Why Indigo Changes from Green to Blue

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Read the illustrated guide

Air turns the dye on freshly dipped cloth from yellow-green to blue. Follow one swatch through repeated dips and learn when to judge the final shade.

Why the cloth turns blue

Freshly dipped indigo cloth can look yellow-green. In the vat, indigo has been reduced to a form that dissolves in water and can reach the fibers. As the wet cloth meets oxygen in the air, that form changes back into insoluble blue indigo. This change is called oxidation. It starts while the cloth is still wet.

Sources: Jacquard — Indigo Tie Dye Kit instructions · Utah State University Extension — Dyeing with Japanese indigo

Watch the wet cloth come out of the vat

In a Chongqing dyeing demonstration, the maker lifts a white square of cloth after dipping its bottom edge. The wet band has a green-blue cast even though the vat surface below looks dark blue. Use the cloth itself as your reference. On your own sample, compare the same spot just after lifting and again after airing it according to your vat instructions. Keep the light and viewing angle similar.

The first lift leaves a narrow, wet green-blue band at the hem. The much darker liquid below is the surface of the vat. View the illustration in the online guide

Build a deeper blue with another dip

Once the cloth has had the air exposure your method calls for, another dip brings more dissolved dye to the areas that go back into the vat. In the demonstration, the hem goes back in repeatedly while the upper part stays out. A later lift shows a broader band of blue with the deepest color at the hem. The footage shows several partial dips and lifts, so use it to read the overlap and follow your own vat instructions for timing.

Sources: Utah State University Extension — Dyeing with Japanese indigo · Maiwa — Indigo vat dyeing

On a later lift, the same wet swatch shows a broader blue band and a darker hem. The fade shows where partial dips overlapped. View the illustration in the online guide

Finish the cloth before judging its shade

Air exposure develops the blue. Rinsing and washing come later and remove loose dye. For example, the Jacquard kit directions place untying, rinsing, and a mild-detergent wash after the final dip and oxidation. Use the finishing order for the vat you are working with, then compare fully dry samples under the same light. The hanging cloth below shows the gradient during drying.

Sources: Jacquard — Indigo Tie Dye Kit instructions

On the right, the same swatch hangs sideways to dry, with its darkest edge at the far right. The solid-blue swatch beside it is a separate piece. View the illustration in the online guide

Compare a first dip with a second

For a small comparison, take two scraps from the same cloth and prepare them alike. Stop one after a dip and its air exposure. Give the other one more dip and another airing. Finish both as directed and set them side by side once dry. The pair shows how much that extra cycle changed the shade on this cloth in this vat.

References

- Jacquard — Indigo Tie Dye Kit instructions
- Utah State University Extension — Dyeing with Japanese indigo
- Maiwa — Indigo vat dyeing
- BeenEast — How an indigo gradient builds in the vat

Citation

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