Cat. No. 07-0121	500 ml	Normal Contrast
Cat. No. 07-0122	500 ml	High Contrast
Cat. No. 07-0123	500 ml	Variable Contrast

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FORMULIGHT LIQUID EMULSION

Normal Contrast Emulsion (Cat. No. 07-0121) **Retail $39.95**

A general purpose silver bromide emulsion about grade 2-3 in contrast. One 500 ml bottle coats up to 8 square meters (86 sq. ft.). The yield depends on the surface to be coated. Open and use under safelight conditions only. **Red safelight recommended**. Store emulsion in refrigerator

High Contrast Emulsion (Cat. No. 07-0122) **Retail $46.95**

A general purpose silver bromide emulsion about grade 3-4 in contrast. One 500 ml bottle coats up to 8 square meters (86 sq. ft.). The yield depends on the surface to be coated. Open and use under safelight conditions only. **Red safelight recommended**. Store emulsion in refrigerator

Variable Contrast Emulsion (Cat. No. 07-0123) **Retail $56.50**

A chlorobromide variable contrast emulsion ranging from grade 0-4+ in contrast. One 500 ml bottle coats up to 8 square meters (86 sq. ft.). The yield depends on the surface to be coated. Open and use under safelight conditions only. **Red safelight recommended**. Store emulsion in refrigerator

Formulight Photo Gelatine (Cat. no. 07-0124) **Retail $25.95**

Use Gelatine as a separation layer for metallic surfaces. Saves on emulsion by limiting the emulsion's absorption into certain materials.

Formulight Liquid Hardener (Cat. no. 07-0120) **Retail $25.95**

This formaldehyde free hardener is used to help emulsion adhere to all surfaces and is especially effective for use when coating on hard surfaces such as glass, plastic, ceramic, or hard stone. Hardener may be added to the Gelatine, Emulsion or to the developer. ** Formulight hardener is very acidic with a pH value of 3. Avoid direct contact of hardener with (alkaline) developer concentrates. Also, avoid contact with other acids like vinegar or citric acid. Keep out of reach of children. After direct contact with skin or eyes, flush thoroughly with water. If swallowed, induce vomiting immediately and seek medical assistance. Material Safety Data Sheets are available.

General Information

Use Formulight liquid emulsion to coat any type of object, including paper, glass, fabrics, wood, metals, rocks, eggs, and anything else your imagination desires.

Storage/Shelf life

Emulsion should be stored in the refrigerator at 42°F to 46°F. The shelf life unopened and stored properly is one year. Freezing will substantially extend shelf life of emulsion. Allow the emulsion to come to ambient temperature before heating for application. Liquid hardener has a shelf life after opened of six months. When used as an additive for the developer, this product has a shelf life according to the data of the developer. Prepare only as much working solution as you require.

Safelight recommendation

For normal and high contrast emulsion, use red or yellow/green. For variable contrast emulsion use a RED safelight.

Packaging note

Formulight emulsion is packed in wide-mouth bottles. This allows you to use a plastic spoon to remove emulsion as needed. Continuous heating and cooling reduces the shelf life of the product. Always use glass or plastic utensils. If the emulsion contacts metals, it may become contaminated.

INSTRUCTIONS FOR USING THE EMULSION

1. **Prepare the object for coating**

Thoroughly clean the surface to be coated. It must be completely free of any kind of dirt or oils for the emulsion to adhere properly. To avoid contaminating the surface with skin oils use latex gloves.

A. Paper or fabric materials can be coated directly with emulsion or pre-coated with gelatine. Pre-coating will increase the gloss of the final image as well as conserving emulsion, as it will not absorb into the fabric.

B. Smooth or hard surfaces such as glass or polished stone coat best when they are sanded or roughed up before coating. It is highly recommended to use hardener either in the gelatine, emulsion or developer to help adhesion of the emulsion.

C. Metallic surfaces must be pre-coated with gelatine, oil-based polyurethane paint or alkyd resin primer so that the emulsion does not contact the metal. Hardener is highly recommended!

2. Preparing emulsion for coating

Take the original bottle and heat it until the emulsion liquefies. Use a bucket with warm water at 100°F to 125°F. When liquefying smaller amounts of emulsion, spoon out the desired amount of emulsion in the darkroom under red safelight. (Use glass or plastic utensils, no metal!) Heat the emulsion until it liquefies. Remember if you are going to take the cap off the liquid emulsion bottle, it must be done under safelight (red) conditions. Optimum coating temperature is between 100°F and 110°F.

3. Coating your object

Use the liquefied emulsion to coat your object. For best results use two coats of emulsion. After applying the first coat let the emulsion setup, but not dry completely. Then apply a second coat. This will give a deeper black and better contrast. Apply the emulsion using one of the following methods.

A. Dip & dunk. This method works well with small three-dimensional objects like eggs.

B. Paint the emulsion on with a brush. Popular brushes include camel hair, sponge, and fine synthetic paint brushes. (The only real precaution is using a brush with a metal fitting to hold the bristles.) Dip the brush into the emulsion and paint onto the object. Alternatively, pour the emulsion onto the object and spread with the brush. Pouring emulsion onto absorbent materials can cause uneven coating.

C. Use a Floater Coater® or Puddle Pusher® glass coating rod.

D. Spray the emulsion using an airbrush. Diluting with distilled water can control the viscosity of the emulsion – 1:1 is a good starting point. Spray several layers to build up the emulsion and assure best results. Be sure to wear proper safety mask and goggles to protect you from airborne particles.

4. Coat "Test Strips"

Test strips should be coated each time you apply emulsion for determining the correct exposure. The back of old photo paper works very well, however, it is best to coat your test strips of the same material. For example, if you are coating tiles, your test strips should be made on tiles.

5. Dry the coated object

Let the coated objects sit to dry (in complete darkness) for one or two days in a cool environment, or you may use a hair dryer to speed up the drying. Use on the "COLD" setting or lowest temperature setting. **It is important for the emulsion to be completely dry before exposing!** Be careful using a hair dryer, some dryers have a glowing element that can fog the emulsion.

6. Expose your coated object

You have coated and dried your object and now it is time to make some prints. Treat your coated object just like black & white photographic paper. Expose and process a test strip to determine the correct exposure and contrast. When using normal and high contrast emulsions there is no need to use filters. When exposing variable contrast emulsion you can adjust the contrast by using VC filters, adjusting your color head, or with a VC cold light.

Once you have determined the correct exposure, expose your object. (When exposing three-dimensional objects, use a small f-stop to increase the depth of field.

7. Process your exposed object

The material you have coated will determine processing. Use the following as a starting point and reference.

STEP	TIME	CHEMISTRY
Developer	3 minutes for optimum results	BW-65 (02-0065) or TD-30 Improved Dektol (02-0045). You can add hardener to help adhesion of emulsion.
Stop	30 seconds	2% acidic solution

Fix	1-5 minutes	Both hypo and rapid fixer work well. Our TF-4 Archival Rapid Fix (03-0141) is recommended. Do not use hardening fixer. Rinse in water for 30 seconds between stop and TF-4.
Wash	5-45 minutes depending on material coated	Hard surfaces (plastic, metal, etc.) 5 minutes. Absorbent surfaces (paper, fabric, etc.) 30-45 minutes
Toning	Follow toner's instruction sheet	Tones exceptionally well with selenium, sepia, gold or azure blue
Dry		Air dry most objects, or you can use forced air (warm).

Formulight emulsion is very delicate when wet. Use extra care not to damage or scratch the print. Since the emulsion is hand coated it will be thicker than normal black & white papers. It is important to give full development and to handle the coated object with extra care. If emulsion is lifting off when wet, use hardener in the developer.

Helpful hints and things to remember

1. **Open and coat the emulsion under safelight only! (RED)**
2. Store coated objects in complete darkness to dry. If you are using watercolor paper, you can use the packaging from old black & white paper.
3. Make sure emulsion is completely dry before exposing.
4. Use hardener for smooth and hard surfaces.
5. Hardener is not necessary for watercolor papers, although it is wise to add to the developer.
6. Two thin coats of emulsion are better than one thick coat. If the emulsion is coated too thick, it may have a yellowish cast.
7. You can mix the normal and high contrast emulsions in any ratio to get in-between contrast grades. Better than that, you can use variable contrast emulsion for any contrast from 0-5.
8. Formulight emulsion is completely archival. The emulsion will be as archival as the object you choose to coat.
9. Do not use metal utensils or beakers, the metal will react with the silver in the emulsion and may cause contamination.
10. All materials must be clean. Any trace of dust or grease will lead to adhesion problems.