



Dyes and paints are not the only option when water-soluble resists are a component in the layering process. Consider combining resists with discharging processes to expand your layering repertoire. Chart your course before beginning actual work on fabric, since resists and discharging agents aren't always compatible with each other.

Keep these guidelines in mind:

1. Fiber content influences the discharging choice. Remember silk can't be subjected to a chlorine discharge of any kind, while cellulose fibers are compatible with all of the discharging agents.
2. The weight and thickness of the cloth influences the resist choice. For example, no matter what the fiber content, soy wax is a better choice for heavy fabric than glue. Lighter fabrics are versatile - all three resists I discuss penetrate thin fabric easily.
3. A discharge product that requires heat applied with an iron is incompatible with soy wax, so discharge paste and Thiox paste are both eliminated from consideration if wax use is intended. Unless you own a steamer and are familiar with the fabric steaming process.
4. Some dyes won't discharge. Whether fabric was commercially dyed or dyed by you,

NOTE: Surprisingly enough, soy wax makes a great resist combined with an immersion discharge bath. It withstands a dip in Rit Color Remover or a Thiox bath without melting completely if the wax is hardened and cooled in a freezer prior to discharging.

test it to be sure the color can be removed.

Discharging Paired with Soy Wax

Chlorine Discharge

Suitable for cotton, linen, hemp, and rayon.
Not suitable for silk of any kind.



Jane Dunnewold

COMBINING RESISTS WITH DISCHARGING PROCESSES

Assemble these Supplies:

Fabric – test to ensure the fabric will discharge
Chlorine bleach or thickened bleach product
Soy wax granules
Electric skillet or hot plate/double boiler
Tools: sponge stamps, interfacing stencils, dedicated brushes, including a stencil brush and a 1" wide bristle brush
Waxing surface – preferably melamine or stainless steel
Blue Painter's Tape
Synthrapol or Blue Dawn detergent
Washing machine
Optional: Textured printing surfaces
Optional: Antichlor



Follow These Steps:

1. Heat the soy wax in a skillet or double boiler reserved for waxing. Even though the wax is nontoxic, good housekeeping practices dictate keeping food and studio equipment separate. Fill the container about halfway with wax.
2. NEVER mix soy wax with other waxes. Mixing changes ease of removal.
3. Wax is versatile. It cools slower than paraffin or beeswax. Methods of successful application include:
 - Manipulate fabric as for immersion dyeing – folding, pleating, tying rings etc. Dip edges in hot wax. Set the waxed piece aside to cool. I use the freezer to speed cooling of the wax. Place waxed bundles on a piece of Plexiglas reserved for this purpose, and put the Plexiglas in the freezer for ten minutes. Once the wax cools, open the fabric and apply bleach with a foam brush, or by dipping the fabric briefly in a 50/50 solution of cold water and bleach.
 - Tape fabric to the tabletop. Wax fabric on a nonabsorbent surface like melamine or stainless steel. Scrape the wax that penetrates through the cloth off the printing surface and return it to the pot.
Brush wax across the surface with a brush, or roll hot wax onto the cloth with a roller. Try textures underneath the fabric. I use an old, roll-down window shade. Allow wax to cool and then discharge by applying bleach with a foam brush or by dipping the fabric briefly in a 50/50 solution of bleach and water.
 - Stenciling. Apply hot wax with a stencil brush or bristle brush. Dedicate tools to stenciling with wax, as it is difficult to reclaim waxed tools. Apply bleach as described above.

NOTE: ALWAYS WASH OUT CHLORINE FIRST AND WAX SECOND. THE HOT WATER REQUIRED FOR WAX REMOVAL INTENSIFIES THE BLEACH REACTION AND IS POTENTIALLY HAZARDOUS.

- Appropriated tools (tools that originally had another purpose) – stamp wax with a round lid, or other appropriated object. Allow wax to cool before discharging.

Neutralizing Chlorine

Rinse chlorine from waxed fabric in plenty of cold water. If antichlor neutralization is desired, follow these steps prior to wax removal:

1. Rinse discharged fabric in cool running water until the bleach is dispersed.
2. Soak fabric in a 1 gallon / 1 teaspoon mix of antichlor and cold water for ten minutes.
3. Rinse the fabric again in cool, running water. Dispose of the antichlor solution after use.

Removing the Soy Wax

1. Choose a Hot wash/Warm rinse setting on the washing machine. Water must be 140 degrees or hotter during the first hot cycle. Use a thermometer to gauge water temperature the first time you use the washer. Sometimes it helps to turn up the thermostat on the hot water heater. Be very careful if you are in a home environment. Another way to raise the water temperature is to boil a pot of water on the stove and add it to the washing machine during the first cycle.
2. Add 1 teaspoon of Synthrapol as the washing machine is filling.
3. Complete the entire wash/rinse cycle. Remove the fabric from the washer. If it still feels a little stiff it means the wax was not completely removed. Repeat the hot water/warm rinse cycle a second time.
4. When wax is fully removed, fabric is ready for a new layer or application of color.

Jacquard Discharge Paste OR Kandi Corporation DeColourant

Incompatible with soy wax because it requires ironing to activate the discharging action.

Discharging Paired with Thiox Discharge Paste

Incompatible with soy wax because it requires ironing to activate the discharging action.

Rit Color Remover Immersion Bath

Suitable for cellulose and also protein fibers

Assemble these Supplies:

Fabric – test to ensure the fabric will discharge

Rit Color Remover

Soy wax granules

Electric skillet or hot plate/double boiler



COMBINING RESISTS WITH DISCHARGING PROCESSES

Tools: sponge stamps, interfacing stencils, dedicated brushes, including a stencil brush
1" wide bristle brush

Waxing surface – preferably melamine or stainless steel

Blue Painter's Tape

Heavy rubber gloves

respirator

Large enamel or stainless steel pot

Hot plate or stove

Synthrapol or Blue Dawn detergent

Washing machine

Optional: Textured printing surfaces

tongs

Follow These Steps:

1. Heat the soy wax in a skillet or double boiler reserved for waxing. Even though the wax is nontoxic, good housekeeping practices dictate keeping food and studio equipment separate. Fill the container about halfway with wax.

2. NEVER mix soy wax with other waxes. Mixing changes ease of removal.

3. Wax is versatile. It cools slower than paraffin or beeswax. Methods of successful application include:

- Manipulate fabric as for immersion dyeing – folding, pleating, tying rings etc. Dip edges in hot wax. Set the waxed piece aside to cool. I use the freezer to speed cooling of the wax. Place waxed bundles on a piece of Plexiglas reserved for this purpose, and put the Plexiglas in the freezer for ten minutes.

- Tape fabric to the tabletop. Wax fabric on a nonabsorbent surface like melamine or stainless steel. Scrape the wax that penetrates through the cloth off the printing surface and return it to the pot. Brush wax across the surface with a brush, or roll hot wax onto the cloth with a roller. Try textures underneath the fabric. I use an old, roll-down window shade. Allow wax to cool.

- Stenciling. Apply hot wax with a stencil brush or bristle brush. Dedicate tools to stenciling with wax, as it is difficult to reclaim waxed tools.

- Appropriated tools (tools that originally had another purpose) – stamp wax with a round lid, or other appropriated object. Allow wax to cool before discharging.

Preparing the Rit Color Remover:

1. Add one package of Rit Color Remover to one gallon of cold water in a stainless steel or enamel pot dedicated to this use. No equipment used in the kitchen should ever be used for dyeing or discharging processes. Do not add the Rit Color Remover powder to hot water. Stir it into cold water until the powder dissolves and wear a dust mask or respirator while mixing.

2. Heat the discharge solution on a hot plate, preferably outdoors or with a fan blowing fumes out an open window. Working in the garage is another alternative. Wear a respirator during the heating and immersing process. A dust mask is not adequate protection from the fumes.

3. Bring the discharge bath to a simmer. It should not actively boil, as boiling reduces the amount of liquid quickly and limits working time. If the water is steaming it is hot

enough.

4. Wear heavy rubber gloves or use wooden tongs to dip the waxed fabric into the hot discharge solution. Heavy gloves offer more control over the process. Dip fabric quickly and watch for color change, which is usually fast and somewhat deceptive – color may be changing inside the bundle where it can't be seen. Err on the side of too little time in the bath, as fabric can be immersed again to remove more color, but color cannot be easily added back. Wax will melt slightly when the fabric is immersed, so work fast.
5. Move immediately to the sink and run cold water on the discharged fabric while removing bindings. Unfold or pull apart the fabric so cold water can soak the entire piece of cloth. Rinse the fabric thoroughly.

Stabilization/Wax Removal

6. Choose a hot wash/warm rinse setting on the washing machine. Water must be 140 degrees or hotter during the first hot cycle. Use a thermometer to gauge water temperature the first time you use the washer. Sometimes it helps to turn up the thermostat on the hot water heater. Be very careful if you are in a home environment. Another way to raise the water temperature is to boil a pot of water on the stove and add it to the washing machine during the first cycle.
7. Add 1 teaspoon of Synthrapol as the washing machine is filling.
8. Complete the entire wash/rinse cycle. Remove the fabric from the washer. If it still feels a little stiff the wax was not completely removed. Repeat the hot water/warm rinse cycle a second time. When wax is fully removed, fabric is ready for a new layer or application of color.
9. Pour out unused solution, as it cannot be re-used. It isn't possible to "recharge" a Rit Color Remover bath. If the discharging action slows after repeated use during a work session, pour out the remaining chemical solution and mix a new bath.

Thiourea Dioxide Immersion Bath

Suitable for cellulose and protein fibers

Assemble these Supplies:

Fabric – test to ensure the fabric will discharge

Soy wax granules

Electric skillet or hot plate/double boiler

Tools: sponge stamps, interfacing stencils, dedicated brushes, including a stencil brush
1" wide bristle brush

Waxing surface – preferably melamine or stainless steel

Blue Painter's Tape

Thiox powder

Soda ash

White vinegar

Heavy rubber gloves

respirator

Large enamel or stainless steel pot

COMBINING RESISTS WITH DISCHARGING PROCESSES

Hot plate or stove
Synthrapol or Blue Dawn detergent
Washing machine
Optional: Textured printing surfaces
Wooden tongs

Follow These Steps:

1. Heat the soy wax in a skillet or double boiler reserved for waxing. Even though the wax is nontoxic, good housekeeping practices dictate keeping food and studio equipment separate. Fill the container about halfway with wax.
2. NEVER mix soy wax with other waxes. Mixing changes ease of removal.
3. Wax is versatile. It cools slower than paraffin or beeswax. Methods of successful application include:
 - Manipulate fabric as for immersion dyeing – folding, pleating, tying rings etc. Dip edges in hot wax. Set the waxed piece aside to cool. I use the freezer to speed cooling of the wax. Place waxed bundles on a piece of Plexiglas reserved for this purpose, and put the Plexiglas in the freezer for ten minutes. Once the wax cools, open the fabric and apply bleach with a foam brush, or by dipping the fabric briefly in a 50/50 solution of cold water and bleach.
 - Tape fabric to the tabletop. Wax fabric on a nonabsorbent surface like melamine or stainless steel. Scrape the wax that penetrates through the cloth off the printing surface and return it to the pot. Brush wax across the surface with a brush, or roll hot wax onto the cloth with a roller. Try textures underneath the fabric. I use an old, roll-down window shade.
 - Stenciling. Apply hot wax with a stencil brush or bristle brush. Dedicate tools to stenciling with wax, as it is difficult to reclaim waxed tools
 - Appropriated tools (tools that originally had another purpose) – stamp wax with a round lid, or other appropriated object. Allow wax to cool before discharging.

Preparing the Thiox Immersion Bath

1. Heat two gallons of water, in an enamel or stainless steel pot, to just under a simmer. (Approximately 180 degrees).
2. Add 3 teaspoons of Thiox and 2 tablespoons of soda ash.
3. Dip the waxed fabric into the bath using a gloved hand. The immersion time should be controlled, and relatively short. DO NOT WALK AWAY FROM THE BATH WHEN FABRIC IS IMMERSSED. The wax will melt slightly so work quickly.
4. Remove the cloth and check for color change. Dip again as needed.
5. Rinse fabric in cool water.

Stabilization/Wax Removal

6. Choose a Hot wash/Warm rinse setting on the washing machine. Water must be 140 degrees or hotter during the first hot cycle. Use a thermometer to gauge water temperature the first time you use the washer. Sometimes it helps to turn up the thermostat on the hot water heater. Be very careful if you are in a home environment. Another way to raise the water temperature is to boil a pot of water on the stove and add it to the washing machine during the first cycle.

7. Add 1 teaspoon of Synthrapol as the washing machine is filling.
8. Complete the entire wash/rinse cycle. Remove the fabric from the washer. If it still feels a little stiff it means the wax was not completely removed. Repeat the hot water/warm rinse cycle a second time. When wax is fully removed, fabric is ready for a new layer or application of color.
9. Pour out unused solution, as it cannot be re-used.
10. Cotton fabric is ready for additional layering. Neutralize silk in a vinegar bath as described on page XX.

Discharging Paired with Water Soluble Glue

Chlorine Discharge

Suitable for cellulose fibers only
Not suitable for silk of any kind

Assemble these Supplies:

Fabric – test to ensure the fabric will discharge

Chlorine bleach or thickened bleach product

Water-soluble glue like Elmer's School Glue

Tools: sponge stamps, interfacing stencils, dedicated brushes, including a stencil brush and a 1" wide bristle brush

Blue Painter's Tape

Washing machine

Optional: antichlor

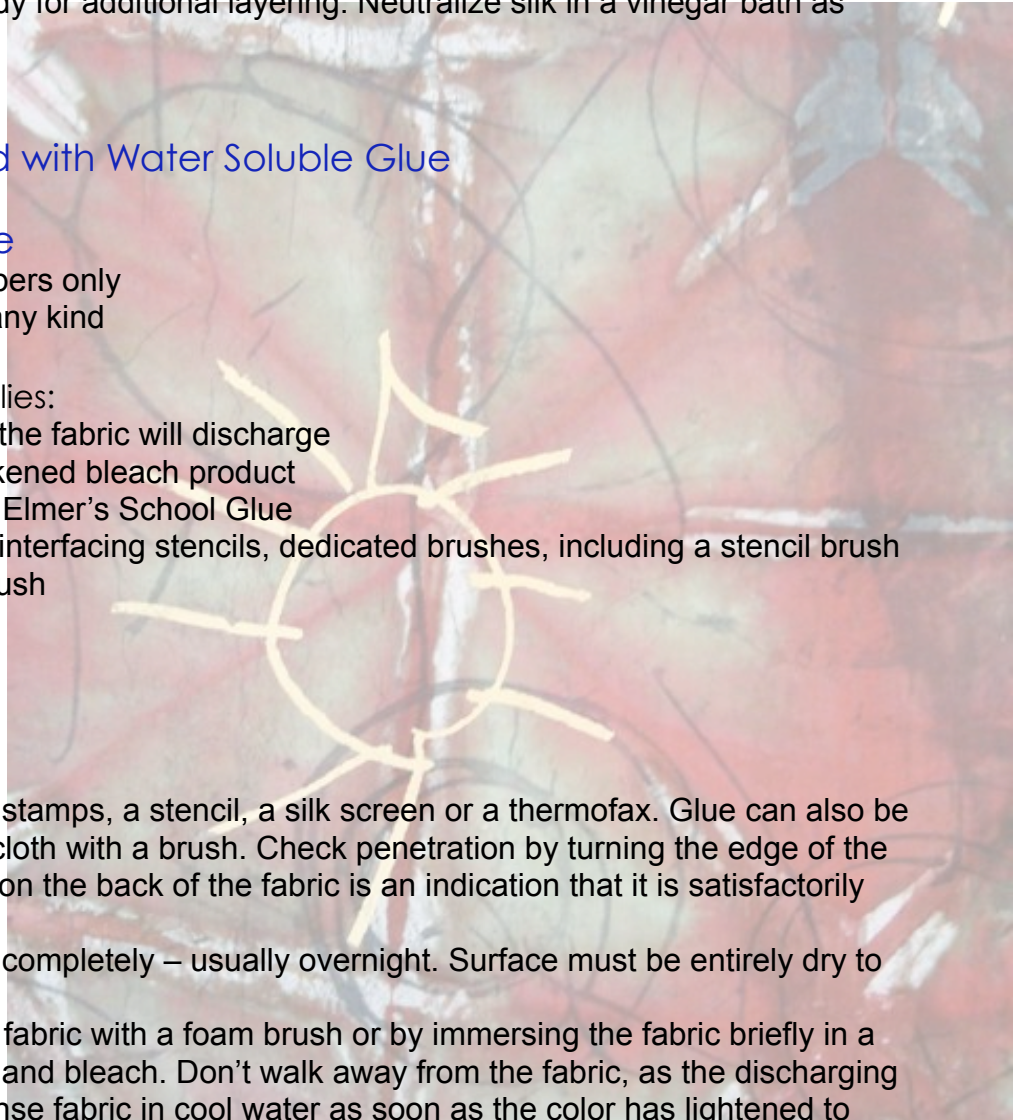
Follow These Steps:

1. Apply the glue using stamps, a stencil, a silk screen or a thermofax. Glue can also be hand painted onto the cloth with a brush. Check penetration by turning the edge of the cloth to the back. Glue on the back of the fabric is an indication that it is satisfactorily penetrating the cloth.
2. Allow the glue to dry completely – usually overnight. Surface must be entirely dry to the touch.
3. Apply chlorine to the fabric with a foam brush or by immersing the fabric briefly in a 50/50 solution of water and bleach. Don't walk away from the fabric, as the discharging action is immediate. Rinse fabric in cool water as soon as the color has lightened to your satisfaction.

Optional: Neutralizing Chlorine

Washing out the glue will also wash out the chlorine product, so neutralization is optional. If antichlor neutralization is desired, follow these steps:

1. Rinse discharged fabric in cool running water until the bleach is dispersed.
2. Soak fabric in a one gallon / one teaspoon mix of antichlor and cold water for ten minutes.
3. Rinse the fabric again in cool, running water. Dispose of the antichlor solution after



COMBINING RESISTS WITH DISCHARGING PROCESSES

use.

Stabilization/Removing Soluble Glue

1. Wash fabric in cool water in the washing machine. No detergent is needed. One cycle should remove the glue resist, but if it can still be felt in the cloth after machine-washing, launder the cloth a second time.
2. When the glue is removed the fabric is ready for additional layering or coloration.

Jacquard Discharge Paste

Incompatible with water-soluble glue because the paste requires ironing to activate the discharging action.

Thiox Discharge Paste

Incompatible with water-soluble glue because the paste requires ironing to activate the discharging action.

Rit Color Remover Immersion Bath

Suitable for cellulose and also protein fibers

Assemble these Supplies:

Fabric – test to ensure the fabric will discharge

Rit Color Remover

Water-soluble glue like Elmer's School Glue

Tools: sponge stamps, interfacing stencils, dedicated brushes, including a stencil brush and a 1" wide bristle brush

Heavy rubber gloves

respirator

Large enamel or stainless steel pot

Hot plate or stove

Washing machine

tongs

Follow These Steps:

1. Apply the glue using stamps, a stencil, a silk screen or a thermofax. Or hand paint glue onto cloth with a brush. Check penetration by turning the edge of the cloth to the back. Glue on the back of the fabric is an indication that glue is satisfactorily penetrating the cloth.
2. Allow glue to dry completely – usually overnight. Surface must be entirely dry to the touch.

Preparing the Rit Color Remover:

1. Add one package of Rit Color Remover to one gallon of cold water in a stainless steel or enamel pot dedicated to this use. No equipment used in the kitchen should ever be used for dyeing or discharging processes. Do not add the Rit Color Remover powder to hot water. Stir it into cold water until the powder dissolves and wear a dust mask or

respirator while mixing.

2. Heat the discharge solution on a hot plate, preferably outdoors or with a fan blowing fumes out an open window. Working in the garage is another alternative. Wear a respirator during the heating and immersing process. A dust mask is not adequate protection from the sulfur dioxide fumes. Bring the discharge bath to a simmer. It should not actively boil, as boiling reduces the amount of liquid quickly and limits working time. If the water is steaming it is hot enough.

3. Wear heavy rubber gloves or use wooden tongs to dip the glue resist fabric into the hot discharge solution. Heavy gloves give you more control over the process. Dip the fabric quickly and watch for color change, which is usually fast and somewhat deceptive – color may be changing inside the bundle where it can't be seen. Err on the side of too little time in the bath, as fabric can be immersed again to remove more color, but color cannot be easily added back. Glue will not melt when you immerse the fabric.

4. Move immediately to the sink and run cold water on the discharged fabric while removing bindings. Unfold or pull apart the fabric so cold water soaks the entire piece of cloth. Rinse the fabric thoroughly.

Stabilization/Removing Soluble Glue

5. Wash fabric in cool water in the washing machine. No detergent is needed. One cycle should remove the glue resist, but if it can still be felt in the cloth after machine-washing, launder the cloth a second time.

6. Dry the fabric in the dryer. Because of the nature of the chemical reaction, color changes as the fabric is exposed to air. The final color of the discharged cloth may not be stable until the fabric is dry. Keep records in order to limit variables and increase predictability.

7. Pour out unused solution, as it cannot be re-used. It isn't possible to "recharge" a Rit Color Remover bath. If the discharging action slows after repeated use during a work session, pour out the remaining chemical solution and mix a new bath.

Thiourea Dioxide Immersion Bath

Suitable for cellulose and protein fibers

Assemble these Supplies:

Fabric – test to ensure the fabric will discharge

Water-soluble glue like Elmer's School Glue

Tools: sponge stamps, interfacing stencils, dedicated brushes, including a stencil brush and a 1" wide bristle brush

Thiox powder

Soda ash

White vinegar

Heavy rubber gloves

respirator

Large enamel or stainless steel pot

Hot plate or stove

Washing machine

COMBINING RESISTS WITH DISCHARGING PROCESSES

Wooden tongs

Follow These Steps:

1. Apply the glue using stamps, a stencil, a silk screen or a thermofax. Glue can also be hand painted onto the cloth with a brush. Check penetration by turning the edge of the cloth to the back. Glue on the back of the fabric is an indication that it is satisfactorily penetrating the cloth.
2. Allow the glue to dry completely – usually overnight. Surface must be entirely dry to the touch.

Preparing the Thiox Immersion Bath

1. Heat two gallons of water, in an enamel or stainless steel pot, to just under a simmer. (Approximately 180 degrees).
2. Add 3 teaspoons of Thiox and 2 tablespoons of soda ash.
3. Dip the waxed fabric into the bath using a gloved hand. The immersion time should be controlled, and relatively short. **DO NOT WALK AWAY FROM THE BATH WHEN FABRIC IS IMMERSSED.** The glue will not dissolve if you work quickly.
4. Remove the cloth and check for color change. Dip again as needed.
5. Rinse fabric in cool water.

Stabilization/Removing Soluble Glue

6. Wash fabric in cool water in the washing machine. No detergent is needed. One cycle should remove the glue resist, but if it can still be felt in the cloth after machine-washing, launder the cloth a second time.
7. Dry the fabric in the dryer.
8. Pour out unused thiox solution, as it cannot be re-used.
9. Cotton fabric is ready for additional layering. Neutralize silk in a vinegar bath as described on page XX.

Discharging Paired with Flour Paste

Chlorine Discharge

Suitable for cellulose fibers only
Dark fabric works best
Not suitable for silk of any kind

Assemble these Supplies:

White flour
Bowl
Cold water
Measuring cup
Wooden spoon
T pins
Padded printing surface



COMBINING RESISTS WITH DISCHARGING PROCESSES

Skewer

Squeegee or wide brush

Cellulose fabric – test to ensure the fabric will discharge

Chlorine bleach or thickened bleach product

Washing machine

Optional: antichlor

Basic Flour Paste Recipe

1. Mix one cup of white flour with one cup of cold water. Add water gradually. The desired consistency is roughly the equivalent of pancake batter.
2. If the paste is too thin, add a bit more flour. If it is too thick, add a bit more water.
3. Don't use hot water or the paste will be gluey. Use a whisk or large spoon to stir the paste until the lumps are gone.

NOTE: Ordinary inexpensive white flour is the best choice for resist. The large particles in whole wheat flour preclude a smooth paste. I've tried rice flour, cornstarch and a host of thickeners from Asian markets and none of them work as well as ordinary white flour.

Coating Fabric with Flour Paste

Follow these steps:

1. Pin one edge of the fabric to a padded surface. Fabric shrinks and curls as the paste dries. Pinning helps keep the cloth flat. However, fabric stretches as the paste is pulled across the surface, so leave pinning the other edges until the application is completed.
2. Pour flour paste across the pinned edge of the fabric. The amount of flour paste varies depending on the size of the fabric. Just guess to get started. It's easy to add more paste if you run out halfway across the cloth.
3. Spread flour paste across the fabric surface with a wide brush or squeegee. Cover the entire surface with an even, uniform coating.
4. To achieve a simple crackle, allow the paste to dry thoroughly at this stage. If patterning is desired, "draw" into the wet paste with a wooden skewer. Draw patterns, circles, or swirls. I love to write words into the wet paste. "Erase" by smoothing the paste with the squeegee. When you are satisfied with the patterning, pin the three remaining edges of the fabric to the table, to keep the fabric flat while it dries.
5. Allow paste to dry thoroughly - 24 hours or more, depending on the humidity. The paste surface is matte when thoroughly dry.

Applying Chlorine to the Flour Paste Surface

Follow these steps:

1. Remove the pins holding the fabric to the printing table.
2. Crackle the fabric by scrunching it. Scrunching vigorously allows more bleach to seep into the fabric, so don't overdo it.
3. Use a wide foam brush to spread bleach (either thickened or straight bleach) over the flour coated surface. Work the bleach into the flour paste using pressure to be sure it penetrates the paste. Turning the fabric over indicates whether the discharging action has begun. It is immediate so don't walk away from the cloth.

COMBINING RESISTS WITH DISCHARGING PROCESSES

4. Rinse the flour coated fabric in cold water to remove the bleach. IF NEUTRALIZATION IS DESIRED, DO IT AFTER THE FLOUR PASTE IS REMOVED.

Stabilization/ Flour Paste Removal

5. Soak the flour-coated, discharged fabric in a bucket of cold water for ten minutes to dissolve the paste.

6. Pour off water. Deposit flour sludge in the trash. Put the fabric in a washing machine on regular cycle. Wash the fabric thoroughly. No additional soap is required. Heavy cotton may require two washes to remove paste completely.

Optional: Neutralizing Chlorine

Washing out the flour paste also washes out the chlorine product, so neutralization is optional. If antichlor neutralization is desired, follow these steps:

1. Complete the removal of the flour paste. Fabric can be damp.
2. Soak fabric in a one gallon / one teaspoon mix of antichlor and cold water for ten

Flour Paste is not compatible with Jacquard Discharge Paste or a Thiox paste because it cannot be ironed. Flour paste is not compatible with an immersion discharge bath, as the flour gets goeey and loses it resisting ability almost immediately when it's immersed in the hot discharge solution. Save flour paste for topical applications of paint, dye or chlorine bleach.

minutes.

3. Rinse the fabric again in cool, running water. Dispose of the antichlor solution after use.

A Final Note

Discharging over a resist shares potential pitfalls with discharging in general. If samples aren't undertaken and you don't know what color to expect from the chemical reaction, you could be in for an unpleasant surprise – or a challenge, depending on your personal philosophy. It takes awhile to apply a resist and wait for it to dry, and that's time and



COMBINING RESISTS WITH DISCHARGING PROCESSES

effort invested in the process. Honor yourself and test for color first. It will prevent disappointment later.