

Studies on Industrial Hazards and Its Safety Measures

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ABSTRACT

Hazard is a situation that possesses a level of threat to life, health, property or environment. Industrial Hazard is any condition produced by industries that may cause injury or death to personnel or loss of product or property. Safety in simple terms means freedom from the occurrence of risk or injury or loss. Industrial Safety refers to the protection of workers from the danger of industrial accidents. This paper presents the industrial hazards along with their safety measures.

Keywords: biological hazards, chemical hazards, industrial hazards, physical hazards, safety measures

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INTRODUCTION

Hazard is a term associated with a substance that is likelihood to cause an injury in a given environment or situation. Industrial hazard may be defined as any condition produced by industries that may cause injury or death to personnel or loss of product or property.

Safety in simple terms means freedom from the occurrence of risk or injury or loss. Industrial safety refers to the protection of workers from the danger of industrial accidents [1].

Accidents

Human factor is the contributing cause of accidents in most situations. For people who are likely to have accidents, the treatment is divided into three main categories.

- Medical assistance – in 13 percent cases
- Personality readjustment – in 22 percent cases
- Operating defects – the remaining 65 percent cases [2].

Accident Reduction

Accident proneness is acceptable to a certain extent; it does not mean that nothing

can be done to reduce the number of accidents. Accidents can be reduced by two approaches [3].

- Actuarial approach – It involves studying the statistics to determine accidents based on actual data. The factors related to the accident frequency should be identified. The violations of safety rules must be clearly identified.
- Safety educational campaign – Safety education must be conducted by management to the employee groups.

Types of Industrial Hazards

- (1) Chemical hazards
- (2) Physical hazards
- (3) Biological hazards

Chemical Hazards

Unfortunately, sometimes chemical reactions get out of control, because of several problems.



Management of Over-Exposure

Management of over-exposure to chemicals performed by – Removal from exposure- Prompt removal of person to exposure site, air respirators and lifelines are mandatory first aid.

Decontamination- A victim whose skin or clothing has been contaminated requires immediate removal of garments and shoes. Symptomatic treatment- like dehydration arrhythmias.

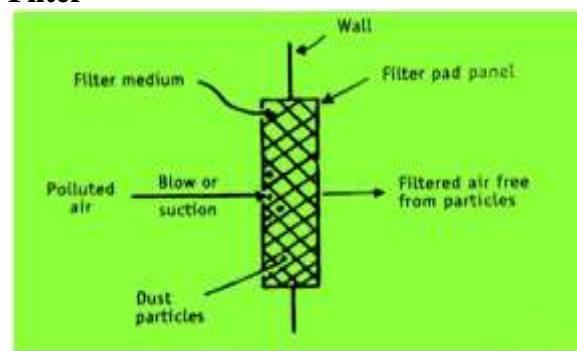
Dust Explosion

The term dust is used if the maximum particle size of the solids in the mixture is

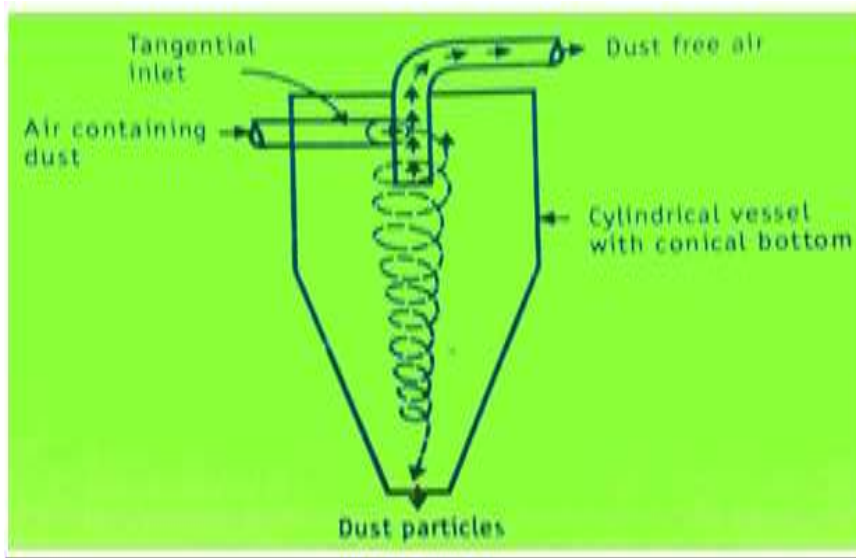
500 mm. Dust explosion is a rapid combustion of a dust cloud. Avoiding the development of explosive mixture [4].

Control of Dust Explosion

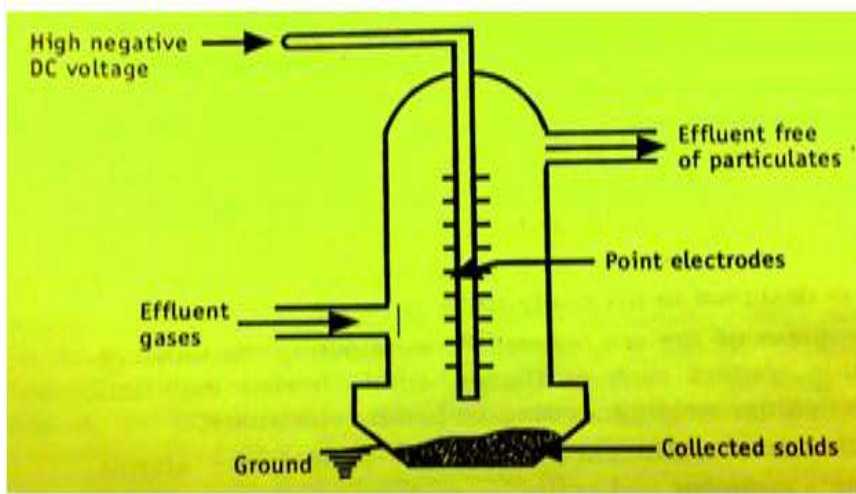
Filter



Cyclone Separators



Electrostatic Precipitators



Fire Hazards

It is the most dangerous hazards in industrial point of view.

Control of Fire and Explosion

Government regulations are available for safety and fire protection. Careful plant layout and judicious choice of constructional materials can reduce fire and explosion hazards. Hazardous operations should be isolated by conducting them in separate buildings. The roof is designed to lift easily under an explosive force. Possible sources of fire are reduced by eliminating the unnecessary ignition sources. The installation of sufficient fire alarms, temperature alarms Fire resistance brick-walls can limit the effects of an explosion [5]

Other Requirement

- Building construction
- Exit point
- Fire alarm equipment
- Sprinkler system

Special Safety Protection Equipment

- Protection of head and eyes – goggles, helmets, hooks, masks
- Protection of hand, arms, legs and feet – -rubber gloves, rubber boots, aprons, shoes, other clothing
- Prevention of breathing of poisonous gases – respiration protective devices

Safety Programme

The basic principles are:

- To identify potential hazards, provide effective safety equipment and facilities.
- To develop safety policies.

- To train in safe method of working and provide continuing education and guidance on eliminating safety hazards and prevention of accidents [6].

CONCLUSION

Safety awareness and safety training requirements of industrial employees with respect to hazards present in the industries is very much needed. A constructor safety awareness and recommend suitable improvement measure is very essential in every industry. Systematic training of employees is necessary. In addition, there should be a committee in each department, responsible for safety in their departments.

REFERENCES

- [1] C.V.S. Subramanyam, T.J. Setty. *Pharmaceutical Production Management*. 1st Edn., New Delhi: Vallabh Prakashan; 2004, 393–412p.
- [2] C.V.S. Subramanyam, T.J. Setty, V.K. Devi. *Pharmaceutical Engineering Principle and Practice*. 1st Edn, 2003.
- [3] M.K. Jain. New Delhi: Vallabh Prakashan, 483, 2 Sambamurthy K. *Pharmaceutical Engineering* New Age International Publishers, 449.
- [4] *Pharmaceutical production and management* by c.v.s subrahmanyam pg: 393-4122.
- [5] *Hazard analysis by HACCP in safety management systems Q.A volume-2* pg: 200-2113.
- [6] *Perry's chemical engineering handbook* by Robert H. Perry Don.W.Green, seventh edition pg:26-49