

# Color Options for Mah Jongg Tiles

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Someone has asked me to exactly replicate some old (>30 years) large custom multicolor Chinese tiles; both size and colors. They want blanks they can use as jokers to play American Mah Jongg. I've been trying to find the closest match to the 3 colors in existing available dyes and powders. I have not found an exact match so I'm starting to try mixtures of colors. I have come close to the size and colors (by mixing), as shown in Figure 1. I need to get better at making and pouring the molds.



**Figure 1.** *First Prototype Large Custom Tile Replica from 3 Different Angles.*

I made tile samples from all my dyes and powders to search for the closest colors. The tile samples are shown in Figures 2 to 4. I also measured the colors (red, green, blue), but so far that has not been helpful.

If I make any future tile sets, I have a lot of choices. What is your favorite?



**Figure 2.** Summary of All Tile Color Samples So Far.

Note: my Google Pixel camera sensor can't handle some purple colors and interprets them as blue.

## 1. Liquid and Gel Colors

Figure 3 Shows the backs of all the sample liquid and gel tiles. Most of these samples are solid colors but use a small enough amount of dye that they look transparent (gel-backed).

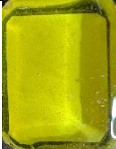






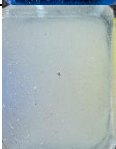
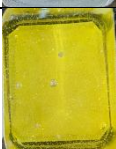







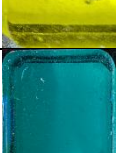

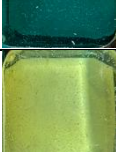
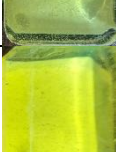
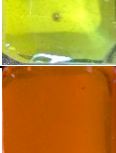
**Figure 3.** Colors from Liquid and Gel Dyes.

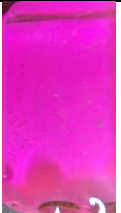








Table 1 lists all my colors from liquid and gel dyes. Some of the liquid dyes come with powder mixed in them. The front of the tiles (not shown) gives a code indicating the dye and formula used. The code is the color number and number of drops of dye used per 6ml epoxy. Table 1 lists the dye color options and pictures of each example tile.

**Table 1.** Liquid and Gel Dye Options









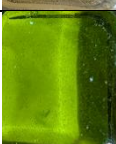
Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
1	Let's Resin	Ocean White	1		Thick for wave bubbles. Not drops.
2	SigWong	Black	1		
3	SigWong	Blue	1		
4	SigWong	Blue	2		
5	SigWong	Coffee	1		
6	SigWong	Fluorescent Green	1		
7	SigWong	Fuchsia	1		
8	SigWong	Golden	1		
9	SigWong	Green	1		
10	SigWong	Green	2		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
11	SigWong	Lemon Yellow	1		
12	SigWong	Orange	1		
13	SigWong	Pink	1		
14	SigWong	Purple	1		
15	SigWong	Red	1		
16	SigWong	Rose Red	1		
17	SigWong	Royal Blue	1		
18	SigWong	White	1		
19	SigWong	Yellow	1		
20	Let's Resin	Black	1		



Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
21	Let's Resin	Blue	1		
22	Let's Resin	Fluorescent Green	1		
23	Let's Resin	Fluorescent Green	2		
24	Let's Resin	Golden Yellow	1		
25	Let's Resin	Green	1		
26	Let's Resin	Green	2		
27	Let's Resin	Lemon Yellow	1		
28	Let's Resin	Lemon Yellow	2		
29	Let's Resin	Orange	1		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
30	Let's Resin	Pink	1		
31	Let's Resin	Pink	2		
32	Let's Resin	Purple	1		
33	Let's Resin	Purple	2		
34	Let's Resin	Purplish Red	1		
35	Let's Resin	Red	1		
36	Let's Resin	Rose Red	1		
37	Let's Resin	Sapphire Blue	1		
38	Let's Resin	White	2		


Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
39	Let's Resin	Yellow	1		
40	Drawing Ink	Black	1		
41	Drawing Ink	Blackberry Violet	1		
42	Drawing Ink	Blue	1		
43	Drawing Ink	Blue Green	1		
44	Drawing Ink	Brass	1		
45	Drawing Ink	Bright Red	1		
46	Drawing Ink	Bronze	1		
47	Drawing Ink	Brown	1		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
48	Drawing Ink	Camel	1		
49	Drawing Ink	Coffee	1		
50	Drawing Ink	Copper Gold	1		
51	Drawing Ink	Deep Purple	2		
52	Drawing Ink	Dark Green	1		
53	Drawing Ink	Deeper White	1		
54	Drawing Ink	Emerald Green	1		
55	Drawing Ink	Gold	2		
56	Drawing Ink	Grass Green	1		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
57	Drawing Ink	Green	1		
58	Drawing Ink	Hot Pink	1		
59	Drawing Ink	Lake	1		
60	Drawing Ink	Lemon Yellow	1		
61	Drawing Ink	Lime Green	1		
62	Drawing Ink	Magenta	1		
63	Drawing Ink	Maroon	1		
64	Drawing Ink	Metallic Brown	1		
65	Drawing Ink	Metallic Coffee	1		
66	Drawing Ink	Navy Blue	1		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
67	Drawing Ink	Ocean	1		
68	Drawing Ink	Olive Drab	1		
69	Drawing Ink	Olive Gold	1		
70	Drawing Ink	Orange	2		
71	Drawing Ink	Orange Red	1		
72	Drawing Ink	Peach	2		
73	Drawing Ink	Pearl Bronze Gold	2		
74	Drawing Ink	Pearl White	2		
75	Drawing Ink	Poppy Red	1		
76	Drawing Ink	Red	1		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
77	Drawing Ink	Red Brown	1		
78	Drawing Ink	Red Gold	1		
79	Drawing Ink	Rosehip	1		
80	Drawing Ink	Ruby	1		
81	Drawing Ink	Silver	1		
82	Drawing Ink	Sky Blue	1		
83	Drawing Ink	Spring Green	1		
84	Drawing Ink	Sullen Green	1		
85	Drawing Ink	Teal	1		
86	Drawing Ink	Violet	1		

Color #	Dye Type	Color Name	Drops Dye Per 5 ml	Color Example	Notes
87	Drawing Ink	Yellow	1		
88	Custom	Antique White			Mix: TBD
89	Custom	Maroon Red			Mix: TBD
90	Custom	Dark Med Green			Mix: TBD

## 1. Colors from Mica Powder

Figure 3 shows all my colors from mixing mica powder into epoxy.



**Figure 3.** *Tile Color Samples from Mica Powder.*

### Using mica powder:

For coloring resin with mica powder, start with **0.5% to 3% by weight**, adding small amounts and mixing well, as a little goes a long way for subtle shimmer to full opacity; exceeding 4-6% can hinder curing, so always test your color and add more gradually until you achieve your desired depth without compromising the resin's hardening.

### **Quick Measurement Guide (Volume)**

- **For 30 ml (28g) resin:**
  - **Low:** 1/8 tsp
  - **Medium:** 1/4 tsp

- **High(opaque):** 1/2 tsp

### Tips for Best Results

1. **Start Small:** Add a tiny bit, mix thoroughly, and check the color against light (in a clear container) before adding more.
2. **Mix Well:** Ensure the mica powder is fully dispersed to avoid clumps and streaks.
3. **Consider Color:** Darker colors often need less powder than lighter shades for the same intensity.
4. **Particle Size:** Finer powders blend more evenly than coarser ones.
5. **Don't Overdo It:** Too much colorant (over 4-6%) can interfere with the resin's chemical reaction and prevent it from curing properly, making it soft or brittle.

*0.50 grams of mica is roughly equivalent to 1/8 tsp. And 1 tsp is about 5 grams of mica. So 50 grams of mica pigment contains about 10 tsp.*

### Using a 0.5% ratio:

1 Gallon of Epoxy = 128 oz

0.5% of 128 oz = 0.64 oz

1 oz = 29.6 ml. 5 ml weighs 5.5 g. Then 0.64 oz = 18.9 ml. And 18.9 ml weighs 20.8 g. At 5 g/tsp this is about 4.2 tsp.

Usually, 15 to 30 grams of mica powder per gallon of epoxy is enough for strong color.

For a lighter, see-through look, try 10-15 grams per gallon.

5 ml of mixed epoxy typically weighs between **5.25 grams and 6.0 grams**, as the density of most epoxy resins ranges from 1.05 to 1.20 g/ml.

The weight depends on brand and type of epoxy.

- Most resins have a density of about **1.1 g/ml** (between **1.05 g/ml** and **1.2 g/ml**).

*1 tsp of mica weighs about 5 grams*

- **Low (Shimmer Effect):** 0.5% - 1%
- **Medium (Vibrant):** 1% - 2%
- **High (Opaque):** 2% - 3% (up to 4-6% max)











For 1.5% mica in 5.5 g (5 ml) of epoxy:  $0.015 \times 5.5 = 0.0825$  g of mica. For fraction of tsp:  $0.0825 \text{ grams} \times 1 \text{ tsp}/5 \text{ g} = 0.0165 \text{ tsp}$  (Note: this is about the fraction of mica in the epoxy, 1.65 vs. 1.5). The fraction 0.0165 is about 1/61 of a teaspoon.





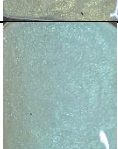
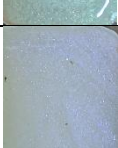



Table 2 Lists all the Mica options and sample pictures.











**Table 2.** Mica Tile Color Options

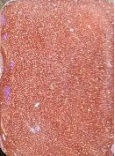









Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
100m	Smalltongue	Ancient Copper	1/64		
101m	Smalltongue	Apricot Pink	1/64		
102m	Smalltongue	Black	1/64		
103m	Smalltongue	Blue	1/64		
104m	Smalltongue	Blue Green	1/64		
105m	Smalltongue	Brilliant Blue	1/64		
106m	Smalltongue	Bronze	1/64		
107m	Smalltongue	Brown	1/64		







Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
108m	Smalltongue	Brown Red	1/64		
109m	Smalltongue	Carbon	1/64		
110m	Smalltongue	Chartreuse	1/64		
111m	Smalltongue	Coffee	1/64		
112m	Smalltongue	Copper	1/64		
113m	Smalltongue	Coral	1/64		
114m	Smalltongue	Crimson	1/64		
115m	Smalltongue	Dark Magenta	1/64		
116m	Smalltongue	Dark Orchid	1/64		Note: color not accurate, really is purple
117m	Smalltongue	Dark Red	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
118m	Smalltongue	Dark Sea Green	1/64		
119m	Smalltongue	Dark Slate Blue	1/64		
120m	Smalltongue	Dark Slate Green	1/64		
121m	Smalltongue	Fire Brick	1/64		
122m	Smalltongue	Flake White	1/64		
123m	Smalltongue	Forest Green	1/64		
124m	Smalltongue	Khaki	1/64		
125m	Smalltongue	Golden	1/64		
126m	Smalltongue	Golden Blue	1/64		
127m	Smalltongue	Golden Green	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
128m	Smalltongue	Golden Purple	1/64		
129m	Smalltongue	Indian Red	1/64		
130m	Smalltongue	Iridescent Blue	1/64		
131m	Smalltongue	Iridescent Gold	1/64		
132m	Smalltongue	Iridescent Green	1/64		
133m	Smalltongue	Iridescent Purple	1/64		
134m	Smalltongue	Iridescent Red	1/64		
135m	Smalltongue	Light Gold	1/64		
136m	Smalltongue	Light Orange	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
137m	Smalltongue	Light Red Yellow	1/64		More yellowish white
138m	Smalltongue	Light Slate Grey	1/64		Camera color is not accurate. Really is Grey.
139m	Smalltongue	Light Sky Blue	1/64		
140m	Smalltongue	Light Steel Blue	1/64		
141m	Smalltongue	Lilac	1/64		
142m	Smalltongue	Maroon	1/64		
143m	Smalltongue	Matte White	1/64		
144m	Smalltongue	Medium Orchid	1/64		
145m	Smalltongue	Medium Slate Blue	1/64		
146m	Smalltongue	Medium Turquoise	1/64		











Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
147m	Smalltongue	Mermaid	1/64		
148m	Smalltongue	Moss Green	1/64		
149m	Smalltongue	Orange	1/64		
150m	Smalltongue	Orchid	1/64		
151m	Smalltongue	Pale Goldenrod	1/64		
152m	Smalltongue	Pale Violet Red 1	1/64		
153m	Smalltongue	Pale Violet Red 2	1/64		
154m	Smalltongue	Peru	1/64		
155m	Smalltongue	Pink	1/64		
156m	Smalltongue	Plum	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
157m	Smalltongue	Purple	1/64		
158m	Smalltongue	Red Gold	1/64		
159m	Smalltongue	Rose Gold	1/64		
160m	Smalltongue	Ruby Red	1/64		
161m	Smalltongue	Salt Grey	1/64		
162m	Smalltongue	Shiny Black	1/64		
163m	Smalltongue	Shiny Blackish Green	1/64		
164m	Smalltongue	Shiny Blue	1/64		
165m	Smalltongue	Shiny Blue-Green	1/64		
166m	Smalltongue	Shiny Blue-Purple	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
167m	Smalltongue	Shiny Brown	1/64		
168m	Smalltongue	Shiny Copper	1/64		
169m	Smalltongue	Shiny Dark Red	1/64		
170m	Smalltongue	Shiny Golden	1/64		
171m	Smalltongue	Shiny Green	1/64		
172m	Smalltongue	Shiny Grey	1/64		
173m	Smalltongue	Shiny Light Blue	1/64		
174m	Smalltongue	Shiny Light Blue Green	1/64		
175m	Smalltongue	Shiny Light Brown	1/64		
176m	Smalltongue	Shiny Light Copper	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
177m	Smalltongue	Shiny Light Golden	1/64		
178m	Smalltongue	Shiny Light Green	1/64		
179m	Smalltongue	Shiny Light Purple	1/64		
180m	Smalltongue	Shiny Light Yellow	1/64		
181m	Smalltongue	Shiny Mid Red	1/64		
182m	Smalltongue	Shiny Multicolor	1/64		
183m	Smalltongue	Shiny Navy	1/64		
184m	Smalltongue	Shiny Orange	1/64		
185m	Smalltongue	Shiny Pink	1/64		
186m	Smalltongue	Shiny Purple	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
187m	Smalltongue	Shiny Purple-Red	1/64		
188m	Smalltongue	Shiny Red	1/64		
189m	Smalltongue	Shiny Red Copper	1/64		
190m	Smalltongue	Shiny Rose Gold	1/64		
191m	Smalltongue	Shiny Rose Red	1/64		
192m	Smalltongue	Shiny Silver	1/64		
193m	Smalltongue	Shiny Sky Blue	1/64		
194m	Smalltongue	Shiny White	1/64		
195m	Smalltongue	Shiny Yellow	1/64		
196m	Smalltongue	Shiny Yellow-Red	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
197m	Smalltongue	Silk Purple	1/64		
198m	Smalltongue	Silver Grey	1/64		Camera is inaccurate. Really is Grey.
199m	Smalltongue	Silvery White	1/64		
200m	Smalltongue	Sky Blue	1/64		
201m	Smalltongue	Steel Blue	1/64		Color not accurate. More different than 200m.
202m	Smalltongue	Tan	1/64		
203m	Smalltongue	Tea Green	1/64		
204m	Smalltongue	Teal	1/64		
205m	Smalltongue	Violet	1/64		Camera color is inaccurate. Really is Bluish Violet.
206m	Smalltongue	White	1/64		

Color #	Mica Type	Color Name	tsp Per 5 ml	Color Example	Notes
207m	Smalltongue	Yellow Green	1/64	