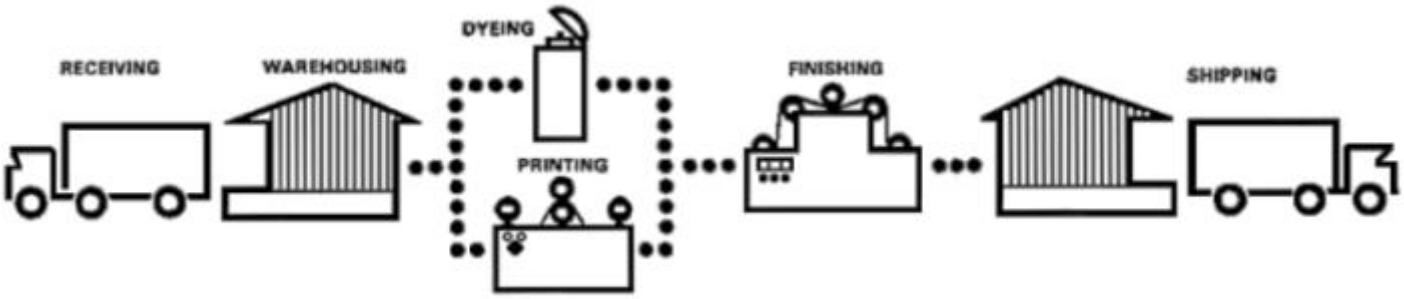
	NORTH CAROLINA DEPARTMENT OF LABOR	**No. 22-2**
	OSH DIVISION	**Date: 10/2009**
	OSHNC INDUSTRIAL DATA REPORT	**Pages: 3**

Industry: **Textile Mill Products**	Sub-Group: **Dyeing and Finishing Textiles**
SIC: **2261, 2261 and 2269**	NAICS: **313311 and 313312**

PROCESS DESCRIPTION: Cloth, yard or raw stock may be dyed, left natural, bleached or mercerized. Fabrics may be finished by napping, shearing, felting, smoothing, moireing or watermarking, starching, sizing, glazing and calendering. Major types of dyeing include stock dyed in large vats or kiers; yarn or skeins dyed in vats; piece dyed, continuous or semi-continuous in a dye-beck, box, kier, jig or vessel; cross-dyed in multiple baths; dope-dying using spinnerette extrusion-injection; union dyed, a one-bath process; top or slub-dyed before spinning; and vigoureux (dying and printing). Minor dyeing methods include hand methods by batik-dyeing with hot wax and solvent, burl- or speck-dying to cover blemishes and tie dyeing to produce varied effects; machine methods include bale dyeing through cold-water baths, warp beams dyed prior to weaving and dyeing by continuous fabric chains, skeins, cones and raw stock dyed for random effects, and speck dyeing. Fabric may be colored and printed by passing it over engraved rolls: screen printed, block printed (hammering) and warp yarn printed. Finishing, either physical or chemical, alters or improves fabric appearance, texture and performance. Dry finishing (no water) includes perching, measuring, burling, specking, mending, sewing, shearing, napping or gigging, pressing and packing. Wet finishing includes chemical baths for soaping, scouring, washing, dyeing, filling and milling, pounding, mercerizing and sanforizing. There are over two hundred types of finishing.

PROCESS FLOW:



Hazards Analysis

Major Hazards			Other Hazards		
Location	**Item**	**Hazard**	**Location**	**Item**	**Hazard**
Dye house	Wet floors	Slips, trips and falls	Dye house	Hot pipes, vats, tanks and kiers	Scalds and burns

Dye houses, drug room	Carboys, other packages Dyes	Back injuries and hernias from lifting Carcinogens, especially, Alpha-Naphtylamine 3,4" Methylene bis (2-Chloroanilne) beta-Naphthylamine Benzide 4-Aminodiphenyl Ethyleneimine 2-Acetylaminofluorene 4-Dimethylaminoazobenzene N-Nitrosodimethylamine bis-Chloromethyl ether	Dye house, finishing department	Chemicals Exposed hot pipes	Exposure via inhalation and absorption Burns
Dye house , printing finishing department	Machinery, exposed points-of-operation, power transmission apparatus, rotating parts and in-running nip points	Caught-in injuries and amputations	Dye house, drug room	Caustics Machinery noise Equipment tank repair/ cleaning	Skin and eye burns, and inhalation of vapors Hearing loss Accidental start-up and oxygen deficient atmosphere
			Receiving/shipping	Forklifts	Carbon monoxide exposure and accidents

Key OSHNC Standards

Reference	29 CFR 1910 - General Industry Standards
Subpart D	Walking and working surfaces
Subpart E	Exit Routes, Emergency Action Plans, and Fire Prevention Plans
Subpart I	Personal protective equipment
Subpart S	Electrical
Subpart O	Machinery and machine guarding – where .262 does not apply
1910.95	Occupational noise exposure
1910.146	Permit-required confined space entry
1910.147	Control of hazardous energy (lockout/tagout)

1910.151	Eye wash and emergency showers
1910.178	Powered industrial trucks
1910.262	Textiles
1910.1000	Air contaminants
1910.1003	Carcinogens
1910.1200	Hazard communication

Inspection Analysis

Fabric is usually received from weaving plants for dyeing and finishing or yard and raw stock is dyed before finishing. Inspections should cover receiving docks, material handling apparatus, drug rooms and dye houses. Ascertain whether any carcinogens are being used in drug rooms and assure that personal protective equipment, eye and body flushing facilities are provided where caustic are used. Check the drug room and dye house floors for slipping hazards. Mechanical dyeing equipment should be inspected for point of operation guards (by interlocks on the covers usually), rotating part and in-running nip point guards. Inspect fans for blade guarding and electrically powered equipment for adequate grounds. The finishing department must be checked for covered or guarded steam and hot water pipes. Stop buttons and cylinder covers must be checked in the finishing department.

Other Pertinent Comments: