A Review Paper on Controlling Yarn Breakage And Weight loss of yarn in Go down

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ABSTRACT

Aim of this paper is to control the yarn breakage and loss of weight of yarn in go down by which their is change in tensile strength and in diameter of yarn which cause less breakage of yarn by using simple and same method which is called (Relative Humidity control) for both Yarn breakage and weight loss which makes profit to company/Industries. When humidity increases then moisture present in materials started to dry which may cause decrease in strength, diameter, elasticity, etc.

Keyword: - *Relative humidity, Hygroscopic, Wet bulb temperature, Dry bulb temperature, etc. l*

1. HUMIDITY

Introduction:

Humidity plays great role in textile field because yarn used in Textile Company are hygroscopic in nature. When there is no any control in humidity in Go down then yarn started to dry and got weak and there is also loss of weight of yarn which may cause huge loss of company in selling of yarn or making clothes.

All textiles are hygroscopic in nature. That is, they absorb or release moisture depending on the relative humidity of the surrounding air. If the atmosphere is drier than the textile's equilibrium relative humidity then the textile will give up its moisture to the air. If the air is very humid then the textile's moisture content will increase. This moisture loss and gain occurs at every stage from the initial processing of the fibers through to final garment manufacturing, distribution and use by the consumer.
This change in moisture content has a direct impact on the properties of textiles, such as tensile strength, elasticity, fiber diameter and friction. A drop in the equilibrium relative humidity of a textile may cause it to be weaker, thinner, less elastic and therefore more brittle.

It will also have more imperfections. By maintaining the air humidity whilst processing the fibers, this loss in moisture to the atmosphere is minimized.
Moisture loss during processing cannot be totally eliminated as the act of processing will increase the temperature of the material, which will cause it to become drier. However, by increasing the humidity of the air surrounding the textile directly after processing, the material experiences "regain". Moisture is reabsorbed by the textile, thus improving the quality and performance of the materials/ yarn

The main purpose of this paper is to:

1. To increase the strength of yarn.
2. To maintain the diameter of yarn.

3. To control or maintain the elasticity of yarn
4. To control weight loss of yarn in storage or godown.

2. PROPERTIES

1. Relative humidity temperature of cotton yarn in storage must be 50% to 65%
2. Relative humidity temperature of polyster yarn in storage must be 75%
3. Relative humidity temperature of wool yarn n in storage must be 50% to 60%.

3. MEASURING TECHNIQUE

1. 1 R.H %=(Dry bulb temp – Wet bulb temp)/Dry bulb temp *300—98.4
2. It will be measure in FH scale.
3. DRY Bulb Temperature: It is the temperature of air measured by a thermometer freely exposed to the air but shielded from radiation and moisture. DBT is the temperature that is usually thought of as air temperature, and it is the true thermodynamic temperature. It indicates the amount of heat in the air.
4. WETBULBTEMP: The wet-bulb temperature is the temperature a parcel of air would have if it were cooled to saturation (100% relative humidity) by the evaporation of water into it, with the latent heat being supplied by the parcel. A wet-bulb thermometer will indicate a temperature close to the true (thermodynamic) wet-bulb temperature. The wet-bulb temperature is the lowest temperature that can be reached under current ambient conditions by the evaporation of water only.

4. CALCULATION

This regain also has a direct impact on the weight of the textile.

As textile yarns are sold by weight, if a drop in humidity leads to a 5% reduction in weight, this will require 5% more fiber to be included in the sale product. For a mill manufacturing 80 tonnes of textile per day, this can lead to a loss of 4,000kg of product per day due to incorrect humidity control.

- If the rate of yarn is 300/kg then

  4,000*300=1,200,000.

Companies will lose1, 200,000. (Twelvelakh) per day.

5. PROCESS

5.1 Spraying air in store room by jet spray

Spraying air in store room by jet spray Spraying cool air in store room by jet help in maintaining the relative humidity
Spraying cool air in store room by jet help in maintaining the relative humidity of store room or yarn.

Image1.1

5.2 Spraying water in store room by jet spray

Spraying water by jet spray: We can maintain the relative humidity by spraying droplets of water by jet spray. Droplets of water get evaporate in hot air and controlled the humidity.

Images 1.2

5.3 Making ventilation in store room

Making ventilation in store room: Large number of ventilation help in maintaining relative humidity as large amount of air enters from them and mixed or diffused with hot air and maintain the temperature.

As discussed above that yarn are hygroscopic in nature that means they can loose as well as gain their weight so for maintaining temperature ventilation must be store room to control humidity to prevent from loss of weight, diameter, tensile strength, elasticity.

Images 1. 4

5.4 Flowing water on roof of store

Flowing water on roof of the store: By flowing water on the roof of store we can maintain the humidity. When we flow the water on the roof the water started to evaporate and thus store room became cool as roof doesn't became hot, which may help in maintaining the relative humidity .

Images 1.5

6. CONCLUSION

Alok industries limited have continuously strived to meet international environmental standards since its inception and have also been conferred with the ISO 9001:2008 certified.

1. Quality Management System
2. ISO 14001:2004
3. Environmental Management System
4. OHSAS 18001:2007
5. Occupational Health And Safety Management System.
6. SA 8000:2008
7. Social Accountability / Social Compliance.
8. TS 16949:2009
9. Technical Specification for Automobile.

As part of our internship program we have conducted a basic study to look into the possibility of implementing environmentally friendly measures at the plant according to the ISO 14001:2004

Guidelines: Our proposal is to implent the problem facing the company related to yarn.

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