

LEE S. McDONALD, INC. est. 1976

THE SOURCE FOR THE PAPER ARTS

AQUEOUS DISPERSED PIGMENTS

Aqueous dispersed pigments are formulated specifically for the coloring of paper pulp. They have been carefully selected for their coloring properties and excellent light fastness. Pigments are insoluble, finely ground particles which are deposited physically on the fiber, and must be held onto it by mechanical means. The pigment has no affinity to the material it is coloring and requires the use of a retention aid to hold the pigment to the fiber. Retention aid acts like a bridge to link particles of pigments to individual fibers. Without use of a retention aid, more pigment will be required to get the same intensity of color, and the colors will tend to run. We recommend our cationic Retention Aid #292 as being the most suitable. Use it in the quantities recommended in the retention aid instructions.

Method of Application:

** Wear gloves and a plastic apron when mixing as the products may stain your clothing and irritate sensitive skin.**

The directions given below are for coloring 1 pound (450 grams) of dry fiber. The general sequence of addition is **fiber** first, then **pigment, retention aid, sizing, and formation aid** (if you're using it).

1. First prepare the pulp to which you'll add the pigment. Pigmenting can be done by hand with a mixing tool, in a blender, or with a Whiz Mixer. *Pigment should not be used in a hollander beater as it can leave residue and/or permanently stain the beater.*
2. Vigorously shake the aqueous dispersed pigments before using. If your pigment has settled heavily be sure to stir first, especially with iron oxide pigments. Measure the desired amount of pigment and dilute it in 1 liter of water. Stir well.
3. Add the pigment solution to the pulp and mix 5-10 minutes, until the pigment is evenly and well dispersed in the pulp.
4. Add retention aid (as prepared according to the instructions), and mix the pulp for another 5-10 minutes.
5. Check for color retention; the water should be clear with all of the pigmentation in the fiber. If the water is not clear, slowly add more retention aid until it is. You may notice some slight coloration in the water with darker pigments and the yellows.
Another way to gauge color retention is to squeeze a handful of pulp and observe how much color runs out and how much remains in the fiber.
6. Any **excess pigment** can be removed by rinsing in a strainer with several gallons of water. Often this is optional and should be done only as needed. *Take care not to add too much retention aid, as your pulp will clump.* If this happens, you'll need to start with a fresh batch of pulp!
7. If you are having trouble retaining color, try reversing the order of addition: retention aid, then pigment.

An excellent resource for coloring your paper is: Color for the Hand Papermaker by Elaine Koretsky

Directions for Specific Pigments:

*Each pigment has a different specific gravity: ratio of weight to volume. - a tablespoon of one pigment may not weigh the same as a tablespoon of another. Therefore, if you are serious about your papermaking, we highly recommend you work in gram weights using a triple beam scale.

The measurements given for specific pigments below will give *the deepest saturation of color without pigment overloading*. Lesser amounts will produce lighter hues while greater amounts will not affect the color appreciably. Sometimes larger amounts may be necessary. We recommend making color sample sheets and

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keeping accurate records so that you can reproduce desired colors. Feel free to experiment with other amounts. The iron oxides will not give as intense a saturation as some of the other pigments.:

Blue 15 phthalocyanine - 27 gm (approx: 2 Tbs.) pigment /per lb. dry fiber.

Green 7 - 50 gm (approx: 3Tbs.) pigment /per lb. dry fiber.

Yellow 83 diarylide - AZO O/Y - 35 gm (approx: 2 1/4 Tbs.) pigment /per lb. dry fiber.

Yellow 74 (LF) acrylide-azo: lemon yellow - 18 gm (approx: 1 Tbs.) pigment /per lb. dry fiber.

Violet 23 carbazole dioxazine - 40 gm (approx.: 2.5 Tbs.) pigment /per lb. dry fiber.

Red 5 AZO Scarlet - 54 gm (approx.: 3.5 Tbs.) pigment /per lb. dry fiber.

Black 7 Carbon - 78 gm (approx: 5 T) pigment /per lb. dry fiber.

Red 101 Iron Oxide: Mars Red - 75 gm (approx: 5 T) pigment /per lb. dry fiber.

Brown 6 Iron Oxide: Burnt Umber - 75 gm (approx: 5T) pigment /per lb. dry fiber.

Suggestions and Precautions:

1. Be aware that the only truly accurate measurements of these substances is by weight. Using a triple beam balance, it is very easy to measure extremely small amounts. All measurements are in grams, although approximate tablespoon measurements are listed in parentheses. It is important to stress that the conversions from weight to volume are approximate and vary from one substance to another. For instance, 1 Tbsp. of Pigment Red 101 weighs 26 grams. Each substance has its own specific gravity (the ratio of weight to volume using water as the standard), thus a strict weight measurement is the most accurate. The volume approximations will also work, although the final result may not be identical to samples made by weight.
2. Always dilute a tiny amount of colorant or chemical when adding it to a very large amount of pulp. This assures proper dispersion.
3. Handle the colorants and other chemicals with care at all times. Do Not ingest or inhale. The powdered pigments create a fine dust which may be irritating. A face mask should be worn until the pigment has been dispersed in water.
4. The products present an acute health hazard if ingested because of the solvent (ethyl glycol). An average healthy adult would need to consume more than a cup of the material to be in acute danger. Red101 and Brown 6 contain Iron Oxide, which can be acutely toxic if ingested in relatively modest amounts (2-3 tablespoons for an average healthy adult). Chronic toxicity appears to be nil.

***For more health information contact a physician or your local poison control center.**

Data safety sheets on each of the pigments are on file; a set of them is available for \$20.00. For more information on art hazards and safety, consult the Center for Occupational Hazards, 5 Beekman St. New York, NY 10038.

Additional Resource Material:

Complete information on all these pigments may be found in *Color for the Hand Papermaker*, by Elaine Koretsky; this book can be ordered through us.

Please read for your protection: Warranty information

All information and suggestions in this product handout is only the opinion of Lee S. McDonald Inc. Since each artist has their own personal technique, and other numerous factors are involved, we cannot guarantee that the products will perform to each individuals' satisfaction. Testing of our products should be undertaken by the consumer to determine whether the product meets the intended needs. The user is responsible for final determination of suitability. Lee S. McDonald Inc. makes no warranty of any kind, express or implied, other than that the material conforms to its applicable current Standard Specifications. The responsibility of Lee S. McDonald Inc. for claims arising out of breach of warranty, negligence, strict liability, or otherwise, is limited to the purchase price of the material or product. We cannot be liable for the occurrence of incidental or consequential damages. If you have any questions about the use of these pigments please contact us.

MEASUREMENT TABLE

Fluid Measures:

| | | | | | | | |
|--|--------------|-------|-----------|----------|--------|-----------|---------------|
| | | 1Tbsp | = | 3 tsp. | | | |
| | 1 fl. oz | = | 2 Tbsp | | | | |
| | 8 fl.oz | = | 1 cup | | | | |
| | 16 oz. | = | 2 cup | = | 1 pint | | |
| | 32 oz. | = | 4 cup | = | 2 pt. | = | 1 quart |
| | 128 oz | = | 16 c | = | 8 pt. | = | 4 qt. = 1gal. |
| | 1 milliliter | = | .0338 oz. | | | | |
| | 15 ml. | = | 1 tbs. | | | | |
| | 29.57 ml. | = | 1 oz. | | | | |
| | .03 liter | = | 1 oz. | | | | |
| | 1 liter | = | 33.81 oz. | 2.11 pt. | = | 1.06 qt.= | .26 gal. |
| | .473 liter | = | 1 pt. | | | | |
| | .946 liter | = | 1 qt. | | | | |
| | 3.785 liters | = | 1 gal. | | | | |

Apothecary Measures:

| | | | | | | | |
|-------|--------------|---|----------|---|-------|--|--|
| fluid | 1 fl. dram | = | .125 oz. | | | | |
| | 8 fl. dram | = | 1 oz. | | | | |
| | 128 fl. dram | = | 16 oz. | = | 1 pt. | | |

Weight Measures:

| | | | | | | | |
|-----|-------------|---|-----------|---|---------|--|--|
| dry | 1 gram | = | .0353 oz. | | | | |
| | 28.35 grams | = | 1 oz. | | | | |
| | 453.6 grams | = | 16 oz. | = | 1 lb. | | |
| | .45 kg. | = | 16 oz. | = | 1 lb. | | |
| | 1 kg. | = | 35.27 oz. | = | 2.3 lb. | | |

1 Gallon of water at room temp. weighs approx. 8 1/3 lb.

1 pint " 1 lb.

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