



A REVIEW OF HAZARDS AND SAFETY MEASURES IN THE FOOTWEAR INDUSTRY

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Abstract

Footwear is one necessity that each person uses on a daily basis. The second-largest producer of footwear in the world, behind China, is India. In India, approximately 9% of the 22 billion pairs of shoes produced annually worldwide are made. Small, medium and very small enterprises make up the majority of the industry's fragmented manufacturing of footwear in India, which is close to 75%. To make footwear that is comfortable, enduring, capable of preventing injuries, or highly attractive-looking, various materials, including cloth, plastic, rubber, foams, metals, wood, and leather, are used. There are a range of risks present when operating at different parts that, if necessary precautions are not taken, might put workers and the neighborhood in danger. In this review, the hazards to the footwear business are discussed along with the necessary precautions.

Keywords: Footwear, Safety, Hazards.

1. Introduction

The Indian footwear market is crucial to the country's economy. Having a dependable manufacturing setup and following the right manufacturing practices are essential for generating high-quality products and being productive[1]. It takes time—months or even years—to ensure correct production processes, build a safe workplace, and sustain an organization's reputation. However, a single incident might undermine all of the organization's efforts, damage its reputation, and even endanger people, property, and the ecosystem as a whole. Making shoes involves a number of actions and risks, so it is not a straightforward process. Lack of safety measures could cause a serious incident that hurts both people and the environment because of the use of numerous dangerous substances[2]. An employer has a moral duty to identify potential risks and adopt appropriate safety measures in order to minimize the risk posed by those hazards in order to prevent mishaps at work. So it is essential to assess the safety precautions required in the footwear industry to lower hazards.

2. DIFFERENT DEPARTMENTS

Different departments and sections often exist for plant operations in the footwear industry[3].

R&D, quality assurance, and logistics. Sections dealing with rubber, leather, assembly, and engineering (Boiler, Electrical Maintenance, Mechanical Maintenance, Water Treatment Plant), handling and packaging of finished goods, EHS (Environment, Health, Safety, Fire), Projects (Brown & Greenfield Project), Purchase & Stores, Accounts, HR & Admin (HR, Security, IT, Legal, Canteen, Training, Colony), Selling and marketing.

3. HAZARDS & SAFETY MESURES

Due to various actions, several hazards arise in footwear operations.

Physical, chemical, electrical, mechanical, fire, and explosion risks, as well as occupational health risks. Here some departments-wise Explained safety procedures and hazards by specific activities are provided.

4.1 Logistics

Associated Hazards & its Effect

When two moving vehicles collide, the consequences for both people's lives and the environment could be disastrous. During the vehicle's inspection, a person falls. When in contact with transmission lines or overhead electricity wires, a person risks getting shocked, electrocuted, or setting himself on fire. The engine overheating or a battery explosion could set the car on fire.

Safety Measures

Verify the vehicle's condition. Licensed drivers in good standing with their behavior. paying attention to all traffic regulations and rules. according to the needs of raw materials, the provision of a suitable vehicle Rushing is not appropriate for the driver. In order to avoid failure, maintenance is crucial. As you walk, be careful. Placing structures over wires and overhead transmission lines will help to avoid an incident.

4.2 Rubber Section

Associated Hazards & its Effect

An individual who slips and falls on store flooring could sustain serious harm (fracture, dislocation, sprain, Fatal). Burn injuries are caused by coming into touch with heated rubber and other substances. Electricity contact can cause shock, electrocution, or even death. due to a cut or amputation injury brought on by contact with whirling machine parts. People may trip, fall, and run into buildings due to poor lighting. Rubber-based vibration and noise caused by poor equipment maintenance. Failure of the gadget caused a fire. If SOPs are not followed, an accident during maintenance operations may occur, leading to burns, knocks out, fatalities, etc. Failure of lifting equipment, tackles, and tools may lead to severe injury and property damage. tipping over a forklift. extended sitting or repeated body motion might harm the muscles and skeleton. suffocation as a result of poor ventilation. The corpse was struck by rubber objects that fell.

Safety Measures

Guaranteed PPE use is necessary. Refrain from touching anything that is hot. installing signs of caution. Cylinders of pressurized gas should not be kept in laboratories. With a chain lock, the same should be stored in the shed. Assuring that every PRV is functionally sound is crucial to preventing failure. Name-labeling and accessibility of MSDS are requirements for all substances. When handling sulfur, caution should be taken. Indicators of danger should be clearly visible. In the region where sulfur is handled, take care to use equipment that is flame-proof. Adequate safety precautions should be taken to avoid the generation of static charges.

PPE usage must be guaranteed. A heated object should not be touched. putting up cautionary signs. In laboratories, pressurized gas cylinders shouldn't be retained. The identical have to be kept in the shed with a chain lock. The key to avoiding failure is making sure that each PRV is functionally sound. All compounds must have name labeling and be accessible via MSDS. Caution should be used when handling sulfur. There should be no doubt as to where risk is present. Use flame-proof equipment when at a location where sulfur is handled. In order to prevent the creation of static charges, adequate safety measures must be followed.

4.3 Leather Section

Associated Hazards & its Effect

On the floor of a store, a person who slips and falls could sustain a serious injury (fracture, dislocation, sprain, Fatal). burn injuries occur when the skin comes into touch with a hot surface or steam. It is possible to die through electrocution, shock, or contact with electricity. caused by a cut or amputation injury after coming into contact with whirling machine parts. • Due to poor lighting, people may trip, fall, and run into structures. Poor machine maintenance causes vibration and noise, including leather-based dust. Overheated equipment causing fire A maintenance mishap that results in burns, knocked out, fatalities, etc. could occur if SOPs are not followed. Loss of property and catastrophic injury could occur if lifting equipment, tackles, and tools malfunction. tilting of the forklift[4].

Safety Measures

Guaranteed PPE use is necessary. Refrain from touching anything that is hot. installing signs of caution. Cylinders of pressurized gas should not be kept in laboratories. With a chain lock, the same should be stored in the shed. Assuring that every PRV is functionally sound is crucial to preventing failure. You should never operate any electrical equipment with just your hands. Utilize only functional electrical equipment. In between uses, turn off the electricity. Don't forget to earth and insulate properly. Never use any machinery without proper training. All measurement systems should be calibrated to avoid failure.

You must protect yourself against fire and take precautions against it. To reduce accidents, routine inspections of forklifts, trolleys, pallets, and other equipment are necessary. Workstations should be sufficiently built to protect workers' musculoskeletal systems from wear and tear caused by extended sitting or frequent movement. Maintaining the equipment while it is in use is not recommended. The SOPs for plant operation, shutdown, and emergency shutdown must be made available to all pertinent members of the section involved in plant operation and they must be made aware of them.

4.4 Assembly Section

Associated Hazards & its Effect

On the floor of a store, a person who slips and falls could sustain a serious injury (fracture, dislocation, sprain, Fatal). burn injuries occur when the skin comes into touch with a hot surface or steam. It is possible to die through electrocution, shock, or contact with electricity. caused by a cut or amputation injury after coming into contact with whirling machine parts. People may trip, fall, and run into structures as a result of poor lighting. Lackluster machine maintenance causes vibration and noise from leather and rubber particles. caused by an equipment malfunctioning fire.

A maintenance mishap that results in burns, knocked out, fatalities, etc. could occur if SOPs are not followed. Loss of property and catastrophic injury could occur if lifting equipment, tackles, and tools malfunction. tilting of the forklift. long periods of sitting or repeated action might harm the muscles and skeleton. Suffocation occurs owing to poor ventilation. the use of a cutting tool.

4.5 Stores and Purchase

Associated Hazards & its Effect

On the floor of a store, a person who slips and falls could sustain a serious injury (fracture, dislocation, sprain, Fatal). People may trip, fall, and run into structures as a result of poor lighting. Get content, or fall. touch with shattered glass results in a cut. motorized industrial vehicles that use a trolley for transportation Electrical system failure, faulty insulation, overheated machinery, and fire in the packaging materials. A compressed gas cylinder fire. When a chemical tanker is being unloaded, there is chemical splashing. While inspecting the stuff, a person falls from a truck or vehicle. PPE use is a must.

4.6 Environment, Health, Safety & Fire

Associated Hazards & its Effect

An individual who slips and falls on store flooring could sustain serious harm (fracture, dislocation, sprain, Fatal). People may trip, fall, and run into buildings due to poor lighting. A blunt injury, a hand/finger cut, and amputation. property loss brought on by an explosion and a fire. Electric shock and electrocution. road accidents involving vehicles.

Safety Measures

To the workforce: safety instructions before usage, equipment inspection. utilising the proper tools for the job. tidying up properly. Without a legitimate work permit, no work may be performed. safety precautions for electrical systems. A warning sign is displayed, and the area is blocked off. fire protection systems' proper maintenance. in case you need to work at night, adequate lighting. ensuring the use of the necessary PPE, including the appropriate emergency safety measures including a safety helmet, safety shoe, safety goggles, and nose mask. To raise awareness among personnel, mock drills and fire drills must be held. Provision and upkeep of all emergency safety apparatus, including BA set, safety showers, portable gas detectors, safety touches, hand sirens, etc. in excellent working order.

4.7 Engineering

Associated Hazards & its Effect

On the floor of a store, a person who slips and falls could sustain a serious injury (fracture, dislocation, sprain, Fatal). People can fall and strike structures due to poor lighting. Burn injuries are brought on by contact with hot water, steam, or chemicals. It is possible to die through electrocution, shock, or contact with electricity. caused by a cut or amputation injury after coming into contact with whirling machine parts. the presence of hazardous materials Burns or serious injuries could arise from malfunctioning hoses used to transmit chemicals and oil. An enormous amount of harm and property damage could come from the failure of lifting tools and tackles.

Safety Measures

PPE is required, and this includes safety gear like leather aprons, cotton hand gloves, safety goggles, and safety shoes. Keep your distance from water and hot surfaces. Never switch on or off any electrical items with your bare hands. It is not advisable to utilize any damaged electrical accessories. Make sure there is proper earthing and insulation. Use the right tools and machinery for the job at hand. Verify that you have the necessary isolation and a work permit before starting any significant routine or non-routine maintenance tasks. When maintaining plant systems and machinery, be sure to use high-quality materials that adhere to the necessary standards. Make sure to frequently inspect lifting devices, tackles, equipment, pressure elements, pipelines, portable power devices, and hand tools. keeping the cylinders of compressed gas in good condition. smoke re-direction through a stack to atmospheres. By a qualified individual, inspect lifting apparatus, pressure containers, PRVs, and tackles. involvement with the emergency plan and mock drill. color-coding pipes properly are necessary. Cylinders for compressed gas ought to be secured with a chain lock and enough identification in a shed. Good protection should be in place for rotating machinery components. Siren A pulls the rope and an emergency bottom push switch is present to operate the conveyor.

4.8 Projects (Green Field & Brown Field)

Associated Hazards & its Effect

On the floor of a store, a person who slips and falls could sustain a serious injury (fracture, dislocation, sprain, Fatal). People may trip, fall, and run into structures as a result of poor lighting. three injuries: amputation, hand/finger cutting, and blunt trauma. explosion and fire-related property losses. The shock from electricity or electrocution. any fall would be lethal. structural failure of a building.

Safety Measures

instructions for workplace safety. The Site Toolbox speaks. Before use, equipment inspection employing the right tools for the job. Compressed gas cylinders must be kept in a shed with a chain lock and adequate identification. Without a valid work permit, no work may be performed. putting safety measures in place for electrical systems. putting up a notice and protecting the area. All equipment needs to be checked before use. systems for putting out fires. the designation of a capable person to be in charge of the work. approval of the design sketch. sufficient lighting in case you need to work at night. Make sure a trained professional inspect the lifting apparatus, tackles, and tools. good housekeeping practices[5].

4.9 HR & Administration and Accounts.

Associated Hazards & its Effect

On the floor of a store, a person who slips and falls could sustain a serious injury (fracture, dislocation, sprain, Fatal). People may trip, fall, and run into structures as a result of poor lighting. It is possible to die through electrocution, shock, or contact with electricity. touch with shattered glass results in a cut. Electrical systems, air conditioners, printers, Xerox machines, microwaves, and other office equipment that were overheating caused a fire. The canteen's LPG facility is on fire. during gardening, bug bites.

Safety Measures

instructions for workplace safety. appropriate housekeeping. Without a valid work permit, no work may be performed. putting safety measures in place for electrical systems. Road signs, SOPs, and safety posters should all be displayed. systems for putting out fires. sufficient lighting in case you need to work at night. proper maintenance of the electrical systems and server room. if not in use, turn off the lights, computers, Xerox machines, and air conditioners. The unit is sufficiently prepared for emergencies to handle any circumstance. employees with sufficient training.

5. Conclusion

Because of moral, legal, and economical considerations, safety is essential in any industrial context. Employees are an employer's most valuable asset, and protecting them is their moral duty. To guarantee the plant's smooth operation, a range of technical staff members who have undergone the appropriate training should be used, along with reliable machinery, top-notch raw materials, and routine equipment maintenance. You should also follow standard operating practices. The detection of dangers and the implementation of control measures in accordance with such hazards are essential components for preventing accidents in the footwear business.

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