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Evaluation of HSE Management System of an Insulation Manufacturer – Kuwait

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Abstract

This report describes the author's investigation into the health and safety management system of major insulation provider .The Company is situated in Mina Abdullah industrial area a sub-district of Kuwait. The organization follows the BSI-OHSAS 18001 Occupational Health and Safety Management systems specifications model in their operations. The management systems was based on the philosophy of continual improvement. Although the company had an admirable inbuilt HSE management the accident/incident rate was never controlled. This report is an in depth investigation into the current arrangements for HSEMS .Various site visits, documentation review and consultation were carried out from which a number of prevailing risks were identified. From the findings two major hazards one physical and one health hazard was subjected to further in depth risk assessment. An action plan with recommendations was formulated and submitted to management for implementation.

1. Introduction

Aims /Objectives

- To provide the management with a complete health ,safety and environment gap analysis
- Compare with statutory requirements and safety management systems like OHSAS 18001
- Identifying hazards, assessing and evaluating risks, ensuring effectiveness of control measures, analyze system review methods and find room for continuous improvement.
- To supply the management with recommendation and action plan to improve the safety performance.

Methodology

The plan is to conduct a detailed sequential check as per the current scenario of the project. The system should be cross checked with the company's health and safety regulations, local as well as international health and safety regulations and clients/customer regulations.

Interviews

A detailed interview checklist ensure that a consistent body of evidence was obtained from each department .All the management team were interviewed, and three employees from each department, chosen at random from the payroll. A summary score was calculated as a guide to staff awareness.

Documentation

The author was allowed unrestricted access to any documents and records relevant to this investigation such as policy and procedures, accident reports, service and maintenance records. All available information sources like accident history, risk assessments, machinery manuals and written procedures were studied.

Inspection of Workplace

The author conducted several walk arounds and inspections to identify the physical condition of the workplace. Managers /employees were interviewed about their work and safety awareness. This included access/egress to the site, emergency arrangements and welfare facilities. Results from surveys were analyzed to identify various physical as well as health hazards that were prevailing in the normal working condition. Effectiveness of both technical and procedural control measures were analyzed and confirmed that hazards are reduced to as far as reasonably practicable. The associated risks have been prioritized, and the author concludes with remedial measures to mitigate the main hazards with appropriate control measures .Focus was also done on the health and safety of contractors, visitors, and the general public including everyone affected by the organizations activities.

Hazard identification

Inspections were carried out to identify other hazards which went unnoticed. Hazards were categorized into physical hazards and health and welfare hazards. Reference was also made to the HSE regulations for safety in the use of synthetic vitreous fiber insulation wools.

Action plan

A detailed plan of action with targeted dates, responsible personnel, cost implications and review date was made and submitted to the management.

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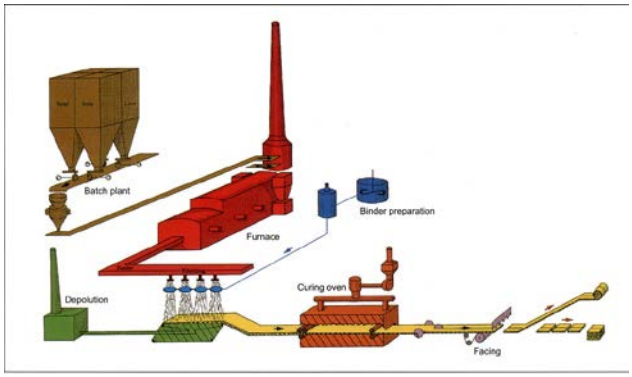
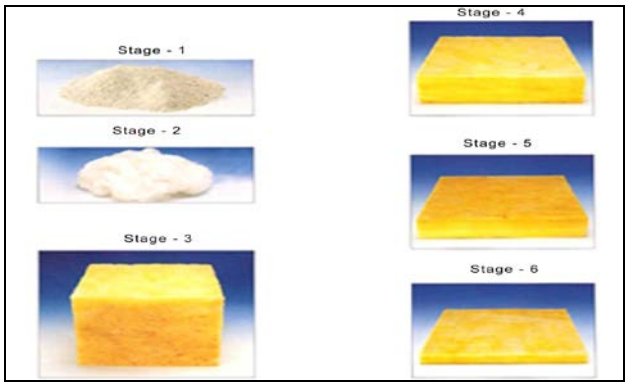
Description of Organization

The company is a major insulation solution provider in the Middle East, Africa, the Far East and other Asian countries. It manufactures and supplies customized and cost effective, reflective, acoustical and fire resistant insulation product **GLASSWOOL** as per International Standards.



Raw material to finished product



Legal Environment

The company is a licensee of Saint Gobain Isover since 1980. It complies with Kuwait EPA, (Environment Protection Authority) regulations. The organization is a ISO 9001, 14001 & OHSAS 18001 certified and manufactures products which comply with international Standards such as ASTM, DIN, B. The products are also UL rated (Underwriters Laboratory, USA).The organization operates under the legal framework of Kuwait, as such it must comply with the laws of the land and must adapt its operations and management systems as required. Health and Safety regulations are supplemented by approved codes of practices and guidance notes in order to give guidance on compliance with the legislation. As the need to comply with statute law has the largest effect on the health and safety management system the company adopts detailed study on various legislations and compliance was monitored.

Review of Health and Safety Management Systems

The author conducted a well-defined systematic approach to identify risk in the workplace. For risks to be managed effectively a detailed study of process was carried out. All activities were analyzed with the emphasis on safety and hazards. The results of this analysis were used to correct existing problems and to improve, among other things. Activities were analyzed by safe working methods, working instructions, worker protection, safety rules, and emergency procedures, serviceability of machinery and plant .Workplace design and machinery guarding resulting in unsafe human behaviors was also noted. Incident reports represent reactive, but nonetheless useful data. A trend analysis was completed based on the similar organizations ,external notification, national legislation ,internal reporting of all lost time and near miss events , environmental issues and occupational ill-health incident reports .Annual reports, newsletter published by the organization gave detailed figures of reported accidents 'analyzed by cause'. These are used in comparing different sectors of the organization. Records were not only made for ‘notifiable’ accidents and ill-health, but of all near misses and close calls that have taken place. An investigating team comprising of safety manager, production managers, and technical personnel was nominated and any notable deviation in accident trends in particular sectors was prioritized and subjected to further detailed investigation. The following were identified;

- Many could not interpret the HSE policy and no evidence of review done.
- Gaps identified in workplace design.
- HSE standards mentioned do not detail the expectations.
- No record of subcontractor been supplied with the HSE guidelines
- Production manager do not have direct control of personnel entering the site .Site access controlled by security
- A generic risk assessment is available. It does not highlight specific activities.
- Meeting not documented
- Task specific risk assessment not been conducted
- As activities commence in three shifts additional resource need to be made
- Most relevant documents are filed and it’s not accessible to key personnel.
- Inspection /Audits carried out by safety personnel. No evidence of site managers engineers taking part in site safety observations

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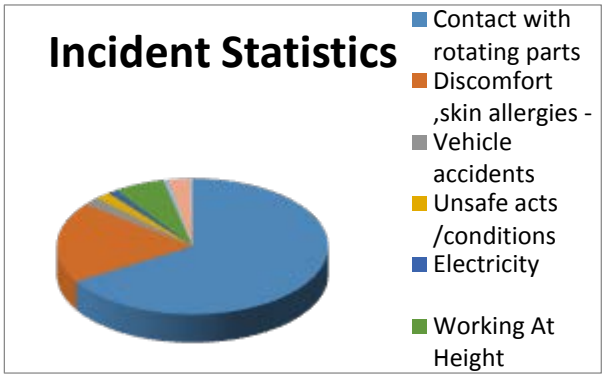

Physical Hazards

A large number of hazards like fire, slips and trips, access/egress were well controlled however certain hazards were not managed satisfactorily. Contact with moving/rotating parts was a major concern which went unattended .Internal transport was not planned properly. Safety checks for lifting equipment's and operators competency was not ensured .Task specific risk assessment was not carried out for high risk activities like lifting, working with electricity and working at height. Procedural controls for visitors, confined space entry, control of noise /vibration, protection from radiation hazards and adverse weather was not strictly followed up. There was an increase in production levels, forcing the workers to overlook many safety guards. All these tasks were subjected to a re-assessment and recommendations with prioritized action plans was charted.

Health and Welfare Hazards

A detailed review from incident reports and medical treatment cases revealed that large number of personnel have registered with work related dermatitis. A good number of workers related to these injuries came in contact with glasswool on a daily basis. Personnel protective equipment's were not enforced .Improper planning of manual handling techniques and workstation setup led to back injuries ,muscle cramps and stress. Poor welfare facilities for workers, human behavior leading to unsafe conditions was never considered in the risk assessments. A detailed re-assessment was conducted to track root causes of such non conformation and practical remedial measures to rectify them was highlighted in the action plan.

1. The investigation revealed that handling of glasswool in the storage area and mostly in the facing area where workers were not using minimum personnel protection like hand gloves.
2. A number of spill incidents were reported ,Medical reports highlighted that many workers were treated for dermatitis and other skin allergies. There was two elevated water tanks distributing drinking water for the facility .
3. There was no routeine inspection or water sampling conducted to conform purity of water .There was a number of reported cases where people suffered from symptoms of E-coli and legionella .
4. Use of Visual Display Units (VDU'S) – There was a number of display units for various operations and control rooms ..This may be due to improper ergonomics of work station .There was a lack of awareness and routine maintainence leading to these situations.
5. Manual handling – As the plant was not completely automised a good number of contract workers were engaged for material handling. This included shifting pellets using hydraulic jacks , large packets of chemicals and loading finished glasswool to delivery trucks. A wide range of incidents pain/sprains/fractures was resulted from these .There was a lapse in awareness of personnel employed and in many circumstances material shifting was done manually when it could have been easily substituted by mechanical aids.
6. Exposure to extreme climate –Workers engaged in the waste segregation area was continously exposed to extreme temperatures.

Risk Assessment

Risk assessment has been carried out as per the observations made and records available .Effort has been made to get a clear picture of prevailing risk, to what extend the outcomes of these risks effects people, assets, environment, and reputation of the organization and the present control measures .Based on priority of "likely outcome" of incidence from the hazard the following risk assessment has been carried out. From the observations done in the walk around and incident records two critical hazards one physical hazard and one health hazard have been selected and subjected to further study and recommendations were finalized.

The first stage in the risk assessment and control of hazards in the workplace is risk identification. Three basic means of risk identification are:

1. Analysis of Injury Statistics;
2. Consultation with Employees; and
3. General Risk Identification Checklist.
4. Control options

1. The investigation identified contact with moving/rotating parts as the major hazad in the facility .The first aid /medical reports highlighted a number of incidents in the past when people were

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injured due to direct contact with roller conveyrs,cutting machines .

2. It was observed that the forklifts operators in the facility were not aware of the speed limits,traffic signsand in some occasion overloading the trucks , there was a lapse in training given to operators , some of the operators did not possess operating competance.
3. Monorails used for shifting glasswool ,MEWP'S used for material handling and chain pulleys , did not carry an inspection tag although documents were maintained
4. Control of visitors/temporary workers/tresspassers were not done.
5. Contract workers employed to clean ducts, chutes , drain pits and silos was not aware of the confined space regulations and did not undergo the necessary training
6. Electricians did not have a safe systems of work procedure while working on and near electrical conductors.
7. Workers engaged in eleveted platforms, step ladders for inspection and repair work for LEV's, where there was possibility for fall did not follow safe working procedures .
8. Noise /Vibration hazards in workplace were not identified .

The hierarchy of control of identified hazards was analyzed as provided below:

a) ***Elimination***- Where possible, remove the hazard or the need to complete tasks at risk (e.g.eliminating hazardous substances / equipment, or eliminate manual handling).

b) ***Substitution***– Use of mechanical aids where workers come in direct contact with hazardous material.

c) ***Engineered Solutions***-Engineer or redesign the structure or equipment to reduce the hazard involved in the task(e.g : fixed interlocked guards for rotating parts).

d) ***Administration***-Establish policies, procedures, and work practices to reduce employees exposure to risk(e.g : PTW , provide training, use warning signs, and reduce time spent in noisy areas).

e) ***Personal Protective Equipment (PPE)***-The provision of personal protective equipment does not eliminate the hazard, but only shields the individual from it. Such action will have to be coupled with training in the correct use of the equipment. PPE should be used only as a last resort.

Evaluation of most Critical Health & Welfare Hazards – Exposure to Glass wool

Exposure to glass wool was identified as the major health and welfare hazards .Risk assessment, consultation with employees clearly mentioned that exposure to glass wool was not controlled in the facility .The medical clinic also had records of regular treatment from workers for skin irritation and breathing problems. The entire facility and different task were analyzed for glass wool exposure and contamination.

Risk identification was done by a series of steps

- Identification of glasswool handled areas;
- Quantity of glasswool present in different locations ;
- No of people exposed to glasswool ;
- Available control measures and its effectiveness;
- LEV'S and exhausts systems in the facility.
- Availability and use of PPE'S

Recommendations

1. HSE requirements to be considered from design stage of machinery and workplace .
2. HSE requirements need to be agreed with customer/supplier /contractor before work commences .
3. Key personnel awareness training and accountability need to be communicated in orientation programs
4. Plant manager to have complete control on personnel entering /leaving the premises.
5. Select a working group of experts comprised of the all departments lead by the safety manager .
6. Identify high risk machinery based on previous incidents , maintenance records , employee consultation
7. Check adequacy of existing control features

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8. Identify areas of glasswool material been used in the process.
9. Prioritize high risk based on the MSDS , number of personnel exposed , previous medical treatment cases, and legal requirements
10. Check effectiveness of existing systems like LEV'S to control potential hazards .

Actrion plan

1. Task assessment need to be done induvidualy from the raw materials to the finished product and adequate control measures need to be in place.
2. Existing control measures to be confirmed to be suitable and sufficient to mitigate hazards.
3. Check sheet to analyze temporary high risk jobs.
4. Risk assessment to be published as documents and to be made accessible to all key personal .
5. Possibility of online risk assessment sheets to be conducted

Conclusion

The study had a good insight to the flaws in the HSMS implementation .The management system was successfully compared to the OHSAS 18001:2007 model which enabled a gap analysis to be performed. It was possible to identify sufficient range of principle hazards within organization risk assessment conducted on the hazards identified one critical physical hazard and one major health hazard .Detailed study was conducted on these areas and recommendation for improvement with time bound action plans were supplied for improvement

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