyze the impact that can be caused when potential hazards occur, compiling risk lists, and determining controls recommend based on risk assessment. Hazard risk assessment implemented by making observations at the research location, observing, documentation, interviews with workers, supervisors, production heads who related, as well as management by

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paying attention to work instructions, hazards in each process, the resulting impact of the hazard. HIRARC assessment is done by multiplying likelihood and severity into matrix of each risk level. After that, a risk level assessment is determined by low risk, medium risk, high risk, extreme risk.

Risk assessment level based on matrix HIRARC according to AS/NZS 4360 standard:

- a. Level of likelihood
  - 1. Rarely
  - 2. Little chance
  - 3. Medium probability
  - 4. Most likely
  - 5. Almost certain
- b. Severity level
  - 1. Insignificant
  - 2. Minor
  - 3. Moderate
  - 4. Major
  - 5. Catastrophic
- c. Category of risk level
  - 1-4 : Low Risk
  - 5-9 : Medium Risk
  - 10-16 : High Risk
  - 20-25 : Extreme Risk

### 3. Production Flow Process

In its implementation, the standard handling of chemicals in Trimitra Sejati Jaya Ltd has not appropriate by regulations. The company has not provided MSDS (Material Safety Data Sheet) and has no label that contains information about chemicals. MSDS aimed to find out information about chemicals that contain raw materials in the production process. In addition, the company does not have chemical HSE officer or chemical expert that required by regulations.

The production process for making glue at Trimitra Sejati Jaya Ltd is as follows:

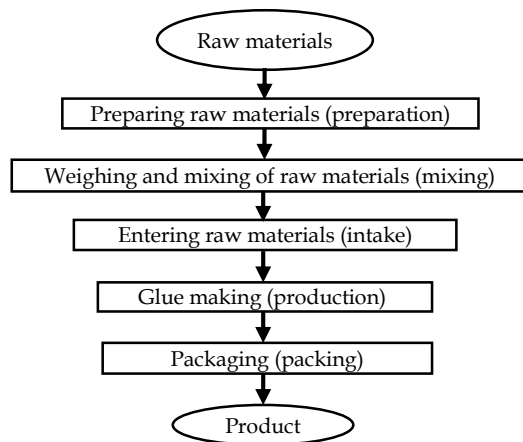


Fig. 1 Production Process for Making Glue at Trimitra Sejati Jaya Ltd

### 4. Discussion

#### Medium Hazard Potential

Based on the Decree of the Minister of Manpower number 187 of 1999 concerning Control of Hazardous Chemicals article 15, the Company which in its production process uses hazardous chemicals with quantities equal to / smaller than the Quality Threshold Value (QTV), is a category of companies classified as medium hazard potential. One of the contents of the points in article 15 explains that the company's obligation to prepare a medium hazard potential control document, which at least contains:

- a. Hazard identification, risk assessment and control;
- b. Technical activities, design, construction, selection of chemicals, as well as operation and maintenance of installations;
- c. Workforce development activities in the workplace;
- d. Emergency response plans and procedures;
- e. Safe working procedures.

### Hazard Identification, Control, and Risk Assessment

Every company is required to establish, implement and maintain a process for continuous and proactive hazard identification to identify existing hazards, assess the risks, and determine existing controls (Laksana, 2018). The risk assessment is aimed to assess the level of risk of an accident or injury and the process of hazard identification (Tarwaka, 2012). Hazard identification, control, and risk assessment in this research were carried out using the HIRARC method. There are 20 various work activities on the production process, the number of hazards types produced from it activities is shown in table 1. It can be concluded that the level of risk that dominates the work activities at Trimitra Sejati Jaya Ltd is in a medium risk category. The level of risk value assessed based on likelihood multiplied with severity (Siswanto, 2009).

**Table 1**  
Results of Hazard Identification, Control, and Risk Assessment in the Production Process at Trimitra Sejati Jaya Ltd  
(PT Trimitra, 2021)

Risk Level	Number of Hazard Types
Medium risk	24
High risk	15
Extreme risk	18

Risk levels are were found almost in every work activity, it is generally from the high risk activities such as starting machines and equipment, operating the furnace, adding raw materials Vynil Acetate Monomer (VAM) additives into the stirred-tank reactor engine manually, adding Polivynil Acetate (PVA) into the stirred-tank reactor. Manual stirring, operation, ignition (firing), and water-filling boiler, blower / Gas Recirculation Fan operation, cooling tower operation, manual reactor cleaning, installing and replacing 50kg LPG gas cylinders, inspecting electrical panels, turning on generators, maintenance of machines and vehicles, extinguishing fire using light fire extinguisher / wheeled fire extinguisher. Based on the number of categories that belong to the extreme risk levels, it can be concluded that it is necessary for the company to provide recommendations that can reduce risk value in order to reduce the impact of hazards that may occur.

### Design and Construction

Trimitra Sejati Jaya Ltd is a company that uses a large amount of chemicals that requires appropriate buildings and constructions. Trimitra Sejati Jaya Ltd has 2 plants in Sidoarjo for the glue production consist of 2 floors, each 10 meters x 30 meters measuring. There are 5 other warehouses near the production site which are used for storage of raw materials and finished products that are ready to distribute.

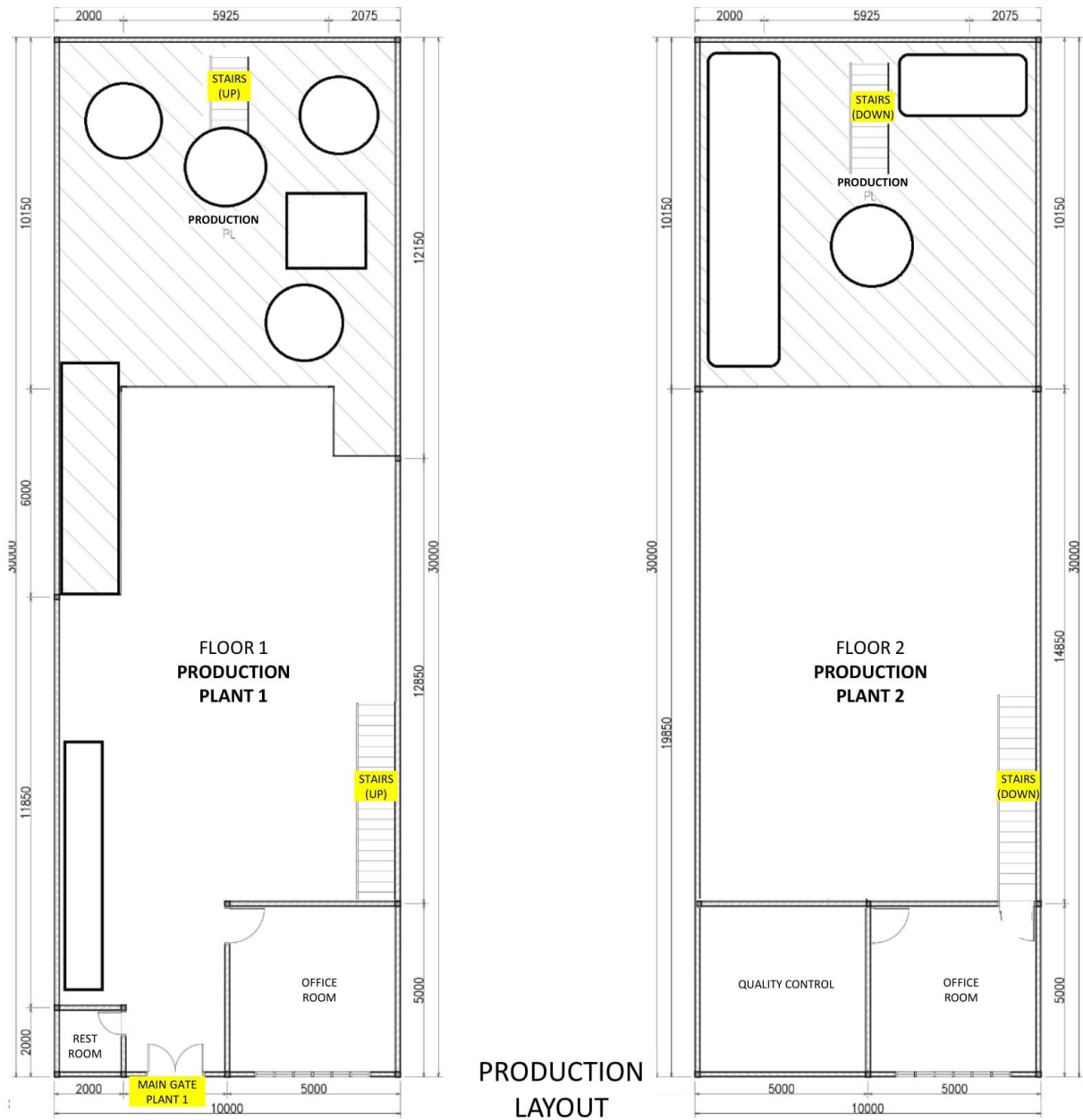


Fig. 2 Production Plant 1 Layout  
(Source: Primary Data, 2021)



Fig. 3 Production Plant 2 Layout  
(Source: Primary Data, 2021)

### Selection of Chemicals using in Production Process

Trimitra Sejati Jaya Ltd is a glue manufacturing company, therefore it cannot be separated from the chemicals selecting activities that would be suitable and effective to be used for the production process. Based on interviews results and observations from the head of production, Trimitra Sejati Jaya Ltd in its planning carried out several considerations in advance to choose the raw materials and chemicals used in the glue production. Hazardous chemicals like VAM (*Vinyl Acetate Monomer*) and PVA (*Polyvinyl Alcohol*) are the most used chemicals as basic raw materials for making glue. In addition, the use of additional materials as production raw materials also needs to be considered. The selection of chemicals is accomplished based on several things such as the function and use of the materials, mechanical and physical properties of the materials, and the availability of the materials.

### Installation Operation and Maintenance

The running production process consists of machines, equipments and installations that are organized to produce the products effectively. The operation and maintenance of equipment installation aims to maximize the effectiveness of the equipment use during production activities. The following table is a list of equipment and installation names at Trimitra Sejati Jaya Ltd:

**Table 2**  
Production Machinery Equipment and Installations at Trimitra Sejati Jaya Ltd  
(Primary Data, 2021)

No.	Machinery Equipment and Installations List	Quantity
1.	Boiler / Thermal Oil	2
2.	Cooling Tower	2
3.	Blower / Gas Recirculation Fan	2
4.	Tank Flow Reactor	4
5.	Scale	6
6.	Condensor	2
7.	Thermometer	4
8.	Memmert Oven	2
9.	Viscometer	3
10.	Analitic Scale	2

Table 2 machinery equipment and installations lists used by Trimitra Sejati Jaya Ltd to produce glue. Equipment and installations that been used continuously need special care and maintenance effort.

#### Worker Development Activities in the Workplace

Worker development aims to obtain better work performance and results of the workers, and are expected they could meet the targets set by the company. The implemented workers development programs are varies according to the needs of the company so the training program carried out is right on target for those concerned. Trimitra Sejati Jaya Ltd has several existing work programs, as follows :

- a. Waste/garbage handling and management training and socialization.
- b. Personal Protective Equipment (PPE) usage socialization.
- c. Fire fighting using light fire extinguisher socialization
- d. Internal briefing for worker

Workers development activities have not been implemented in Trimitra Sejati Jaya Ltd. As it stated on Republic of Indonesia Government Regulation Number 13 of 2003 regarding in manpower, which explains that all sustainable development activities related to employment, organizations, employers, workers and other professional organizations are expected to establish labor cooperation in accordance with applicable laws and regulations. Based on Republic of Indonesia Minister of Manpower Regulation Number 187 of 1999, companies with a medium hazard classification are required to have General HSE Expert and Chemical HSE Expert.

However in its implementation, Trimitra Sejati Jaya Ltd has not provided General HSE Expert or Chemical HSE Expert yet which required by regulations. General HSE Expert Officers are special officers who act as supporting personnel in the implementation of HSE guidance and supervision who experts in the environment and workplace in general, whereas Chemical HSE Expert officers is an experts specialized in HSE regarding to chemical handling and management.

#### Emergency Management Plans and Procedures

Every operational activities either internal, external, or any other activities cannot be separated from the potential for disasters and emergencies condition. Emergency response procedures are needed as a guideline in identifying predictable emergencies before they occur and as an effort to prepare for, prevent and deal with emergencies. It aimed to create a safe working environment and minimizing the impact caused by unwanted events. The unwanted incidents potential at Trimitra Sejati Jaya Ltd comes from internal factors in the form of major accidents, such as fatal fires due to chemical explosions as a result of operational failures. In addition, there is the potential for unwanted incident comes from external factors in the form of natural disasters, such as flash floods, earthquakes, and chaos caused of demonstrations.

Some of the points aimed at planning for the fulfillment of these clauses that applicable at Trimitra Sejati Jaya Ltd are:

1. Determine the potential of emergencies that may occur:
  - a. The occurrence of a large fire so that the company's Fire Team is unable to extinguish the fire
  - b. The occurrence of a sudden and unexpected explosion in a tank, confined space, etc.
  - c. The occurrence of gas leaks, spills of hazardous materials, liquids, or any other hazardous chemicals on a large scale that cannot be resolved in a short time by the Emergency Response Team

- d. The occurrence of a natural disasters in the company such as flash floods, earthquakes, chaos caused of demonstrations.
2. Determine the Emergency Response Team responsibilities/ duties, including:
  - a. Emergency Response Team Coordinator  
 Determining Emergency Response policies and procedures in the company, coordinate the performance of all members in the Emergency Response Team, scheduling regular meetings, executing recovery plans.
  - b. Deputy Emergency Response Team  
 Executing coordination duties with external parties, providing performance reports of each Emergency Response Unit, monitoring the maintenance of the company's emergency response facilities, assisting the Chair's duties.
  - c. Fire Fighting Team  
 Doing fire-fighting quickly, accurately, and effectively using the fire-fighting facilities available in the company, monitoring and reporting to the fire department if there is any damage to the head or deputy of the Emergency Response Team.
  - d. Evacuation Team  
 Coordinating the evacuation in case of emergency, reporting if there are members who have not been counted during the evacuation process.
  - e. First Aid Team  
 Implementing first aid action, reporting damaged first aid facilities, reporting to the coordinator or deputy coordinator if the victim requires medical treatment to the hospital.
  - f. Security and Transportation Team  
 Coordinating transportation facilities and ensure secure from all aspects related to emergencies.

The duties and authorities of the Emergency Response Team can be concluded by forming an emergency response team that can be applied to Trimitra Sejati Jaya Ltd as follows:

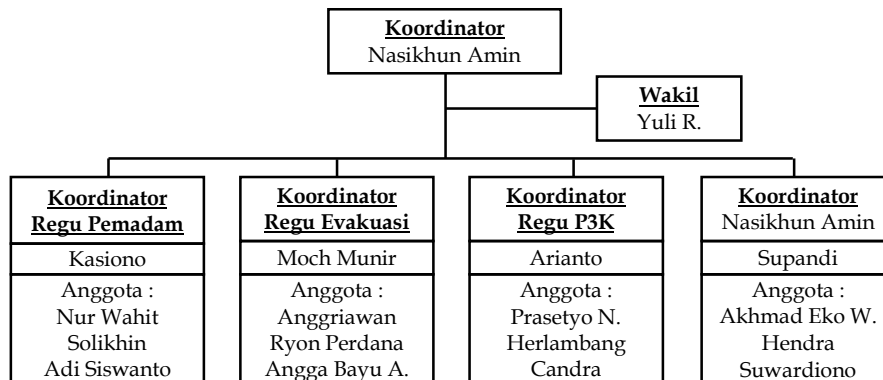


Fig. 4 Emergency Response Team that can Implemented at Trimitra Sejati Jaya Ltd

## Emergency Procedures

### Evacuation Route and Assembly Point

Based on Minister of Public Works and Public Housing Indonesia Regulation Number 14 of 2017 the 3<sup>rd</sup> Paragraph, every building except individual residences and simple complex houses are required to provide evacuation facilities and infrastructure in the form of a hazard alert system, evacuation routes, and emergency exits that make it easy for building users to evacuate safely from inside of the building in case of an emergency. In addition, it states that other facilities and infrastructure as referred consist of assembly points and evacuation routes. The planning and procurement of assembly points and evacuation routes should be easily visible, clearly identifiable and marked. Evacuation routes and assembly points are a form of emergency response plan in the form of an HSE sign. The evacuation route is intended as a sign of direction in case of an emergency. The evacuation assembly point is intended as a muster place for all people when the disaster or emergency occurs, which is located in a field or empty place that does not have the potential to be affected by further disasters or emergency conditions.




### Existing conformity with standards

The existing signs for evacuation routes and assembly points at Trimitra Sejati Jaya Ltd are not suitable with applicable standards, namely the Number 14 of 2017 on Building Ease Requirements. Table 6 describes the existing conditions of evacuation route and assembly points signs. In Figure 7 and Figure 8 are the Evacuation Routes in the Warehouse, which installed quite good, but the placement and size are still not visible enough for workers and the condition is quite dirty and the color is faded. So, it still needs some improvement that it can be easier for workers to know the direction to the evacuation



assembly point in case of an emergency. The planning and procurement of assembly points and evacuation routes signs should be easily visible, clearly identifiable and marked. The existing evacuation route signs are in appropriate condition but it still not visible because it was placed too high and hidden so that workers cannot see the signs clearly. In Figure 9 the Evacuation Assembly Point in the parking lot are not suitable to standard. According to the Minister of Public Works and Public Housing Indonesia Regulation Number 14 of 2017, the assembly point must meet technical requirements, that is the minimum distance of the *assembly point* / assembly point from a building or building, which is 20 meters long which aims to protect the building occupants and visitors of the building from danger or damage other emergencies. In addition, the assembly point is in the form of an open space or wide road, has access to a safer place, and is easily accessible by the medical team and fire fighting vehicles. Trimitra Sejati Jaya Ltd still does not have an appropriate assembly point that can be fully utilized and suitable to the applicable regulations. So in practice, the assembly point is not ready to use in case of an emergency. The following table compares the suitability of evacuation routes with applicable standards.

**Table 3.**  
 The suitability of evacuation routes with applicable standards

No.	Existing	Standard	Suitability
1.	 <p><b>Fig 5.</b> Evacuation route, located in Warehouse (Source: Trimitra Sejati Jaya Ltd)</p>	Minister of PUPR Regulation Number 14 of 2017 on Building Ease Requirements	Not suitable
2.	 <p><b>Fig 6.</b> Evacuation route, located in Production Plant (Source: Trimitra Sejati Jaya Ltd)</p>	Minister of PUPR Regulation Number 14 of 2017 on Building Ease Requirements	Not suitable
3.	 <p><b>Fig 7.</b> Assembly point, located at Parking lot (Source: Trimitra Sejati Jaya Ltd)</p>	Minister of PUPR Regulation Number 14 of 2017 on Building Ease Requirements	Not suitable

**Recommendations for evacuation routes and evacuation assembly points (*assembly points*)**

Recommendations that can be given for the existing evacuation routes are to place the evacuation route signs in a visible and reachable area, so that workers can discover the signs that leads to an evacuation assembly point when an emergency evacuation occurs. The evacuation route sign should be replaced with a new sign so that it looks brighter, clearer, easy to read, and not dirty. The recommendation for the existing evacuation assembly point is not to use the parking lot as an assembly point when occupational accident happen. The minimum distance for evacuation assembly points that must be implemented is 20 meters. So, it requires another area outside and inside the company that meets these criteria and provides access for firefighters and medical teams. Based on the explanation of the recommendations above, it is necessary to put an



emergency layout plan to make it easier for workers to read and discover the signs in case of an emergency. The following are recommendations for emergency layout that can be applied and disseminated by Trimitra Sejati Jaya Ltd at plant 1 and plant 2: Figure 8 and figure 9 are Plan for Emergency Response for Plant 1 and 2

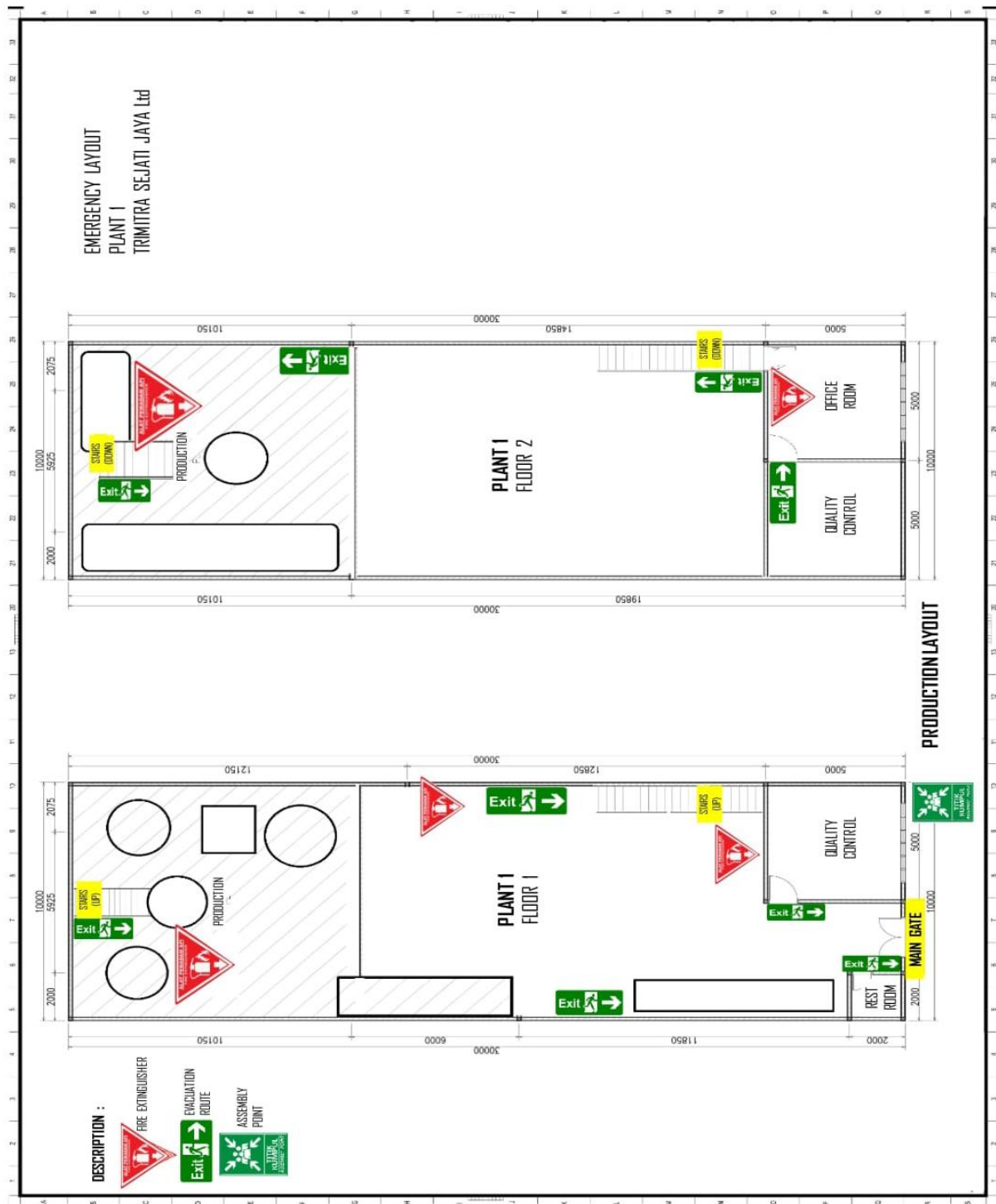


Fig. 8 Emergency Layout of Trimitra Sejati Jaya Ltd at Plant 1  
(Source: PT. Trimitra Sejati Jaya, 2021)

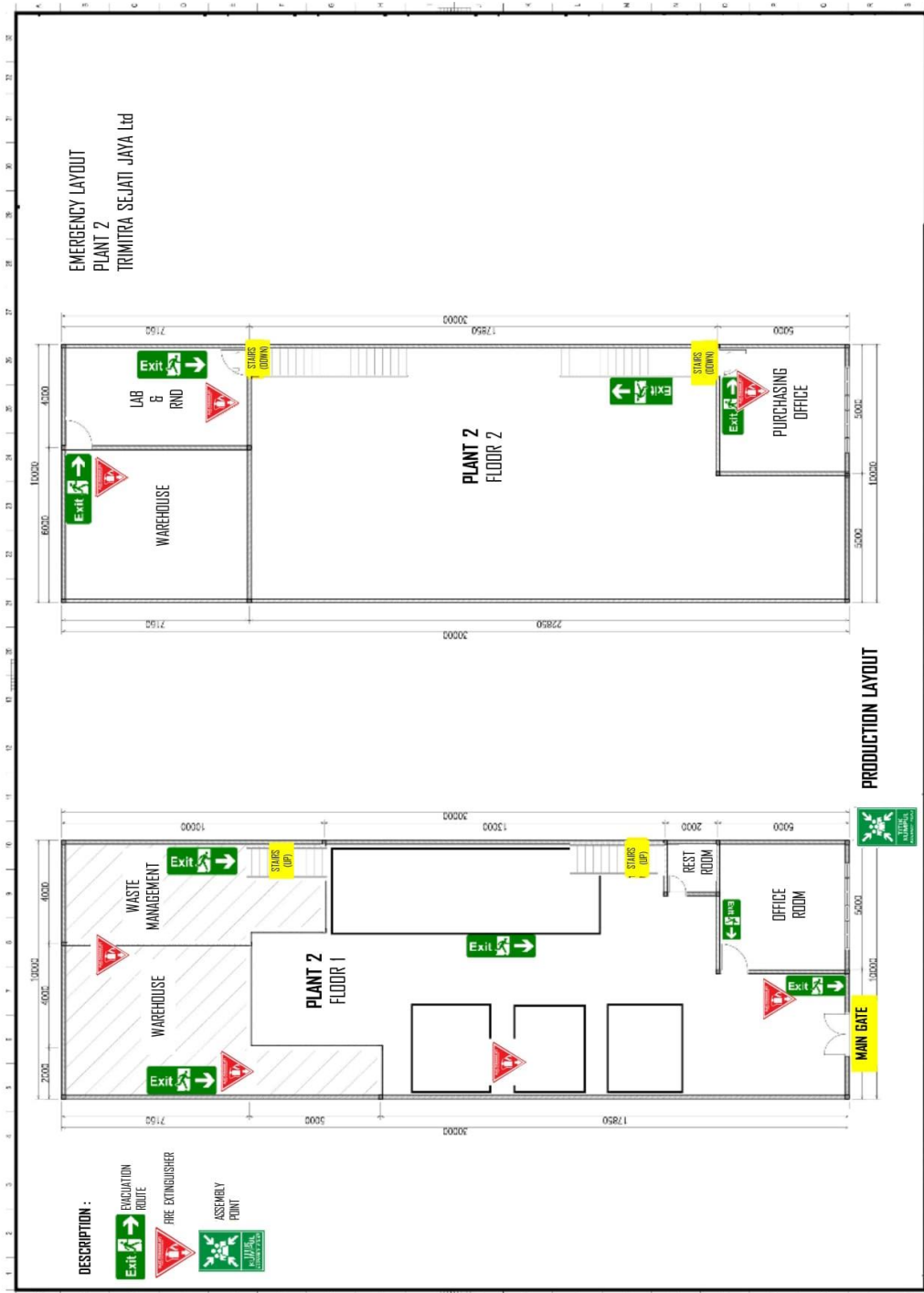


Fig. 9 Emergency Layout of Trimitra Sejati Jaya Ltd at Plant 2  
 (Source: PT. Trimitra Sejati Jaya, 2021)

The emergency layout above provides recommendations for placing light fire extinguisher signs, evacuation route signs, and evacuation assembly points. On the placement of the light fire extinguisher sign, according to Minister of Manpower and Transmigration Regulation number 04 of 1980 on Requirements for Installation and Maintenance of Light Fire Extinguishers, chapter 2 (two) article 4 (four) explains that the placement of fire extinguishers from one another must not exceed 15 meters, except other considerations by supervisors or work safety experts. The recommended evacuation route is adjusted to the direction to the evacuation assembly point, which is installed at several points such as in every room, on every staircase, several walls that lead to the evacuation assembly point. At the evacuation assembly point, a sign is placed in the outside parking lot with the consideration that the evacuation assembly point must be a wide area with a minimum distance of 20 meters and the parking location is not filled with parking vehicles so that the evacuation assembly location can be fully utilized.


**First Aid for Accidents in the Workplace**

First aid is one of the health services for workers in the workplace. The implementation of the First Aid program in Accidents at Trimitra Sejati Jaya Ltd have been performed by providing several first aid kits. Trimitra Sejati Jaya Ltd placed one first aid kit type A each at several point, such as in the production unit, laboratory, office, and warehouse. However, in practice, the company have not checked the contents of the first aid kit as an effort to monitor the company's first aid facility.

**The existing compliance with the standard**

First aid kits found at Trimitra Sejati Jaya Ltd are not suitable to standard. Trimitra Sejati Jaya Ltd has more than 50 employees. According to the Minister of Manpower Regulation Number 15 of 2008 about First Aid for Accidents in the Workplace, the amount of the First Aid box adjusted to the number of workers of the company. It is necessary to have first aid box type B which aims for 50 workers or less. The first aid kit referred to in article 10 must meet the requirements, such as made of strong material, easy to carry, white base color, the first aid symbol is green. The first aid kit at Trimitra Sejati Jaya Ltd has not complied with the regulations. In addition, the first aid kit at Trimitra Sejati Jaya Ltd does not have a green symbol and its not suitable with th regulations.

**Table 4.**  
 The suitability of First Aid Box with applicable standards

No.	Existing	Standard	Suitability
1.	 <p>Fig. 10 First Aid Box at Trimitra Sejati Jaya Ltd                      (Source: Trimitra Sejati Jaya Ltd., 2021)</p>	Minister of Manpower Regulation Number 15 of 2008 on First Aid for Accidents in the Workplace	Not Suitable

**First aid recommendations in the workplace**

Recommendations that can be given for Trimitra Sejati Jaya Ltd are based on the regulations regarding first aid. The company is required to provide a first aid worker who is specially licensed to help workers or other people who are sick or injured at work. In other job are to check the first aid box and stock the first aid kit, monitoring the company to improve first aid facilities in the workplace. The company already had first aid facility such as first aid box, but the company requires other first aid facilities such as a first aid room, evacuation and transportation equipment, as well as additional facilities or PPE or special equipment as body washing tool (*shower*) and eye flushing (*eye wash*) according to the potential hazardous chemicals at Trimitra Sejati Jaya Ltd. In addition, companies need to conduct socialization and training regarding the implementation of first aid in the workplace, so that all employees have knowledge of first aid in the workplace which aims to provide first aid quickly and accurately if there are other people who are sick or injured in the workplace.

**Safe Work Procedures and OSH**

Working procedures are a system or procedure used as a guide when doing something from beginning to end which aims to achieve a conformity of work standards. The safe working procedures at PT Trimitra Sejati consist of several quality procedures based on International Standard Operation (ISO) 9001 in 2015 concerning the Company's Quality Management System.

This following flowchart is a recommended safe work procedures flowchart for safety and health that can be applied in Trimitra Sejati Jaya Ltd:

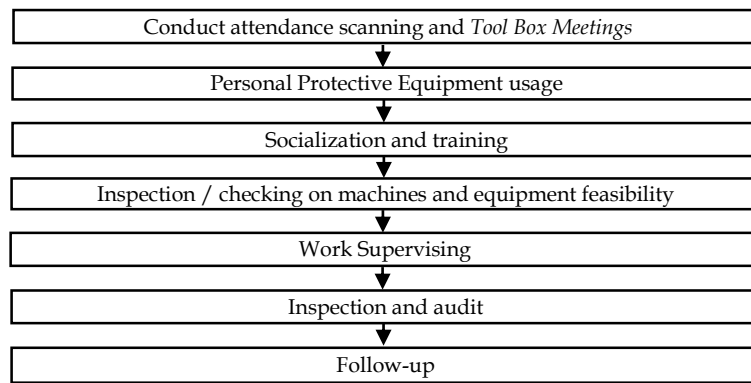


Fig. 11 Recommended Safe Work Procedures

1. Conduct attendance scanning and *Tool Box Meetings* before working  
Workers need to do fingerprint attendance scanning first at the entrance of the company to simplify the workers data collection of whoever come to work and entering the work site at that day. After that, the supervisor of each division held a *Tool Box Meeting* about preparation before work, an explanation of the hazard potentials in the work site, the consequences that may occur from each job, HSE coordination, and delivering of HSE commitments at work.
2. Personal Protective Equipment usage  
Workers are required to use Personal Protective Equipment depends on the needs of each job. PPE standard that required to be used at all times are work clothes, project helmets, safety shoes, and masks. Any work that related with the use of chemicals material required to wear a respirator, eye protection or *safety goggles*, and latex gloves that appropriate to protect hands from chemicals exposure.
3. Inspection / checking on machines and equipment feasibility  
Before carrying out work, workers need to conduct inspections / checking on equipment, machines, and utilities as an early detection of equipment discompatibility, so it can be performed safely.
4. Socialization and training  
Plant supervisors and shift supervisors provide socialization to workers which conducted at least twice a year, including:
  - a. Company policy in the form of company HSE commitment
  - b. Emergency response procedures (fires caused by chemical explosions, flash floods, earthquakes, chaos caused of demonstrations)
  - c. Socialization of the company's HSE program (training of fire extinguisher usage, first aid training, healthy lifestyle)
5. Work Supervising  
Plant supervisors and shift supervisors supervise the performance of workers during the work progress. Supervision needs to be done as often as possible in order to prevent non-conformance performance of the work. Supervision aims to determine the compliance and suitability of workers covering these following aspects:
  - a. Hazard factors in the work environment
  - b. Hygiene for individuals and companies
  - c. Personal Protective Equipment
6. Inspection and audit  
Management conduct inspections and audits covering the scope of systems, equipment, assets, processes, and people which aim to verify and conform that the items being inspected / audited meet the standards of certain regulations. Audits conducted by management include:
  - a. Humans (attitudes, skills, abilities in performing OHS aspects)
  - b. Equipment and installations (production machines, risk control facilities, and other operations)
  - c. Management (policies, HSE commitment, organization, company systems, work procedures, SOPs)Meanwhile, the inspections conducted include:
  - a. Equipment inspection
  - b. Fire estinguisher inspection
  - c. First aid kit inspection
  - d. 5R Inspection

7. Follow-up

Management follows up on findings from inspections and audits. Follow-up aims to identify, document, monitor, and ensure the findings have been corrected before making a recommendation. Inspections and audits Follow-up include:

- a. Description of non-conformance
- b. Follow-up plan
- c. Completion Target
- d. Person in charge
- e. Follow-up period

## 5. Conclusion and Recommendation

### Conclusion

Hazard identification at Trimitra Sejati Jaya Ltd were carried out using the HIRARC method which explains that the level of risk dominating the work activities at Trimitra Sejati Jaya Ltd is medium risk category. Technical activities, design, construction, chemical material selection, as well as operation and maintenance of installations at Trimitra Sejati Jaya Ltd have been performed in accordance to the company regulations due to ISO 9001:2015 guideliness. Trimitra Sejati Jaya Ltd has several employee development activities, such as waste management and handling training and socialization, personal protective equipment usage socialization, fire-fighting socialization, and internal briefings that have been carried out for several times. This already includes the guidance points of Minister of Manpower Regulation Number 13 of 2003 including the workers / organizations with related professions.

Emergency plans and procedures that had been implemented at Trimitra Sejati Jaya Ltd in the form of marking evacuation routes, *assembly points*, fire extinguishers, and first aid kits that are not suitable with several points from the Minister of PUPR Regulation Number (14) of 2017 concerning Requirements for Building Facilities, paragraph (3), article (24) paragraph (1) concerning buildings. Safe work procedures had not been implemented yet at Trimitra Sejati Jaya Ltd, but safe work procedures can be guided by the Quality Management System that had been prepared previously by Trimitra Sejati Jaya Ltd. So, it can adjust some points in the previous procedure into safe work procedures / OHS procedures.

### Recommendation

1. The companies need to immediately establish company documents compiling on medium hazard potential, so that they can comply to Republic of Indonesia Minister of Manpower Regulation Number 187 of 1999 provision on Control of Hazardous Chemicals.
2. Recommendations that can be given to reduce risk value in order to mitigate the impact of hazards that may occur are by providing socialization and training on HSE, conducting *safety patrols*, audits and inspections and providing *rewards* and *punishments*.
3. The company needs to provide employers development program by involving the management in the HSE Chemical expertized certification according to Republic of Indonesia Minister of Manpower Regulation Number 187 of 1999 on Control of Hazardous Chemicals 3<sup>rd</sup> articles about the obligation of designation on Chemical HSE officers and Chemical HSE Experts.
4. The company is expected to establish procedures, facilities and infrastructure, as well as socialization about emergency reponse plan to maximize the handling in case of emergency.

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