



## Buy with confidence from our complete line of Colores/Durenamel kits and components

### Colores Kits & Color Sets

|                                |         |
|--------------------------------|---------|
| Complete Colores kit           | 638-960 |
| Basic components kit           | 638-964 |
| Basic neutral colors set       | 638-961 |
| Bright opaque colors set       | 638-962 |
| Gemtone transparent colors set | 638-963 |
| Pastel pearl colors set        | 638-967 |
| Earthtone pearl colors set     | 638-968 |
| Opal colors set                | 638-973 |

### Durenamel Kits & Supplies

|                        |         |
|------------------------|---------|
| Complete Durenamel kit | 638-965 |
| Basic components kit   | 638-966 |
| 4 oz. hardener #1      | 638-985 |
| 4 oz. hardener #2      | 638-987 |

### Colores Components

|                      |         |
|----------------------|---------|
| 8 oz. thin hardener  | 638-975 |
| 8 oz. thick hardener | 638-977 |
| 8 oz. clear resin    | 638-976 |
| 8 oz. black resin    | 638-979 |
| 8 oz. white resin    | 638-978 |

### Colores & Durenamel Supplies

|                                    |         |
|------------------------------------|---------|
| Narrow tips, package of 10         |         |
| Wide tips, package of 10           |         |
| 3cc syringes, package of 10        | 638-972 |
| Replacement bottles, package of 50 | 638-991 |
| Replacement caps, package of 50    | 638-990 |
| Mixing cups, package of 50         | 638-992 |
| Colores stained glass tape         | 638-989 |

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# Colores/Durenamel Instructions

## **What is epoxy?**

Epoxy is an organic compound that consists of two parts:

- The resin portion which is clear or colored.
- The hardener portion which controls the epoxy flow.

## **Why use epoxy?**

Epoxy provides a durable and permanent color finish. It also provides excellent adhesion of stones, beads, glass, metals and other materials.

## **How do I mix the epoxy?**

See WHICH HARDENER DO I USE?

See MEASURING AND MIXING

## **How do I apply the epoxy?**

See APPLICATION

## **How do I cure the epoxy?**

See SETTING AND CURING

## **How do I handle and clean up epoxy?**

See EPOXY CLEAN UP

## **Are there safety precautions?**

See SAFETY

## **What can I do about bubbles?**

See PROBLEM-SOLVING TIPS

## **What choices are there for resins?**

See STANDARD EPOXY RESINS AVAILABLE



7500 Bluewater Road NW • Albuquerque, NM 87121-1962 USA  
800.545.6566 • FAX: 800.965.2329 • [www.riogrande.com](http://www.riogrande.com)  
International: 505.839.3011 • International FAX: 505.839.3016

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## WHICH HARDENER DO I USE?

For the best quality results, the correct hardener must be chosen. The hardener allows you to control the flow of the epoxy, based on the size and dimension of the piece and the area being filled. This allows you to achieve the ultimate goal: a smooth, flawless, glasslike finish.

### **Two points to understand:**

- Flow and viscosity.
- Surface tension or control (known as the thixotropic index).

First, analyze the piece to be painted. Use the recommendations below to determine the correct hardener. **Please Note:** One hardener will not work for all surfaces. Additives with certain hardeners will thicken the mix, giving you increased flow control. This enables you to paint on more dimensional surfaces. Remember, there is a limited range of effectiveness for each hardener. For optimum results, follow these recommendations:

- A. For a *flat surface with walls* use Colores thin hardener. 
- B. For a *flat to slightly curved surface without walls* use Colores thick hardener. 
- C. For a *slight to moderately curved surface* use Colores thick hardener with additive. 
- D. For *severely curved and high-domed surfaces* use Colores thick hardener with additive. 

## USING AN ADDITIVE

To further restrict the flow of the Colores thick hardener, an additive can be used. This is dispensed in drops. Use a needle cap on a squeeze bottle with a 21-gauge green needle.

### **Characteristics**

- Full-strength #30 additive drops offer immediate thickening. Use only the slightest amount.

### **Procedures**

1. Measure the desired amount of resin and hardener in the proper ratio, making sure not to exceed 90 grams total mixture. A larger batch will have a shorter pot life. Average pot life is 45 minutes @75°F.
2. Add 1–5 drops of #30 additive to thick hardener only. Consider the shape of the surface to be coated in order to determine the correct viscosity.
3. Stir until an even blend is achieved. Mix drops thoroughly to avoid uneven gelling of the mixture.
4. Pour into a squeeze bottle and apply to the piece.

## THE BASICS OF USING COLORES

### **Measuring**

The basic formula is 2:1 by volume. That's 2 parts colored or clear resin to 1 part hardener.

- Measure exactly 2 parts resin to 1 part hardener by volume.
- Put the resin in the cup first.
- Add the hardener.
- Do not exceed the recommended total amount of a 90-gram mixture (60 grams resin to 30 grams hardener). **Do not mix less than a 15-gram mixture** (10 grams resin to 5 grams hardener). Most beginners start with this mix for best results; this is known as the "10/5 mix." A 20/10 mix is considered an average mix.

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## **Mixing**

- Mix the measured resin and hardener in a plastic cup. Never use a wax or paper cup.
- Gently fold the mixture with a wooden stirrer. Fold well until the mix is thoroughly blended. Scrape the sides. Do not whip the mix; use a slow, even motion to fold the material together. One minute of mixing is ample. A correct mixing process is very important; otherwise you may experience bubbles or sticky pieces.
- If you are using an additive in your Colores, mix it in after you mix the resin and hardener together. Gently squeeze the bottle of additive, carefully counting the drops. Keep a log of how much additive you use, in order to make reproducing similar mixtures easily possible in the future.
- Mix thoroughly.

For ultra smooth, bubble-free mixes, a vacuum pump is recommended. This is especially important when using transparent colors or when creating very fine lines.

Once the resin and hardener are combined, the mixture has a limited “pot life” or working time before it starts to set up (allow approximately 50 minutes).

## **Application**

Pour as soon as the resin and hardener are thoroughly mixed.

*There are two methods of application:*

1. By hand with a squeeze bottle.
2. With a pneumatic dispenser and syringe, sponge, toothpick or disposable paint brush.

### **Squeeze Bottle Method**

- Carefully pour the epoxy mix into the bottle.
- Attach a needle cap.
- Select the needle for your application and attach it to the needle cap. In general—the finer the area, the finer the needle.
- Squeeze the desired amount of epoxy through the needle.
- Always outline the area first when applying Colores to your piece. Fill through the center in a back-and-forth motion until the piece is evenly covered. This motion is similar to crayon-style coloring. Do not overfill.
- Depending on the type of hardener used, other colors and/or special effects can be added at this time.

### **Dispensing Unit and Syringe Method**

- Select the proper needle for the type of area you are filling.
- Attach the needle to the syringe by turning.
- Use a syringe stand or holding device (place the piece into a styrofoam board) to hold your needle and syringe. Carefully pour the epoxy into the syringe. Keep the upper 1/2" of the syringe clean and clear of epoxy.
- Squeeze the desired amount of epoxy through the needle. Always outline the area first when applying Colores to your piece. Fill through the center in a back-and-forth motion until the piece is evenly covered. This motion is similar to crayon-style coloring. Do not overfill.
- Depending on the type of hardener used, other colors and/or special effects can be added at this time.

**Please Note:** When using a dispensing unit, you can adjust the air pressure to increase or decrease the flow of Colores.

## **Setting and Curing**

Hardening the material is known as curing. Air-drying the Colores epoxy resin is a heat-generating process, so no additional heat is required. Air-dry curing is complete in 72 hours. Heat can be applied for a quicker turnaround. Temperature should be no more than 150°F for 2 hours.

- Put the completed pieces in a dust-free area with level shelving. A closet-like room is ideal. For best results, the temperature should be no less than 72°F. Pieces will be dry to-the-touch in 24 hours, (or place at 95°F for 6–12 hours). A thermometer is helpful to control the temperature on a consistent basis.

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- Perform this quick fingernail test to determine if the Colores is set: Dent the surface of the epoxy with your fingernail. If it makes a mark, the surface is not thoroughly cured. If no mark shows, then you have achieved a hard, high-gloss finish and your pieces are cured.

### **Epoxy Storage**

Colored resins and hardeners can be stored in unopened containers for one full year. Store at room temperature, ideally between 65°F and 72°F. Once opened, resins and hardeners can be kept for up to one year, as long as containers are kept tightly sealed when not in use.

Hardeners will discolor over time and must be kept out of sunlight, ideally in a cool environment. Once resin and hardeners are mixed and have reached their pot life, the mix cannot be stored or reused; it must be thrown away. The mix will not cause any environmental damage if fully cured.

### **Epoxy Cleanup**

- Clean the syringe in a dispenser setup by removing the needle and pressing the foot pedal to empty the colored resin. A plunger can then be used to further clean the syringe.
- Rinse the syringe clean with isopropyl alcohol or white vinegar.
- Clean squeeze bottles and needles with isopropyl alcohol or white vinegar.
- Soap and water makes for easy clean-up of hands and the work area when epoxy is still wet.
- Anyone handling Colores materials must maintain strict personal cleanliness and cleanliness in the work area. There is no substitute for strict cleanliness and housekeeping in insuring optimal results.
- Suitable protective clothing, such as an apron or lab coat, should be worn to prevent contact. Never wear or use contaminated articles unless they are thoroughly cleaned. During warmer weather, increased attention should be given to personal hygiene.
- Contamination of the work area can be minimized by placing clean, disposable paper on tables or benches. Paper should be replaced twice daily or immediately following gross contamination. **Please Note:** Proper handling and removal of disposables is necessary. They can be a source of contamination to other workers.
- Contact with the material is reduced by using disposable utensils such as wooden tongue depressors and plastic cups.
- Isolate epoxy resin work areas from other work areas to limit direct exposure to untrained workers and their contaminated tools and equipment.

## **SAFETY**

- Avoid skin contact. Epoxy resins are not acutely irritating to the skin, but they are capable of causing sensitization of the skin. Susceptibility to skin irritation and sensitization varies from person to person.
- Epoxy resins are considered to be milder skin sensitizers than amine-type curing agents or reactive diluents. Epoxy resins and formulations should not be allowed to come in contact with the skin. Use plastic gloves and/or suitable barrier creams.
- If contact occurs, wash the contaminated area immediately and thoroughly with soap and water or alcohol—never with a solvent! If repeated washings are necessary, use a lanolin-based skin cream after washing to restore natural skin oils.
- Keep a supply of paper towels on hand to wipe up spilled resin. These should not be reused.
- Care should be taken to avoid spreading Colores resin, epoxy or both throughout the work area. This will occur if workers handle foreign items such as doorknobs, desk drawers, spatulas, light fixtures, scales, etc. while wearing contaminated gloves.
- Provide adequate ventilation. Displaced-air ventilation should be provided. When resin mixes are worked hot, ventilation becomes mandatory. Use hoods to cover work benches, and exhaust the fumes through connecting air ducts.
- It may be expected that even if the foregoing procedures are scrupulously adhered to, a fraction of a percent of individuals will still develop allergenic reactions. If allergic, individuals must be prohibited from further contact.

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Some people develop an itchy skin rash not unlike a poison ivy rash. Medications are available to treat this. The rash will disappear, except in severe cases, within a few days without further treatment, provided contact is not resumed. In severe cases, medical workers have found water-based cortisone ointments to provide effective control.

- All of these liquid resins are low in acute oral toxicity.
- Eye contact should result in only slight, transient irritation. In the event of eye contact with the ingredients found in epoxy formulations, the eye should be flushed with water for approximately 15 minutes to assure complete removal of the chemical, and medical attention should be obtained immediately.
- Thoroughly cured epoxy resins are not skin irritants or sensitizing agents.
- Partially cured compounds, when breathed in or in contact with moist skin, may trouble sensitized individuals. For this reason, exercise caution when performing grinding and similar operations in order to minimize atmospheric contamination with dust. Molding powders and fluidized-bed coatings should also be handled with care.
- Epoxies are an organic compound. They are also non-toxic. If proper safety precautions are used along with good, clean maintenance, no problems should occur.

## **PROBLEM-SOLVING TIPS**

We are continually investigating and addressing problems in the field. To date, this is our library of problem-solving tips:

### ***1. Bubbles (indicates problems in mixing, application, or curing)***

#### *A. Clusters of bubbles:*

This indicates the resin was too cold when mixed. Resin below 72°F is too cold for mixing. Ideally, resin should be warmed first to 85°F. Place the resin on a warming tray or in the “hot room.” Place a quantity of resin in a large cup or quart can to warm it. Once warmed, the resin will have a consistency which is more like a liquid and will be much easier to mix. This will also minimize any residual air entrapment.

#### *B. Half-broken bubbles:*

This indicates the pieces set up too quickly, baked too quickly, or baked at too high a temperature. Sufficient time beforehand may not have been spent to reduce air bubbles (when mixing with warm resin or when using a vacuum pump). Working the surface back and forth during application can help reduce trapped bubbles. Check the temperature in your drying room, hot room, or warming device. Check your mixing procedure.

#### *C. Trapped bubbles under the surface:*

This usually indicates an incorrect mix. If the wrong hardener was chosen, the mixture may be too thick for the dimension of the piece or the size of the area being filled. Too many drops of additive may have been used. Too much epoxy may have been applied. A wavy, lumpy surface also indicates the mix was too thick for the type of surface being painted. Check your choice of hardener. Reevaluate your procedure.

### ***2. Epoxy run-off***

This indicates that too much epoxy was applied to the piece, the incorrect hardener was used (creating a mix that was too thin) or the epoxy mix was old and applied beyond its pot life. Check your procedure. Check your choice of hardener. Refer to the hardener chart.