

DISCHARGING

Discharging is the removal of color from fabric either as a means to change its color or as a design technique. Not all dyes may be discharged, nor may all fibers withstand the discharging agent. The discharge process contains so many variables that it is impossible to give reliable rules or recipes. The information contained here should serve only as a guide for individual experimentation. All colors will not discharge to white. This will depend entirely on the dye type and color being discharged. For example, Lanaset Yellow will discharge to white, but Lanaset Royal Blue will discharge to yellow. Also, some colors will appear to discharge in the early stages of the process, but will turn back within one value of their original color upon completion.

SAFETY IN USE

While dyes and the chemicals associated with their use are not highly toxic, they are industrial chemicals and should be handled with care. Chemical products should not be allowed to get into the eyes, but if they should by accident, wash eyes thoroughly with clean water and then obtain medical treatment. Prolonged or repeated contact with the skin should be avoided. Wear rubber gloves and use implements to stir solutions and dyebaths. Avoid inhalation of fumes by wearing a good respirator.

Obviously, chemicals should not be taken internally, and the use of food, drink and smoking materials should be prohibited where chemicals are employed. The utensils used for dyeing should not be used for other domestic purposes (eg. food).

A final suggestion: Children and animals are naturally curious. Do not leave open jars or bottles, even for an instant, where little hands and paws can get to them.

Safety data sheets on individual products are available upon request.

RESIST MATERIALS

The usual objective of discharging is to retain some of the original fabric color with melted wax, or one of the tie dye binding techniques.

THE NEUTRALIZER

This helps prevent the deterioration of fibers by neutralizing the discharge agent that may be still remain in the fiber. Bleach and sodium hydrosulfite may be neutralized with sodium metabisulphite. Thiourea dioxide may be neutralized with vinegar.

DISCHARGE AGENTS

Chlorine Bleach — Liquid household bleach containing from 5.25 to 6% sodium hypochlorite and 94 - 94.75% water, is the standard discharge product for stripping color from dyed fabric. Chlorine bleach may be used with the cellulose fibers: cotton, linen, and rayon but never on the protein fibers, silk and wool. Chlorine bleach will yellow and damage silk, and completely deteriorate wool. Some fiber deterioration occurs even with the cellulose group, making the process a bit risky and worthy of experimentation. Chlorine bleach has the distinct advantage of being easy, requiring very little equipment, and achieving subtle to dramatic effects.

METHOD: 1. Apply resist to fabric. 2. Determine the bleach to water ratio necessary for the desired shade. In a measuring cup, place 45 ml (3 Tbsp) of bleach to 125 ml (1/2 cup) of warm water. Immerse a small swatch of the fabric, agitate until it lightens. Remember the fabric will be considerably lighter when it dries. Experiment until the proper ratio is achieved, however, the proportions should not exceed 50/50 bleach and water. 3. Prepare the work area. It is best to work outdoors or in a well ventilated area as the fumes created by bleaching even a meter of fabric are annoying at best, and may be toxic at worst. Observe all cautions printed on the bleach container. 4. Prepare the predetermined discharge solution. Pour enough solution into a plastic dishpan or similar non-reactive receptacle (stainless steel, enamel, or glass) to cover the fabric. 5. Prepare the neutralizer in a second dishpan: 15 g (3 tsp) sodium

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metabisulphite to 4 liters (1 gal) of water. Prepare a rinse pail with clean water. Prepare a pail of warm soapy water. 6. Discharge the fabric until desired effect occurs. Rinse fabric in water. If fabric is bound, untie at this point. Soak in neutralizer for 1-2 minutes. Rinse fabric again in clean water. Wash thoroughly in warm soapy water. Rinse again and allow to dry. *Note: 1. Try to use the least possible amount of bleach needed to achieve the desired shade. 2. If the bleach solution is warm, the discharging will be accelerated (however, temperature should not exceed 110 F as higher than this will seriously degrade the fabric). 3. Insure fabric is rinsed thoroughly, there should be no residual smell of bleach. 4. After a certain amount of discharging, the bleach solution loses its active power, and a new batch must be made.*

Thiourea Dioxide - Thiourea dioxide, as a stripping agent, is a safer replacement for the somewhat hazardous sodium hydrosulfite. Thiourea dioxide will safely discharge most dyes from wool and silk, as well as cotton, rayon, or linen. As with all discharge agents, it must be used in well ventilated conditions. The mixed solutions may be stored for 5-7 days in a sealed container.

METHOD: 1. For 450 g (1 lb) of dry fabric use: 8 liters (2 gal) warm water, 10 g (2 tsp) thiourea dioxide, 20 g (4 tsp.) soda ash, 2.5 ml (1/2 tsp) synthrapol soap. *Note: For wool - reduce the soda ash to 10 g (2 tsp), as it is sensitive to alkalis.* 2. Place warm water in non-reactive dyepot (stainless steel, enamel, or glass). Add thiourea dioxide, soda ash, and synthrapol. Stir to dissolve. 3. Add wetted out fabric and stir for one minute. 4. Heat rapidly to 200 F for cotton, linen, and rayon OR 185 F for silk OR 195 F for wool. 5. Stir intermittently and hold at temperature for 15-20 minutes (5-10 minutes for wool). 6. Allow wool and silk to cool down in bath. Cotton may be removed immediately. 7. Rinse with warm water and neutralize with a vinegar bath (45 ml (3 Tbsp) vinegar to 4 liters (1 gal) water). *Note: If a slight odor of ammonia is detected during the process, it means the thiourea dioxide is used up. If at this time, enough color has not been removed, rinse and start again.*

DISCHARGE PRINTING OR PAINTING WITH THIOUREA DIOXIDE

FOR PRINT PASTE: 250 ml (1 cup) hot water, 5 g (1 tsp) thiourea dioxide, 5 g (1 tsp) soda ash, 2.5 g (1/2 tsp) sodium alginate. 1. Dissolve thiourea dioxide and soda ash into the hot water. Pour solution into a studio blender, and add sodium alginate. Blend until smooth. Let stand 5-10 minutes. The discharge solution should be slightly runny, a little like the consistency of a thick milkshake. 2. The thick solution may be handpainted, screened, or block printed onto the fabric. Allow image to dry, cover with a paper towel, iron for 30 seconds with steam and a cotton setting. Remove and discard the towels. If a crisp, light image still has not completely appeared, iron directly onto the fabric for a few seconds. **DO NOT** iron directly onto the fabric if the discharge solution has not completely dried. 3. Lastly, the alkaline in the discharge solution must be neutralized to avoid damage to the fabric. Begin by holding the fabric under cold running water. Fill a basin with water and vinegar (approx. 45 ml (3 Tbsp) vinegar to 4 liters (1 gal) water) and allow fabric to soak for 15-20 minutes. 4. Wash in warm water with a mild soap (Synthrapol or Orvus Paste). Rinse. *Note: Left unthickened, this recipe may be used to carefully pour onto fabric for interesting effects (especially in the case of wrapped or pleated Shibori). In this case, it should be poured very hot.*

Sodium Hydrosulfite - Another stripping agent for cellulose fibers is sodium hydrosulfite. We can however, not recommend using this stripping agent without the use of goggles and a good respirator.

METHOD: For each 450 g (1 lb) of fabric use: 8 liters (2 gal) water, 10 g (2 tsp) caustic soda (lye), 10 g (2 tsp) sodium hydrosulfite. 1. In dyepot, add caustic soda and sodium hydrosulfite to the water. Stir to dissolve. 2. Add wetted out fabric and raise temperature to 160 F to 180 F. Keep at this temperature for approx. 30 minutes. 3. Remove fabric and rinse well in cool water. Place in a neutralizing bath of 15 g (3 tsp) sodium metabisulphite to 4 liters (1 gal) of water for 15 minutes. 4. Wash well with Synthrapol or Orvus Paste. Rinse again.

The information given herein and otherwise supplied to users is based on our general experience and, where applicable, on the results of tests on samples of typical manufacture. However, because of the many factors which are outside our knowledge and control which can affect the use of these products, we nor the manufacturer can accept liability for any injury, loss or damage resulting from reliance upon such information.

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