

Risk Assessment, Risk Management, and Risk Communication in the Carpet Industry: PT. 'X' Pandaan. East Jawa

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Abstract

There are many work-related accidents and diseases caused by weak risk management efforts. Risk management can be done by starting with a risk assessment. Risk assessment is an important aspect of occupational health and safety. The garment textile manufacturing industry has a high risk of occupational health and safety. This study aims to identify the level of occupational health and safety risks and provide control recommendations. This research was descriptive using the Job Safety Analysis (JSA) method. The results of the identification show that out of the 4 work stages and 19 job descriptions, 10 descriptions or 52.6% are at high risk for Occupational Safety and Health. Identified hazards include chemical, physical, ergonomic and fire hazards. High risks include hazards from chemicals as raw materials for the process of making carpets. Several control measures have been taken, but to ensure the health and safety of workers, additional efforts must be made such as personal protective equipment, special masks for use in chemical hazards and work accident emergency response procedures. Risk communication in drug companies is running well.

Keywords: Risk Assessment, Risk Management Risk Communication, Job Safety Analysis.

Introduction

Today's industrial development in Indonesia is very rapid, which is characterized by free trade, increasing information, communication and transportation technology. Globalization has encouraged the growth of industries in various sectors by implementing various machinery technologies and production equipment and the use of various materials. This has an impact, especially on labor in the form of work accident risks¹.

OHS problems have become a serious problem in our country and still lack attention. As a result, work accident cases in Indonesia are increasing every year.

Workplace accidents are an unexpected event because in the event of a work accident can cause injury, injury and even death to workers.²

Based on BPJS Employment data, there are 157,313 work accident cases throughout 2018, the number comes from several categories, including in the category of work accidents are traffic accidents on workers' trips to the workplace, and trips back from work to residence, work accidents are not it only causes death, material loss, morale and environmental pollution, but can also affect productivity and people's welfare. Workplace accidents also affect the human development index and national competitiveness³.

The East Java (East Java) Manpower and Transmigration Office (Disnakertrans) claims that there were 21,631 cases of work accidents throughout 2017. That number rose by around 200 cases compared to the previous year⁴.

Occupational accidents and work-related diseases not only cause material losses and fatalities and health

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problems for workers but can disrupt the production process as a whole and even damage the environment which ultimately affects the wider community. Whereas in the case of Occupational Diseases (PAK) from 2011-2014 the trend has declined even though in 2012 and 2013 it has increased. In 2011 the number of PAKs in Indonesia reached 57,929 cases, in 2012 60,322 cases and in 2013 increased again to 97,144 cases, then in 2014 began to decline to 40,696 cases. The provinces with the most prevalence of PAK in 2011 were Central Java Province, in 2012 North Sumatra, South Sumatra and West Java, 2013 Banten Province, and in 2014 were the Provinces of Bali, East Java and South Sulawesi. Data shows that efforts to prevent accidents and occupational diseases are still not optimal⁵.

Efforts to prevent work-related accidents and diseases can be carried out with a number of approaches, namely, approaches to weaknesses in human elements, such as selecting employees properly and developing knowledge or training. Approach to weaknesses in hardware or production equipment through design, production equipment maintenance, and work environment planning. Approach to all levels of management by conducting a fair distribution of tasks, and determining the implementation of risk assessments⁶.

Risk assessment is the process of evaluating risks caused by hazards, taking into account the adequacy of the controls owned, and determining whether the risk is acceptable or not. One component of risk management is risk assessment. The stages of risk assessment are identification of hazards, risk assessment, risk control and residual risk assessment⁷.

One method that can be used to identify risks is the Job Safety Analysis (JSA) method. JSA is the identification of risk methods by reviewing and assessing the risk of each stage of work performed. JSA itself is a method that studies a job to identify hazards and potential incidents related to each step, and is used to develop solutions that can eliminate and control hazards⁸. The implementation of JSA has benefits and benefits. ⁸ as follows:

1. Can be used to provide training or training on work procedures more safely and efficiently
2. Providing training to new workers / employees.
3. Provide Pre-job instruction on jobs that are not permanent.

4. Review the job procedures after an accident.
5. Conduct a study of work to enable improvement in work methods.
6. Identify what safeguards need to be used while working
7. Increase work productivity and positive behavior regarding safety.

The implementation of the JSA must be carried out proactively where the focus of the JSA implementation refers to the inspection of work and not the workers who carry out the work. JSA can be used as a response to an increase in injury or illness, but the process of identifying hazards and determining the necessary precautions must be carried out through the process of planning and organizing the stages of work⁹.

PT. 'X' Pandaan Is a company engaged in and producing textiles and garments. For the garment consists of departments, from some of them: patter / marker, cutting, sewing / knitting, finishing, pressing, quality control, packing, and deliveries. Workers at PT "X" Pandaan, work a day for 8 hours starting at 07.30 s / d 16.30 and resting at 12.00 - 13.00. Within a week they work for 6 days and 1 day off. There are several divisions within the company, including cutting, sewing cloth, sewing, mats, foam or sponges, making mattresses, laminates, packaging, and drivers. Workers at PT 'X' Pandaan, the majority have tenure over 5 years and above.

Based on visits made to PT 'X' Pandaan, there are several potential hazards that can cause accidents and occupational diseases. During the production process, workers make physical contact either through inhalation or dermal with chemicals as raw material for making production. Chemicals for lamination, namely ethyl alcohol, xylene benzene and toluene which are contained in glue that have the potential to cause health problems such as irritation, respiratory problems, and nervous system disorders.

The purpose of this study is to conduct occupational health and safety risk assessments in the Production Section I of PT. 'X' Pandaan, uses the Job Safety Analysis (JSA) method.

Material and Method

This study used a descriptive observational research

design. The danger is potential danger, the risk refers to the actual danger. Risks can be identified through direct observation at the production site. The research was conducted at PT. 'X 'Pandaan. East Java. The risk assessment method uses the JSA with the following risk assessment steps:

Select the place to be analyzed

1. Explain the stages of work
2. Identify various hazards and risks at each step of the work, and identify the various possibilities that have the potential to become accidents;
3. Risk assessment (likelihood and severity)
4. Categorize risk (risk assessment matrix)
5. Provide control recommendations

Risk Management is done by selecting control options that are in accordance with the characteristics of the risk. Evaluation of available controls, so as to provide additional control recommendations ⁶. Risk communication data is obtained by direct observation at PT. 'X 'Pandaan. East Java. Risk communication can generally be observed through the media, company management meetings with workers and local stakeholders.

Assessment of potential hazards identified by risk hazards through analysis and evaluation of risk hazards intended to determine the amount of risk taking into account the possibility of occurrence and the magnitude of the consequences. From the results of the analysis it can be determined the ranking of risk values so that risk assessment can be carried out which has a significant impact on the company and the risk is not important.

Table 1. Scale of "Probability"

Level	Criteria	Explanation
1	Insignificant	There are no losses, the material is very small
2	Minor	Minor injuries require p2k3 treatment to be handled directly at the scene, moderate material losses
3	Moderate	Missing workdays, requiring medical treatment, material losses are quite large.

4	Major	Injuries result in defects or loss of bodily functions in total material loss
5	Catastrophic	Causing a huge material disaster

Source ¹⁰

Table 2. Scale of "Severity"

Level	Criteria	Explanation
1	Insignificant	There are no losses, the material is very small
2	Minor	Minor injuries require p2k3 treatment to be handled directly at the scene, moderate material losses
3	Moderate	Missing workdays, requiring medical treatment, material losses are quite large.
4	Major	Injuries result in defects or loss of bodily functions in total material loss
5	Catastrophic	Causing a huge material disaster

Source ¹⁰

Table 3. "Risk Matrix" Scale

Possibility	Consequences				
	1	2	3	4	5
5	H	H	E	E	E
4	M	H	E	E	E
3	L	M	H	E	E
2	L	L	M	H	E
1	L	L	M	H	H

Source ¹⁰

The results of the risk assessment will be the basis for risk control. Control (control) of hazards in the work environment is an action taken to minimize or eliminate the risk of workplace accidents through elimination, substitution engineering control warning system administrative control and personal protective

equipment¹⁰.

Findings

A. Risk Assessment

There are several stages in the production step in this company, including the measurement of the desired pattern cutting babahan, sewing materials, then filling the required filling material, as well as the lamination stage. The risks identified are, material workers result from cutting powder, which can cause shortness of breath. Workers who sit too long can cause Lob Back Pain (LBP), manual lifting can cause LBP and Thoracic Outlet Syndrome (TOS). All job descriptions at this stage are included in the high risk.

The next step is a series of results from cutting patterns, where the results of the pattern cuts were carried out by using a sewing machine. The risk identified at this stage is that workers experience eye fatigue when supervising the desired stitch pattern, and sitting too long can also cause low back pain. All job descriptions at this stage are included in the high risk.

The next step is filling the material in the form of a dacron to produce the shape according to the desired pattern. The risk identified at this stage is that workers experience inhalation of the remainder of the dacron which is not used because it is in the vicinity of the stack, after which the dronron is flying as a result of lifting or transferring the results of filling. Risks identified include, workers can experience injuries, dizziness, shortness of breath and eye irritation. Two job descriptions are included in the high risk level and the other 2 are moderate risk levels.

The next stage is sewing all the patterns that have been filled by the dacron. All results are filled in sewing in such a way as to get the results obtained. The risk identified at this stage is that workers experience eye fatigue when supervising the desired stitch pattern, and sitting too long can also cause low back pain. All job descriptions at this stage are included in the high risk.

The last stage is packaging the products using lamination, where all the processed products are put into a specially provided plastic. The risk identified at this stage is that workers experience inhalation of the material contained in the plastic. workers can experience injury, dizziness, shortness of breath and eye irritation. All job descriptions at this stage are included in the

Medium risk.

B. Risk Management

Based on the risk assessment above, it shows that of the 4 work stages and 19 job descriptions, 10 descriptions or 52.6% are at high risk for Occupational Safety and Health. The weighing and printing stage is the part where all the job descriptions are high risk. 8 descriptions of the rest or 42.1% are moderate risks and 1 description or risk is 5.3% lower than Safety and Occupational Safety.

Referring to the results of the risk assessment that there are several descriptions of tasks that have a high risk, these activities may not be carried out until the risk has been reduced or controlled. The purpose of risk control is to avoid workers from the worst consequences that can lead to loss of work time and worker productivity.

Some stages of production run the risk of causing health problems. Ergonomic risks are identified such as errors in manual handling, excessive physical burden, and posture incompatibility with the work station, the risk of causing muscle disorders.

Research conducted by Wahyu, P.D and Tualeka, A.R., 2013 in one of the welding industries in East Java, Indonesia explained that there were still residual risks despite risk control. So that residual risk assessment needs to be done so that it can further determine additional risk control recommendations¹¹.

PT. 'X 'Pandaan. East Java has made several efforts to control the risks identified. This effort is a combination of technical control, administration and the use of personal protective equipment. control that has been carried out between, providing masks, making Standard Operating Procedures, providing chairs for workers, work rooms equipped with refrigeration equipment, providing lightweight fire extinguishers, efforts to maintain workers' fitness with gymnastics every morning, and providing a dining room to avoid contamination the ingredients in the production room enter the workers' food.

Such control is still not enough to reduce some of the risks identified. Some controls must also be made, such as conducting safety talks, safety inspections, extending work intervals, giving awards and reprimands, providing fire and emergency response procedures, exchanging with tired and weak colleagues and providing personal protective equipment for work locations such as that is.

C. Risk Communication

PT. 'X' 'Pandaan has not implemented OHSAS 18001: 2007, but Komitmet Top Management of work safety is very high as evidenced by the presence of occupational safety health officials in the company where it is a work safety and health management system. One form of system implementation is communication, participation and consultation¹².

Risk communication is the exchange of information about the magnitude of health risks in the work environment⁶. The forms of the application of risk communication carried out in the company include, meetings between all company structures including workers in communicating occupational health and safety policies. Risk communication media are installed such as posters and banners. Besides this effort, PT. 'X' 'Pandaan East Java regularly holds meetings with workers on the National Occupational Health and Safety warning. This meeting is held so that there is an exchange of information between workers and company managers. And always do safety talk before work.

Conclusion

Based on the risk assessment above, it shows that of the 4 work stages and 19 job descriptions, 10 descriptions or 52.6% are at high risk for Occupational Safety and Health. The weighing and printing stage is the part where all the job descriptions are high risk. 8 descriptions of the rest or 42.1% are moderate risks and 1 description or risk is 5.3% lower than Safety and Occupational Safety. Risk management has been carried out, but additional control is needed so that the risk of illness and workplace accidents can be reduced. The risk communication process works well, risk communication involves management and workers. Media communication has been installed, and information exchanges with routine workers are carried out.

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