STREET CHARACTERS INC.

STANDARD FABRIC DYEING PROCEDURE

Document Code: SOP-DYE-01
Department: Production – Support
Skill Level: Beginner
Applies To: Dye Station
Operators Process: Acid Dyeing of Nylon and Compatible Fibers

1. Purpose

This procedure explains how to dye fabric safely and consistently at Street Characters Inc. Follow the steps in the order provided. If anything looks or behaves unexpectedly, stop and contact the production supervisor or consult the Fabric Dyeing Reference & Training Guide.

2. Safety and Personal Protective Equipment

Fabric dyeing involves concentrated powders, chemicals, hot water, and potentially contaminated waste. Follow the safety requirements below throughout the process.

General Safety

- Do not eat, drink, or smoke in the dyeing or chemical area.
- Keep food and drinks away from dyes and chemicals.
- Wash hands before eating or drinking.
- Turn on and check the designated ventilation system before opening or mixing dye powders.
- Report ventilation problems before proceeding.
- Keep the work area clean and the floor dry.
- Wipe up spills promptly.
- Avoid cleaning methods that spread dry dye powder into the air.
- Report significant spills or spills involving unknown chemicals.

Respiratory Protection

Use the respiratory protection required by the company procedure:

- A disposable dust/mist respirator for occasional work.
- The designated 3M respirator with approved cartridges for regular work.

Follow all applicable requirements for:

- Fit testing.

- Training.
- Inspection.
- Maintenance.
- Proper storage.

Respirators do not replace the need for effective ventilation.

Gloves and Protective Clothing

- Wear chemical-resistant gloves when handling dyes, acids, and dye solutions.
- Wear protective clothing and appropriate eye protection.
- When handling hot fabric or dye water, wear heat-resistant, waterproof gloves and a waterproof apron or jacket.
- For large or especially hot dye baths, wear the designated:
    - Yellow water-resistant coat.
    - Full-face shield.
    - Elbow-length, heat- and water-resistant gloves.

Eye and Contact-Lens Safety

- Contact-lens wearers must take extra care when working around dye powders.
- If dye powder, acidic water, or contaminated tools come into contact with the eyes, use the eyewash station immediately.
- Do not delay flushing the eyes while attempting to remove contact lenses.

Hot Water and Physical Safety

- Never place bare hands into a dye bath.
- Avoid reaching over hot water.
- Use safe lifting methods when handling heavy, wet fabric.
- Keep the floor dry to reduce slip hazards.
- Do not allow fabric to sit against the hot bottom of the pot.
- Use appropriate PPE when removing hot fabric from the dye bath.

Chemical Storage

- Keep chemical containers closed, clean, and clearly labeled.
- Store chemicals in a cool, dry location away from food.
- Mark dye containers with the purchase date.
- Do not use unidentified, unlabeled, expired, or compromised materials.

3. Equipment and Supplies

Prepare the following before beginning:

- Stainless-steel or enamel pot large enough to allow the fabric to move freely.
- Stirring tool.
- Digital scale.
- Calculator.
- Thermometer.
- pH test strips.
- Measuring spoons and cups.
- Heat-safe container or glass jar.
- Fine strainer.
- Fine silk or nylon stocking for filtering dye.
- Water.
- Acid dye.
- Citric acid.
- White vinegar as a backup acid.
- Required PPE.
- Washing machine.
- Drying rack or drying line.

Stainless steel or enamel is preferred because it is non-reactive.

4. Inspect and Pre-Wash the Fabric

4.1 Inspect the Fabric

Before washing, inspect the fabric for:

- Damage.
- Stains.
- Defects.
- Contamination.
- Existing color variation.
- Factory surface treatments.

Confirm the following:

- Project name.
- Target color.
- Fabric type.
- Fabric quantity.
- Fiber compatibility.

This procedure is primarily intended for nylon and compatible protein fibers, such as wool and silk. If the fiber content is uncertain, consult the production supervisor before proceeding.

4.2 Pre-Wash Nyla Fleece

For Nyla Fleece:

- Use 3 tablespoons (44 ml) of Synthrapol per 8 lb (3.63 kg) of fabric.
- Run a 20-minute hot wash cycle.
- If Synthrapol is unavailable, use regular gentle laundry detergent.

Observe the wash water.

If the water is milky or cloudy, wash the fabric again before dyeing. Fabric that has not been properly cleaned may not absorb dye consistently.

5. Dry, Weigh, and Calculate the Dye Amount

5.1 Dry the Fabric

Dry the fabric completely before weighing.

Record the exact dry weight. Dye calculations are based on the dry weight of the fabric.

5.2 Calculate the Dye Amount

Use the following formula:

Dry fabric weight × target % OWG = dye weight

OWG means On Weight of Goods.

Example

6 oz of fabric × 0.015 = 0.09 oz of dye

5.3 General Starting Points

Target Color	General Starting Point
Light or pastel colors	Below 1.5% OWG
Standard colors	1.5–2% OWG
Medium to dark colors	Approximately 3% OWG
Deep black or navy	Approximately 4% OWG

Use an approved project recipe whenever one is available. Dye should be weighed whenever possible. Teaspoon measurements are approximate because different dye powders have different densities.

6. Prepare the Dye Bath

6.1 Fill the Pot

Fill the pot with enough water to allow the fabric to move freely.

As the pot fills:

1. Place the pre-washed fabric into plain water.
2. Wet the fabric completely.
3. Separate folds and compressed areas as much as possible.

6.2 Remove the Fabric Before Adding Acid

Remove the fabric from the pot before adding acid. Set the wet fabric aside temporarily. Do not allow it to dry.

6.3 Add Citric Acid

Dissolve citric acid in warm or hot water before adding it to the dye bath. The reference amount is: 1 tablespoon of citric acid per pound of dry fabric.

Production operators may begin with approximately 10–15 tablespoons, then adjust based on the measured pH of the bath.

6.4 Check and Adjust the pH

Test the dye bath using pH test strips. The target pH is: pH 2–3

If necessary:

1. Dissolve additional citric acid in warm or hot water.
2. Add it to the bath.
3. Mix thoroughly.
4. Test the pH again.

The bath may be diluted with water when appropriate.

6.5 White Vinegar Backup

If citric acid is unavailable, white vinegar may be used as the backup acid.

Reference amount: ¼ cup of white vinegar per pound of dry fabric.

Mix the acid thoroughly into the bath before returning the fabric.

7. Prepare and Add the Dye

7.1 Measure the Dye

Measure the calculated amount of dye powder using a digital scale whenever possible. Do not rely solely on teaspoons for production dyeing.

7.2 Dissolve the Dye

1. Place the measured dye powder into a suitable heat-safe container.
2. Add a small amount of very hot water.
3. Mix to create a smooth paste.
4. Gradually add more hot water.
5. Stir until the dye is fully dissolved.

Do not add dry dye powder directly to the dye bath.

7.3 Strain the Dye

Strain the dye solution through:

- A fine strainer.
- Fine silk.
- A fine nylon stocking.

Straining helps remove undissolved particles that may cause freckling or uneven color.

7.4 Add Dye to the Bath

Add the dissolved and strained dye solution to the prepared acid bath. Mix thoroughly.

7.5 Return the Fabric

Return the wet fabric to the dye bath.

Immediately:

- Separate folds.
- Separate bunches.
- Move the fabric through the bath.
- Ensure that the dye solution contacts all areas of the fabric.

8. Heat and Move the Fabric

8.1 Maintain the Temperature

Keep the dye bath above 60°C (140°F) during active dyeing. This is the Street Characters Inc. operating requirement. Boiling or higher temperatures are not required for this procedure.

8.2 Keep the Fabric Moving

Move the fabric continuously or very frequently. Use the stirring tool to:

- Stir the bath.
- Flip the fabric.
- Separate folds.
- Separate bunches.
- Prevent fabric from sitting against the hot bottom of the pot.
- Prevent fabric from remaining packed together.

Overcrowding, poor wetting, folds, and insufficient movement may cause uneven color, streaks, splotches, and banding.

8.3 Monitor the Process

Monitor:

- Water temperature.
- Bath pH.
- Dye absorption.
- Fabric movement.
- Color development.
- Any visible unevenness or contamination.

9. Determine When Dyeing Is Complete

There is no fixed timer for completing the dyeing process. Dyeing may be considered complete when one or more of the following conditions applies:

- The desired color has been reached.
- The dye has substantially absorbed and the bath is becoming clear.
- The bath can no longer be maintained above 60°C.
- The fabric has reached the required color and should be removed before becoming too dark.

If the desired color has been reached, remove the fabric carefully before the color becomes too dark.

If the Bath Remains Strongly Colored

Check the following before adding more dye or chemicals:

- Temperature.
- pH.
- Fabric movement.
- Fabric preparation.
- Dye dissolution.
- Fiber compatibility.
- Dye concentration.

Do not continue adding dye without identifying the cause of poor absorption. If the fabric appears unable to absorb additional color, contact the production supervisor.

10. Rinse, Wash, Spin, and Dry

10.1 Remove and Rinse

Remove the fabric safely using the appropriate heat-resistant PPE. Rinse with cool or lukewarm water until the water runs clear. Avoid sudden temperature changes when working with temperature-sensitive fibers.

10.2 Wash

Run a quick washing-machine cycle using:

- Cold water.
- No detergent.

If the color intentionally needs to be reduced, warm water may be used instead. Do not use a heated wash cycle as the normal post-dye process.

10.3 Spin

Use the washing machine’s spin cycle to remove excess water.

10.4 Dry

Hang the fabric on a drying rack or line. Do not use a heated tumble dryer unless a separate approved procedure permits it. Protect the fabric from strong, direct sunlight whenever possible.

11. Quality Control and Release

After the fabric has dried, inspect it for:

- Splotches.
- Streaks.
- Fold lines.
- Uneven color.
- Freckling.
- Horizontal banding.
- Contamination.
- Unexpected color variation.

When applicable, compare the fabric against the approved color or Pantone reference under consistent lighting.

Before the fabric is handed off for production use, obtain production supervisor approval for: Color, Evenness, Overall quality, Production suitability.

12. Labeling and Recordkeeping

Label remaining fabric with the applicable:

- Project name.
- Pantone color.
- Other approved identifying information.

Store the fabric in the designated area away from strong sunlight.

Record the following information for each dye batch:

- Date.
- Operator.
- Project name.
- Fiber type.
- Dry fabric weight.
- Dye brand.
- Dye name.
- Dye color.
- Dye product number, when available.
- Dye amount.
- Water volume.
- Acid used.
- Acid amount.
- Starting pH.
- Final pH.
- Maximum temperature.
- Approximate dyeing duration.
- Final color.
- Pantone or other color reference.
- Additives used.
- Problems encountered.
- Adjustments made.
- Final result.
- Supervisor approval.

Do not rely on memory. Accurate records help successful colors become repeatable production recipes.

13. Cleanup and Waste Disposal

13.1 Clean the Work Area

- Wipe surfaces using damp sponges or towels.
- Clean splashes promptly.
- Keep the sink, washing machine, and surrounding area clean.
- Return equipment to its designated location.

13.2 Cleaning Products

- Use bleach-containing household cleaners only on suitable surfaces.
- Never use bleach on skin or hands.
- Never mix bleach with other cleaners.
- Use ReduRan only if it has been approved by the company and only according to its label and Safety Data Sheet (SDS).
- Wash hands with soap and water after cleaning.

13.3 Waste Disposal

Dispose of the following only through approved company procedures:

- Dye baths.
- Rinse water.
- Filters.
- Towels.
- Sponges.
- Used PPE.
- Containers.
- Other contaminated materials.

Do not discharge unknown, concentrated, or unauthorized chemical waste into a drain. If you are unsure how to dispose of a material, stop and ask the production supervisor. Document unusual disposal situations and any experimental additives, including:

- Additive name.
- Amount used.
- Reason for use.
- Result.
- Disposal considerations.

Quick Order of Operations

Inspect → Pre-wash → Dry and weigh → Calculate dye amount → Pre-wet fabric → Remove fabric → Set pH to 2–3 → Dissolve and strain dye → Add dye → Return fabric → Heat above 60°C → Move continuously → Monitor → Finish safely → Rinse → Cold quick wash with no detergent → Spin → Hang dry → Inspect → Supervisor approval → Label → Record

Key Factors for Consistent Results

Consistent dyeing depends primarily on:

1. Clean fabric.
2. Complete wetting.
3. Fully dissolved and strained dye.
4. Constant fabric movement.
5. Controlled pH and temperature.

STREET CHARACTERS INC.

FABRIC DYEING REFERENCE & TRAINING GUIDE

Supporting Reference for: SOP-DYE-01
Department: Production - Support
Subject: Acid Dyeing of Nylon and Compatible Fibers

1. How to Use This Guide

This guide provides supporting information for the Standard Fabric Dyeing Procedure (SOP-DYE-01). Use this document for:

- Understanding the dyeing process.
- Calculating dye quantities.
- Reviewing color-depth references.
- Conducting controlled tests.
- Understanding common dyeing problems.
- Recording successful results.
- Supporting troubleshooting.

The SOP controls the normal production process. This guide does not replace the required production procedure, safety requirements, or supervisor approval.

2. Dyeing Basics

Acid dyes are concentrated powdered dyes used in an acidic dye bath.

They are primarily used to color:

- Nylon.
- Silk.
- Wool.
- Angora.
- Alpaca.
- Mohair.
- Other animal-hair fibers.
- Feathers.

Acid dye results depend on several variables, including:

- Fiber type.
- Fabric preparation.
- Dye amount.
- Water quality.
- Bath temperature.
- Bath pH.
- Fabric movement.
- Dye dissolution.
- Dye combination.
- Duration of the process.

Different fibers absorb dye differently. When color matching is important, test the actual production material rather than relying only on results from another fabric.

Nyla Fleece

Nyla Fleece is a nylon blend used by Street Characters Inc. A 36-inch linear yard of dry Nyla Fleece weighs approximately 1 lb (16 oz). This is only a general reference. The actual dry weight must always be measured before calculating dye quantities.

3. Dye Brands and Recordkeeping

Street Characters Inc. primarily uses Dharma Acid Dyes. ProChem Acid Dyes may still be encountered but are being phased out as of 2026.

Whenever possible, record:

- Dye brand.
- Dye product number.
- Dye name.
- Dye color.
- Amount used.
- Project or Pantone reference.

Different dye colors may behave differently, even when they are used at the same percentage of fabric weight. Maintain records for successful colors and combinations so they can be reviewed and repeated.

4. Fabric Preparation

4.1 Inspect the Fabric

Before dyeing, confirm that the fabric:

- Is compatible with acid dyeing.
- Can tolerate the required heat and acidic bath.
- Is free from damage, stains, defects, and contamination.
- Has been cleaned of factory surface treatments when applicable.

If fiber content or heat compatibility is uncertain, consult the production supervisor.

4.2 Pre-Washing Nyla Fleece

For Nyla Fleece, use:

3 tablespoons (44 ml) of Synthrapol per 8 lb (3.63 kg) of fabric.

Run a 20-minute hot wash cycle. If Synthrapol is unavailable, regular gentle laundry detergent may be used.

If the wash water is milky or cloudy, wash the fabric again before dyeing. Cloudy wash water may indicate that additional surface treatments or contaminants remain on the fabric. Inadequate preparation can contribute to poor dye absorption and horizontal banding.

5. Dye Calculations and OWG

5.1 Definition of OWG

OWG means On Weight of Goods.

Dye quantity is calculated using the dry weight of the fabric.

Formula:

> Dry fabric weight × target % OWG = dye powder weight

Example

For 6 oz of fabric at 1.5% OWG:

> 6 oz × 0.015 = 0.09 oz of dye

5.2 General Dye Concentration Benchmarks

Target Color	General % OWG
Light or pastel colors	Below 1.5%
Standard colors	1.5–2%
Medium to dark colors	Approximately 3%
Deep black or dark navy	Approximately 4%

These are starting points and should not replace an approved project recipe. Some specific dye colors may require different concentrations to achieve the intended result. Record successful results and use approved recipes whenever available.

6. Approximate Volumetric Dye Reference

The following measurements are approximate and are provided for reference only.

Target % OWG	Approximate Volume per 1 lb of Dry Fabric	Target Shade
0.5%	¾ teaspoon	Very light or pastel
1.0%	1½ teaspoons	Light or medium
1.5–2.0%	2¼–3 teaspoons	Standard color range
3.0%	4½ teaspoons	Medium to dark
4.0%	6 teaspoons	Deep black or navy
6.0%	9 teaspoons	Maximum dark saturation reference

Important Measurement Note

Dye powders have different physical densities. The same volume of two different colors may have different weights. Therefore, always weigh dye powder on a digital scale for commercial replication and production accuracy. Teaspoon measurements should only be used as rough reference values when weighing is not possible.

7. Acid Reference

Acid lowers the pH of the dye bath and supports the dyeing process.

7.1 Citric Acid

Citric acid is the preferred acid for the standard Street Characters dyeing process.

Reference amount: 1 tablespoon per pound of dry fabric.

Production operators may begin with approximately 10–15 tablespoons and adjust according to the measured pH. The target bath pH is pH 2–3

Citric acid should be dissolved in warm or hot water before being added to the bath. Always test the pH rather than relying only on the calculated acid quantity.

7.2 White Vinegar

White vinegar may be used as a backup when citric acid is unavailable.

Reference amount:

¼ cup per pound of dry fabric.

The source material specifies that vinegar should not be poured directly onto fabric. Instead:

1. Remove the fabric completely from the vat.
2. Pour the vinegar into the water.
3. Mix the bath thoroughly.
4. Release and return the fabric to the bath.

8. Temperature and Fabric Movement

The Street Characters operating requirement is to maintain the dye bath above 60°C (140°F) during active dyeing. Boiling or higher temperatures are not required for the standard procedure.

Fabric must move freely throughout the dyeing process. Insufficient movement, overcrowding, folds, bunching, and poor wetting can cause:

- Splotches.
- Streaks.
- Dark areas.
- Fold lines.
- Horizontal banding.
- Uneven color.

Move the fabric continuously or very frequently by:

- Stirring.
- Flipping.
- Separating folds.
- Separating bunches.
- Preventing fabric from sitting against the hot bottom of the pot.

Monitor the temperature, pH, fabric movement, and dye absorption throughout the process.

9. Dye Dissolution and Freckling

9.1 Proper Dye Dissolution

To dissolve dye:

1. Place the measured dye powder into a heat-safe container.
2. Add a small amount of very hot water.
3. Create a smooth paste.
4. Gradually add more hot water.
5. Stir until the dye is fully dissolved.
6. Strain the solution through a fine strainer, fine silk, or fine nylon stocking.

Never add dry dye powder directly to the dye bath.

9.2 Freckling

Freckling refers to small concentrated dye particles or spots that remain visible on the fabric.

Freckling may be caused by:

- Incompletely dissolved dye.
- Dye particles remaining in the solution.
- Failure to strain the dye.
- Poor mixing.
- Dye being added directly to the fabric.

To reduce the risk of freckling:

- Make a smooth paste first.
- Add hot water gradually.
- Stir thoroughly.
- Strain the dye solution before adding it to the bath.
- Mix the dye into the bath thoroughly.

10. Stock Solutions and Small-Scale Testing

Stock solutions and pipette testing may be used for controlled color development. The source material provides the following example:

1% stock solution: 1 g of dye in 100 ml of water.

Label stock solutions clearly and store them in suitable, heat-safe containers.

Small-scale testing may be useful before:

- Creating a new color.
- Changing an approved recipe.
- Dyeing expensive fabric.
- Dyeing a large quantity of fabric.
- Matching a Pantone target.
- Using an unfamiliar dye combination.

Small tests can help reveal the effects of:

- Fiber type.
- Dye combinations.
- Water quality.
- Temperature.
- pH.
- Process changes.

Distilled-water testing may be used as a diagnostic experiment when directed by a supervisor.

11. Testing and Color Control

Testing is recommended when the result is important, unfamiliar, or difficult to predict.

Consider testing before:

- Making a new color.
- Adjusting an approved recipe.
- Using a new dye brand or color.
- Dyeing a large quantity.
- Dyeing an expensive material.
- Matching a specific Pantone reference.
- Combining multiple dye colors.

Record the test conditions, including:

- Fabric type.
- Fabric weight.
- Dye brand and color.
- Dye amount.
- % OWG.
- Water volume.
- Acid type and amount.
- pH.
- Temperature.
- Movement.
- Final result.

A successful test should be documented so it can be reviewed and potentially developed into an approved production recipe.

12. Troubleshooting

Problem / Result	What to Check
Splotchy or uneven color	Check whether the fabric was fully wet; folds or bunches remained; the pot was overcrowded; the dye was fully dissolved and strained; the pH was correct; the temperature was maintained; and the fabric was moved sufficiently.
Streaks or lines	Check for creases and folds, pot size, fabric movement, agitation, packed fabric, and whether the fabric remained against the hot bottom of the pot.
Freckling	Check whether the dye was fully dissolved and strained. Check for concentrated or undissolved dye particles in the bath.
Color is too light	Check the dry fabric weight, dye calculation, dye concentration, temperature, pH, fabric preparation, and whether dye remains in the bath. Determine whether the fabric can absorb additional dye before making adjustments.
Color is too dark	Review the dye concentration and approved recipe before the next batch. If an approved color-reduction process is available, warm water may be used for the reduction wash. Document any color-reduction process used.
Bath remains strongly colored	Check temperature, pH, fiber compatibility, fabric preparation, dye concentration, fabric movement, and dye dissolution. Determine whether the fabric is capable of absorbing more dye before adding additional dye or chemicals. Contact the supervisor if the fabric appears unable to absorb additional color.
Horizontal banding	Check whether the fabric was properly pre-washed, whether the wash water was cloudy, whether the fabric was fully wetted, temperature consistency, folds or bunching, movement and agitation, and overcrowding.
Poor colorfastness or bleeding	Check fiber compatibility, bath pH, dyeing process, rinsing, washing, and dye concentration. Contact the production supervisor if bleeding continues.
Color separation	Record the dye combination, dye sequence, pH, temperature, duration, and result. Photograph the result when useful. Contact the production supervisor.

Troubleshooting Reminder

Before adding more dye or chemicals, identify the likely cause of the problem first. **Check**:

- Fabric preparation.
- Wetting.
- Dye dissolution and straining.
- Fabric movement.
- Temperature.
- pH.
- Dye amount.
- Fiber compatibility.

13. Experimental Additives

The following additives are not part of the standard dyeing recipe.

They should only be considered for a specific troubleshooting or experimental purpose. Any use must be documented on the dye specification sheet. Record:

- Additive name.
- Amount used.
- Reason for use.
- Process conditions.
- Result.
- Disposal considerations

Additive	Purpose / Expected Effect	When to Use	Important Notes
Plain Salt	May improve dye absorption on some fabrics.	Only when dye absorption is poor and standard procedures are not producing the desired result.	Not part of the standard dyeing procedure. Use only as an experimental adjustment and document the results.
Urea	May help keep dye dissolved and improve dye penetration.	Experimental use only.	Not part of the standard procedure. Results may vary depending on the dye and fabric. Document the amount used and the results.
Alcohol	May affect dye solubility or penetration.	Experimental use only.	Use with caution. It is not part of the standard procedure. Document the type and amount used and the results.
Glauber’s Salt	May improve dye absorption in some dyeing processes.	Experimental use only.	Not part of the standard procedure. Document the amount used and the results.
Ammonium Sulfate	Not recommended.	Do not use.	Street Characters Inc. does not use ammonium sulfate in the standard fabric dyeing process.
Retayne / Dharma Dye Fixative	Designed to improve colorfastness in certain dyeing applications.	Do not use as part of this procedure.	These products are not part of the Street Characters Inc. dyeing process.

14. Quality Control Checklist

Before releasing dyed fabric for production, confirm the following:

- ☐ Fabric was pre-washed.
- ☐ Fabric was completely pre-wetted.
- ☐ Fabric was weighed while dry.
- ☐ Dye amount was calculated correctly.
- ☐ Dye was dissolved completely.
- ☐ Dye solution was strained.
- ☐ Bath pH was approximately 2–3.
- ☐ Bath temperature remained above 60°C during active dyeing.
- ☐ Fabric was moved continuously or very frequently.
- ☐ Fabric is dry.
- ☐ Color is even.
- ☐ No splotches are visible.
- ☐ No streaks are visible.
- ☐ No fold lines are visible.
- ☐ No freckling is visible.
- ☐ No horizontal banding is visible.
- ☐ No contamination is visible.
- ☐ Color was compared against the approved target when applicable.
- ☐ Any additives were documented.
- ☐ Supervisor approval was obtained.
- ☐ Remaining fabric was labeled.
- ☐ The batch record was completed.

15. Batch Record Requirements

Record the following information for every dye batch:

- ☐ Date.
- ☐ Operator.
- ☐ Project.
- ☐ Fiber type.
- ☐ Dry fabric weight.
- ☐ Dye brand.
- ☐ Dye name.
- ☐ Dye color.
- ☐ Dye product number.
- ☐ Dye amount.
- ☐ % OWG.
- ☐ Water volume.
- ☐ Citric acid or vinegar amount.
- ☐ Starting pH.
- ☐ Final pH.
- ☐ Maximum temperature.
- ☐ Approximate duration.
- ☐ Final color.
- ☐ Pantone or other color reference.
- ☐ Additives and amounts.
- ☐ Special preparation steps.
- ☐ Problems encountered.
- ☐ Adjustments made.
- ☐ Final result.
- ☐ Supervisor approval.

16. Dye Specification Sheet

When a color is successful, preserve the information needed to repeat it. The dye specification sheet should include:

- ☐ Project or Pantone reference.
- ☐ Fabric type.
- ☐ Dry fabric weight.
- ☐ Dye brand.
- ☐ Dye colors.
- ☐ Dye product numbers, when available.
- ☐ Dye weights.
- ☐ % OWG.
- ☐ Water volume.
- ☐ Acid type and amount.
- ☐ Final pH.
- ☐ Operating temperature.
- ☐ Approximate duration.
- ☐ Additives.
- ☐ Special preparation steps.
- ☐ Final result.
- ☐ Problems or observations.
- ☐ Supervisor approval.

Do not rely on memory. A successful experiment may become an approved, repeatable production recipe after review and documentation.

17. Troubleshooting Mindset

Before adding more dye or chemicals, ask the following questions:

1. Was the fabric clean?
2. Was the fabric fully wet?
3. Was the dye completely dissolved?
4. Was the dye solution strained?
5. Was the fabric moving freely?
6. Was the bath above 60°C?
7. Was the bath pH between 2 and 3?
8. Was the correct dye amount used?
9. Was the fabric overcrowded?
10. Can the fiber absorb more dye?
11. Is this a known issue with this color or fabric?
12. Has the issue been documented and discussed with the supervisor?

Identify the cause before making additional chemical or process adjustments.

18. Process at a Glance

Prepare

Inspect → Pre-wash → Dry → Weigh → Calculate dye amount

Prepare the Bath

Pre-wet fabric → Remove fabric → Set pH to 2–3 → Dissolve and strain dye → Add dye

Dye

Return fabric → Maintain temperature above 60°C → Move continuously → Monitor temperature, pH, movement, and absorption

Finish

Reach desired color or determine that dyeing is complete → Remove fabric safely → Rinse → Cold quick wash with no detergent → Spin → Hang dry

Release

Inspect → Obtain supervisor approval → Label remaining fabric → Complete batch record

Final Reminder

Consistent dyeing comes from controlling the process variables, observing the dye bath, and recording successful results.

The most important foundations are:

- Clean fabric.
- Complete wetting.
- Accurate dye measurement.
- Fully dissolved and strained dye.
- Proper pH.
- Controlled temperature.
- Continuous fabric movement.
- Thorough documentation.