

## Step 2: Mixing Emulsion

Objectives: Upon completion of the emulsion mixing step, you should be able to:

- \* Describe the purpose for mixing diazo into the emulsion
  - \* Define each of the vocabulary words listed for this step
  - \* List the tasks required to properly mix emulsion
  - \* Demonstrate the ability to perform each of the required tasks without assistance.
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### Materials & Supplies

#### Tasks

- \* Mix the sensitizer
- \* Mix sensitizer into the emulsion base
- \* Clean up

- \* Instructions
- \* Diazo sensitizer
- \* Emulsion base
- \* Distilled water
- \* Stir stick
- \* Paper towels

#### Vocabulary

- \* Diazo
- \* Photosensitive
- \* Emulsion base

#### Video:

- \* Watch the “Emulsion” segment of the Exposure DVD.
- \* Write down the definitions of the vocabulary terms.

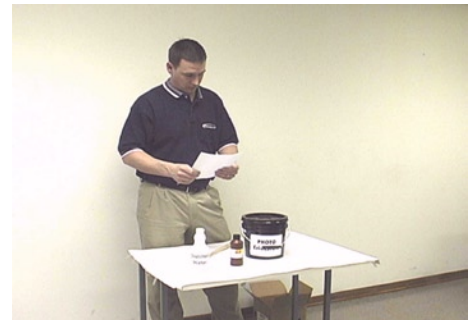
#### Reading:

- \* pages 49-51 of the SATTI Screen Printing Handbook

The **emulsion** is a thick liquid that you will coat onto the screen. It consists of two parts. The **emulsion base** is the thick liquid. The **diazo** is the sensitizer. When the diazo and emulsion base are mixed together, they form a **photo-sensitive** (sensitive to light) emulsion. After a period of time, the emulsion loses its sensitivity to light. This is why the two parts of the emulsion usually come in separate packages.

Note: There are a number of different types of emulsion. The video shows a typical mixing procedure.

1. Read the instructions.  
Your emulsion may be different from the one shown



2. Dilute the diazo  
\* Add distilled water according to the instructions, and mix well.



Since emulsion becomes light sensitive when you mix in the diazo, turn down the lights.

4. Mix the diazo and emulsion base.  
\* Pour all of the diazo into the emulsion base.



Avoid mixing any air into the emulsion. The colored dye in the emulsion changes color, making it easy to see when the diazo is completely mixed in.

**Adding Emulsion-** Changes the color of the emulsion; when the color becomes consistent then you can be sure it is completely mixed in.

\* Keep stirring until you have a consistent



color with no streaks. It will take about ten minutes.



5. Clean up.
  - \* Wipe the stir stick on the edge of the bucket.
  - \* Wipe down the lid.

Any unmixed emulsion base that drips back into the bucket could give areas of unsensitized emulsion.



6. Put the lid on tightly.

This keeps out air and light, and will give the emulsion a longer shelf life.



Let the mixture sit for at least an hour, or better yet, overnight to allow any air bubbles to escape. Air bubbles cause “pinholes” in the emulsion that result in unwanted spots of ink on the final product. Your emulsion will then be ready to use.

### **Step 3: Coating The Screen/Applying Emulsion**

Objectives: Upon completion of the emulsion coating step, you should be able to:

- \* Describe the purpose for applying emulsion to a screen
  - \* Define each of the vocabulary words listed for this step
  - \* List the tasks required to properly apply emulsion to a screen
  - \* Demonstrate the ability to perform each of the required tasks without assistance.
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#### **Tasks**

- \* Remove the scoop coater edge guard
- \* Check the scoop coater for dents
- \* Fill the scoop coater with emulsion
- \* Apply emulsion to both sides of the screen
- \* Put the screen away
- \* Clean up the scoop coater
- \* Put the emulsion away

#### **Materials & Supplies**

- \* Instructions
- \* Photosensitive emulsion
- \* Emulsion scoop coater
- \* Degreased screen
- \* Rubber spatula
- \* Drying area

#### **Vocabulary**

- \* Emulsion scoop coater
- \* Image area
- \* Contact side
- \* Squeegee side

#### **Video:**

- \* Watch the “Emulsion” segment of the Exposure DVD.
- \* Write down the definitions of the vocabulary terms.

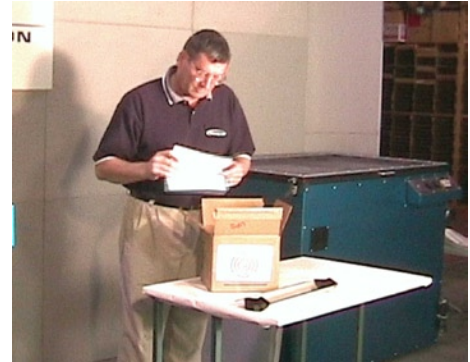
#### **Reading:**

- \* Pages 122-125 of Screen Printing: a Contemporary Approach
- \* Page 58 of the SATTI Screen Printing Handbook

Photo emulsion is a light sensitive material. When light strikes the emulsion, it hardens. Areas covered by the film positive do not harden and can be washed out to create a stencil. The trick to applying emulsion is to get a good even coat on both sides of the screen. This will take a little practice, but once you get the knack of it, you'll do it right every time.

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1. Read the instructions.



2. Prepare the emulsion scoop coater.

- \* Select an emulsion scoop coater slightly shorter than the screen width.
- \* Remove the plastic edge guard.
- \* check the scoop for nicks or bends that could cause inconsistent coating.



The closer the scoop coater is to the screen width, the less taping you will need to do when you print.

3. Fill the emulsion scoop coater.

- \* Turn down the lights.
- \* Fill the scoop about 2/3 full of the emulsion.



It is better to pour more than you need. You can always pour the extra back into the emulsion container to use later.

4. First, coat the “contact” side of the screen.

The **contact** side of the screen is the side that will be in contact with the t-shirt when you do the screen printing.

\* Set the edge of the scoop against the screen, near the bottom.

\* Tip the scoop forward until the ends of the scoop are against the screen.

\* In one smooth motion, pull the scoop up the screen, keeping the ends of the scoop flat against the screen.

\* At the top of the screen, tip the scoop back so that the extra emulsion runs back into it.

It is important to cover the entire image area. The **image area** is the part of the screen that will have the screen print image on it.

5. Last, coat the “squeegee” side of the screen.

The **squeegee** side of the screen is the side that you press the squeegee against when you do the screen printing.

\* Turn the screen over and coat emulsion on the squeegee side of the screen.



6. Clean up the edges of the screen.
  - \* Use a rubber spatula to remove the emulsion on the edges. (if needed)



7. Dry the screen.
  - \* Set the screen in a dark, dust-free area to dry. (contact side down see photo)



The emulsion is still sensitive to light.

8. Clean up.
  - \* Use the rubber spatula to scrape as much emulsion as you can back into the bucket.



- \* Put the lid tightly onto the bucket.
- \* wash off the emulsion scoop.



- \* Put the edge guard back on the scoop, so it will be in good shape next time you want to use it.



If you run out of storage space for the screens after they have been dried, you can place screens in a black plastic bag, and set it aside in a dark place where it won't be disturbed.

