Potter's Choice Dry Form Dipping Glazes

AMACO's technical department recently completed a review of the Potter's Choice Dry Form Dipping glazes in May of 2015. We wanted to insure that every customer would have good results with our products. We looked into mixing instructions, glaze suspension and raw materials. This guide along with the other useful information in this packet should help you in the proper use of the product.

You can also refer to the Potter's Choice section on AMACO.COM to see a range of application thicknesses.

NOTE: Always wear a NIOSH approved respirator or mask for dust or mist when mixing dry glazes. Do not empty the glaze powder into another container. Use the bucket the glaze is packaged in to mix the glaze. Add water slowly so as not to produce any dust. If you have any questions regarding the safety of this process please refer to the MSDS on AMACO.COM.

1. **Mixing Instructions:** These glazes are designed to work properly when the correct amount of water is added to the dry glaze bucket. The attached sheet lists each PC glaze, the size of the bucket and how much water to add by either weight or volume. Either method of measuring the water is fine. The chart will also show you what the specific gravity of the mixed glaze should be. It is recommended that the glaze be prepared in the following manner.
   a. Measure the water and add it into the bucket all at once. Double-check the water before you add it.
   b. Mix the glaze with a prop type mixer (available in the paint department of most hardware stores) at high speed for 5-10 minutes. This will allow all of the suspension materials to come into good contact with the water.
   c. Let the glaze sit overnight so that these materials may fully hydrate.
   d. Remix the glaze the following day with the prop mixer until smooth.
   e. Measure the specific gravity and put the date made, specific gravity and any other information you might desire on the side of the bucket.
   f. Test a small tile or broken piece of ware to make sure the glaze fires properly before glazing multiple pieces. This will save time, money and aggravation.
   g. Tape the test tile to the side of the bucket or place it in your library of samples. Discard after the bucket is used.

2. **Alteration of glaze: It is not recommended** that alterations be made to this glaze for several reasons. There are many different types of clay bodies, dipping techniques, firing schedules, etc. that these glazes must work on. The amount of suspension added to these glazes is based on the exact amount of water given to each glaze. If less water is added the glaze will be deposited more heavily and it may not adhere properly and flake off onto your kiln shelf. Adding additional water may cause the glaze to not have enough suspension power to keep the glaze from settling hard. This is very undesirable.

   However, if you decide you want to experiment with these types of alterations, the glazes will soft settle overnight and water may be taken off and discarded. Keep very good notes as to how much water has been removed / added so that you may make the glaze the same way next time. Record the new specific gravity and note that it will be different than on the attached sheet.

3. **Water Quality:** The water added to your dipping glaze is not the most expensive raw material you are using but it is the largest percentage of material used. Water comes in varying degrees of hardness from very hard to soft. Types of water can and do cause glazes to behave differently. Hard water tends to flocculate the glazes slightly, making them appear a bit thicker and this may enhance the suspension. Softened water may tend to deflocculate the glazes and cause them to appear thinner. This may counteract the suspension and could make them settle out hard as a rock. AMACO has spent a great deal of time deliberating over the best way to approach this issue. We have determined that the best way to assure our customers a consistent product is to recommend using **DISTILLED WATER.** This water will have no charges on it, no tramp materials that may flocculate or deflocculate the glazes. When making an investment in a bucket of glaze, adding $4.00 more into your largest raw material seems like a wise investment. This is not to say that if you have been using the PC glazes with your own water source and everything has been working well that you need to change. (But we do advise using distilled water because if an issue arises it will make it much easier to determine the cause.)

4. **Layering of PC Dry Form Glazes:** Because dipping glazes don't have the binder that brushing glazes have, layering them is not as easy. Although some customers layer PC dipping glazes with success, they have achieved their results through trial and error. We can't guarantee that you will have that success. PC glazes were not specially formulated for layering, they were formulated to achieve a specific and often complex effect and many need a specified amount of glaze to achieve that look (usually a thick application). That amount of glaze may prove problematic when layering because the thickness in the overlap area is doubled, which can cause the first glaze to lose its bond with the clay or the second glaze to lose its bond with the initial glaze. You can try to minimize the overlap area but that may not give you the effect you want. If you thin the glazes down with water to make the overlap glaze thickness correct, the areas where it is only a single layer might be thin and unattractive. (Also, a too thin dipping glaze may settle out hard in the bucket.)

5. **Tools:** Please find attached a copy of a practical and useful procedure. **How to measure specific gravity.** Specific gravity is useful and important for assuring consistent results. It is self-explanatory and does not require expensive scales or equipment. Please use it to make your experience with glazes much more pleasant and consistent.

6. **Suspension:** Our tests revealed that several of the PC dipping glazes needed a bit more suspension so this was added. They are noted on the sheet with the water additions and specific gravities. Please note that these are small changes but will help these glazes be much more user friendly. All the PC's that come with these instruction sheets enclosed will settle soft and will be able to be mixed with a prop mixer easily when made with distilled water.

		25 pound dry			
#	Name	Water Weight	Water Volume	Changes to Formula	Specific Gravity (grams/ml)
1	Saturation Metallic	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	Improved suspension	1.39 - 1.41 g/ml
4	Palladium	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.40 - 1.42 g/ml
12	Blue Midnight	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
20	Blue Rutile	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
21	Arctic Ice	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
23	Indigo Float	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
25	Textured Turquoise	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
27	Tourmaline	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
28	Frosted Turquoise	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.40 - 1.42 g/ml
29	Deep Olive Speckle	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml
30	Temmoku	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.40 - 1.42 g/ml
31	Oatmeal	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	Improved suspension	1.40 - 1.42 g/ml
32	Albany Slip Brown	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.40 - 1.42 g/ml
33	Iron Lustre	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
34	Light Sepia	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
35	Oil Spot	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
36	Ironstone	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
37	Smoked Sienna	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
38	Umber Float	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
40	True Celadon	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	Improved suspension	1.39 - 1.41 g/ml
41	Vert Lustre	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml
42	Seaweed	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.40 - 1.42 g/ml
43	Toasted Sage	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
45	Dark Green	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	Improved suspension	1.39 - 1.41 g/ml
46	Lustrous Jade	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	Improved suspension	1.38 - 1.40 g/ml
48	Art Deco Green	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml
49	Frosted Melon	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.40 - 1.42 g/ml
50	Shino	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	Improved suspension	1.39 - 1.41 g/ml
52	Deep Sienna Speckle	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml
53	Ancient Jasper	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
55	Chun Plum	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
57	Smokey Merlot	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.38 - 1.40 g/ml
59	Deep Firebrick	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml
60	Salt Buff	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.41 - 1.43 g/ml
61	Textured Amber	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml
62	Textured Amber Brown	27.8 lbs or 12.6 kg	3 1/3 gal or 12.6 liters	none	1.39 - 1.41 g/ml

means the glaze settles lumpy but mixable.

Measuring Specific Gravity

Tools required: Gram scale
Paper cup bathroom size, or any other container
Calculator
Pencil and paper

Specific gravity is a measure of the weight of fluid per unit volume. This actually tells you the relative ratio of liquid to solids in your material.

1. Zero out your scale.
2. Weigh the empty paper cup (or equivalent)
3. Write this weight on the paper as your "empty container weight".
4. Fill the paper cup with tap water until it is exactly to the top.
5. Weigh the paper cup plus the water. Write this weight on the paper as "full cup weight water".
6. Subtract the "empty container weight" from the "full cup weight water" and record the answer. It will be XXX grams.
7. Since water is equal to 1 gram per milliliter, the weight of water in grams is equal to its volume in milliliters. So XXX grams of water weight required to fill the cup becomes XXX milliliters of volume in the cup. This is **your unit volume that the cup holds. Record this as "volume of cup".**
8. **Empty the paper cup and dry it. Now fill it with your liquid material to the same level you filled it with water.**
9. Weigh the paper cup full of glaze and record. Record this as "full cup weight material".
10. Subtract the "empty container weight" from the "full cup weight material" in grams. This is the weight of the glaze in the container. Record as "material weight".
11. Since specific gravity is the (weight per unit volume), simply divide the "material weight" (grams) by the "volume of cup" (milliliters) and this is your specific gravity in grams per milliliter.

Cup volume: (full cup weight water) – (empty container weight) = Cup volume

Material weight: (full cup weight material) – (empty container weight) = Material weight

Specific gravity: $\frac{\text{(material weight)}}{\text{(Cup volume)}}$ = grams / ml

Ex. Your cup empty weighs 13.7grams
Your cup filled with water weighs 186.3 grams
Your cup filled with liquid materials **weighs** 257.1 gram

Volume of cup: (186.3 grams – 13.7 grams) = 172.6 grams = 172.6 ml

Weight of material: (257.1 grams – 13.7 grams) = 243.4 grams

Specific gravity: $\frac{\text{(243.4 grams)}}{\text{(172.6 ml)}}$ = 1.41 grams / ml

Reorder Number: 07962C