

*Rhoden*

U.S. MATERIALS 2

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Notes on home-made pastel crayons

PASTELS

Binding Solutions\*

A - Water	48 fluid ounces
Gum Tragacanth (Powdered)	1 ounce
Beta naphthol (Preservative)	1/2 teaspoon
B - "A" solution	16 fluid ounces
Water	16 fluid ounces
C - "A" solution	8 fluid ounces
Water	24 fluid ounces
Yield:	1 quart of each solution

Procedure: Make "A" solution by mixing gum and cold water and allowing the mixture to stand in a warm place overnight. Add the preservative and stir with egg-beater or electric mixer (recommended) until the mass is homogeneous. Will keep indefinitely in well corked bottles.

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Footnote: These improved solutions are somewhat weaker in binding strength than the ones mentioned in "The Artist's Handbook of Materials and Techniques."

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PASTEL CRAYONS

Procedure: White Crayons. Mix precipitated chalk and "C" solution to a smooth, homogeneous putty consistency. Roll on newspaper with fingers or flat cardboard to make convenient crayon shapes. If mass is too dry to manipulate, add a little water; if too sticky, add more of the dry pigment, making sure that it is well worked into the mass. Allow to dry 48 hours in normal temperature. It is not advisable to heat the crayons as it may cause some of the pigments to become too hard. The binder proportions given below, will produce crayons of desirable softness plus maximum crayon strength when high grade materials are used. Due to variations in supplies, however, it is wise to make a small test piece to be sure that the crayon has the best balance between softness of texture on one hand and crayon strength on the other. Allow to dry 48 hours before testing. Adjustments can then be made by adding a little more dry pigment, plus either water or binder as required.

*Chalk 2 parts B + 1 ct.*

Good results were obtained in class by using gilders whiting and chalk half and half, and mixing it with a binder composed of 1 part "B" and 2 parts of "C,"  $7\frac{1}{4}$  drams of this mixture to each ounce of the dry white or  $7\frac{1}{4}$  fluid ounces to the pound of white pigment. The lot of chalk we had did not make such good crayons alone, the mixture with whiting improved their quality to produce very satisfactory results.

#### To Make a Complete Set of Colors:

1. Make up a sufficient amount of white paste as directed above and set it aside to be used in the following:
2. Grind the full strength pigment and binding solution in the proportions given below, the same way in which the white paste was made; then divide the mass into two equal portions, set aside one part and make crayons out of the other as directed above. These crayons will be the first, or full strength value.
3. Mix the remaining half of the color paste with an equal volume of white paste, knead or grind thoroughly until free from streaks. Divide the mass into two equal portions and roll crayons out of one. These will be the second value.
4. Repeat the procedure adding an equal volume of white paste to the remaining half of each preceding batch of colored paste. Depending on the characteristic tinting strength of the pigment, a point will be reached when the tint is so pale that another step would not show enough difference in the dry crayons to serve a useful purpose, and the series is ended. However, sometimes an assortment of very pale shades and off-whites with slight tinges of color is desirable.
5. To serve individual needs, any combination of two or more pigments may be mixed to produce useful blends, shades and tones.

Recommended list of pigments for pastel, with the type of binder required by the average specimen of dry pigment.

	<u>Pigment</u>	<u>Strength of binder</u>
<u>White</u>	Precipitated chalk	medium
<u>Black</u>	Ivory black	medium-weak
	Mars black	medium-strong
<u>Red</u>	Indian red	weak
	English red (strong shades make poor crayons)	weak
	Vermilion	medium-strong
	Pure cadmium reds	strong
	Alizarin reds	strong
	Mars reds	
	Cadmium-barium reds	medium

<u>Blue</u>	20% Phthalocyanine blue	very weak
	Ultramarine blue	medium-strong
	Cobalt blue	medium-strong
	Cerulean blue	medium
	Manganese blue	medium
<u>Yellow</u>	Raw sienna	very weak
	Cadmium-barium yellow	medium
	Crochre	weak
	Pure cadmium yellow	medium
	Strontium yellow	medium-weak
Mars yellow	strong	
<u>Green</u>	Chromium oxide	medium
	20% phthalocyanine green	very weak
	Viridian	extremely weak
<u>Brown</u>	Raw umber	very weak
	Burnt umber	medium-strong
	Burnt sienna	medium
<u>Violet</u>	Mars violet	weak
	Manganese violet	weak
	Alizarin red plus phthalocyanine blue	_____

Note: As in all formulas involving pigments, results may vary somewhat depending on the source of materials.

The proportions given in the following recipes are accurate for the average high quality pigments available to retail consumers; variations resulting in faulty crayons (too hard or too weak) should be slight. Accuracy can be controlled if each batch of paste is made up to uniform stiff consistency, so that it can be taken into the bands and rolled lightly into balls and crayons without sticky adherence to the fingers. Alter the amount of liquid or dry pigment to produce this consistency.

#### FORMULAS

Straight gum tragacanth pastels, formulas that have worked well in class but as explained previously, should not be relied upon as foolproof recipes. In any case pastel should be made up to the correct consistency, adding more pigment or water if required. (T means tablespoon, t means teaspoon.)

<u>PIGMENT</u>	<u>BY WEIGHT</u>	<u>BY MEASURE</u>	<u>BINDERS</u>	<u>FLUID DRAMS</u>
Ivory black	3/4 ounce	4T	1 B + 1 C	7 1/4
Mars black	--			
Indian red	1 ounce	1T + 2t	5c + 8 water	2 1/8
English or light red	1 ounce	3T	1 B + 2 C	3
Pure Cadmium reds	3/4 ounce	1T + 1t	A	1 1/2
Cadmium-barium reds	3/4 ounce	1T + 1t	1A + 5B	1 1/2
Vermilion	3 ounces	4T	1A + 1B	6
Alizarin reds	1 ounce	5T	2A + 1B	6
Mars yellow	--	--	2A + 5B	mix to consistency
20% Phthalocyanines	--	--	2C + 1 water	mix to consistency
Ultramarines	--	--	B	mix to consistency
Cobalt blue	--	--	2A + 1B	mix to consistency
Cerulean blue	--	--	B or 2A + 1B	mix to consistency
Manganese blue	--	--	B	mix to consistency
Ochre	1/2 ounce	4T	C	4 2/3
Raw sienna	1 ounce	2T + 1t	2C + 1 water	3 2/3
Cadmium yellows, pure	1 ounce	1T + 2 1/4t	2A + 1B	2 1/2
Cadmium-barium yellow	1/2 ounce	2 1/2T	1A + 5B	3
Chromium oxide	--	--	B	mix to consistency
Viridian	1/2 ounce	1T + 2t	2 water + 6 alcohol	5
Raw umber	1 ounce	2T + 1t	2C + 3 water	5
Burnt umber	1 ounce	2T + 1t	1A + 5B	6
Burnt sienna	3/4 ounce	--	B	5 1/2
Mars violet	1 ounce	2T + 1t	C	2 1/3
Manganese violet	--	--	--	--
Strontium yellow	1 ounce	3T + 3t	1B + 1C	1 3/4

Notes: Industrial makers of pastels have a wider choice of variants of pigments, whiting, gums etc., than is available to the average artist. Red crayon strength is adjusted by using various binders with the gum. Alizarin reds are difficult to wet with water, a little alcohol added at the beginning. Alizarin full strength makes crayons of poor strength, full strength Mars black and light red make poor crayons; burnt sienna will replace the latter. For Viridian use alcohol and water, no gum.