

Challenges Faced by Occupational Safety and Health Managers in the Manufacturing Industry – Sri Lanka

By Shayan Appuhamy [B.Sc (Colombo), M.Sc (KL), MBA (UK)]

Abstract

This write up is based on a case study design research conducted with a qualitative thematic analysis approach (purposive sampling with semi structured interviews) for the purpose of a master's thesis. Due to the word count limitations, only the key findings of the research are briefly mentioned.

This study was engaging with the challenges faced by the safety managers in the manufacturing industry. In Sri Lanka, there are no standards, guidelines or product standards for personal protective equipment. Due to the gaps in regulatory and legislative framework, safety managers are facing immense challenges in ensuring safety & health in their respective work environments. PPE is a critical element in OSH and this study was focused on PPE related challenges.

Despite regulatory gaps, there are organizations who are maintaining higher standards of occupational safety and health and winning 'national and international awards. Through a case study design with a qualitative approach, this study was focused on the challenges faced by safety managers as well as their initiatives to overcome those challenges.

It was evident during the research that there are challenges in establishing a system to select, source and use personal protective equipment due to the regulatory and legislative gaps. Also, it was evident that some safety managers were using very innovative ways to overcome those challenges.

With all the challenges faced by the safety managers, it

is important for the government of Sri Lanka to establish a regulatory body, product standards and guidelines for personal protective equipment (PPE).

Key findings of the research

The study was focused on the challenges faced by safety managers as well as their initiatives to overcome those challenges.

Hence the study attempted to address following research questions,

- What are the challenges faced by safety managers due to the lack of regulations and guidelines for personal protective equipment?
- What are the initiatives made by safety managers in their respective organizations to overcome challenges faced due to lack of regulations and guidelines on personal protective equipment?

1. Procedure for hazard identification and risk assessment

Most safety managers were using their own system for hazard identification and risk assessment. It is identified that those systems are in two directions. Safety managers who are working for multinational companies are following their mother company/ head office provided guidelines in hazard identification. Other have developed guidelines locally (for their organizations) using published international guidelines.

Safety managers of the local companies had to prepare

Shayan Appuhamy [B.Sc (Colombo), M.Sc (KL), MBA (UK)]

- Senior Manager at McLaren's Lubricants Limited
- Visiting lecturer at Ministry of Industry & Commerce, CIDA, EFC & CIPM on Occupational Safety Subjects.
- Former Professional Services Engineer at 3M



guidelines by their own as they did not have locally published guidelines by the government authorities.

S9 mentioned that,

“We have adopted US-OSHA guidelines. We made some changes to it so that it will suit both local conditions and food industry”

S11 mentioned that,

“We developed a local system using Canadian guidelines. It is in line with 5 step method and it is a very simplified guide”.

Also, S18 mentioned that,

“We assess hazards through a team following a locally developed guideline. It is an internal process headed by safety manager”

Safety managers who are working for multinational organizations are facing different challenges. Following are examples of the findings confirming use of the guidelines given by respective head offices which was the case in most multinational organizations.

S1 mentioned that,

“We are using the guidelines provided by our US safety team, as there are no clear guidelines published by local authorities.”

Also, S7 mentioned that,

“No guidelines in Sri Lanka hence we use our company guidelines provided by USA office”.

It was evident that some multinational companies had the support and compliance requirement from their head office to develop occupational safety and health through providing their guidelines.

2. Hazard control methods used by safety managers

OSHA guideline has become a universal guidelines for hazard control. During this study it was evident that safety managers of the sample were aware of the OSHA control methods.

S9 mentioned that,

“Elimination is the key as we are in food industry. We buy everything in food grade. Even materials like a paints and organic solvents used in construction and maintenance

work. Even our brackets in fire extinguishers are made of stainless steel. Even though there are no hazard control methods published by local government, we follow the best practices in the industry”.

It was evident that safety managers are having challenges due to lack of locally published guide lines.

S11 mentioned that,

“As we are engineering company and having plenty of engineering staff, we focus more on engineering controls when it comes to hazard control techniques”.

It was evident that most safety managers were aware of the hierarchy of hazard controls techniques published by OSHA. And they were facing challenges in selecting the most effective method for their respective organization as there were no published guidelines locally.

Also, it was evident that some of the best control techniques such as elimination, substitution and engineering controls were difficult to introduce as it is very expensive to justify.

3. Method of identifying the requirement of personal protective equipment

Sri Lanka has no published guidelines related to identifying personal protective equipment. Having a guideline is utmost important as it covers the safety measures, justifications and requirement of such method. As per the findings most safety managers are depending on the supplier and workers on identifying the requirements of personal protective equipment.

S9 mentioned that,

“Depending on the safety committee requirement we decide requirement of PPE. We do not have a procedure as OSHA – walk through survey. But once we understand the requirement of personal protective equipment, we request potential suppliers to recommend the correct equipment through a walk-through survey process”.

Also, S11 mentioned that,

“We do not have a formal method to identify the requirement of personal protective equipment. But after the risk assessment, safety committee and workers get together and decide suitable personal protective equipment types”.

It is evident that most safety managers are depending on the gut feeling or workers ideas or supplier

recommendation to identify the requirement for personal protective equipment. The challenge in depending on the workers idea is that sometimes workers may not feel comfortable to wear personal protective equipment. Also, there will be a resistant to change if they are used to a certain working pattern.

4. Challenges faced when identifying suitable personal protective equipment

Once the personal protective equipment requirement is identified, the next responsibility of the safety manager to define the standards to select the right equipment. As there are no local product standards and guidelines, it is very challenging for safety managers to complete this task.

S11 mentioned that,

“We have a selection committee. Depending on the risk assessment we select suitable personal protective equipment. It is an informal method”.

In this scenario, ideas of the committee which comprise of workers and other administrative staff are considered even if they do not have an in-depth knowledge on safety. This could lead to purchase of inferior quality products which will not provide adequate protection. This challenge is mainly faced by safety managers working for local organizations.

Some safety managers have taken important steps to avoid possible errors in selection of personal protective equipment due to the lack of product standards and guidelines.

S1 stated that,

“We have got the top management approval for international product standards when selecting personal protective equipment. And also we have developed the purchasing guide lines based on those US standards”.

This is a very useful method used by safety managers to counter previously mentioned challenge.

5. Challenges in ensuring the standards of the purchased personal protective equipment

Once the personal protective equipment is identified, safety manager has the responsibility of sourcing the suitable safety equipment which will provide adequate protection. Lack of locally published product standards and a regulatory body was creating a challenging environment for safety managers in selecting or

purchasing right personal protective equipment.

S1 mentioned that,

“There are many counterfeited and duplicate personal protective equipment in the market. And sometimes there are factory-rejects flooding the local market as there is no regulatory body to control imports and production. Even when we are selecting we do not know whether those claimed products are really complying to standards. The local government should establish a licensing system”.

S12 mentioned that,

“Lack of regulations on top of lack of products standards are making our job difficult. And on top of all this, government is not verifying whatever the personal protective equipment manufactured or imported”

When selecting the product from the suppliers, they had no proper mechanism to verify the authenticity of the claim on product compliance and performances. Many safety managers had the experience of buying counterfeited products and duplicate products. As there is a decision-making unit involved in purchasing of personal protective equipment in most organizations, safety managers were sometimes pushed to select inferior quality products, since there was no proper mechanism to identify authenticity.

Despite these critical challenges some safety managers were using very effective methods to select right personal protective equipment.

S7 mentioned that,

“We have developed a purchasing policy stating the required standards for personal protective equipment even though government has not published standards. We register all PPE suppliers and purchase only from the registered suppliers who offer products with international standards. Also we sign warranty agreements with suppliers to avoid potential counterfeits and fake products”.

Having such policies in place safety managers assure the receiving of personal protective equipment with international standards. This is a very effective mechanism to justify their proposals and to get the other department members to comply with the safety requirements.

6. Challenges facing during the justification of the proposal for personal protective equipment

Top management of most companies tends to consider safety as a cost rather than an investment. S4 mentioned that,

“Purchasing team always wants to reduce the cost hence try to purchase cheapest product. But we as the safety committee always try show the importance of comfort and performance of the respective personal protective equipment to justify the investment”

It is a very challenging situation for safety managers when there are no standards, and inferior quality products are compared against quality products. Also, it will not be a level field to justify certain costs. When the purchasing team is stressing on cost reduction and if the safety manager doesn't have strong backing to support justifying his investments it is always a very challenging situation for the safety manager.

To counter above challenging situation, some of the safety managers have taken very effective initiatives.

S14 mentioned that,

“When we have to introduce new personal protective equipment, once the product standard is selected, we always carry out sampling process. We issue samples to set of people including management and worker level, and we do not mention the price. We allow them to use those personal protective equipment samples for a while and collect their feedback and ask them to select the best product. In this method, they always select the product which provides them more comfort. As the product is selected by them, it is very difficult to challenge on the price perspective”.

Most safety managers were using 'sampling method' to justify their investment on personal protective equipment.

7. Challenges faced during making the users compliance with the use of required personal protective equipment

Sometimes, even when a company is having proper policy, quality products and other resources available with regards to personal protective equipment, users tend to avoid wearing that equipment. It is a big challenge for the safety manager.

S18 mentioned the fact that,

“Union is sometimes not supporting certain occupational safety related initiatives. Especially when we introduce personal protective equipment, sometimes workers counter through union, by demanding unfeasible solutions. And when the union is involved, the top management too are not supportive as it could affect negatively on production”.

It was evident during the research that unionization in manufacturing organizations, sometimes affecting negatively on occupational safety and health development.

To counter those challenges, some safety managers are using very innovative method to make workers compliance to the use of personal protective equipment. These initiatives are in two directions.

S11 mentioned the fact that,

“We always create awareness on the importance of use of PPE. We use training materials such as videos to visualize the negative impacts of not using personal protective equipment”

Also S14 mentioned the fact that,

“We create awareness on PPE and as most workers are having access to internet, we share web links and web sites so that they can watch and understand. Creating awareness is more effective than a penalty system”

It was evident in the research that an effective way of creating awareness among people was to get them visualize among people on the negative consequences of not using personal protective equipment. Some safety managers mentioned that they are using posters with 'safety messages' using family members of respective workers as characters. And they believe it is a very effective method to encourage workers to use personal protective equipment.

Also it was evident the fact that some set ups were using very effective penalty systems to encourage people to use personal protective equipment.

S7 mentioned the fact that,

“We use a behavioral disciplinary procedure at our organization. It comprises of 5 steps and it is a tagging system which collects person wise records on unsafe behaviors. The 4th step is issuing a warning letter and last step is dismissal of the employment”

It was evident that 'tagging system' was a very effective

system and it makes the management also responsible to monitor the behaviors of workers. Tagging system could be a very useful technique in organizations where awareness creation takes time to change people.

S9 mentioned the fact that,

“We monitor workers through CCTV cameras on the compliance of personal protective equipment”

It was evident that some workers tend to comply with best practices when they are properly monitored or fine system in place. Depending on the work environment and working culture, safety managers should select suitable methods to encourage the use of personal protective equipment.

8. Challenges in establishing a management structure to control and provide personal protective equipment.

It was evident during the research that some safety managers are having a management structure to produce and share knowledge related to occupational safety.

S11 mentioned that,

“We do not have a proper mechanism to produce and share knowledge. People are too busy including safety managers”

Also S18 mentioned that,

“We do not have a system; we follow accident registry. We keep accident records to analyze history and take preventive actions for future”

It was evident due to the lack of regulatory mechanisms; safety managers were facing a challenge in developing a mechanism to produce and share knowledge which is a very important component in continuous development of occupational safety and health.

S14 mentioned the fact that,

“We are learning through failure events of the other plants located in different countries. We share alerts which include root cause analysis of the incident and required proactive measures”.

It was evident that most multinational organizations were following this method to produce and share knowledge.

S9 mentioned the fact that,

“Near missed and accidents are shared through picture

format with the root cause analysis. We display each in the canteen area so that everyone notices it.”

It was evident in this research that use of visual effects to communicate occupational safety messages to be very effective.

9. Management challenge of responsibility and level of authority

It is a known leadership fact that, the managers should be given authority to hold their responsibilities in an organization. In a manufacturing set up, the organization is focused on production and KPIs are set on production efficiency, cost and overheads which in return on organizational P&L account performances.

S11 mentioned the fact that,

“Plan director’s requirement is priority. Production comes first. Factories ordinance is also not properly updated”

It is evident that reporting line of the safety manager has a direct impact on his level of authority. If the safety manager is reporting to the managing director of the company, he is having adequate level of authority. But if it is not, safety manager is responsible for the overall safety of the organization but has no adequate level of authority to perform his or her duty.

S14 mentioned the fact that,

“All depends on the attitude of the top management. We always sit face to face with the top management and present our safety plan and objectives at the beginning of the year. And clarify all the doubts and agreeing for the commitments and expectations to develop safety and health of the employees”.

It was evident that this initiative was very effective even if a safety manager faces a challenge in authority level.

10. Challenges in establishing a self-regulatory mechanism within the industry.

It was evident that, some safety managers were facing challenges during the effort of establishing a self-regulatory mechanism.

S11 mentioned the fact that,

“We tried to develop a self-regulatory mechanism through our safety committee, but we failed as we couldn’t keep the momentum of it. And we realize safety should be in the value system of the employees of an

organization. We should have focused on behavioral safety”.

It is important have resources and support to establish and sustain a self-regulatory mechanism to improve safety within the organization.

S18 mentioned the fact that,

“We conduct monthly meetings with safety committee with presence of top management to continue assurance of safe working environment”

It is evident that periodic meetings with the safety committee can assure the sustainability of the self-regulatory mechanism model.

4.1.11. Challenges in finding qualified professionals for the safety team

During the research, it was evident that, safety managers are facing difficulties in finding qualified people for their safety teams despite the presence of many organizations offering OSH study courses.

S13 mentioned the fact that,

“There is a knowledge gap in different safety managers. There is no uniformity in the educational structure. In other countries, safety manager is a very important role and government has strict mechanisms to ensure the competency and knowledge of safety managers. Available study courses in Sri Lanka are not enough to build really competent safety officers. All diplomas and study courses should be controlled and monitored by the government and should issue a licensing system for safety officers just like in developed countries”.

Also S1 mentioned the fact that,

“Lack of grading system for occupational safety and health competency levels is a challenge and it should be fulfilled by the government”.

It was evident during the study that the requirement of standardizing occupational safety education in Sri Lanka. There is a problem with finding right talent and required competencies.

S9 mentioned the fact that,

“We select people who have relatively higher education level within departments and absorb them to the safety committee and educate them and train them to become competent safety officers”.

Also, S11 mentioned the fact that,

“We have adequate resources to train and develop competent safety officers within the organization”

Even some organizations had the other resources, they were lacking people with the right attitude to join occupational safety.

S14 mentioned the fact that,

“Occupational safety is a practical subject. Safety officers should know the grass root level of this subject. Safety officers produced from local institutes may be knowledgeable but not competent. It is very difficult to find a person with the right attitude. Everyone wants to become safety managers, not safety officers. Safety officer should be a role model. They should try to do the work by themselves rather than passing orders. Should have the right attitude to learn practicality of this subject. A fresh graduate who becomes a safety manager will not be able to perform a good job unless they have the right attitude to learn the grass root level”

It was evident that safety is a practical subject and has to have very strong educational methods to produce qualified safety managers. And it was evident that, current educational system is having gaps in producing quality safety officers.

Rubber technology is nothing but art and science when thought process comes to shape rubber into some parts/article (Substrate) through injection, compression and transfer molding. Traditionally objective was to release parts from molds applying ever round/ every cure otherwise substrate would become fused to the mold.

Hence, Release agent provide the chemically critical barrier between a molding surface and the substrate, facilitating separation of the cured part from the mold make operators job easy and avoids sticking to mold resulting loss in production efficiency and increase in scrap.

Before a decade most of users were preferring to adopt traditional approach of solvent base Releasing agent or sacrificial release agent with a approach of avoiding fusing of substrate with mold surface.

Upgraded technology with environment friendly requirement from users in the industry, water base release agent either sacrificial, semi permanent has been evolved with a view of reducing solvent in usage as well as by considering impact on safety wherein factories have sophisticated nature of working, awareness on

hazardous chemicals which have been ban by local authorities etc.

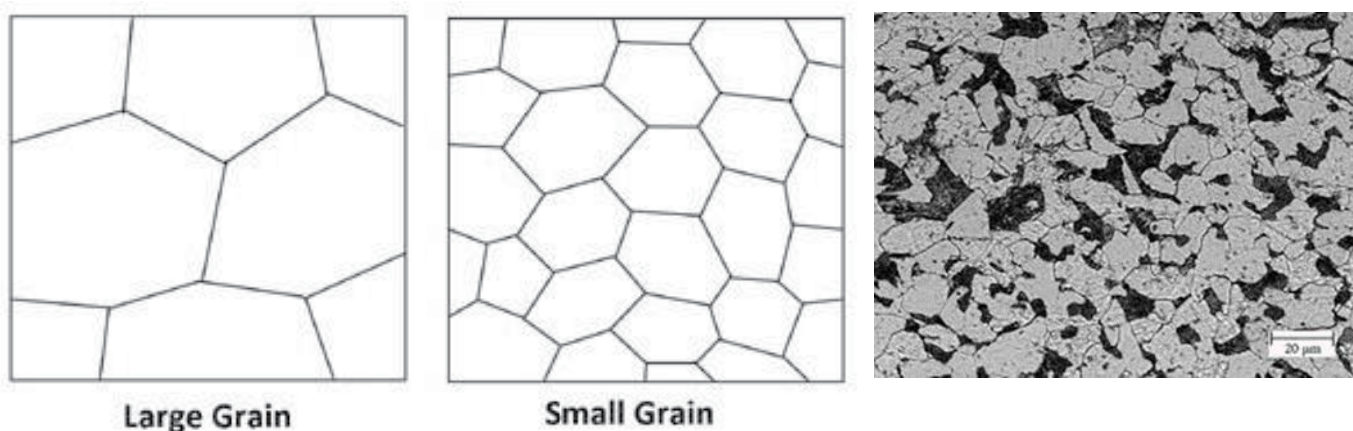
With the nature of rubber compounds, when a release agent is used, factors such as irregular applications or improper release agent choice may have a dramatic effect on the quality and consistency of the finished product.

Applications of semi-permanent mold release vary from every cycle to once daily applications depending on the compound being molded and the design, surface of mold and quality of the mold.

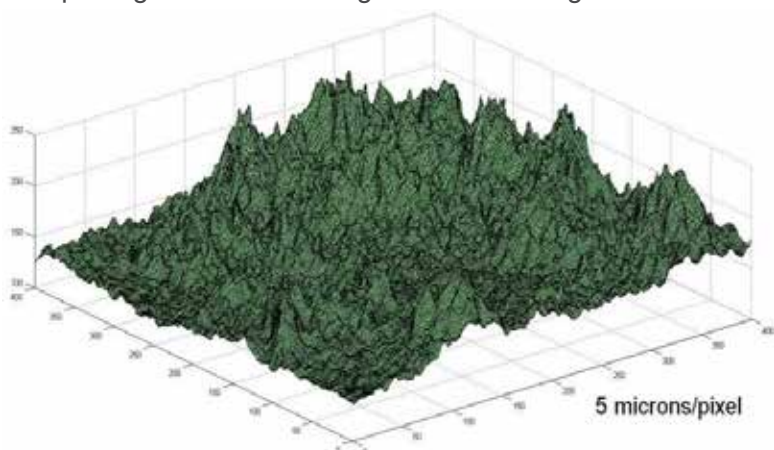
Importance of usage of mold release is due to Mold surface which have imperfections due to :

1. The grain structure as a result of Metal forming, casting and Heat treating
2. Cleaning Methods- Such as sand blasting

All these peaks and valley can fill with rubber causing parts to stick and residue to build on mold.



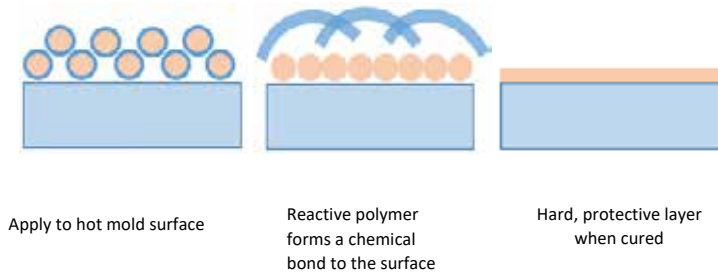
Computer generated 3D Image of surface roughness



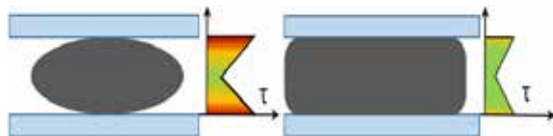
All these peaks and valley can fill with rubber causing parts to stick and residue to build on mold.

PURPOSE OF MOLD RELEASE

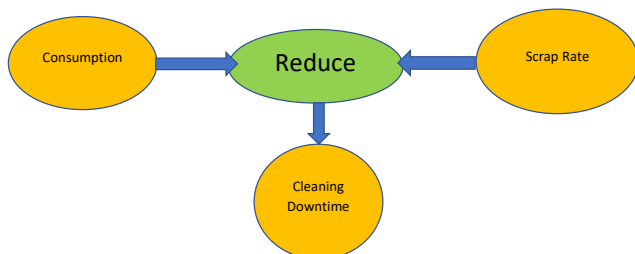
1. Help fill crevasses
2. Form a thin film barrier to reduce mold fouling
3. Add lubrication for part release and rubber flow



4. Increases Rubber flow due to reducing Shear stress while dragging rubber in mold.



A right selection of Mold releases helps to



Benefits of Franklynn DiamondKote Release Agents are

- Semi-permanent – Get more molding cycles per application
- Water based – Safe for both the operators and the environment
- Non-flammable – Contains no flammable liquids or solvents
- Odor free
- APE free – Does not contain Alky Phenol Ethoxylates
- Uniform appearance – Consistent tire appearance every cycle
- Minimal transfer for a non-greasy feel
- Reduced mold fouling
- Increase productivity and profitability
- Meeting customer specific needs