

Hazards and Safety Measures in Dying Process in Textile Industry

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Abstract- Dyestuffs utilised in textile industry have various, hazardous chemical components and there are several merchandise in industrial use. Uncontrollable exposure to high risky dyestuffs is clearly potential as probably baleful to health. Occupational hazards like respiratory problems. Use of artificial dyestuffs in trending area for the fashion it will impact the pollution of water, air and land and environmental problems. A chemical that has capable of causing an acute reaction. A chronic effect or both. Health hazards can be effect hole human structure or a specific body part. Textile processing units consist of number of subunits like pre-treatment dying, printing and finishing. The workers employed in dying area should be adopted to hierarchy of hazards control measures in working process in safety and health. In textile industry a large number of chemicals are used such as caustic soda, hydrogen peroxide, formic acid, sodium nitrate, Ozo dyes, direct dyes, reactive dyes and mordants. Every chemical have its own physical property which may effect the workers health. There is safety measures to reduce the adverse effect of chemicals.

Index terms- Health and safety, chemicals, MSDS, Records Keeping

1. INTRODUCTION

A textile sector plays huge role in India economy. Textile provided lot of opportunity for both skilled and unskilled employees around 45 million people directly and 20 million people indirectly. Even present textile organisations are one of the most contributor to India's exports with approximately 13% of total exports. The India textile industries currently approximate at around 120 billion, is expected to reach us\$ 230 billion by 2020[1]. Dying process is the one of the part in the textile which uses lot of various hazardous chemicals like chlorine, hydrocarbons, Ozo dyestuffs etc. which may cause

lot of health hazards to employee. So to overcome the health and environmental hazards the organisation follow standard operation procedures. The dying process only contain 36% o health hazards in textile industry. The dying process creates more wastes which affects the environment. Because of that, we have to eliminate those wastes with appropriate measures.

1. CHEMICAL SAFETY ISSUES

1.1 Hazardous phenomenon include:

Alkyl phenol,phthalates,brominated and chlorinaated retardents,perfluorinated chemicals.

Nonylphenols and octylphenols for cleaning and dying process which are toxic in nature results in accumulate in body tissue and biomagnity.

brominated and chlorinaated retardents for fire proof effect on hormon system and organ compounds sport cloths to prevent smell.

Perfluorinated chemicals for make textiles and leather both water and strain proof which effect on immune and reproductive .

Chlorobenzenes contains hexachlorobenzene for manufacturing in dyes effect on liver,thyroid and centarl nervous system.

Heavy metals like cadmium, lead, mercury and chromium which damage to nervous system, kidney causes cancer.

Ozo dyes one of most efficiency dyes contain aromatic amines result health hazards like cancer and mutagenic[12].

1.2 Material Safety Data Sheet

A Material Safety Data Sheet (MSDS) is a well settle document that contains all data about handling

chemical. It includes product and manufacture name, mistura and ingredient, potential hazards belongs to that chemicals, medical controls , fire tackle procedures, information of spills management, using and storing, personnel protection equipments, physical and chemical properties, and information about stability & reactivity, toxicology information, safe disposal of waste, transporting, and regulatory requirements[2]. MSDS is analogous to the manual of an instrument/equipment. Just look at the manual of any household electronic item. What the manual contains? The manual contains the Manufacturer Identity, Technical specification, Operating Instruction, Maintenance or Trouble Shooting Instruction, Safety Instruction etc. MSDS have 16 sections and provide detail information of chemicals(composition and ingredients,flash points,boiling points,handling,and storage facilities),exposure controls and health hazards.

1.3 Health Effects of Dyes and Chemicals

Health effects from the dying method is minimum by using trained employees and maintain management measures of handling of chemicals. Whatever we take safety measures taking on handling chemicals the exposure of chemicals cause acute or chronic the foremost common hazard of reactive dyes is metabolism issues because of the inhalation of dye particles[11]. Typically they will have an effect on a employee's health order and in most times of regular work inhale the dyes vapours it will effect on digestive system. this is often known as metabolism sensitivity and forestate body skin itching , eye irritation, inborn reflex and indicium of respiratory disease like coughing and wheezy. Skin burns and fatigue because of exhaustion method.Non ionic detergents might cause bloating and looseness of the bowels, intense irritation of nose, mouth and headache and demotics. Toulence is also employed in solvent coating operations will cause headache, confusion, loss of memory and impact operate of excretory organ and liver. Formation of gas will cause asthma.

2 SAFETY MEASURES

2.1 Industrial Safety controls

Record Keeping

Record places a vital role in assessing the industry efficiency. Records maintain is legal requirements

according to OSHAS 18001.records acts as a evidences and records reduces the loss of economy of company by revision and updating the unsafe activities. Records show the company standars and take accurate planning and evaluate the decisions for improve safety culture and quality product• Records are tools of communication. Chemicals properties records, training records, emergency control records, employee health records[7], accidents and evidence of incident records, audit and inspection of site records etc, Every audit reports send to chief inspector of factories before 30 days after completion of audit.

Protective equipment

PPE (Personal protective equipment): Devices or equipments wear to help to avoid inhale and contact to hazardous materials exposures. Example include hand gloves and respiratory equipments. To reduce the contact to hazardous chemicals like splashing, bare hands, inhalation applicable personal protecting instrumentation ought to be used. this could be body gloves, safety spectacles, air purifying masks, and body aprons. it's requirement to wear hand gloves or a respiratory equipments[4]that reduce the effect of chemicals. all the workers should known the importance of PPE and wearing methods of PPE. Its not necessary to wear PPE at all times but PPE should wear according to MSDS of specific chemicals. PPE is last resort of control measure it avoid injury but not accidents. Safety supervisor should provided the specific suitable PPE based in assigned work without compromise.

Training

A process which used for the employee to improve skills and capability of employee and adopting to work environment[5,6] according to achieve the company requirements . • Training tries to improve a specific skill related to the job. • It helps in motivating people to stay on, acquire new skill and remain continually useful to the organization. • it helps in increasing the job knowledge and skills of employee at each level. Employees who are employ the work they must training under experienced person to tackle the all the hazards and safe work practices. The management maintain training records in the form of attendance, examination result of worker efficiency and chemical practices. Invariably tuned in to current

H&S problems and maintaining records of Coaching information. coaching ought to be continual frequently to make sure that each one mill workers square measure invariably tuned in to current H&S problems and maintaining records of coaching information. Training period mostly cover the handling of solvents and precautions taken to avoid exposures. The benefits of training is improve moral of employee, reduce supervision, fewer accident, improve creative skills.

2.2 Material handling of Heavy Objects

According to the IFA within the India, the adult man can lift the load 50 kg. it's been shown that musculoskeletal disorder and trapped nerves and back pain injuries. Care ought to be taken while transporting load by manually[3].The employee adopted to ergonomics practices while carrying load by single person the key factors are property of task, load, environment, individual ability. Shift to mechanical handling instead of manual handling for reducing the accidents. while two man lifting one of the person acts as a caller another follower. There six basic factors for material handling (a).correct position (b). Straight back and knee bent (c).load close to body (d).correct grasp (e).chin in (f).use of body weight.

3 ROLES AND RESPONSIBILITY

3.1 Function of the occupier

The occupier ought to often inspect,record the hazardous process and nonconformity. make instructions on corrective procedure . The management ought to then develop a protocol through that to implement these laws. The management maintains update safety policy[9] and safe handling of chemicals. The management ought to develop work practices staff not exposure to exceed ppm values of dangerous chemicals and follow hierarchy of hazards from the chemicals (elimination, substitution, engineering and administration management & PPE). AN occupierun agency has management of AN industrial activity in terms of dangerous activity shall give proof to indicate that he has, - (a) supervision[10] of site and work practices to known the potential hazards; and (b) taken correct measure to - (i)avoid such unsafe conditions and unsafe acts and to limit their consequences to persons and therefore the

environment; (ii) give to the employee acting on the positioning with the data, coaching and instrumentality together with antidotes necessary to confirm their safety. periodically renewal the safety policy when extenuation of organisation and installing new hazardous chemicals.

3.2 Function of the Factory Staff

Every worker should have the acceptable, comfortable work environment and knowledge so they perform their work with all needed requirements. Every employee should take own responsibility to manage the Before carrying out the work assess the work place and wear safety equipments[8].The employee should know the risk of handling chemicals and safe operation. Every employee follow the specifications mentioned in MSDS. Keep the fire extinguishers near to fire place works. Use barrier creams and powders and canvas gloves to avoid bare hand of chemicals. Wash hands before ingestion of food and water. Report all the dangerous accurance in the workplace. Use less impact chemicals rather than extreme reactive chemicals.

DISCUSSION

The health and queries of safety raised throughout this paper the necessary of assessing risks of the textile colouring agents for tolerating the health effects. Healthand Safety area utilized by the industry or set get into the rules and regulations specified by shoppers require to be compelled as applicable. General instruction likes “replace less impact chemicals instead of more impact chemicals”. The management is primary responsible for the employee. Maintain safety policy for the scope of industry for reducing severity rate and accident rate. All the employee enforces to adopted to safe work practices. MSDS have to be compelled to be communicate and chemical properties by the manufacture and conjointly the manufacture staff ought to be created awake to the contents of the MSDS. To take care of high standards of H&S the manufacture management have to be compelled to often times update and evaluate their OHS policy to remain manufacture safe and stop advert able incidents. Conduct risk assessment of hazardous process and submit reports to the management for analysing the safety function of industry. The H&S policy should be comply with

all legal requirements. The MSDS improve safety concern of the employee and manage the risks by such chemicals. The industrial plant management team ought to take away excess risks and shield against people who effected.

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