



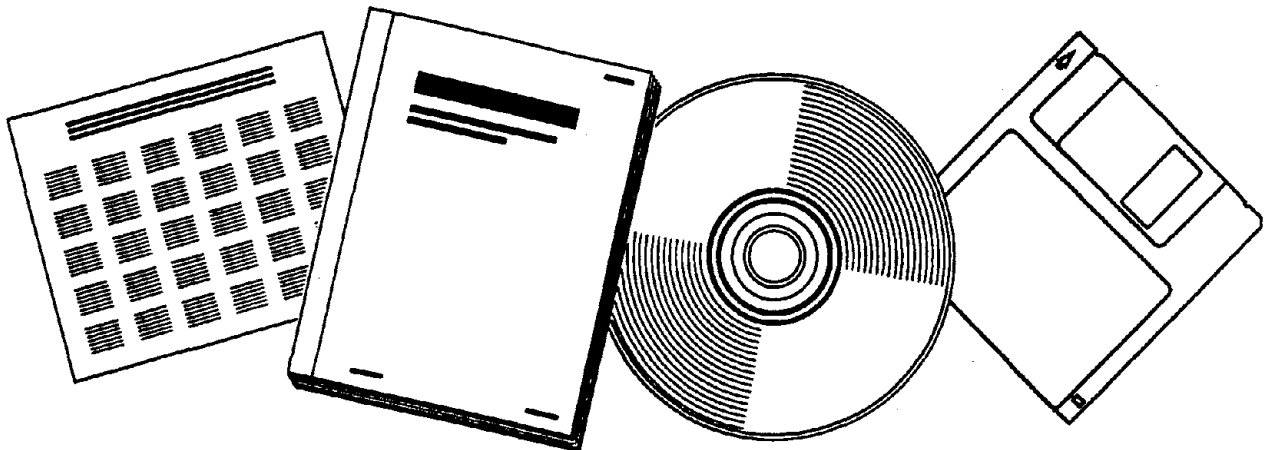
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**DYEING AND FINISHING OF TEXTILES
PLANT OBSERVATION REPORT AND EVALUATION
CARLISLE FINISHING PLANT
CONE MILLS CORPORATION**

(U.S.) NATIONAL INST. FOR OCCUPATIONAL SAFETY AND HEALTH
CINCINNATI, OH

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Dyeing and Finishing of Textiles
Plant Observation Report and Evaluation
Carlisle Finishing Plant
(Cone Mills Corporation)

PLANT OBSERVATION REPORT AND EVALUATION
(may contain proprietary information)

Name of Plant: Carlisle Finishing Plant
Cone Mills Corporation
Carlisle, South Carolina

Plant Representatives: Pat Danehy, General Manager
Stanley Sewell, Personnel Manager
Fred Osborne, Corporate Industrial Hygienist
Robert Clime, Laboratory Manager

GTI Representatives: John Pate, Senior Industrial Hygienist
Glen Barrett, Senior Industrial Hygienist
Dr. Dean Bixler, Consultant

NIOSH Representative: Martin Erlichman, Criteria Manager

Date of Visit: September 26, 1980



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Reproduced from best available copy.  REPRODUCED BY U.S. DEPARTMENT OF COMMERCE NATIONAL TECHNICAL INFORMATION SERVICE SPRINGFIELD, VA 22161			
16. Abstract (Limit: 200 words) The Carlisle Finishing Plant, Cone Mills Corporation, Carlisle, South Carolina was the site of an occupational health and safety survey designed to identify specific areas of concern. The facility was engaged in commission finishing of textiles, including dyeing and printing; it employed 854 hourly workers on three shifts. Management was significantly involved with safety planning for the company. A general safety policy was set forth in the Personnel Policy Manual. The facility operated two types of safety committees, the executive committee and the hourly committee. Safety inspections and health hazard evaluations were conducted on a regular basis. The safety and health training program and the medical program at the facility were described. Operations at the facility were observed during the study, and specific hazards were described. Some of these pertained to ventilation systems; suggestions and rationale for improving the system were provided. Some suggestions were also made regarding housekeeping concerns. Sections of the Personnel Policy Manual were included in this report along with accident investigation reports, and job hazard analyses.			
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Background

Cone Mills Corporation was founded in 1895; the Carlisle Finishing Plant was opened in 1956. The Carlisle plant is a nonunion commission finishing plant where woven piece goods are either dyed or printed and then finished for use in drapery, upholstery, and apparel. Cone Mills has 19 other plants (5 of which are unionized), including yarn manufacturing plants producing woven piece goods, plants manufacturing polyurethane foam used as cushions for furniture, and other finishing plants. Cone Mills Corporation is one of the world's leading producers of denim, corduroy, and other fabrics for jeans and casual sportswear.

The Carlisle Finishing Plant receives approximately 90% of its cloth from customers; the rest is received from other Cone Mills plants. The production capacity for finished goods is 2-2.5 million yards of cloth per week. As of the week of November 3, 1980, the plant employed 854 hourly employees and 192 salaried employees over three shifts. The breakdown of hourly employees by shift is: first, 449; second, 244; third, 161. The annual turnover rate for hourly employees is estimated at 12-20%. The plant is open year-round except for the week of July 4.

Safety and Health Program

(a) Management Involvement

The "Safe and Healthful Operating Practices" section of the Personnel Policy Manual for hourly employees (see Appendix A) states: "...it is the

responsibility of plant management to implement the program for Safe and Healthful Operating Practices at the local level. Aid in achieving program goals may be obtained from the company's Industrial Relations Department." The manual then states specific responsibilities of local management in implementing the safety and health program (SHP). These statements indicate that the company promotes management involvement in the SHP.

The corporate staff currently includes an industrial hygienist, who reports to the medical director. The medical director and safety manager report to the vice president of industrial relations, who manages personnel. This type of organization integrates corporate responsibility for the SHP.

The plant personnel manager handles the plant SHP and reports to the plant manager and the vice president of industrial relations. The company is hiring a safety manager, who will help the personnel manager operate the SHP. This action also indicates management interest in improving the operation of the SHP.

Another indication of management involvement is the fact that the plant has an executive safety committee in addition to the hourly safety committee, thus involving plant management in a specific SHP.

(b) Statement of Policy

A general safety policy is set forth in the "Safe and Healthful Working Practice" section of the salaried employees' Personnel Policy Manual for

management (see Appendix B): "It is the policy of the Company to strive continually toward the creation of safe and healthful working conditions by the elimination of work hazards and the prevention of accidents." A similar statement appears for management in the "Safe and Healthful Operating Practices" section of the hourly employees' Personnel Policy Manual (see Appendix A, p. 58, first paragraph). The safety policy as stated by the plant manager is also posted on a bulletin board. The policy is first stated to new employees during orientation with the use of a slide presentation.

(c) Safety Committees

As stated above, the plant operates two types of safety committees, the executive committee and the hourly committee. The executive committee consists of department managers, area superintendents, the personnel manager, the training manager, and the nurse. The committee meets monthly to do the following: review the hourly committee safety inspection report; investigate specific accident reports if an accident type recurs; update the SHP as new regulations are promulgated; discuss accident and illness incidence rate trends and appropriate actions to be taken; and occasionally participate in slide presentations on specific safety or health problems.

The hourly committee consists of hourly employees from each department and two cochairpersons, who are salaried supervisors. The hourly employees are selected by their department manager and are rotated every 90

days. Each shift has an hourly committee, which meets and conducts a safety and health inspection periodically. The shift safety inspection is rotated so that a shift conducts an inspection every 3 months. Workers meet in the remaining months to discuss past safety inspection recommendations and recurring accidents, participate in an audiovisual safety or health presentation, and take other necessary action to improve the SHP.

(d) Safety Inspections

Since the hourly safety committee on each shift conducts a safety inspection every 3 months, the plant is inspected monthly. An inspection report including control recommendations is submitted to the personnel manager, who then writes his own report from these recommendations and submits a copy to the general manager and the department managers. Each department has 3 days to correct a hazard.

(e) Health Hazard Evaluations

Colorimetric detector tube samples to screen for excessive air contaminants are taken periodically by a laboratory technician who has been trained in proper sampling by the laboratory manager. At the Carlisle plant, samples have been taken for formaldehyde gas, carbon monoxide gas, chromic acid mist, ammonia gas, sulfur dioxide gas, acetic acid vapor, isopropyl alcohol vapor, chlorine gas, hydrogen chloride gas, perchloroethylene vapor, and xylene vapor.

The company employs a corporate industrial hygienist, who currently samples only if detector tube samples indicate an excessive exposure because control measures have proven unsuccessful. He will start quarterly sampling beginning January 1981. The industrial hygienist has sampled for formaldehyde gas, Stoddard solvent vapor, xylene vapor, chromic acid and sulfuric acid mist, acetic acid vapor, ammonia gas, carbon monoxide gas, and noise. Some sample results are discussed below in Survey of Operations. Neither the industrial hygienist nor plant personnel conduct a periodic ventilation monitoring program to determine whether existing systems adequately control air contaminants.

The corporate industrial hygienist reviews the toxicologic properties of all chemicals proposed for purchase. A material safety data sheet (MSDS) is now requested for each chemical to be purchased. If the MSDS provides sketchy or unclear information, the data sheet is returned to the supplier for clarification. The chemical will not be purchased unless the manufacturer provides all information requested. Plant representatives estimated that the corporate office and the personnel manager have MSDS's for approximately 95% of all chemicals currently in use at the plant. There are no MSDS's for the remaining chemicals because they are used in small amounts or have not yet been obtained.

(f) Accident Investigations

As stated in the Personnel Policy Manual for hourly and salaried employees (see Appendices A and B), every plant accident should be

immediately investigated, regardless of whether the accident results in injury. Accidents are immediately reported to the superintendent, who then completes an accident investigation report (see Appendix C). One section of the report requires the superintendent to state what action has been taken to prevent recurrence. This report is then given to the plant nurse, who uses the information to fill out the State employer's first injury report if more than first aid is needed. A copy of the accident investigation report is also given to the personnel manager, who sends a copy to the vice president of industrial relations. It is the personnel manager's responsibility to ensure that the superintendent has taken corrective action. The executive or hourly safety committees follow up on the progress of corrective action if this action cannot be taken immediately.

The personnel director computes lost-workday accident and illness incidence rates (incidence rate = number of lost workdays/million labor hours) monthly. The corporate safety manager ranks plant and division incidence rates on a monthly written printout to determine which plants should revise their SHP. (See Appendix D for a copy of the June 1980 accident frequency summary.)

(g) Safety and Health Education and Training

The plant employs a training manager. New employees receive 1 day of initial training by the training manager and personnel manager. Safety and health is emphasized throughout the training day, accounting for 40-50% of the material presented. This session includes a video presentation on

safety and health items for specific jobs. Each employee also receives the pamphlet "Employee Safe and Healthful Operating Practices" as part of orientation (see Appendix E). In addition, new employees receive continuous safety and health training during the first 6 weeks of employment.

The training manager is now writing a job hazard analysis for each job. The potential health hazards and the necessary safe practices and personal protective equipment to be worn are listed for each key job step. Each job hazard analysis is discussed with the superintendent and employee concerned. (See Appendix F for a sample job hazard analysis.)

(h) Medical Program

The corporate medical director, who is board certified in occupational health, oversees the medical program for all of the Cone Mills plants. Each plant has a medical department headed by a nurse. At the Carlisle Finishing Plant, the nurse administers first aid, completes the employer's first injury report when needed, and gives physical examinations. The nurse will start giving audiometric hearing tests in 1981 to those employees working in designated high-noise areas. Since the nurse works only on the first shift, first aid is provided for the remaining shifts by employees trained in first aid and certified in cardiopulmonary resuscitation. Since the plant does not employ a physician, injuries are treated by outside physicians.

All new employees are given preplacement physical examinations, including a vision test and urinalysis, and results are recorded on a corporate examination form. This form also states medical history information provided by the employee. Periodic examinations are not now given, but the possibility of doing so is being discussed.

Survey of Operations

(a) Layout and Sew

Bales of gray cloth are sewn together and wound on rolls for the lots of yardage requested by the customer.

Specific Observations--Overhead unflanged exhaust ducts provided local exhaust ventilation control for airborne lint, sizing, and other particles at sites where cloth is sewn and wound. Air contaminants were filtered through area filter units that recirculated filtered air back to the workroom. The area did not appear dusty.

(b) Preparation

Preparation is done with two open-width and one rope bleach range. The team observed one open-width bleach range, which was not operating at the time. Cloth goes through a singeing operation, which includes an open gas flame that the cloth passes on its way to an enzyme desizing bath. From desizing, the cloth passes into a J-box and then to a series of hot-water

wash baths, followed by a sodium hydroxide solution scouring bath (7%) and a J-box. The cloth then passes through an enclosed water wash box and a hydrogen peroxide saturator pad (about 3-4%) for bleaching, through another J-box, and through another series of hot-water wash baths. A similar series of operations is used for both the unobserved open-width and the rope bleach ranges.

Cotton or cotton blend cloth is mercerized with two mercerizing machines. The machine that was observed was not operating at the time of the visit. The operation is as follows: open-width cloth passes through an unexhausted water mangle pad to an enclosed caustic application box (approximately 23% sodium hydroxide solution); to timing cans, where it is stretched properly; to a tenter frame, where it passes under a series of hot-water washes provided with locally exhausted canopy hoods; to a series of enclosed water wash boxes; to an enclosed acid scour box to control pH (acid and concentration unknown); and to steam cans for drying, with canopy hood local exhaust ventilation control provided. The cloth then is either rerolled on a takeup roll or folded in a box.

Cloths other than cotton or cotton blend are heat set on a tenter frame in a locally exhausted oven at 149-204 C.

Specific Observations--On the open-width bleach range, the singeing operation, desizing bath, series of hot-water wash baths, scouring bath, and bleaching pad were provided with local exhaust ventilation control in the form of canopy hoods. Control could not be subjectively evaluated

since the range observed was not operating. Also, because the mercerizing machine observed was not operating, air contaminant control could not be evaluated.

Water on the floor in the preparation area caused one member of the visiting team to slip. Workers in this area are not required to wear rubber boots with nonslip soles, but the plant does provide such boots for employees who request them.

(c) Screen Printing Department

The screen printing department consists of five rotary screen print lines and one automatic flat-bed screen line. Aqueous print pastes are formulated in the screen print color mixing area.

Thickeners and binders are stored in eight outside bulk storage tanks and transferred through enclosed piping to mixing and holding tanks inside. Dye powders are manually weighed out on unexhausted scales in the scale room. The dye powders are then manually transferred to drums and mixed with a thickener-binder mixture that is added through enclosed lines from the inside tanks. Employees then use hand dolly trucks to push the drums of prepared print pastes to the production lines. Print pastes are transferred from the open drums by tubing to either the rotary or flat-bed screens. Drums of print pastes that have been partially used are covered with thin plastic sheeting and held in the screen print color mixing area.

Printed cloth on each of the six production lines is then dried by steam-heated cans and wound up on takeup rolls.

Specific Observations--The mixing and holding tanks for thickener and binder formulations were cleaned manually with water, not solvent, thus eliminating solvent vapor exposure during cleaning. Rotary and flat-bed screens are also cleaned with water.

Employees weighing dye powders did not wear gloves to reduce skin contact with possibly toxic dyes. Water was observed on the floor in the weighing and mixing area. However, all workers in this area were wearing rubber boots, which would reduce the potential for slips or falls. The weighing and mixing area was equipped with a safety shower and eyewash.

(d) Roller Printing Department

Thickeners and binders used for print pastes and finish resins used for finishing operations are formulated in unexhausted open mixing tanks in a second-floor room next to the roller printing department. Dilution ventilation control is provided through unconditioned makeup air generated by a 6-foot ceiling fan and exhaust ports along the length of a wall about 10 feet above the floor. Air from this formulation room is also exhausted through openings in the opposite wall into the room housing the roller printers, since this room is under negative pressure. The thickeners and binders are transferred from the tanks by gravity through enclosed lines down to covered drums in the dispensing room. From there they are pumped

by pressure through enclosed lines to open drums. At the same time, dye pastes in drums located along the wall of the dispensing room are pumped to the drums being filled with thickeners and binders, and all materials are mixed. The drums of print pastes are then manually rolled over to the 12 roller printing machines.

The print pastes are pumped from open drums to open troughs on the roller printing machines for application to the print rolls, which apply the print to the moving cloth. This cloth is placed over a greige backup cloth. After the cloth is printed with color from each print roll, it passes through a locally exhausted oven above the machine and is then folded in a tub. Local exhaust ventilation is also provided for initial processing of the greige backup cloth before printing to exhaust airborne sizing. The sizing is filtered through a cloth sock, and the air is recirculated back to the workroom.

Specific Observations--The visiting team smelled some odors in the second-floor formulation room, but the identity of the air contaminants and the extent of any health hazard is not known. Some supply drums were uncovered. These drums should be kept covered to reduce exposure to possibly toxic air contaminants, since some solvents are used in the print paste formulations.

A portable ladder was partially blocking the safety shower in the formulation room. In addition, although there was an eyewash with a proper

location sign posted, a location sign was also posted in an area with no eyewash. No water or spilled materials were observed on the floor.

Employees working in the formulation and dispensing rooms wore protective gloves. However, the dispensing room floor was wet and slippery in spots, indicating a risk of slips or falls.

The visiting team saw steam at the rollers of a roller printing machine, assumed to have been generated from the greige backup cloth that had passed through hot water. Nothing was smelled in the area.

(e). Plating Department

The copper print rolls used in the roller printing department are plated in the plating department, which consists of one room that houses a hydrochloric acid roll cleaning tank and a copper roll plating tank. A modified push-pull local exhaust ventilation control system is used to control sulfuric acid mist that emanates from the copper plating tank. Makeup air is supplied through one wall and exhausted through a lateral exhaust slot at the end of the tank approximately 15 feet from the wall.

Chrome plating is done in another room within the plating department. Lateral local exhaust ventilation to control chromic acid mist at the plating tank is provided by two exhaust slots located along both lengths of the tank. A hydrochloric acid clean tank located within the same room has similar exhaust slots.

Specific Observations--The corporate industrial hygienist had taken filter air samples for sulfuric acid mist at the copper plating tank and for chromic acid mist at the chrome plating tank. Sample results showed nonexcessive levels. Personal protective equipment worn by employees working with acid included aprons, gloves, and a face shield. The department had an emergency eyewash and shower for accidental skin or eye contact with acid.

(f) Dyeing

Dyeing is done with two continuous dye ranges and one continuous pigment range. Canopy hoods provide local exhaust ventilation control for the dye and pigment pads (baths). The ovens also have local exhaust ventilation control.

Specific Observations--None.

(g) Finishing

Preparation of finishes in the formulation and dispensing rooms was discussed above in section (d). The finishing operation consists of an acid aging line, a flash aging line, five finishing ranges, heat-setting lines, a set of washing and drying operations, napping, and Sanforizing.

Acetic acid is used at two acid aging machines, which develop certain colors in printed cloth. The machines are enclosed and provided with local exhaust ventilation control.

Only printed cloth is processed through the flash aging line. The sequence is as follows: the cloth passes through an enclosed sodium hydroxide-sodium hydrosulfite applicator; through an oven arch, where it is aged; to a series of three cold-water wash boxes; through an acetic acid-hydrogen peroxide bath, which changes and fixes certain colors; and over steam-heated cans. Finally, it is folded in a tub. The oven arch on the flash aging line is provided with local exhaust ventilation control. The three cold-water wash boxes, the acetic acid-hydrogen peroxide bath, and the steam-heated cans have exhaust canopy hoods.

The five finishing ranges consist of an open pad (bath) of the finishing material, with no local exhaust ventilation control. After padding with a finishing material, the finished cloth is placed on a tenter frame and passed through a locally exhausted oven. The cloth is then either rolled up or folded. After finishing, some cloth is heat set. The heat-setting ovens, drying ovens, and ovens on the finishing ranges are provided with local exhaust ventilation control.

Specific Observations--Results of colorimetric detector tube samples taken for airborne acetic acid at the acid aging machines showed nonexcessive levels. Sound level readings were taken by the corporate industrial hygienist with a sound level meter at the napping machines, since an excessive noise exposure was suspected. However, the exposure was non-excessive.

Finishes were pumped to the pads from open drums, which should be covered to reduce a potential health hazard exposure. Impinger samples were taken by the corporate industrial hygienist at finishing ranges where a formaldehyde-based resin was being used. The highest sample concentration obtained was 1.5 ppm for a sample taken at the finish pad, a level below the American Conference of Governmental Industrial Hygienists ceiling threshold limit value of 2 ppm (OSHA ceiling limit = 5 ppm). Cone Mills is requesting resin with a maximum free formaldehyde content of 0.8%. Most formaldehyde-based resins now received have an average free formaldehyde content of 0.5%.

APPENDIX A

PERSONNEL POLICY MANUAL,

HOURLY EMPLOYEES



PERSONNEL POLICY MANUAL

CONE MILLS CORPORATION

HOURLY EMPLOYEES

SUBJECT:

Safe and Healthful Operating Practices

PAGE 1 of 7

DATE April 1, 1963

REVISED August 15, 1977

Policy: It is the policy of the company to strive continually toward the creation of safe and healthful working conditions by the elimination of safety and health hazards and the prevention of industrial accidents.

Procedure:

Responsibilities and procedures are outlined as follows. The Corporate Safety Practices Manual and the Manual of Medical Procedures provide additional guidelines for the development of safety, health and medical programs.

1. Management Responsibilities

It is the responsibility of plant management to implement the program for Safe and Healthful Operating Practices at the local level. In addition, plant management is to develop plant safety rules to be posted on each bulletin board. Aid in achieving program goals may be obtained from the company's Industrial Relations Department.

Specific responsibilities of local management include:

a. Physical Condition of the Plant

- (1) A safety inspection of each plant must be made not less frequently than once a month by a plant safety committee designated by the manager. A written inspection report is submitted to the designated person, and necessary action is taken to correct any reported hazards.
- (2) Good housekeeping must be maintained throughout the plant. Appropriate receptacles must be provided for trash, waste, oily rags, etc. Adequate storage space must be provided for all tools, materials, and equipment.

b. Preplacement Physical Examination

- (1) Physical examinations are required on all prospective employees and the findings are to be used as a guide to employment. Reasonable efforts will be made to estimate



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physical capabilities and medical impairments of an individual so that he may be considered for work which he is best able to perform.

c. Health and Medical Program

- (1) A medical program is to be maintained in each company facility to carry out first aid treatment, medical examinations, and required health surveillance of the employee population. Where medical departments are not maintained and staffed by nursing personnel, facilities for first aid programs supported by selected community physicians are to be maintained.
- (2) Industrial hygiene surveys of the environment will be performed on a routine basis.

d. Accident Investigation

- (1) Every plant accident is to be immediately investigated, whether or not the accident results in injury. Preventive measures are to be taken immediately to prevent recurrences.

e. Orientation and Training of Employees

- (1) New employees are to be instructed in safe work methods and plant safety rules.
- (2) Employees who are transferred are to be instructed or re-instructed in safe work methods.
- (3) Employees are to be given a copy of the Safety Handbook which outlines employee responsibility.
- (4) Supervisors are to observe employee work practices and are expected to discuss job safety and health hazards with their employees.



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SUBJECT:

Safe and Healthful Operating Practices

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f. Use and Maintenance of Mechanical and Electrical Equipment

- (1) Safety guards are to be placed on all power-driven equipment as prescribed by state and federal regulations.
- (2) Supervisors are responsible for insuring that all safety guards are replaced after machinery maintenance.
- (3) Any machinery or equipment in unsafe condition is to be reported to the proper person for prompt correction.
- (4) The use of compressed air is to be limited to essential needs, and substitutes will be used whenever possible. Respirators and eye protection are required when using compressed air for cleaning.
- (5) All electrical equipment is to be systematically inspected, cleaned, and maintained in good working order.

g. Maintenance of Hoists and Transportation Equipment

- (1) Regular inspection and maintenance of all hoisting equipment, including elevators, must be performed in accordance with state and federal regulations.
- (2) Regular inspection and maintenance of all automotive equipment must be performed.

h. Control of Fire and Other Emergency Conditions

- (1) An effective organization must be maintained to control emergency conditions which could endanger the safety of employees.

2. Employee Responsibilities

It is the responsibility of employees to perform their jobs in a safe manner and to comply with plant safety rules.



PERSONNEL POLICY MANUAL

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SUBJECT:

Safe and Healthful Operating Practices

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a. Reports

- (1) Every accident and injury is to be reported by the employee promptly to his supervisor.
- (2) Employees are to report any unsafe machinery, equipment, or conditions.

b. Clothing

- (1) Employees are to wear clothes appropriate for their jobs. They are not to wear loose or dangling jewelry, loose sleeves, loose or ragged clothing, or unprotected long hair. Shoes are to be of substantial design and in good repair.

c. Personal Protective Equipment

- (1) Personal protective equipment, where needed or required by safety and health standards, is made available to employees, and the use of this equipment is mandatory on designated jobs and tasks.

Examples: Correct eye protection when grinding, changing travelers, handling dangerous chemicals, welding, assisting welder, using acetylene torch, or using air hose; using approved respiratory equipment when entering a tank or sump where poisonous gases may be present; hearing protective devices where required; aprons and gloves when handling dyes and chemicals; and respirators where required.

- (2) Eye protection shall be furnished at no cost when the company requires employees to use goggles or face shields.

When the company requires employees to use safety glasses, the company will supply non-prescription safety glasses without cost to employees, and will make available prescription safety glasses at wholesale cost less the wholesale cost of non-prescription safety glasses. Safety prescription glasses at this same low price will also be made available



PERSONNEL POLICY MANUAL

CONE MILLS CORPORATION

HOURLY EMPLOYEES

SUBJECT:

Safe and Healthful Operating Practices

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to employees who wear glasses but who are on jobs which do not specifically require protective eye equipment.

(3) Respirators shall be furnished when required on designated jobs and tasks.

(4) Safety shoes can be ordered by employees and purchased at the wholesale cost to the company.

d. Machinery

(1) When cleaning, oiling, or fixing machinery, the employee is to take all reasonable precautions, including use of safety latches and cut-off switches. No maintenance is to be performed on power-driven machinery until it has stopped completely.

(2) Employees are not to remove guards and safety devices except after a machine is stopped, and are not to start machines again until the safety devices have been replaced.

e. Electrical Equipment

(1) Employees are to handle electrical equipment in a safe and approved manner. (i.e., pull disconnect switches with the left hand, remove fuses only with fuse pullers, use current testers before working on circuits..)

(2) No person shall drill into any wall or floor without permission of the master mechanic.

f. Tools

(1) Employees shall provide themselves with adequate hand tools, as needed, and keep them in good repair.

(2) Tools shall be used for the purpose for which they were designed.

(3) All sharp or pointed tools (such as knives or scissors) are to be carried in a safe holder or sheath.



PERSONNEL POLICY MANUAL

CONE MILLS CORPORATION

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SUBJECT:

Safe and Healthful Operating Practices.

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g. Lifting

- (1) Employees are to use correct methods of manual lifting, and are expected to get assistance when needed. Employees are also to use power equipment when it is available and practical.

h. Trucks

- (1) Trucks and motor lifts are to be driven at safe speeds and are to be stopped at each blind corner.
- (2) Hand trucks and boxes are to be pushed, not pulled, unless the employee is specifically directed otherwise.
- (3) Employees should push trucks and boxes with fingers and thumbs inside.
- (4) Employees are not to ride trucks, boxes, conveyors, or other mechanical equipment except when necessary for operation.

i. Fire

- (1) An employee who uses a fire extinguisher is to return it for recharging.

j. Housekeeping

- (1) Oil, grease, and water on the floor are to be reported to supervision at once.
- (2) Trash and waste are to be placed in appropriate containers.
- (3) Objects on the floor which create trip hazards are to be picked up.

k. Horseplay

- (1) Horseplay and practical joking are prohibited.



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SUBJECT:

Safe and Healthful Operating Practices

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DATE September 1, 1969

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l. Traffic

- (1) Every employee is to enter, leave, and move about the plant or grounds only within the limits of his job or assignment and by way of prescribed routes.
- (2) All aisles and doorways are to be kept free of obstruction.

m. Intoxicants and Drugs

- (1) Employees may not work when under the influence of intoxicants or drugs.

n. Smoking

- (1) Employees shall smoke only in designated areas.

APPENDIX B

PERSONNEL POLICY MANUAL,

SALARIED EMPLOYEES



PERSONNEL POLICY
CONE MILLS CORPORATION
SALARIED EMPLOYEES

SUBJECT:

Safe and Healthful Working Practices

PAGE 1 of 1

DATE January 1, 1965

REVISED

Policy: It is the policy of the Company to strive continually toward the creation of safe and healthful working conditions, by the elimination of work hazards and the prevention of accidents.

Procedure:

1. Office Personnel

- A. The office supervisor or department head is responsible for maintaining safe and healthful working conditions in the work area he supervises. He is to make sure that machines are maintained in good operating condition and with safety guards when these are needed, that office furnishings are in good repair and arranged with consideration of the safety of employees, that good housekeeping is practiced, and that employees are fully instructed concerning safe working habits.
- B. Every accident, whether or not it results in an injury, is to be fully investigated and steps taken to prevent repetition. A report of each accident is to be sent to the local office where such records are maintained, and when necessary to the headquarters Safety Director.
- C. In the event of injury, the injured employee is to be given prompt and adequate first aid treatment, and placed under the care of a doctor when this is necessary.
- D. The Safety Director will deal with governmental agencies and insurance companies on all matters related to health and safety.

2. Plant Personnel

(See Procedure as outlined in the Personnel Practices Manual for Hourly Paid Employees.

APPENDIX C

ACCIDENT INVESTIGATION REPORT

ACCIDENT INVESTIGATION REPORT

Employee _____ Department _____

Job Title _____ Date & Time of Accident _____

When reported to you or foreman _____

What was employee doing when accident occurred? _____

What machine, tool, substance or object was most closely connected with the accident? _____

If machine or vehicle, what part of it? _____

How did the accident happen? _____

In what way was the machine, tool, or object defective? _____

What action have you taken to prevent this type of accident? _____

Were mechanical guards or other necessary safeguards (such as goggles) provided? _____

Was injured using them? _____

How could the injured have prevented the accident? _____

Names of witnesses _____

Nature and location of injury _____

Did employee return to work? _____

Report prepared by _____ Date _____ Dept. Head. _____

Date and time received by nurse or Personnel Department _____

APPENDIX D

ACCIDENT FREQUENCY SUMMARY

JUNE 1980

JUNE 1980

FAC DIVISION / PLANT IN CVSN	MANHOURS THIS MONTH	TOTAL CASES			TOTAL LOST WORK DAY CASES			LOST WORK DAY INCIDENCE RATE			
		THIS MONTH	YEAR TO DATE YTD	LAST YTD	THIS MONTH	YEAR TO DATE YTD	LAST YTD	12-MONTH CUMULATIVE TO DATE YTD	YEAR TO DATE YTD	LAST YTD	
MANUFACTURING											
1 AMERICAN SPINNI	93,147	1	9	17				0.0	0.0	0.0	
2 MINNEOLA	90,653	4	20	16				0.0	0.0	0.0	
3 FLORENCE	65,147	3	14	8				0.0	0.0	0.0	
4 PROXIMITY								0.0	0.0	0.0	
5 PINEVILLE	81,320	5	31	27	1			0.2	0.4	0.0	
6 TAYLORFORD	71,031	2	31	24				0.3	0.0	0.0	
7 EDNA	54,827	3	14	6	1		1	0.4	0.7	0.7	
8 CLIFFSIDE	168,524	3	14	21	3		3	0.5	0.7	0.2	
9 SALISBURY	177,002	5	79	59	3		2	0.6	0.6	0.5	
10 HAYNES	104,346	3	28	20	3		1	0.6	1.1	0.4	
11 REVOLUTION	192,272	13	46	44	1		6	1.1	1.1	1.5	
12 ENO	123,637	3	34	35	3		2	1.1	0.9	0.6	
13 WHITE OAK	540,787	30	177	202	1		14	1.2	1.0	1.2	
SUB-TOTALS	1,762,695	79	497	479	2		34	0.7	0.7	0.7	
FINISHING											
1 GRANITE	15,421	7	46	54	1		1	0.1	0.2	1.9	
2 CARLSLE	202,265	2	61	58			1	0.3	0.2	0.4	
3 UNION BLEACHERY	98,800	1	22	43			1	0.6	0.4	0.0	
4 CHERAW	27,098	3	13	16	1		1	1.7	1.1	0.0	
SUB-TOTALS	479,588	19	142	171	2		4	0.4	0.3	0.7	
FOAM											
1 OLYMPIC	53,227	1	18	26	1		3	0.9	0.6	1.8	
2 PRELUDE	36,347	2	12	16	2		1	0.9	1.7	1.0	
3 SCUTHAIRE	23,741	6	30	29	4		2	4.8	6.5	2.6	
SUB-TOTALS	113,315	9	60	71	7		6	1.6	2.1	1.8	
MISCELLANEOUS											
1 ADMINISTRATIVE	90,342		1	5	1		3	0.2	0.4	1.4	
2 OTHERS	147,463	3	22	14	2		1	0.7	0.5	0.3	
SUB-TOTALS	237,805	3	23	19	3		4	0.5	0.5	0.7	
GRAND TOTALS	2,593,403	110	722	740	4		48	0.7	0.7	0.7	

CEME MILLS CORPORATION
REPORT NUMBER AF121)

A C C I D E N T S
SUMMARY OF INCIDENTS AND I

C Y
CE RATES

PAGE 2

JUNE 1980

FANK IN CYSN	CIVISION / PLANT	MANHOURS THIS MONTH	T O T A L C A S E S			T O T A L L O S T W O R K D A Y C A S E S			L O S T W O R K D A Y I N C I D E N C E R A T E		
			THIS MONTH	YEAR TO DATE	LAST YTD	THIS MONTH	YEAR TO DATE	LAST YTD	12-MONTH CUMULATIVE	YEAR TO DATE	LAST YTD
1	GREIGE GCOS	536,136	20	158	130		7	3	0.4	0.5	0.2
2	FINISHING DIV.	479,588	19	142	171	2	4	10	0.4	0.3	0.7
3	CLOFED GCOS	493,500	16	116	103		7	4	0.4	0.5	0.3
4	FLANNEL DIVISIO	192,272	13	46	44	1	6	8	1.1	1.1	1.5
5	BLUE DENIM	540,787	30	177	202	1	14	17	1.2	1.0	1.2
6	OLYMPIC PRODUCT	113,315	9	60	71		7	6	1.6	2.1	1.8
7	MISCELLANEOUS	237,805	3	23	19		3	4	0.5	0.5	0.7

TOTALS	2,593,403	110	722	740		4	48	52	0.7	0.7	0.7
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APPENDIX E

"EMPLOYEE SAFE AND HEALTHFUL
PRACTICES" PAMPHLET



CONE MILLS CORPORATION

Employee Safe And Healthful

Operating Practices



CONE MILLS CORPORATION

Employee Safe And Healthful

Operating Practices

Standard Procedures Affecting

Employees

a. Reports

- (1) Every injury, however minor, is to be reported by the employee promptly to his supervisor.
- (2) Employees are to report any unsafe machinery, equipment, or condition.

b. Clothing

- (1) Employees are not to wear loose or dangling jewelry, loose sleeves, loose or ragged clothing, or unprotected long hair. Shoes are to be of substantial design and in good repair.

c. Protective Equipment

- (1) Employees must use the personal protective equipment which is provided for the job.

Examples: Correct eye protection when grinding, changing travelers, handling dangerous chemicals, weld-

ing, assisting welder, using acetylene torch, or using air hose; using safe respiratory equipment when entering tank or sump where poisonous gases may be present; and so on.

- (2) Eye protection shall be furnished as follows:

Whenever the company requires employees to use goggles or face shields, the company will furnish the equipment without cost to employees.

When the company requires employees to use safety glasses, the company will supply non-prescription safety glasses without cost to employees, and will make available prescription safety glasses at wholesale cost less the wholesale cost of non-prescription safety glasses. Safety prescription glasses at this same low price will also be made available to employees who wear glasses but who are on jobs which do not specifically require protective eye equipment.

d. Machinery

- (1) When cleaning, oiling, or fixing machinery, the employee is to take all reasonable precautions, including use of safety latches and cut-off switches.

- (2) Employees may not remove guards and safety devices except after a machine is stopped for necessary maintenance work; and may not start a machine up again until the safety devices have been replaced.

- (3) Power-driven machinery is to be operated and repaired only as authorized by the supervisor.

e. Electric Equipment

- (1) Employees are to handle electrical equipment in the safe and approved manner. (i.e., pull disconnect switch with the left hand, remove fuses only with fuse pullers, use of current testers, etc.)

- (2) No person shall drill into any wall or floor without permission of the master mechanic.

f. Tools

- (1) Employees shall provide themselves with adequate hand tools, as needed, and keep them in good repair.
- (2) Tools shall be used in the approved manner and for the purpose for which they were designed.
- (3) All sharp or pointed tools (such as knives or scissors) are to be carried in a safe holder or sheath.

g. Lifting

- (1) Employees are to learn and use correct methods of manual lifting, and are expected to get assistance when needed. Employees are also to use power equipment when it is available and practical.

h. Trucks

- (1) Trucks and motor lifts are to be driven at safe speeds and are to be stopped at each blind corner.
- (2) Hand trucks and boxes are to be pushed, not pulled, unless the em-

ployee is specifically directed otherwise.

- (3) Employees should push trucks and boxes with fingers and thumbs inside.
- (4) Employees are not to ride trucks, boxes, conveyors, or other mechanical equipment except when necessary for operation.

i. Fire

- (1) An employee who uses a fire extinguisher is to return it to his supervisor for recharging.

j. Housekeeping

- (1) Oil, grease, or water on the floor is to be reported to supervision at once.
- (2) Trash and waste are to be placed in appropriate containers.

k. Horseplay

- (1) Horseplay and practical joking are prohibited.

l. Traffic

- (1) Every employee is to enter, leave, and move about the plant or grounds only within the limits of his job or assignment and by way of prescribed routes.
- (2) All alleys, passage-ways, and doorways are to be kept free of obstruction.

m. Alcohol

- (1) Employees may not work when under the influence of alcohol or narcotics.

APPENDIX F

JOB HAZARD ANALYSIS

CARLISLE FINISHING PLANT
JOB HAZARD ANALYSIS

Date MAY 16, 1980 Job Title ROTARY MACH. OPR. Job Setting UP MACH. AND OPERATION Department SCREEN PRINT

Key Job Steps or Elements	Tools, Equipment, or Aids Used	Potential Health & Injury Hazard	Safe Practices, Apparel & Equipment
(1) Turn on power to mach.	(1) Control panel.	(1) Possible electrical shock.	(1) Make sure panel is closed and all switches are working properly.
(2) Run leadline up blanket.	(2) Print machine.	(2) Someone getting caught in machine.	(2) Be sure that everyone is ready for the machine to be started.
(3) Walking up stairs to oven.	(3) Oven stairs.	(3) Trip when climbing stairs.	(3) Climb stairs carefully.
(4) Close oven doors.	(4) Oven.	(4) Mashing hand or fingers in doors.	(4) Keep hands or fingers clear from door when closing them.
(5) Turn on steam to dry cans.	(5) Pressure valves to steam.	(5) Too much pressure set on valve gauge or hot water dropping from leaking hose or coupling on dry cans.	(5) Apply only that amount of pressure that is marked on gauges. Watch out for drops of hot water from cans and have leaking ones repaired.
(6) Light oven.	(6) Oven control panel.	(6) Possible malfunction of panel or oven.	(6) Turn on switches in proper sequence. If timers does not work properly, contact electrician.
(7) Fill out and mount heat chart on heat chart device, set time and apply ink to needles.	(7) Pencil, heat chart device, heat chart and ink.	(7) None.	(7) Apply heat chart properly.
(8) Turn on power to lint box.	(8) Power switch and lint box.	(8) When power is turned on, lint can fall from lint box and can get into eyes.	(8) Stay clear of falling dust or lint.
(9) Check machine and machine area for cleanliness.	(9) None.	(9) Slipping on water or color on floor or ramp.	(9) Wear rubber boots.
(10) Clean machine and machine area if nessary.	(10) Damp sponge, broom and floor squeegee.	(10) Possible for hand to be cut on some part of machine or slipping on water or color while cleaning area.	(10) Be careful while cleaning machine or machine area.

CARLISIE FINISHING PLANT
JOB HAZARD ANALYSIS

Date MAY 16, 1980 Job Title ROTARY MACH. OPR. Job Setting UP MACH. AND OPERATION Department SCREEN PRINT

Key Job Steps or Elements	Tools, Equipment, or Aids Used	Potential Health & Injury Hazard	Safe Practices, Apparel & Equipment
(11) Check print process sheet for printing instructions.	(11) Print process instructions sheet.	(11) None.	(11) None.
(12) Fill out production report.	(12) Production report and pencil.	(12) None.	(12) None.
(13) Obtain color standard from standard rack.	(13) Color standard.	(13) None.	(13) None.
(14) Check with color shop to see if patch is to be run.	(14) None.	(14) None.	(14) None.
(15) Check rotation card for correct rotation.	(15) Rotation card.	(15) None.	(15) None.
(16) Center dial controls.	(16) Dial controls of machine.	(16) Possible to hurt hand while turning dials.	(16) Turn dials with care.
(17) Change print heads if necessary.	(17) Print heads.	(17) Print heads slipping from hands could cause serious injury to legs or feet, or could pinch hands or fingers when placing the heads on machine.	(17) Handle print heads with care, grip firmly.
(18) Check screens for damages before putting them onto machine.	(18) Screens.	(18) Could be cut from damaged screen.	(18) Handle screens with two people. Hold firmly and check for damages carefully.
(19) Assist putting screens on machine.	(19) Screens.	(19) Screen could be dropped. Someone could be cut from damaged screen.	(19) Hold the screen firmly, use two people for handling screens.
(20) Lock screen in print head.	(20) Print head.	(20) Fingers or hand can be hurt when turning screenholder ring.	(20) Keep print heads clean, so the screen holder ring will not lock.

CARLISLE FINISHING PLANT
JOB HAZARD ANALYSIS

Date MAY 16, 1980 Job Title ROTARY MACH. OPR. Job Setting UP MACH. AND OPERATION Department SCREEN PRINT

Key Job Steps or Elements	Tools, Equipment, or Aids Used	Potential Health & Injury Hazard	Safe Practices, Apparel & Equipment
(21) Engage tensioning device.	(21) Catches on suspension beam.	(21) If anyone's fingers or hand is between catches and print head on assistant's side of the machine, the fingers or hand will be mashed.	(21) Keep hands away from catches when the tensioning device is engaged.
(22) Check squeegee blades for damages.	(22) Squeegees.	(22) Can be cut by blade or drop squeegee on foot.	(22) Check the blades carefully. Do not drop the squeegee.
(23) Change damaged squeegee blades.	(23) Squeegee blade, scissors, roll of blade material and sand paper.	(23) Could be cut removing old squeegee blade, replacing new one, cutting edges off or when sanding edges.	(23) Handle blades <u>very</u> carefully.
(24) Set height adjustment for squeegee blades.	(24) Knobs on squeegee holder on operator's side of machine.	(24) Could hurt hand or fingers turning knobs.	(24) Turn knobs carefully.
(25) Set squeegee pressure read-out system.	(25) Knob on pressure system.	(25) Could hurt hand or fingers turning knob.	(25) Turn knob carefully.
(26) Hold down squeegee holder for squeegee to be inserted.	(26) Squeegee holder.	(26) Hand or fingers could be mashed by squeegee being inserted into squeegee holder.	(26) Keep hand and fingers clear of hole in squeegee holder.
(27) Check with assistant and utility people to see that they are ready for machine to be started.	(27) None.	(27) Someone may not be ready for machine to be started and could get caught in some part of machine.	(27) Always be sure that everyone is clear of machine and that they are on their jobs
(28) Pre-heat oven.	(28) Oven.	(28) Oven not heating up properly.	(28) If oven is not working properly, call electrician.

CARLISLE FINISHING PLANT
JOB HAZARD ANALYSIS

Date MAY 16, 1980 Job Title ROTARY MACH. OPR. Job SETTING UP MACH. AND OPERATION Department SCREEN PRINT

Key Job Steps or Elements	Tools, Equipment, or Aids Used	Potential Health & Injury Hazard	Safe Practices, Apparel & Equipment
(29) Start machine.	(29) Control panel and print machine.	(29) Something wrong with machine. Part could break and hurt someone.	(29) Anytime there is a noise not related to normal machine noise, check at once and have repaired if necessary.
(30) Turn on head switches.	(30) Head switch.	(30) Cloth wrapping around screen and breaking it, or squeegee blade tearing screen.	(30) Watch carefully as screens contact cloth.
(31) Fit pattern.	(31) Screen control dials.	(31) Could hurt hands while turning knobs or could trip on ramp while moving from section to section.	(31) Turn knobs carefully and keep balance while moving from section to section.
(32) Check color coverage on cloth.	(32) None.	(32) Leaning over screens to check color coverage, person could fall into machine.	(32) Keep firm grip on machine with hands when leaning over screens.
(33) Removing lint with scrape blade.	(33) Scrape blade.	(33) Hand or fingers cut.	(33) Use extreme care. Screen could burst open, scrape blade could catch on damaged place and pull scrape from hand, or person could fall into machine while scraping lint from screens.
(34) Replacing endrings.	(34) Screen, knife, endring measuring frame and endring heater.	(34) Could be cut using knife when scraping old glue from screen, could fold screen when placing endring in screen and could be burned from endring heaters.	(34) Use extreme care when using knife, push gradually when getting proper length for screen on the endring measuring frame, be careful around the endring heaters and do not get burned with the screen once the glue is dried with the heater.
(35) Replacing whole end on screen and repairing hole in screen.	(35) New end for screen, screen, scissors, solder, soldering iron and sand paper.	(35) Could be cut while cutting screen or when placing new end on screen, burned with solder or with soldering iron.	(35) Use extreme care when cutting new end and when placing end on screen. Be very careful not to get hot solder on body or to be burned with soldering iron.

CARLISLE FINISHING PLANT
JOB HAZARD ANALYSIS

Date MAY 16, 1980 Job Title ROTARY MACH. OPR. Job Setting UP MACH. AND OPERATION Department SCREEN PRINT

Key Job Steps or Elements	Tools, Equipment, or Aids Used	Potential Health & Injury Hazard	Safe Practices, Apparel & Equipment
(36) When pattern is complete, raise squeegee by turning switch for manual operation, on head sections.	(36) Switch for manual operation of head section.	(36) Could hurt hand turning switch or tripping on ramp while raising squeegees.	(36) Turn switch carefully, walk carefully on ramp.
(37) Stop machine when headline is through machine.	(37) Control panel.	(37) None.	(37) None.
(38) Fill out production report.	(38) Production report and pencil.	(38) None.	(38) None.
(39) Return color standard to color standard rack.	(39) Color standard.	(39) None.	(39) None.
(40) Disengage screen tensioning device.	(40) Switch for tensioning device.	(40) None.	(40) None.
(41) Disengage screenholder rings.	(41) Print head.	(41) Could hurt hand turning rings.	(41) Keep heads clean and turn rings carefully.
(42) Assist removing screens from machine if pattern change.	(42) Screens.	(42) Could damage screen and be cut or could fall into machine while leaning over machine.	(42) Use three people when removing screen from machine, due to weight of screen with color in it.
(43) Assist to place screen into screen washer if on a combination change.	(43) Screens.	(43) Could damage screen and be cut when placing screen into screen washer.	(43) Use three people when removing screen from machine, or use screen tray to place screen into washer.
(44) Clean machine.	(44) Damp sponge, broom and floor squeegee.	(44) Possible for hand to be cut on some part of machine or slipping on water or color while cleaning machine area.	(44) Be careful while cleaning machine or machine area.

CARLISLE FINISHING PLANT
JOB HAZARD ANALYSIS

Date MAY 16, 1980 Job Title ROTARY MACH. OPR. Job Setting UP MACH. AND OPERATION Department SCREEN PRINT

Key Job Steps or Elements	Tools, Equipment, or Aids Used	Potential Health & Injury Hazard	Safe Practices, Apparel & Equipment
(45) Assist cleaning wash box.	(45) Wash box.	(45) Could hurt back when pulling on trays or could be cut on the scrape blades that are mounted on the wash box trays.	(45) Be careful when pulling out trays as not hurt back and remove lint on wash box trays carefully as not to cut hand on scrape blades on trays.
(46) Having breakout in oven or around dry cans.	(46) Nylon leadline.	(46) When using the nylon leadline, a person could be burned on the hot surfaces.	(46) Be <u>very</u> careful when rethreading the oven and the cans. Their parts can get very hot and will stay hot for a long period of time.
(47) Walking on oven ramp.	(47) Oven ramp.	(47) Falling from ramp to floor.	(47) Walk and work carefully when on the oven ramp.
(48) Using hot water.	(48) Hot water.	(48) Could be scalded with the hot water.	(48) Stay clear of hot water.
(49) Wearing loose clothing or jewelry.	(49) Clothing or jewelry.	(49) Could get caught in some moving part of machine.	(49) Do not wear loose clothing and dangling jewelry around the machine. <u>This is very dangerous.</u>
(50) Having long hair.	(50) Hair.	(50) Could get long hair caught in some moving part of machine.	(50) Keep long hair tied back so it will not get caught.
(51) Faulty equipment.	(51) Machine equipment and equipment that is used on the job.	(51) Faulty equipment can lead to accidents.	(51) All equipment should be kept in the very best of condition.
(52) Keeping equipment in proper place.	(52) Machine equipment.	(52) Someone could trip over equipment that is not properly stored.	(52) Keep all equipment stored in it's proper place.

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