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## 1. BASIC TEXTILE WET PROCESSING TERMS

**ABSORBENCY:** The ability of one material to take up another material.

**BLEACHING:** It is a process to remove the natural and artificial impurities in fabrics to obtain clear white for finished fabric or in preparation for dyeing and finishing.

**DEFECTS:** A general term that refers to some flaw in a textile product that detracts from either performance or appearance properties.

**DIMENSIONAL STABILITY:** The ability of textile material to maintain or return to its original geometric configuration.

**DYEING:** It is a process of coloring fibers, yarns, or fabrics with either natural or synthetic dyes.

**DYES:** Substances that add color to textiles.

**EFFLUENT:** Waste water released after pretreatment, dyeing & finishing of Textile.

**FINISHING:** It includes various operations such as heat-setting, napping, embossing, pressing, calendaring, and the application of chemicals that change the character of the fabric.

**HEAT-SETTING:** The process of improving dimensional stability with high temperature.

**LUSTER:** The quality of shining with reflected light on textile material.

**MIGRATION:** Movement of dye from one area of dyed fabric to another.

**pH:** Value indicating the acidity or alkalinity of a material.

**PIGMENT:** An insoluble, finely divided substance, used to color fibers, yarns, or fabrics.

**SCOURING:** Any treatment of textile materials in dilute acid. Its purpose is the neutralization of any alkali that is present in the material

**SHRINKAGE:** Widthwise or lengthwise contraction of a fiber, yarn, or fabric, usually after wetting a re-drying or on exposure to elevated temperature.

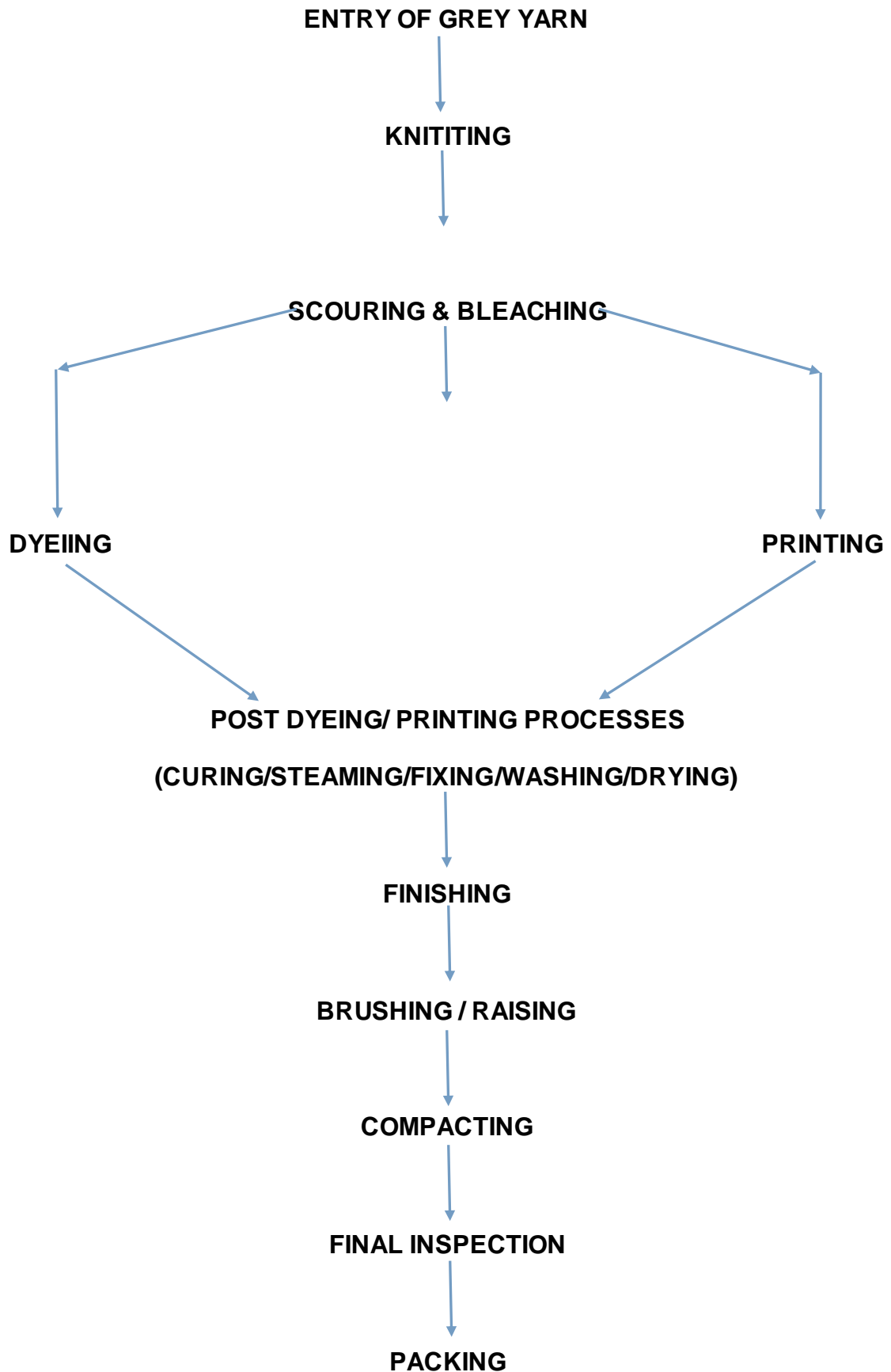
**SOFTENER:** A product designed to impart soft mellowness to the fabric.

**YARN:** A generic term for a continuous strand of textile fibers, filaments, or material in a form suitable for knitting, weaving, or otherwise intertwining to form a textile fabric.

**YARN COUNT:** Yarn count is the numerical expression of yarn, which defines its fineness or coarseness. (Linear density).

**WIDTH:** A horizontal measurement of a material. In woven fabric, it is the distance from selvage to selvage, and in flat-knit fabric, the distance from edge to edge.

## 2. Sequence of operations in knitted fabric processing



### 3. Brief note on compacting:

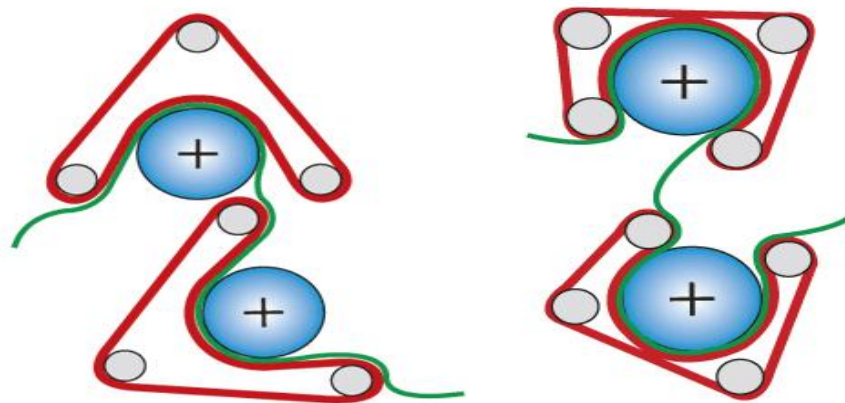
#### Compacting of knitted fabric:

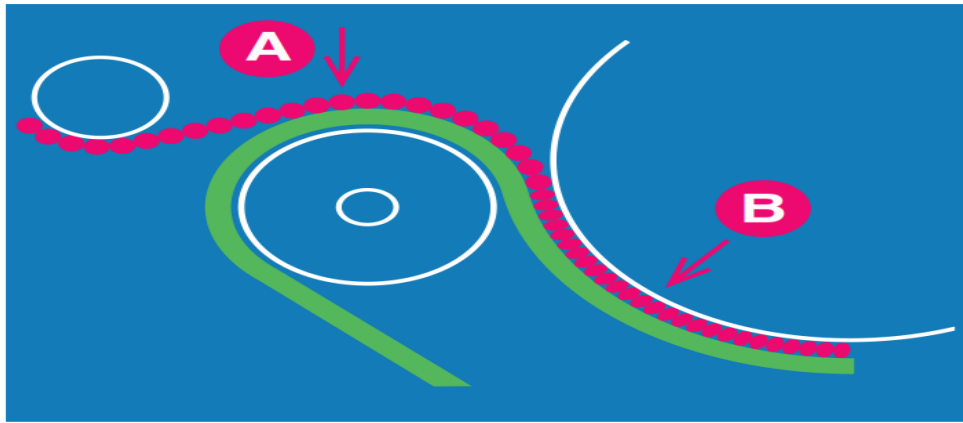
The compacting machine is a knitted fabric shrinkage control machine, which can compact the fabric in length wise direction, to provide over feed to the fabric while processing in presence of steam and able to control the shrinkage. In other words, this is a process of compacting the fabric in length ways direction.

#### Functions of compacting process

- ❖ Shrinkage control
- ❖ GSM control
- ❖ Width control
- ❖ Ironing the fabrics

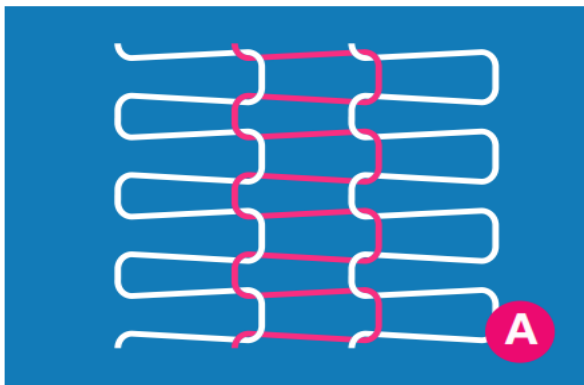
#### Mechanism of Compacting



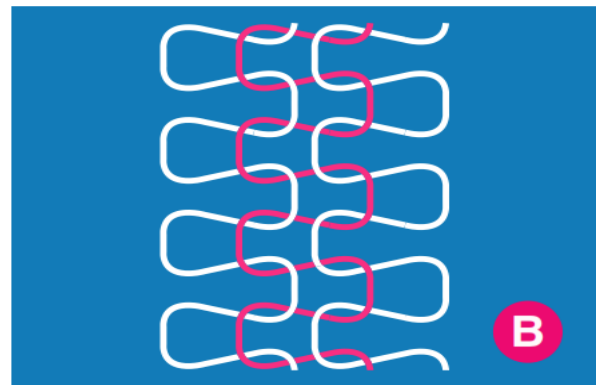


**A** Before

**B** After

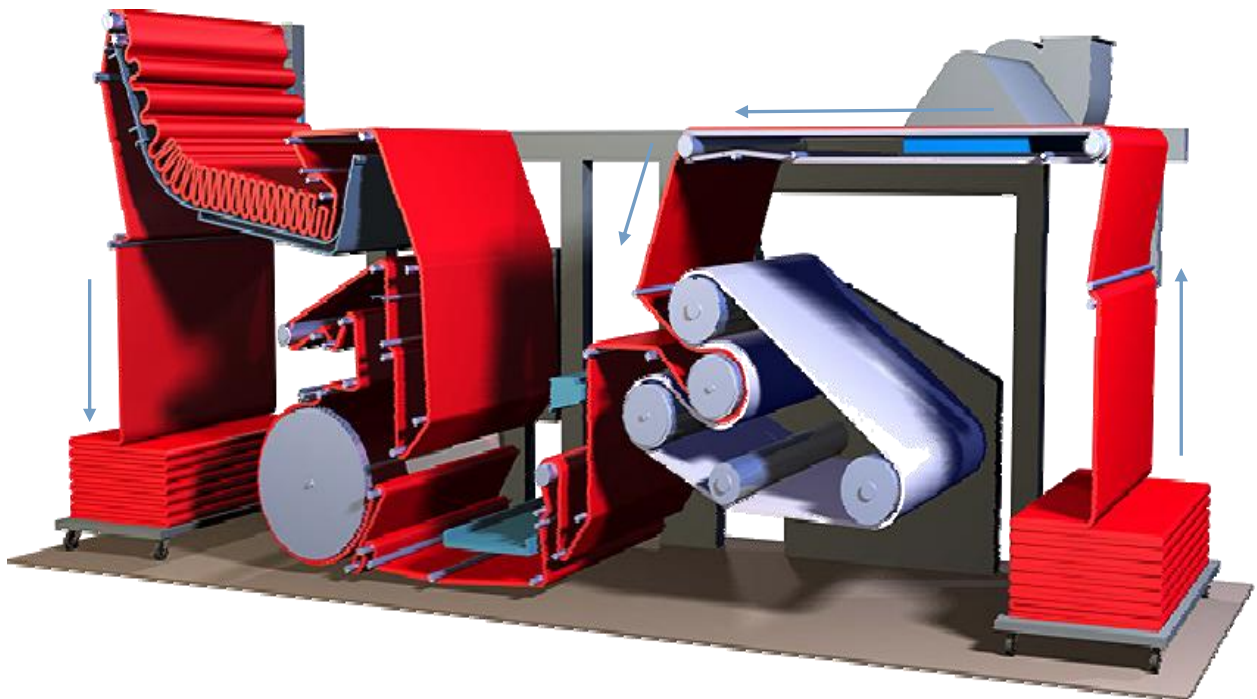


**A- Before**



**B- After**

Passage of material through compacting machine:



The fabric passes between two metal cylinders, one cylinder rotates faster than the other. The fabric is restrained by shoes that are positioned against the cylinders. The fabric delivery cylinder rotates faster than the take-off cylinder and the action is similar to stuffing a string into a straw. The friction causes filling yarns to move closer together and a loss of fabric length. The degree of compacting can be controlled by the differential speeds of the two calendar rolls.

#### **4. Details of compacting machine:**

##### **Compacting machine Support Structure:**

It consists of sturdy body sides made of painted steel, supporting the cylinders, the mechanical part and the plant system; they are connected by means of longitudinal and transversal cross-section. The body sides are provided with special safety locks.

##### **Inlet Tightener:**

The inlet tightener is designed to drag the fabric to the machine with an adequate tension. Its effect can be varied by turning the hand wheel provided.

##### **Fabric Draw Roller:**

The draw rollers receive their movement from a variable speed motor. They determine the speed of fabric.

##### **Idle Cylinders:**

The idle cylinders are designed to change the route of the fabric to convey it in the right position for subsequent working.



**Compacting machine**



**Compacting machine steaming unit**

**Inlet fabric Guide:**

It consists of shoulders supporting a couple of adjustable spreader rollers operated by an independent motor, and a pneumatically operated fabric centering unit with move-able staves, controlled by border guard photocells.



### Compacting units:

1. A steam heated cylinder and it's temperature can be adjusted directly from the keyboard placed on the control board, and is shown on the display.
2. A thick Nomex – Polyester compacting felt. The double action felt centering device ensures perfect felt alignment during running.
3. An adjustable position counter-roller for the fabric shrinkage control during inlet in the compacting group.

### Spreader Roller

It is a spreader roller, for the selvedge unwinding and the inlet of the fabric perfectly spread in the machine.



**Scroll Roll Unit:** The adjustable spreading scrolls at entry are used for open width knits and for all fabrics that have lengthwise creases.

**Device for Fabric Tension Check:** It consists of a cylinder combined with a special load cell sensor. It allows synchronizing the speed between the upper and lower compacting unit, and adjusting the fabric tension between them with the utmost precision.



## 5. Operating compacting machine:



Identifying the exact box & lot card



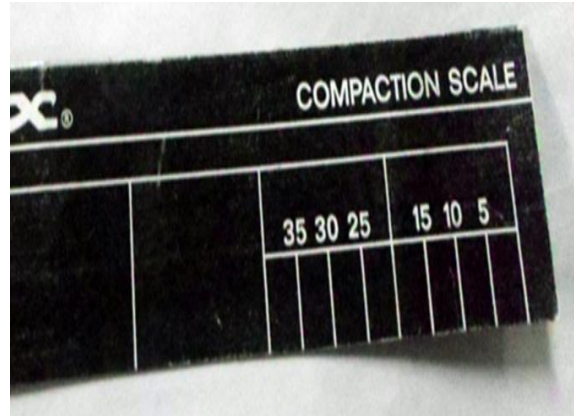
Switch ON the Main power



Open the steam, air valve



**Tension adjustment**



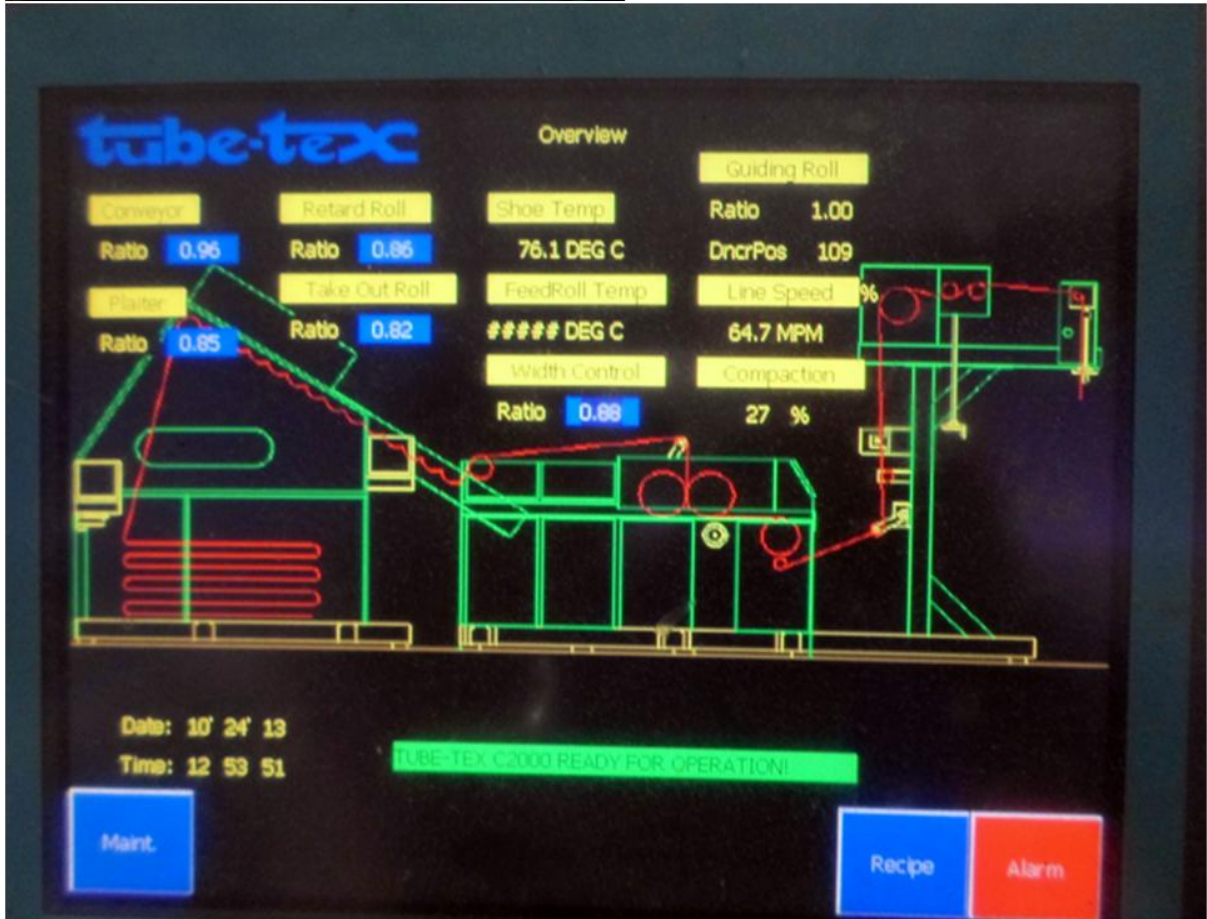
**compacting scale**



**Roll and shoe pressure setting adjustment meters**



- Shoe open
- Shoe ON / OFF
- Width control
- Jog motion
- STOP Button



Operating the main panel





**Operator observing defects at the exit unit**

- ❖ Understand and follow the instruction from lot card and programme book.
- ❖ Switch ON power and then open compressed air, water valve and steam.
- ❖ Check the quality and lot number of the fabric before putting on the machine by checking the label.
- ❖ Transport the fabric to be run, to feeding unit machine using hydraulic hand puller.
- ❖ Load the fabric inside of the machine by using take up roller.
- ❖ Set the shoe setting, steam temperature, roller pressure and speed of the machine as per recommendations.
- ❖ Set the time and temperature of each process to be run.
- ❖ Observe the defect in the fabric before and during the process, report to the shift in-charge if any irregularities observed.
- ❖ Check the compacting percentage by using compacting scale in the exit unit
- ❖ Maintain uniform speed of the machine from starting to end of the process.

- ❖ Check various process damages in the unloading fabric like stains – dust, chemicals, rust, handling stains, crease, water dropping, oil, grease, etc.

**Cleaning compacting machine:**

- ❖ Remove regularly accumulated dust and dirt from the machine.
- ❖ The main frame and compacting unit to be cleaned at required intervals.
- ❖ The circulation line and filter to be cleaned properly.
- ❖ All the level sensor and temperature sensors to be cleaned as instructed.
- ❖ Collect all the waste and dispose in a systematic way.
- ❖ Transport the collected waste to store them at the designated place.

**6. INSTRUCTIONS DURING SHIFT CHANGING**

**Taking charge of duties while starting of shift:**

- ❖ Come at least 10 - 15 minutes earlier to the work place.
- ❖ Meet the previous shift operator and discuss regarding the issues faced by them with respect to the quality or production or spare or safety or any other specific instruction etc.
- ❖ Understand the Fabric being processed & process running on the machine.
- ❖ Ensure technical details are mentioned on the job card & display in machine.
- ❖ Check the next batch to be processed is ready near the machine.
- ❖ Check the cleanliness of the machines & other work areas.
- ❖ Question the previous shift operator for any deviation in the above and bring the same to the knowledge of the shift supervisor.

**Handing over charge at the end of shift:**

- ❖ Properly hand over the shift to the incoming operator.
- ❖ Provide the details regarding fabric quality & the process running on the machine.

- ❖ Provide all relevant information regarding the stoppages or breakdown in the machine or any damage to the material or machine.
- ❖ Ensure the next lot to be processed is ready near the machine
- ❖ Get clearance from the incoming counterpart before leaving the work spot.
- ❖ Report to the shift supervisor in case the next shift operator doesn't report for the shift.
- ❖ Report to the supervisor about the quality / production / safety issues/ any other issues faced in the shift and leave the department only after getting concurrence for the same from supervisor.
- ❖ Collect the wastes from waste bags weigh them & transport to storage area.

### **7. Importance of Health and Safety:**

- ❖ Use and maintain personal protective equipment such as Hand Gloves, Gum Boots, head cap etc., as specified.
- ❖ Never handle chemicals with bare hands
- ❖ Report to the supervisor any service malfunctions in the machine that cannot be rectified.
- ❖ Store materials and equipment at their designated places.
- ❖ Minimize health and safety risks to self and others due to own actions.
- ❖ Monitor the workplace and work processes for potential risks.
- ❖ Do not carry any metallic parts during machine running as there are chances of fire and damage to machine parts.
- ❖ Take action based on instructions in the event of fire, emergencies or accidents and participate in mock drills/ evacuation procedures organized at the workplace as per the organization procedures.