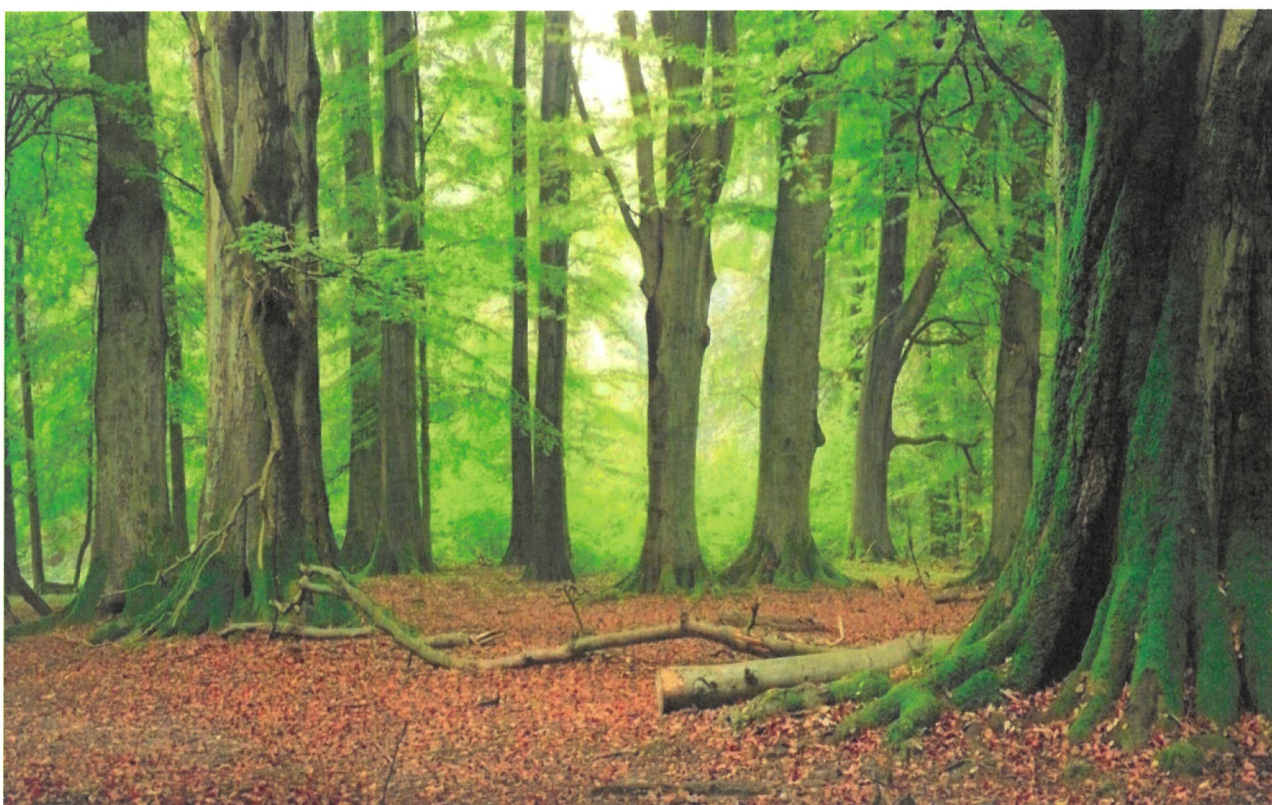




PACIFIC CENTURY INT'L HOLDINGSLTD

Dye Process Optimization Test Review Report



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Prepared on: May 20, 2022

Report No.: KN-EnMS20220520001



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Statement

Please note that this verification effort is only carried out at a specific location, time and situation, so the verification results cannot be used to infer the overall results at other locations, times and situations. By all means, this verification could represent in real life, the actual bulk production.

Abstract

PACIFIC CENTURY INT'L HOLDINGS LTD entrusted SGS-CSTC to review the dye process optimization in the workshop at No. 48, Chuangye 2nd Road, Songgang Jiangbian Community, Baoan District, Shenzhen. It reviews the extent to which process renovation has reduced the consumption of power, water and chemicals, and quantitative data on environmental protection.

Validity period of the report:

This test only presents the test results at a specific location, time and working conditions, and the results are time-sensitive.

Validity period: one year



1 Background

1.1 Corporate profile

Pacific Century International Holdings Ltd (PC) was founded in the year 2000 as a sales, marketing and R&D office located in Hong Kong.

This cooperation has also been accredited by Oekotex to ensure all dye stuff employed meets the EU standard.

The name of “Nu Dye ®” has been registered worldwide as a trade-mark of this unique finishing by which the objective is to minimize the impact of garment dye production on the environment.

1.2 company vision

PC believes that we all strive to do better to make our world a better place. PC also believes that sustainability should not be a slogan but a must. The first step is to replace all garment dye processes with Nu Dye® by far it is the best solution.

1.3 Purpose of Nu Dye®

The purpose of Nu Dye® is to replicate the unique look of garment-dyed apparel. The crucial fact is that Nu Dye® does not just save water, energy , chemicals and processing time but also helps to save the cost of merchandise to the extent that garment dye look-alike products become affordable to all brands and all mankind.

To upgrade the traditional industry (garment dye), promote clustered development and strategic adjustment of industrial structure and improve competitiveness, PC’s management decided to optimize and shorten the garment dye process thereby reducing the consumption of power, water and chemicals. Therefore, SGS-CSTC as a third party review agency is specially entrusted to conduct an on-site review on May 7,2022.

1.4 SGS test project team

NAME	TITLE	IN-TEAM POSITION	E-MAIL	CONTACT NUMBER	SIGNATURE
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2 Test basis

2.1 Shorten the dyeing process. With the Nu Dye® (the new dyeing process) use red trousers of the same quantity and model for the full-process production, and record power consumption, water consumption and chemical consumption in each production process; then use white trousers of the same quantity to represent traditional garment dye (old process) and model for the full-process production, and record power consumption, water consumption and chemical consumption in each production process; finally compare the power consumption, water consumption and chemical consumption in the new and old processes to calculate the saved resources.

2.2 Process comparison

According to the information provided by the enterprise and on-site inspection results, the dyeing process is shortened as shown in the following figure.



Desizing > Rinse > Cationization > Rinse, 1st Dyeing > 2nd Dyeing > Rinse > Tinting > Fixing > Rinse > Softening > Extracting > Drying > Blowing

Flow Chart of Old Dye Process



Rinse > Enzyme washing > Rinse > softening > Extracting > Drying > Blowing

Flow Chart of New Dye Process

5 Test results

Test items and statistical analysis results:

Process	Consumption of old process (Garment Dye)	Consumption of new process (Nu Dye)	Production quantity (piece)	Reduction	Reduction per piece	Percentage of reduction
Duration (min)	105	16	5	89	-	84.76%
Power consumption (kWh)	0.986	0.245	5	0.741	0.1482	75.15%
Water consumption (L)	3900	1625	5	2275	455	58.33%
Bleaching water (ml)	500	0	5	500	100	100%
Sodium sulfite (kg)	0.5	0	5	0.5	0.1	100%
Direct dyes (kg)	0.1	0	5	0.1	0.02	100%
Washing powder (kg)	0.8	0.3	5	0.5	0.1	62.5%
Salt (kg)	2.5	0	5	2.5	0.5	100%



Reduction performance Contributes:By New Dyeing process (Nu Dye)

Item	Power consumption per unit (kWh/piece)	Water consumption per unit (L/piece)	Bleaching water consumption per unit (ml/piece)	Sodium sulfite consumption per unit (kg/piece)	Direct dye consumption per unit (kg/piece)	Washing powder consumption per unit (kg/piece)	Salt consumption per unit (kg/piece)
Unit consumption for the old process (Garment Dye)	0.1972	780	100	0.1	0.02	0.16	0.5
Unit consumption for the new process (Nu Dye)	0.049	325	0	0	0	0.06	0
Reduction in unit consumption	0.1482	455	100	0.1	0.02	0.1	0.5

Project Conclusion:

Based on our SGS team specialists' analysis and comparative review of the traditional garment dye process vs the Nu Dye process, SGS can confirm that the Nu dye® offers a significantly reduced consumption of electric power, water, harmful chemicals and operation time.

SGS thereby strongly believes the Nu Dye process reduces sewage and sludge production and achieves a great saving in natural resources generating a great contribution to environment protection and sustainability.