



PRINTING OF COTTON FABRIC USING REACTIVE DYE ICE MOULDS.

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Abstract: In this paper, the law, process, and traits of icicle dyeing were popularized by way of experiment, the art, and methods and request standard of association of iceberg dyeing are resolved from the outlooks of benefits of hail dyeing imaginative everything grown accompanying the blend of icicle dyeing. Research shows that the benefit of hailstone dyeing of mottled dyeing may be linked. Dye is individual of ultimate common arrangements of coloration cloth, but there's another approach namely beloved by hard-working DIYers: glaze dyeing. This type of dyeing results in an akin look and feel to tie-dye, but it combines icebergs into the process. Ice dyeing is an approach to texture dyeing at which point you place iceberg cubes in addition to the material and therefore disseminate dye powder in addition to the glaze. The softening process will change by what method the dye bleeds to the structure, as the dye is containing diversified color pigments. We usually don't notice it when utilizing common plans, as the water unifies the powder into individual colors. But not accompanying glaze dyeing; all of those pigments separate to establish appealing hues that revive on texture.

I.INTRODUCTION

Several approaches have been proposed to replace or eliminate urea in cellulose printing, including replacing urea with alternative chemicals, applying moisture mechanically prior to the substrate entering the steamer, using two-phase printing (flash age printing), prewetting with foam, and replacing sodium alginate with synthetic thickener.

As an alternative to urea, sodium edetate (SE) has been suggested as an option for reactive dye printing. It was the aim of this study to assess the viability of sodium edetate, a commercially available, environmentally safe, non-toxic organic salt, as a substitute for urea in conventional reactive dye print pastes. An examination of dye fixation and yield was conducted.

A comparison of dye leveling properties and dye penetration with those obtained from using urea was made as well as a discussion of the fastness properties of the prints obtained from using SE. Depending on the area, SE, and NaHCO₃ concentrations, and the steaming time, color can be altered.

Dye infiltration and leveling possessions a profitable print includes correct color, edge of mark, and monotony. Therefore, it was unavoidable to judge the insignificant value of dye seepage in equating accompanying the edge of the color and allure monotony. Previous studies have proved that dye seepage depends on the arrangement of the print glue and the lack of seepage can influence unlevelled.

It shows the effect of utilizing three various print pastes, that is to say, urea/NaHCO₃, SE/NaHCO₃, and SE on the per insignificant value of dye infiltration utilizing depressed aggregation (10 g/ kg) of dyes 1 and 2. It is value mentioning that the results pictorial are the average one for two runs created at 5 and 10 brief time periods piping hot occasions.

It may be visualized that prints got from SE/NaHCO₃ and SE print pastes have a lower %P distinguished accompanying those acquired from urea/NaHCO₃ print adhesive.

The seepage dissimilarity 'tween SE/NaHCO₃ and SE impressed samples of urea/NaHCO₃ samples hopeful from the dissimilarity in material wettability led to by urea and SE in their particular print pastes.

In other words, be necessary for the water solubility (at 20 C) dissimilarity 'tween urea (108 g/100 ml) and SE (50 g/100 ml), it is expected that the captivating liquid belongings of urea to the fiber all the while publication hopeful in addition to those for SE; as an infiltration accompanying large color stockpiles and accordingly depressed demands on the print theater curtain washing process chief to a decline of the wastewater load. We trust that this work is in progress for de a target result inside fabric manufacturing.

The type of dye you'll be going to use is a texture-sensitive dye. Fiber sensitive dye is a colorfast, set of rooms for rent dye, that everything absolutely for that reason we're achievement contemporary.

It's named texture sensitive dye because it exactly reacts to the fibers in the material; when the dye hits the pretreated structure, it bonds to the fibers and the two together combine on a microscopic level, making it the ultimate colorfast dye on a stock exchange. Pretty cool! Another wonderful year about texture-sensitive dye is that to some extent goes at a great distance.

One-two-one-sixteenth of a pound/28.35 grams jar will last for many dye bunches. It too enters place an array of colors, but the individual aspect to contemplate is that skilled are two together clean colors and assorted colors. In a jar of clean color, each piece of dye is the unchanging color.

However, assorted colors are accurately what they appear; they're a combination of clean colors, making it a group of various-colored granules. This concedes the possibility not looking or being like it will influence your iceberg dye, but it likely will.

You'll either finish accompanying mixed differences in color or accompanying obvious speckles of clean color disseminated during the whole of, and neither is a distressing characteristic.

Necessary Conditions To be a Dye:

It must have an acceptable color.

- It may be established on the material either straightforwardly or accompanying the help of sarcastic.
- When established it must be fast to light and washing, that is it must be opposed to the operation of water, acids, and alkalis, specifically alkalis such as soda ash and cleanser have soluble characteristics.

Classification of Dye

Dyestuff is top-secret on various bases:

1. Physical form
2. Application form
3. Chemical form

Classification of Dyes Based on Physical form

- 1) Powder form
 - a) Grain form
 - b) Fine powder form
 - c) Micro or ultrafine powder form
- 2) lump form
- 3) answer form
- 4) glue form

1. ACID DYES:

An acid television is necessary for use of this dye. The substantivity concerning this dye is maximum to fabric and slightest to cellulosic texture. The acid causes an unfavorable effect on fabric in agreements of characteristics. The dye has good swiftness to light. These dyes, which are sodium salts of basic acids while sulphuric acid, have weak washing swiftness features. These hold acid groups, in the way that $-COOH$ and $-SO_3H$ that form attractiveness to the lightly fundamental $-NH$ groups in the amide links of fabric, fabric, and nylon:

2. Basic Dyes:

These dyes are the salts of the colored fundamental groups holding amino groups ($--NH_2$ or $-NR_2$). Modified nylon and polyesters may be dyed accompanying these dyes. such as Aniline Yellow and Malachite Green

3. Direct Dyes:

These are the Dyes that may be used straightforwardly to the materials from a liquid answer. These are most valuable for clothes that can form hydrogen bonds accompanying the Dyeing of Fabrics. Thus they are secondhand for dyeing understand, fabric, fabric, rayon, and nylon. These bonds to materials by hydrogen fastening accordingly are specifically convinced and oxygen fibers, in the way that understand and rayon, have many $-OH$ groups. Hydrogen bonds are feebly distinguished to covalent bonds and so the dyes are only fast if the particles loiter and straight; they must within financial means befriend the hydrogen fibers and form various hydrogen bonds.

I. RESEARCH METHODOLOGY

Place iceberg cubes on the district at which point you'd like to increase dye, therefore scatter on dye powder and predict the hail to yield, contents of the scope accompanying dye. Conversely, if one of the dye spots looks also severe, you can place iceberg cubes in addition to those spots and allow the ruling class to dissolve to help mute the also-soggy dye spots.

We took the plan for hailstone dyeing from the family the ones who were giving their snowstorm dyeing projects accompanying us. With Ice Dyeing you forbiddance need to believe Mother Nature providing some snowstorm, just catch a few hail, dye, and a container and you are off to the races! (But unmistakably snowstorm everything also) This method is excellent for a singular dyed dress or for a unique dyed structure for needlepoint.

Materials required.

1. Fabric Reactive Procion Dyes.
2. Soda Ash Fixer
3. Professional Textile Detergent
4. Dust Mask
5. Protective rubber glove
6. A Dish tube or two
7. Cookie cooling racks
8. Item to dye: white knitted cloth.

Pre-wash your costume or structure accompanying the Professional Textile Detergent. This willpower has caught on your dyeable blanks or structures all the while through production or through management. Mix up your beverage ruins, 2 cups per unit of capacity for liquids of water and adjoin in your dyeable articles. Let bureaucracy drench for about 15 brief time periods. Pull bureaucracy out and throw or be thrown out the waste answer (wear good elastic protection). You can sustain the beverage ruins for more dyeing later.

Time to set the dust mask on! We are making use of be utilizing the dye powder and we are going to be dependable about not inhaling some fine pieces of dye.

Grab your first color and start dashing the dye powder on the glaze. Be as chance or as distinguishing as you want to accompany by virtue of what you spread the dye. Remember, as the hailstone melts banners will join and blend as they hit the top. So if you set yellow and vulgar together, you will catch greens. On the other hand, one of the fun is that the "join" banner will segregate some into their component banner, bestowing you with uncluttered belongings. You can use this to your benefit when selecting your banner.



Dye ice cubes on cloth.

Once the entirety is scattered to your fondness, cover the tubs accompanying few flexible and allow the softening to progress. Putting the tubs in a warm place can speed belongings up. Let it all perch this habit for 24 hours.

When you return 24 hours later, your parts will appear this:

The cloth in the container can appear as a generous pool of angry or dark banners. Don't worry, it isn't made use of wind up all sloppy, we promise. The articles were inflated so the soft water takes care of diminishing to some extent less frightening expecting.

Take your tubs over to the decrease and start rinsing your parts in COLD running water. Rinse as far as the water is running generally clear.

Finally, toss the entirety in the wash accompanying HOT water and Professional Textile Detergent. Dry and wear your iceberg-dyed dress! Or cut and embroider your glaze-dyed material.

Ice dyeing and Tie and dye.

Tie and dye

Tie-dye may be used to establish an off-course sort of design on material, from standard patterns in the way that the spiral, harmony sign, gemstone, and the alabaster effect to delicate everything of skill. Using methods to a degree stencils (as in screen publication utilizing dyes or discharge pastes), clamped-on formed blocks, and critic (stitching and assemblage), tie-dye can produce nearly some design requested. If up-to-date provisions are second-hand, therefore it is smooth to carry out a spiral or circle.

History

The first models of tie-dye in the Far East are from the Sui empire (5th of one hundred years AD) in China.[6]

The first extant instances of pre-Columbian tie-dye in Peru date from 500 to 810 AD. Their designs involve narrow circles and lines, accompanying sunny colors containing flaming, yellow, vulgar, and green.1. Asia



Example of Mudmee tie-dye, an art form originating in Thailand

Shibori is a form of tie-dye that was introduced in Japan and has existed trained skilled because the 8th of one hundred years. Shibori contains various labor-exhaustive withstand methods that involve stitching elaborate patterns and tight assemblage of the stitching before dyeing, making elaborate designs for robes, bands, and additional appurtenances and robes.

Another shibori form searches to wrap the cloth around a center of the cord, forest, or different material, and bind it fixedly accompanying series or fiber. The districts of the material that are against the gist or under the binding would wait undyed. In Indonesia, particularly in Java, tie-dye is popular as Kumpulan.

Other agreements containing plangi and tritik are Indonesian agreements arisen Javanese disputes for procedures that had a connection with tie-dye. In Indonesia, tie-dye may be linked accompanying additional dyeing method, in the way that batik jumputan, connects tie-dye accompanying batik fuller-withstand dyeing.

[9] Ikat is a procedure of tie-dyeing the distorted fiber before the clergy is spun. Bandhani is an Indian form of tie-dye that was introduced in westward India. Mudmee tie-dye creates in Thailand and neighboring indiscriminate Laos. It uses various shapes and colors from different types of tie-dyes, and the colors are, usually, more controlled. Another distinctness is that the base color is dark.

2. Africa

Tie-dye methods have again existed secondhand for a particular day or time [11][12][13] in the Hausa domain of West Africa, accompanying famous sea color dye pits situated in and about Kano, Nigeria. The tie-dyed attire is therefore sumptuously adornment in usual patterns.

It has happened submitted that these African methods were the stimulus for the tie-dyed costume put in the same category as free spirit fashion.[14] In southwestern Nigeria, the method popular as adire is created, utilizing a type of withstand-dyeing method.

3. Tie-dye in the Western world



Tie dye vendor, July 2013



A tie-dyed lab coat.

Tie-dyeing was popular in the US by 1909, when Professor Charles E. Pellow of Columbia University captured a few samples of tie-dyed muslin and afterward present a lecture and live presentation of the method.[15]

Although shibori and batik methods were secondhand infrequently in Western fashion before the 1960s, new multicolored tie-dyeing acted not enhance a craze as far as the late 1960s following the model set by rock favorites to a degree Janis Joplin and John Sebastian (the one acted welcome own dyeing).[16]

The 2011 film broadcast Magic Trip, that shows aspirant film movie captured all along the 1964 cross-country transport journey of countercultural image Ken Kesey and welcome Merry Pranksters, shows the sailors evolving a form of tie-dye by communicable LSD next to a puddle and streaming paint-located model airliner paint into it, before recognizing a silver T-shirt upon the surface of the water.

Although the process is tighter to paper streak, in the following narrative, the passengers claim credit for inventing tie-dyeing. Ice dyeing Ice (or Snow) Dyeing is a dyeing method place hailstone or snowstorm is used to constitute a singular color pattern effect on texture.

Ice or snowstorm is used to hinder the dye from arriving at a few extents of the material (related to tie-dye) while again precipitating texture-sensitive dyes to "split" into a few of their component color that can create appealing drain and aurora belongings. In just any smooth steps, you can devise remarkable patterns and singular designs to brag at some occurrence.

IV. RESULTS AND DISCUSSION.

A lot of artistic designs may be formed utilizing glaze dyeing action accompanying a plausible amount of practice, this may be a monumental boom from now on in the creation place population resounds accompanying skill very. Bringing a tenable economy store for attire is likewise an immense blacktop for forging apparel. Ice dyeing is a fun habit to design and wear apparel.

The variety and breadth of fabric cunning not only improve the store of valuables of fabric skill but further inherits and expands the established dyeing process incompletely, making established dyed materials evenly come to the mansion of cunning. With the accelerated incident of data processing, society can receive more facts fast and efficiently, but in the intervening time, the nation will be drawn toward to a greater extent various theoretical flows and breedings. From the view of the incident of up-to-date creativity, the theoretical current of modernist composition began from the Impressionist ending. Artists uniformly investigate and chase new cunning forms, believing to jump in a group the settled way, often imposingly the usual creativity idea momentary and room, and present freedom to artisans' idea. Modern dyed patterns have filtered family's lives as an enlightening wonder, that is an inclusive idea of cunning and electronics. It shows new enlightening knowledge and imaginative flow through attire, household fabrics, and added one who carries or transmits sometimes and indicates the nation's beautiful taste and fashion style.

Figures and Tables

SAMPLES WERE CREATED USING ICE DYEING.





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The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression “One of (R.B.G.) thanks...” Instead, try “R.B. G .thanks”. Put applicable sponsor’s knowledge men there; DO NOT place them on the first page of your paper or as a footnote.

REFERENCES

1. Ali, A. 2001. Macroeconomic variables as common pervasive risk factors and the empirical content of the Arbitrage Pricing Theory. *Journal of Empirical Finance*, 5(3): 221–240.
2. Basu, S. 1997. The Investment Performance of Common Stocks in Relation to their Price to Earnings Ratio: A Test of the Efficient Markets Hypothesis. *Journal of Finance*, 33(3): 663-682.
3. Bhatti, U., and Hanif. M. 2010. Validity of Capital Assets Pricing Model. Evidence from KSE-Pakistan. *European Journal of Economics, Finance, and Administrative Science*, 3 (20).
4. H Gutjahr and R R Koch, in *Textile Printing*, 2nd Edn, Ed. L W C Miles (Bradford: SDC, 1994) 139. 5. R Schneider and S Sostar-Turk, *Dyes Pigm.*, 57 (2003) 7.
6. M M El-Molla and H S El-Sayad, *Adv. Polym. Technol.*, 20 (2001) 58.
7. J Provost, *J.S.D.C.*, 108 (1992) 260, and references cited therein.
8. G N Sheth and A A Musale, *Indian J. Fibre Text.*, 29 (2004) 462.
9. G De Boer, *Melliand Textilber.*, 76 (1995) 250.
10. R A Poletti, P R Panchmatia and J F Khayat, *Text. Chem. Colorist*, 29 (1997) 17.
11. F Alan Andersen, *Int. J. Toxicol.*, 21 (Suppl. 2) (2002) 95.
12. W C L Miles, *Textile Printing* (Bradford: SDC, 1981).
13. D B Judd and G Wysezcki, *Colour in Business, Science and Industry*, 3rd Edn (New York: John Wiley & Sons, 1975).
14. M M Kamel, R M El-Shishtawy, H L Hanna and N S E Ahmed, *Polym. Int.*, 52 (2003) 373.
15. A Soleimani-Gorgani and J A Taylor, *Dyes Pigm.*, 68 (2006) 109.
16. S M Burkinshaw and K Gandhi, *Dyes Pigm.*, 33 (1997) 259.
17. S M Burkinshaw and A E Wills, *Dyes Pigm.*, 34 (1997) 243.
18. S M Burkinshaw and K Gandhi, *Dyes Pigm.*, 32 (1996) 101.
19. R M El-Shishtawy, Y A Youssef, N S E Ahmed and A A Mousa, *Color. Technol.*, 120 (2004) 195.
20. J Koh, J D Kim and J P Kim, *Dyes Pigm.*, 56 (2003) 17.
21. *Methods of Tests for Colour Fastness of Textiles and Leather*, 5th Edn (Bradford: SDC, 1990).
22. J Shore, *Auxiliaries, Colorants and Auxiliaries: Organic Chemistry and Application Properties*, Vol. 2 (Bradford: SDC, 1990)
23. N S E Ahmed, *Dyes Pigm.*, 65 (2005) 221.
24. R M El-Shishtawy, Y A Youssef, N S E Ahmed and A A Mousa, *Dyes Pigm.*, 72 (2007) 57.