



NORTH TECHNICAL COLLEGE

ENGINEERING SCHOOL OF APPLIED SCIENCE

TEXTILE ENGINEERING CAREERS

**GRADE WORK PRIOR TO OBTAIN THE TITLE OF TEXTILE
ENGINEERING**

TOPIC:

**“OPTIMIZACIÓN OF PROCESS OF MONEY IN FABRIC 100% COTTON
TOWEL ON THE BASIS OF A PRODUCT WITH ACTIVE OXYGEN”
ACTIVO”**

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I. Summary

This draft Whitening Process Optimization in Textile 100% Cotton Towel Base of Active Oxygen Product was conducted at Textil San Pedro, which it is a textile company located in Quito, is dedicated to the production of 100% cotton towels and Industrial Fabrics Cotton and polyester blends. Despite being already positioned in the domestic market and have a niche market in countries such as Colombia and Bolivia, more than to be recognized by leading chain stores and more recognized nationally for products delivered hotel chains and being worthy of major awards for Quality and Best Service Provider several consecutive years, it has been found it necessary to seek ways to improve its processes to be more competitive and to stay ahead in innovation and quality. The optimization of the bleaching process is obtained using all the resources at hand, such as time, machinery, chemicals and other auxiliary resources inherent in a dyeing process.

This research not only the benefits of the latest technology machinery will take advantage but the best product to fit the needs of the company and the optimal process parameters to maintain existing quality will also be sought.

II. Introduction

A good textile finished product depends on a high percentage given the efficiency and quality processes that precede these operations, in an ill-prepared piece a homogeneous dye can not be expected, and in general, the better and more uniform scouring cotton, brighter the lighter shades obtained in the dye, the contrast effects, more satisfactory most of the chemical or mechanical finishing and finally lower the tendency to subsequent defects appear, it is for this reason that each of preliminary processes should be well controlled conditions, as well as laboratory checks to be carried out consistently and we accomplish this through technical standardization as a tool that allows us to keep unchanged in time because in he interact many factors including human.

"The scouring process consists essentially of treating the cotton fabric with a hot alkali solution, to ensure complete removal and uniform wetting agents and traces of particles which may fall shell or envelope of seeds . "(BASF, Technical Information, 1998)

Pre bleaching is the process that is performed to eliminate the natural color cotton and seed hulls, chemical reaction products that are used to release oxygen.

In the bleaching operation it is usually in addition to the products mentioned optical brighteners whose application allows for degrees of white and higher strength use. Action based on the principle of fluorescence and must present chemical structures with affinity for each of the fibers applied to those who wish

This paper is structured as follows: In the first chapter the characteristics of the cotton fiber is mentioned, their chemical composition, mechanical, physical, chemical and environmental properties; major producers and suppliers of the same countries.

In the second chapter the features and benefits of the Over-Flow System, along with the benefits of dyeing in closed equipment are discussed.

In the third chapter the preparation of warping, warping classes, gumming, terry looms and weaving process itself towel. The classification of towels according to the quality of the same, the quality parameters to be considered for classification. The apparatus used for measuring the degree of white towels.

In the fourth chapter we analyze the chemicals used in the process of laundering towels.

The fifth chapter deals with the ideal conditions for bleaching, water hardness, the liquor ratio, time and temperature of process.

In the sixth Comparison Tests Proposed Process vs the traditional process are made. In the seventh chapter the analysis of results, whiteness, hydrophilicity, and touch is obtained. Process times and costs of bank respectively.

In the eighth chapter will discuss changes in the parameters measured in the wastewater from our bleaching process. In the Ninth Chapter are conclusions that leads to this research and recommendations.

III. Results

Recipes it analyzes used both the traditional process of bleaching and the proposed process. Auxiliary chemicals employed in each and the dose used in each of the processes.

The proposed process both to the traditional process is dyeng on the same machine with the same conditions of amount and composition of material, quality of chemical auxiliaries (except Active Oxygen Compound that is not included in the first recipe), quality water, bath ratio and pH.

Dyeing traditional process with the following recipe:

DOSIS	QUÍMICO	PESO(gramos)
0,5	HUMECTANTE	1.750,0
0,5	SECUESTRANTE	1.750,0
0,5	ANTIESPUMANTE	1.750,0
1,5	ESTABILIZADOR	5.250,0
3,0	SOSA CAUSTICA	10.500,0
8,0	AGUA OXIGENADA	28.000,0
2,0	DETERGENTE	7.000,0
PROCESO: TINTURA		
DOSIS	QUÍMICO	PESO
0,37	BLANQUEADOR	1.793,87
PROCESO: POST LAVADO		
DOSIS	QUÍMICO	PESO
0,24	ACIDO FÓRMICO	875,0
PROCESO: SUAVIZADO		
DOSIS	QUÍMICO	PESO
1,0	SUAVIZANTE	3.500,0

While the proposed process used the following recipe decreasing certain chemicals that are replaced by the use of Active Oxygen Compound.

We can clearly see the difference in the number of products and the dose thereof.

DOSIS	QUÍMICO	PESO
1,00	COMPOUND	3.500,00
1,50	ESTABILIZADOR	1.750,00
2,50	SOSA CAUSTICA	8.750,00
5,00	AGUA OXIGENADA	17.500,00
1,00	DETERGENTE	3.500,00
PROCESO: TINTURA		
DOSIS	QUÍMICO	PESO
0,37	BLANQUEADOR	1.295,00
PROCESO: POST LAVADO		
DOSIS	QUÍMICO	PESO
0,24	ACIDO FÓRMICO	875,00
PROCESO: SUAVIZADO		
DOSIS	QUÍMICO	PESO
1,00	SUAVIZANTE	3.500,00

We may point out the comparison chart for the quality parameters of the two processes.

PROCESO	HIDROFILIDAD	TACTO	COLOR
PROCESO TRADICIONAL	4	BUENO	85.89
PROCESO PROPUESTO	5	BUENO	98.04

Here we see that the values of the proposed process exceeds expectations in terms of hydrophilicity parameter (ability to absorb moisture) and the degree of whiteness obtained is higher than the previous process.

Regarding the process times as significant

reduction in the proposed process it is shown using the capabilities of the machinery to

PROCESO:	COSTO POR KILO	TOTAL RECETA EN US
PROCESO TRADICIONAL	30,61	109,39
PROCESO PROPUESTO	27,31	72,98
AHORRO DE:	3,3 US	36,41 US

increase the temperature of laundering but offsetting the decrease in the time to exhaustion, relying on the quality of the chemical auxiliary which has been purpose of this study and that the decrease in time represent improved competitiveness and increased productivity.

As for the cost of the process we can analyze the following table:

In the proposed process we see a fairly significant reduction in costs compared to the cost generated in the traditional process and taking into account that at least 40% of company production is of white towels, we see that is not only cost effective but also convenient for growth thereof.

IV. Conclusions

The optimization of the bleaching process using a product based on active oxygen can substantially reduce processing time, weighing and improves handling and

warehousing of chemicals. Besides being more profitable and improve the quality of the resulting wastewater Laundering.

V. Recommendations

It should standardize the bleaching process according to the recipe given in this research. Continuously train personnel involved in handling chemicals. Expedite the construction of the plant Wastewater Treatment.

VI. Bibliographic References

PROCESO	TRADICIONAL	PROPUESTO
ADICIÓN AUXILIARES	0:20	0:15
SUBIDA TEMPERATURA	0:25	0:12
AGOTAMIENTO	0:45	0:30
ENFRIAMIENTO Y DESCARGA	0:05	0:07
PRIMER ENJUAGUE	0:10	0:05
SEGUNDO ENJUAGUE	0:10	0:05
ENJUAGUE FRIO	0:05	0:05
NEUTRALIZADO	0:10	0:10
SUAVIZADO	0:20	0:20
TIEMPO TOTAL EN MINUTOS	2:25	1:50

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