"Evaluation & Controlling of Oxidation in Vat dyes (Indigo) for Denim Processing"

By

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Requirement for the degree of

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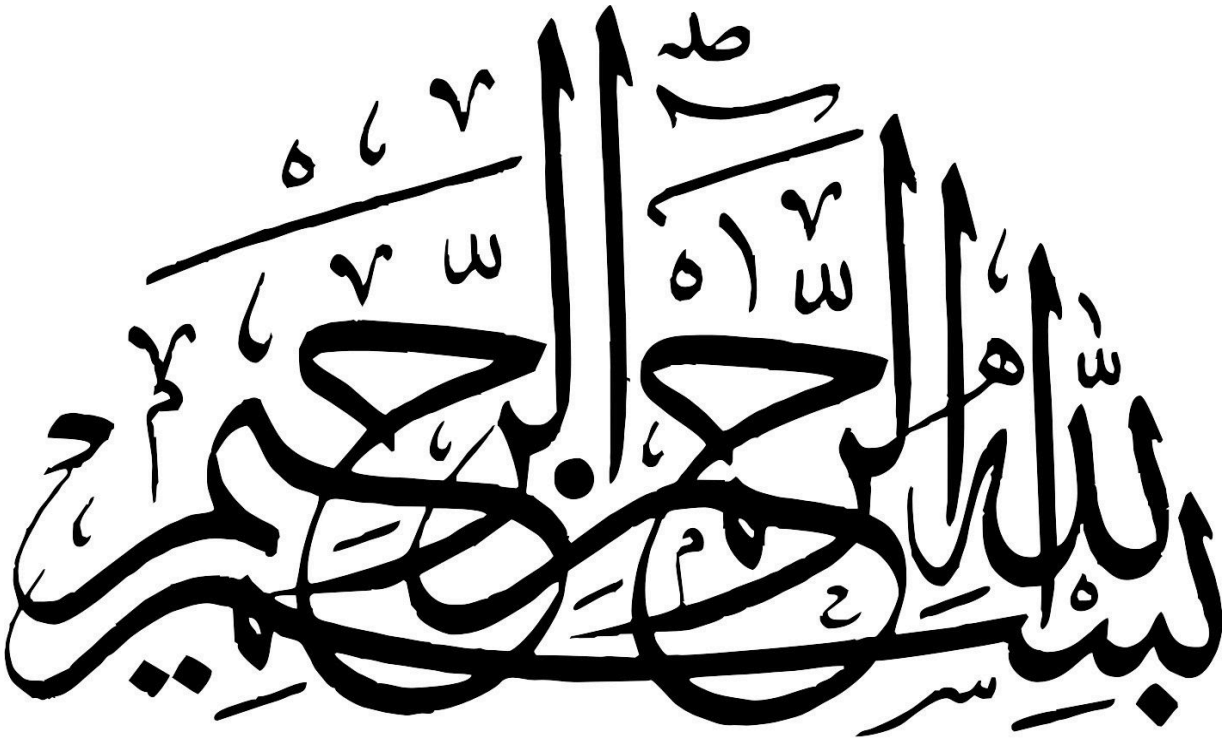

In the name of Allah, The most Gracious , The most Merciful

“Evaluation & Controlling of Oxidation in Vat dyes (Indigo) for Denim Processing”

DECLARATION

We hereby declare that the contents of the thesis “Evaluation & Controlling of Oxidation in Vat dyes (Indigo) for Denim Processing”, no part has been copied from any publication source (except the references, standard mathematical or genetic models/equations/formulae/ protocols etc.).

We hereby certify that we have had performed the following work collectively and only using the specified literature, experimental techniques and testing methods. We further declare that this work has not been submitted for award of any other diploma/degree.

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SIGNATURE OF THE STUDENTS

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Project Completion Certificate

I certify that***Mr. ZainQazi(101611-020), ArhamSaeed (101611-022), M. UzairSaeed (101611-038) and Haris Abdullah (101611-39)*** Session 2010 to 2014 has carried out and completed the project entitled ***"Evaluation & Controlling of Oxidation in Vat dyes (Indigo) for Denim Processing"*** under my supervision for requirement for the award of Degree of ***Bachelor in Textile Engineering (Chemical Processing)*** by ***University of Management and Technology***.

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We, the Supervisory Committee, certify that the contents and form of thesis submitted by ***Mr.ZainQazi(101611-020), ArhamSaeed (101611-022), M. UzairSaeed (101611-038)*** **and*****Haris Abdullah (101611-39),***have been found satisfactory and recommend that their research work\project must be processed for evaluation by the Controller Examiner(s) for the award of the degree.

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Dedication

To

Our Parents, Family

&

Respected Teachers

ACKNOWLEDGEMENT

All praises and thanks are for Allah Almighty, Who is the Beneficent, the most Merciful, whose blessing is the cherished fruit to our modest efforts to overcome the problems and difficulties. All respects are for His Holy Prophet Muhammad (Peace Be upon Him), who is forever, a torch of guidance and source of knowledge for entire humanity.

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Zain Qazi& Team

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Abstract

Denim is one of the world largest wearing stitched fabrics which are extensively not used in European countries but also in all Asiatic &Middle East states like India, China, Iran, Jordan,Saudi Arab, Pakistan, Malaysia etc. Denim has grown just about the most used outfits on the globe. Today jeans are an essential part of our lives. They are almost always washed a few times before being sold to give them their faded appearance.

Indigo islike a *soul of the body* in denim industry, without“indigo dye” denim is almostimperfect, having no look as compare to well indigo dyeddenim. Now-a-days there are uncountable varieties and styles of denim, which are manufactured in all over textile sector of the world by keeping in view the increasing demand of fashion designers, brands and trend setters.Use of natural indigo is expensive and it is not easily available for the fulfillment the demand of denim manufacturing industries so researchers manufactured Indigo synthetically.Synthetic Indigo is reliable, easily available and most importantly it is cheaper than natural-indigo.

The denim is actually the combination of warp and weft, in which the warp is mainly dyed with indigo in the form of rope. These ropes are arranged before the dyeing machine in the form of balls(on 12-36 beams) and then passed from the rope dyeing machine before further processes.

Indigo Dyeing of rope is not an easy task for the dyers. It is performed under controlled conditions.This form of dyeing is also called *ring dyeing* because the yarn in the ropeis dyed just from the outer side not from the center. The main color of denim is actually depends upon the amount of indigo penetration in the fibers of the yarn (rope), with the help of airing (skying) or oxidation process in air. As long as the dyed yarns ropes are remain in contact with air after dipping in indigo, the oxidation or airing occurs, as the result, the indigo fixation on the surface of yarn is more lasting. This procedure (oxidation) decides the color of the fabric; either it is darker or lighter one. For more rigid shades the ropes will have to be in contact with air for longer time period as compared to the non-rigid shades.

For better oxidation the regulation of air in indigo dyeing section/department is veryessential. For the sake of regulation of air in dyeing department big fans, air blowers etc. can be placed which can regulate the air around the dyeing section.